

E-learning in Saudi Arabia: Past, present and future

Ali Mohammad Al-Asmari, M Shamsur Rabb Khan*

College of Science and Arts, Mohayel,
under King Khalid University, Abha,
Kingdom of Saudi Arabia

*Email: samsur.khan@gmail.com

ABSTRACT

The emergence of information and instructional technologies and their influence on teaching and learning has brought about significant changes in academic environment in the Kingdom of Saudi Arabia (KSA). The new learning trend has made it mandatory to equip teachers in educational institutions with the necessary skills to cope with the new challenges. The urgent need for e-learning in KSA has resulted from the massive population growth vis-à-vis the scarcity of teachers in both quantity and quality, including the need to reduce financial burden.

Since 2002, when e-learning started in KSA, it has gained recognition and interest among academic institutions, academics and students, though with a relatively slow pace. This paper takes into account the growth of e-learning in KSA. It analyzes the potential need and the overall impacts of e-learning on various stakeholders. The paper also discusses the current e-learning developments as well as future prospect.

Keywords: e-learning, growth of e-learning, potential need, academic institutions, information and instructional technologies, new challenges

[http://dx.doi.org/
10.5339/nmejre.2014.2](http://dx.doi.org/10.5339/nmejre.2014.2)

Submitted: 18 January 2014
Accepted: 13 February 2014
© 2014 Al-Asmari, Rabb Khan,
licensee Bloomsbury Qatar
Foundation Journals. This is an open
access article distributed under the
terms of the Creative Commons
Attribution License CC BY 4.0, which
permits unrestricted use,
distribution and reproduction in any
medium, provided the original work
is properly cited.

INTRODUCTION: GROWTH OF E-LEARNING IN SAUDI ARABIA

The growing importance of information and instructional technologies (ICTs) and their influence on teaching and learning has brought about significant changes in academic environment in the Kingdom of Saudi Arabia (KSA). The new learning trend has made it mandatory to equip faculty members in educational institutions, both public and private, with the necessary technical skills to cope with the new challenges.¹ With a progressive vision to “empower people through creative e-learning in lifelong education”, KSA undertook the National Plan for Information Technology (NPIT). This recommended the adoption of e-learning and its applications in academic institutions, including the establishment of the National Centre for E-Learning & Distance Learning (NCeDL) in Riyadh.² Other studies on e-learning in KSA include,³⁻⁹ Salem.¹⁰⁻¹⁵

The use of computers in teaching and learning in schools in KSA began in the 1990s. In 1996, the Ministry of Higher Education (MOHE) established the Computer and Information Centre (CIC) that provides a range of ICT services to schools and educational centres. In order to design new curricula and develop the capabilities of both teachers and students, MOHE launched an ambitious computer project in 2000 that aimed to cover all schools in KSA.¹⁶ It was followed by the WATANI Schools’ Net project that was launched in 2001, to connect schools and educational directorates by means of a wide area network (WAN) covering the entire country. Semanoor, a local software company specializing in education, in collaboration with Intel, produced an electronic version of curricula of all official government K-12 public and private schools. It also provides a set of tools, such as Semanoor browser, multimedia library and electronic class system, which help teachers to develop their e-lessons. Moreover, Obeikan Education, in collaboration with Intel, launched a website called Skool that contains over 250 interactive lessons for mathematics and science for K-12 students. The Jehazi project, aimed at raising technological awareness among Saudi teachers, enabled all teachers to have their own laptops.¹⁶

In 2002, the general organization for technical education and vocational training (GOTEVOT), the government authority responsible for technical education and vocational training in KSA, established the e-learning training and resources centre which provides an e-library of more than 50,000 books and 3,000 training programs for lifelong learning and community services.¹⁷ In 2008, MOHE also launched the Google Educational Program. This initiative currently involves 1,200 schools and more than 20,000 teachers, who are provided with personal emails, access to office applications program schedule and personal websites. MOHE has also signed memorandums of understanding with Intel and Microsoft to establish several educational, training and e-learning programs for students and teachers. Given industries growth of over 55% and being the largest ICT market in the Middle East, KSA has paid special attention to ICT, both in its five-year development plans and long-term national comprehensive development plans, of which the national policy for science and technology was a result.¹⁸

E-LEARNING IN HIGHER EDUCATION

Competing with global trend of presenting higher education online most universities in KSA have significantly increased their focus on e-learning and will replace entire curricula by e-learning materials into existing curricula.¹⁷ The universities like King Saud University (KSU), King Abdul Aziz University (KAU), Al-Baha University, Taiba University, Qassim University, King Khalid University (KKU) and Madinah Islamic University have formal agreements with the NCeDL to introduce e-learning schemes into their curricula. The e-Learning Centre, in the Deanship of Academic Development at King Fahad University of Petroleum and Minerals (KFUPM), which was established in 2003, offers integrated access to online resources using WebCT. It provides approximately 80 courses including engineering, sciences and industrial management, both in English and Arabic, through the OpenCourseWare Consortium. Alfaisal University has also joined the OpenCourseWare Consortium in 2006.¹⁷

The Deanship of Distance Learning, which as established at KAU in 2005, has embarked online course delivery on print/correspondence-basis. KAU uses language management system (LMS) and virtual classrooms to provide extra learning support for students enrolled in the first and second year of the basic science courses.¹⁵ It also contains a digital library of 16,000 e-books. KKU at Abha established its Deanship for e-Learning and Distance Learning in 2006, which focuses on facilitating all courses online by 2012. The deployment of a full suite of e-learning systems is aimed at providing 21st century learning to over 70,000 students at KKU by helping them align, collaborate, engage and innovate through various e-learning initiatives.⁵ With primary aims to bring in world-class systems and learning

methodologies to their campuses, KKU has identified the potential of need for bringing about a wide array of benefits for both teachers and students by providing improved efficiency and coordination, 'anytime, anywhere' access to coursework.¹⁹ KSU established the Deanship for e-Learning and Distance Learning in 2007, while the e-Learning Unit at King Faisal University was established in 2008. The Prince Mohammed bin Fahad University in Dammam and Effat University in Jeddah, have also established e-learning centres to use online methods to augment the educational experiences of their students.²⁰

The universities in KSA have equipped their lecture rooms with interactive whiteboards, data shows, e-podiums, Polycom video conferencing solutions and multi media centres. The solutions provided include a comprehensive learning management system, virtual classrooms, collaboration tools, content authoring and capturing tools, and digital repository systems.²¹ In 2007, KSA established a new university, the Knowledge International University (KIU), dedicated to the use of e-learning resources. The MOHE has set up a repository for e-learning material to help universities adopt e-learning and e-books for engineering, medical, computer science and humanities courses, these are either planned or available and academics are able to receive training.²²

E-LEARNING IN K-12 EDUCATION

There are numerous projects undertaken by both public and private schools in KSA that have largely been set up on a unilateral basis and often in close partnership with leading ICT vendors, e.g. Microsoft and Fakhieh School. These public and private schools are turning to e-learning and the development of infrastructure within their schools to provide closer working relations between parents, students teachers and faculty staff, via school nets and the use of e-learning resources.

E-LEARNING IN VOCATIONAL TRAINING

The GOTEVOT, an early adopter of e-learning, has set up its own e-learning centre in addition to comprehensive e-learning courses offering to its 30,000 students. It has established its own e-learning portal, developed its Arabic learning management system along with numerous e-learning resources in partnership with ASEAN e-vendors and virtual universities, like the Malaysian Open University.¹⁷ The Home Computer 26 Initiative sponsored by the Communications and Information Technology Commission (CITC) in association with the National Commercial Bank provides a good example.¹⁶

POTENTIAL NEED FOR E-LEARNING IN SAUDI ARABIA

The potential need for e-learning in KSA has resulted from the massive population growth *vis-à-vis* the scarcity of faculty members in both quantity and quality, and the need to reduce financial waste, such as coordination of approved programs, training methods, and production of educational materials. Education capacity and the Saudi population is one of the problems in KSA. There is a strong relation between the need for e-learning and Saudi population. A study shows that in the last 10 years Saudi population under 20 grew by 52.88%, which means an increase of 48.57% in educational institutes. This results in crammed in classrooms and a reduction in the level of learning.²³ The population in remote areas, where establishment of colleges and universities is a difficult enterprise, posing an increased need for e-learning. In addition, the living costs for students going to cities to study are comparatively high, and parents of traditional families are hesitant to send their sons to cities. In the case of female students, parents do not allow them to travel to cities for education. These problems need a workable solution in the form of e-learning in schools and universities.²¹ Also, the education system in KSA is under stress to provide additional educational opportunities for an increasing population and a desire to increase the literacy rate. Other reasons include the significant mismatch in capacity growth rate of existing Saudi educational institutes and the current growth rate in enrollment demand, a cost effective and a viable alternative to formal classroom learning, challenges to meet the rapid technological advances, shifting market conditions and rapid obsolescence of existing knowledge for better opportunities without an increase in cost.¹⁸

Given the rapid expansion of university systems in KSA and with a strong commitment to modern education, KSA set aside US \$10 billion for education in 2008 for the next few years.²⁴ However, the universities are desperately short of well-qualified faculty and are hiring many faculty members from countries such as Egypt, India, Bangladesh, Sudan and Pakistan. Another related problem is the rising cost of universities and schools to the government. The MOHE recognizes the need and potential for a

coordinated and collaborative approach to e-learning in universities. There is a considerable shortage of female lecturers in institutions, thousands of students are over-enrolled by these institutions and simply given the course materials and sent home to study on their own, and there are demands for part-time study as well. The universities have quite good technical facilities but these need to be better employed to provide equitable and quality education.²⁵

The e-learning industry in KSA is projected to reach US \$125m in 2008 and is set to grow at a compound annual rate of 33% over the next five years, which means it would reach US \$670m by 2014.²⁶ In line with its aims to increase awareness on the benefits of e-learning technologies, Edutech Middle East partnered with Saudi-based Effat College to organize 'The 6th Annual Learning Technology Symposium' at Jeddah in April 2008.²⁴ Here issues such as potential need, use and solutions through e-learning, were discussed. Some universities and colleges aim to take additional steps, such as providing video and audio recordings of actual physical lectures involving interactions between faculty and students, digital capture of a faculty's PC during the lecture, as well as writings on whiteboards, to improvement the educational experiences of students. The strong support for the adoption of e-learning programs is evident in the considerable increase in KSA's budget appropriation for education and manpower development, which has grown from SR 96.7bn in 2007 to SR 105bn in 2008.²⁷

IMPACTS OF E-LEARNING ON SAUDI LEARNERS

The strategic development of e-learning holds huge promise for KSA, both in terms of its efficiency of delivery, reach and learning effectiveness. E-learning offers students the convenience and flexibility of studying at their own pace.¹² Students living in small towns without universities offered their desired specialization and may pursue their degree of interest through a distant university. The advantages of e-learning include time savings which can be achieved by eliminating time needed to travel back and forth between home and university.²⁸ Many students suffer from breaks in their daily class schedules, and hence this time is added to the time that many of them consider to be wasted. A great many students who do not like to interact in classroom discussions, or who fear being called upon by the instructor to answer questions prefer secluded and private nature of the e-learning environment. Also, for students who are self-motivated and self-initiated, e-learning constitutes an environment of higher knowledge capture and higher content retention.²⁹ In KSA, public access to the internet became available in April 1997. Table 1 shows internet subscription and use, which has been rapidly increasing, for example, in 2000, there were 200,000 users online that increased to 9.8 million in 2010.³⁰

Table 1. Internet growth and population statistics in KSA.

Year	Users	Population	% Pop.	Usage Source
2000	200,000	21,624,422	0.9 %	ITU
2003	1,500,000	21,771,609	6.9 %	ITU
2005	2,540,000	23,595,634	10.8 %	C + I + A
2007	4,700,000	24,069,943	19.5 %	ITU
2009	7,761,800	28,686,633	27.1 %	ITU
2010	9,800,000	25,731,776	38.1 %	ITU
2012	13,000,000	26,534,504	49.0 %	IWS

Source: <http://www.internetworldstats.com/me/sa.htm>

On the eve of the launch of the 2nd International Conference on e-learning held in Riyadh on 21–24 February 2011, the Deputy Minister for academic affairs at MOHE announced that the literacy rate in KSA has increased to 89% due to the successful implementation of e-learning in schools.²⁷ The use of the internet has impacted universities, schools, vocational training centers, professional training institutions and trends are emerging whereby students prefer to adopt e-learning to complete their studies.³¹ A web-based survey, "Use and Effect on Internet in Saudi Arabia" conducted in 2003, aimed at studying the implication of internet technology for education, business and social uses of the internet, and shows that the majority of users are college and school-going students. This survey, covering the internet use of the Saudi Arabia population, ran for two years, split into four six-month periods. A total of 4,400 respondents of different age group, gender, educational background and geographical area were covered i.e., 300 valid responses for first six-month, for the second 700, and 1700 for each of the last two.

Table 2. Students' preference for opting for online courses.

Year	Young population (5–19 years of age)		Number of students in educational institutes		Young population not attending educational institutes		
	Population (A) in thousands	% increase from last year	# of total students (B) in thousands	% increase from last year	(A-B) in thousands	% increase from last year	% of young population
1991	5163		3247		1916		37.11
1992	5430	5.17	3453	6.34	1977	3.18	36.41
1993	5716	5.27	3758	8.83	1958	-0.96	34.25
1994	6028	5.46	3934	4.68	2270	15.93	37.66
1995	6340	5.18	4044	4.68	2406	5.99	37.95
1996	6660	5.05	4325	2.80	2616	8.73	39.28
1997	6974	4.71	4467	6.95	2649	1.26	37.98
1998	7286	4.47	4605	6.47	2681	1.21	36.80
1999	7593	4.21	4774	3.67	2819	5.15	37.13
2000	7893	3.95	4824	1.05	3069	8.87	38.88
Average	6508.3	4.83	4143.1	5.05	2436.1	5.48	37.37

Source: Study project entitled "Use and Effect on Internet in Saudi Arabia" Dr Sadiq M Sait King Fahd University of Petroleum & Minerals, KSA

Table 2 shows students' preferences of opting for courses. When asked about their preferences for taking a diploma/degree at home or at class, almost 35% of the respondents either definitely or probably prefer taking the course in a class, while 29% prefer studying at home.²³

The most compelling reason for taking courses on the Internet is that the users like computers. Almost 41% of respondents selected this option. The other major reasons include, learning from home, promotion, fun to experience, non-availability of the same course in school, and to get a higher degree (see Figure 1).

The non-accredited status of online courses over the Internet in KSA is the major reason for not taking online courses. Another reason is the lack of interaction with other students and faculty (see Figure 2). Users are interested in online courses to upgrade their skills (40%), special training courses for jobs (28%) and for University degrees (23%). On the other hand, they are not at all interested in high school (43%), or home schooling. Figure 3 shows that in order to promote e-learning, the government should come up with regulation and accreditation plans, so that universities/institutions willing to offer e-learning courseware can start planning to offer these courses.²¹

OBSTACLES IN IMPLEMENTING E-LEARNING IN SAUDI ARABIA

E-learning could provide a better option for students in KSA who are interested in higher education from international universities, and who cannot travel to other countries due to financial, employment

Preferred Venue for On-line Courses That Help Finish a Diploma or Degree

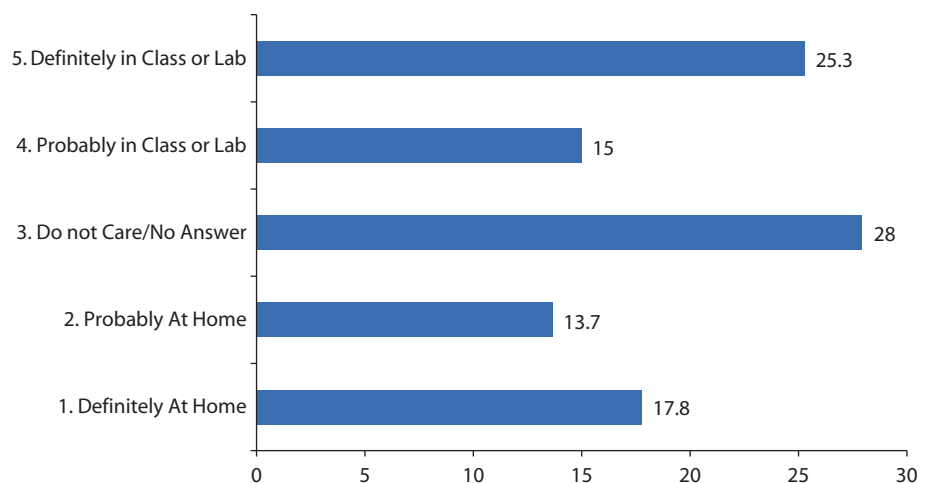


Figure 1. Preferred venue for online courses that help finish a diploma or degree. Source: E-learning and its Effectiveness in Saudi Arabia by Aldraiby²¹, King Abdul Aziz University.

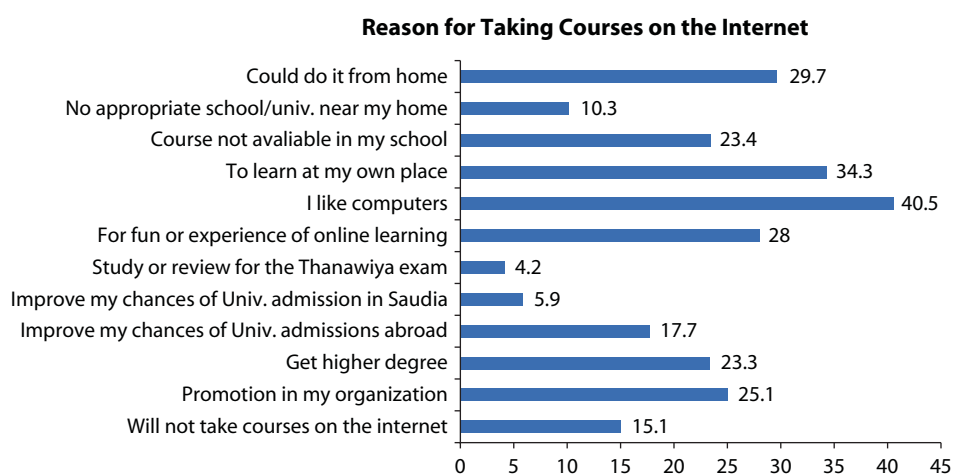


Figure 2. Reasons for taking courses on the internet. Source: E-learning and its Effectiveness in Saudi Arabia by Aldraiby ²¹, King Abdul Aziz University.

or family obligations.¹¹ But MOHE regulations say that in order to approve a degree from any international university, a candidate must present evidence of full-time study, while residing in the country where the degree was earned.¹⁸ The regulations also ask KSA students, who are interested in pursuing a PhD program in Saudi universities, to abandon their jobs in order to gain admission. It becomes almost impossible for students to quit a stable job that helps support their families. In contrast to Saudi students, over 50% of students in the US are working students, this helps them pursue higher studies whilst earning money to support their families.³² Under the study, “E-learning and its effectiveness in Saudi Arabia”, a group of academics engaged in e-learning were asked questions on quality parameters, such as technical and telecommunication infrastructure and insufficient funds, for e-learning in academic institutions.²¹ The results show only 9.5% of it is of a high quality, whilst medium level and low level categories came up equal, i.e. 33.33%, and under low level category at 23.01% (see Figure 4).

It is evident that the improvement in quality of e-learning will motivate more students to pursue online courses. Figure 5 shows the obstacles that are technical, material and financial, with responses for both, combined standing at a whopping 61.43%. Obstacles associated with education society, under which design and presentation of materials, teachers’ response and attitude towards solutions, are the major impediments.²¹

The study, “E-learning and its Effectiveness in Saudi Arabia” ²¹ pointed out ‘great benefits’ associated with e-learning in Saudi Arabia, and it lists four types of major obstacles, when applying it in practice, as explained below.

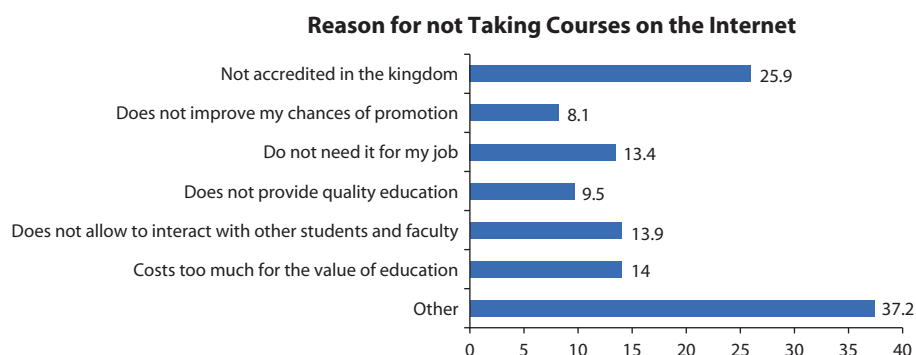


Figure 3. Reasons for not taking courses on the internet. Source: E-learning and its Effectiveness in Saudi Arabia by Aldraiby ²¹, King Abdul Aziz University.

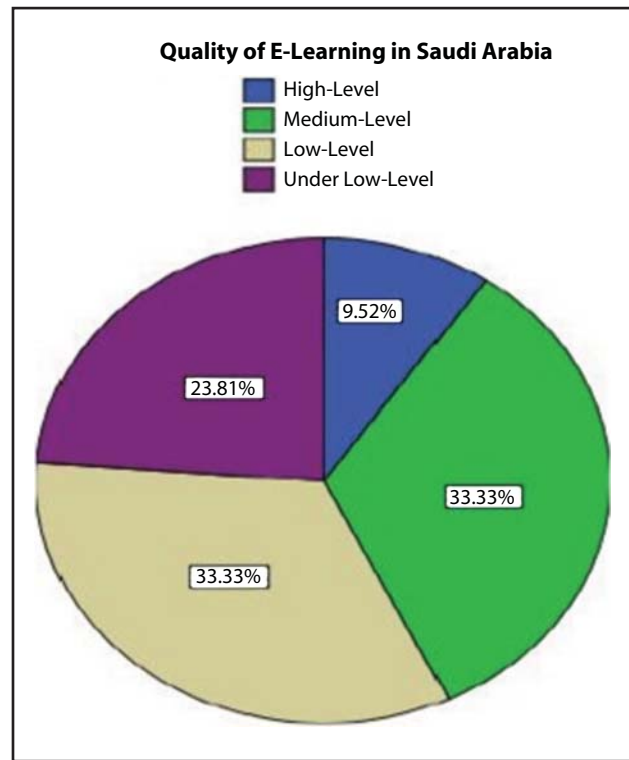


Figure 4. Quality of e-learning in Saudi Arabia. Source: E-learning and its Effectiveness in Saudi Arabia by Aldraiby²¹, King Abdul Aziz University.

TECHNICAL OBSTACLES

Expertise in learning tools and the smooth functioning of technologies are the major technical side of the e-learning process. Any disconnection during lectures, browsing, sending and receiving material, caused by technical problems, is a big challenge to e-learning institutions.¹⁴ This disruption forces the user to go back to 'previous page', and that may cause data loss. Consequently, most of the educational institutions consider e-learning a waste of time and money.¹⁸ The main cause of this problem is the lack of CIT infrastructure and weak networks. In addition, disabling connections with the Wide Area Networks (WANs) and World Wide Web (WWW) is a constant problem. It seems to be a mysterious problem facing the user, either student or teacher, when they check for errors in connecting with Internet Service Providers (ISPs) via Local Area Connection (LANs) and find nothing.¹⁸

Another problem is computer laboratories in many of educational institutions. Teachers are the ones who face this problem directly. Hardware and software damages are often the result of misuse and exchanging files with external storage devices, for example disks damaged with viruses. Moreover, fixing and repairing these problems, either related to networks or computers, consumes considerable time due to the weak response, either from the authorities or ISPs toward the complaints, in addition to the scarcity of technicians in educational institutes. During exams this problem becomes serious and many exams have to be cancelled or delayed until normalcy is resumed. Hence, both students and teachers feel embarrassed in implementing their academic agenda when technical problems have occurred.²⁸

While technical problems can be corrected, by putting in place computer experts and technicians, infrastructure should be developed on site. Training for faculty members in 'web publishing, graphics design, audio and video file management, and other related skills' can be done through training sessions.³³ Insufficient technical skills in building and maintaining web-based teaching materials can be eased through the provision of instructional support. This has been considered a key factor in enhancing the level of technology-based education.³⁴ Organizational support in the form of incentives was found crucial to motivate faculty members to engage in distance education.³⁵ For motivating teachers to embrace teaching with technology, there is a need to show them how effective e-learning is when employed and implemented.³⁶ A suggested solution for insufficient instructional support, is that

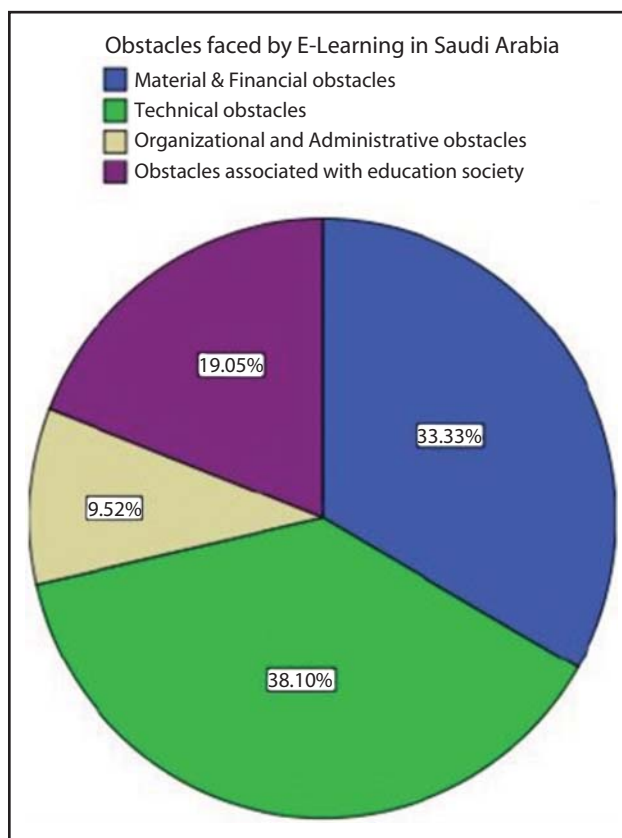


Figure 5. Obstacles faced by e-learning in Saudi Arabia. Source: E-learning and its Effectiveness in Saudi Arabia by Aldraiby ²¹, King Abdul Aziz University.

faculty members who have the necessary technical background help their colleagues and pool their expertise and resources.

MATERIAL AND FINANCIAL OBSTACLES

Since e-learning is a newly adopted phenomenon in KSA, the implementation requires a huge budget and is a significant financial burden for government to provide well equipped labs in universities and institutions, in addition to providing updated versions of programs and new hardware equipment.¹⁴ The government also needs to invest in the networking infrastructure to provide constant and stable connections, which are the backbone of e-learning and for which a large investment is needed to the telecommunication infrastructure in KSA.¹⁸ Though the government has provided an adequate curriculum to students in e-learning, that includes software and accessories, these infrastructural facilities are presently available in the universities in major cities, rather than small towns and villages.³⁷ From students' perspective, high tuition and high costs of internet connection service in KSA compared with other countries is another financial hurdle.²¹

ORGANIZATIONAL AND ADMINISTRATIVE OBSTACLES

Organizational support, in the form of incentives, was found crucial to motivating faculty members to engage in distance education.³⁵ There is a need for qualified teachers and instructors who can understand and implement the technology to deliver quality output. The faculty in various universities in KSA lack the basic knowledge needed for e-learning, and are reluctant to change and accept a new methods of teaching through the computer.⁸ The undue fear among foreign teachers that computers could finish their jobs leads to indifferent responses and a lackluster approach towards e-learning.³⁸ On an administrative level, bureaucratic attitude and complicated rules are a big challenge to e-learning, particularly, rapid changes are essential in implementing a modern system that leads to a delay in the development of current text and methodology, to be eligible as e-learning material.

Lack of professional support base for e-learning is a big hurdle, for example, there are almost no instructional designers in KSA, and educational theory or design is not a topic taught in the universities here. Therefore, a great deal of training in the use of e-learning will need to come from outside the country.¹⁸

Academic institutions in Saudi Arabia do not have the basic understanding of effective e-learning. Hence, they do not provide the basics tools to support e-learning. One way to increase awareness among support staff in administration is by offering rewards to motivate them for better productivity and higher performance.³⁹ Reward systems include salary increases, fringe benefits, promotion and recognition. The incentives that higher education institutions offer and the activities they reward convey the organizational values of those institutions. In addition, academics who are involved in web-based learning need their work to be recognized and supported.⁴⁰ With proper organization and management, technical support and infrastructure, required by different organizations, would be easier to identify and thereby improve the efficiency and effectiveness of the pursuit of the national objective appropriate in e-learning in KSA.³⁷

CHALLENGES AHEAD AND FUTURE PROSPECTS

In comparison to the US, where at least two million students are engaged in the use of different forms of distance learning technologies as far back as in 2004, the MOHE, in March 2008, was yet to approve international university degrees earned through distance learning.⁴¹ Though noticeable changes can be seen in the domain of e-learning, such as the remarkable growth of online courses offered by Deanships and Faculty of Distance Learning at three universities at King Abdulaziz University, Jeddah, King Saud University, Riyadh and King Faisal University, Al-Hasa, Saudi embassies do not authenticate online or distance education degrees obtained from foreign countries. Alshwaier et al.⁴² observe that 'old regulations at MOHE have managed to find their way into the 21st century. The author gave an example for MOHE regulations, in order to approve a degree from any international university a student must present evidence that his/her time was dedicated to studying, on a full-time basis, while residing in the country where the degree was earned'. In 2010, the Distance Learning Regulations in Higher Education Institutions in KSA, of MOHE approved degrees obtained from these three universities, within the kingdom. The list of universities whose degrees are rejected in KSA, when taken through distance learning include MIT, Harvard, and Stanford in the US, and Oxford in the UK. This means Saudi students cannot qualify with that degree to get a government job. They cannot pursue graduate-level education in KSA based on these internationally earned degrees.³² Following are the main challenges to the successful implementation of e-learning in KSA:

- Lack of a unified national e-learning strategy for the deployment of e-learning at schools, colleges and vocational training centres;
- Lack of e-learning value and benefits of new technologies in the minds of the older generation;
- Lack of high-speed broadband access for Saudi learners makes e-learning an irritating learning experience;
- Unfair disadvantage to the students living in remote areas compared to those living in cities;
- Lack of sufficient e-learning resources to meet the diverse needs of the students and access to materials developed overseas; and
- Need to find a balance between quantity and quality of e-learning resources to be distributed to e-learners in all regions.

CONCLUSION

The future of e-learning KSA is promising, since raising ICT awareness and promotion in education is now a national policy. However, in order to maximize the benefits from e-learning, concerted efforts need to be made in enhancing the professional capacity of building them by teachers and ensuring smooth and uninterrupted internet facilities to the students. Policies also need to be changed to allow students to take virtual online degrees, no matter where the university may be. Professional support base, such as educational theory and instructional design for e-learning, should be incorporated at university level. Clear vision and strategic planning with prospective e-learners in mind are essential to make e-learning programs a big success.³⁷

It is important to provide academics with considerable instructional support, giving them encouraging incentives to as a way to value their work, decrease their workload, and taking their innovative work into account for promotion and tenure. One way to increase awareness among support staff in administration is by offering rewards to motivate them for better productivity and higher performance. Reward systems include salary increases, fringe benefits, promotion, and recognition. The incentives that higher education institutions offer and the activities they reward convey the organizational values of those institutions. In addition, academics involved in web-based learning need their work to be recognized and supported.⁴⁰ With proper organization and management, the technical support and infrastructure required by different organizations would be easier to identify, and thereby improve the efficiency and effectiveness of the pursuit of the national objectives appropriate in e-learning in KSA.³⁷ In order to overcome the problems and challenges, there is need to redefine or amend some principles, policies and tasks associated with the current e-learning environment, in order to re-orient it toward collaborative learning; to provide training and technical support to faculty staff as they revise their teaching materials and methods; and to redefine/amend principles, policies and tasks of the LMS.⁴³

REFERENCES

- [1] National Centre for e-learning and Distance Learning. JUSUR LMS System. From National Center for e-learning and Distance Learning. 2010, [Online] Available: <http://www.elc.edu.sa/portal/index.php?mod=content&page=27> (December 5, 2020).
- [2] Mirza AA. Utilizing distance learning technologies to deliver courses in a segregated educational environment. *World conference on educational multimedia, hypermedia and telecommunications*. 2007;1855–1860.
- [3] Al Saif A, The motivating and inhibiting factors affecting the use of web-based instruction at the University of Qassim in Saudi Arabia. PhD dissertation, ETD Collection for Wayne State University, 2005.
- [4] Alzamil ZA. Students' Perception Towards the E-Learning at The GOTEVOT and the Arab Open University in Riyadh. *Journal of King Saud University: Educational Sciences and Islamic Studies*. 2006;18(2):655–698.
- [5] Alwalidi A, Lefrere Paul. Making e-learning invisible: experience at King Khalid University, Saudi Arabia. *Educational Technology Magazine: The Magazine for Managers of Change in Education*, 2010;50(3):4–7.
- [6] Alenezi A, Abdul Karim A, Veloo A. An empirical investigation into the role of enjoyment, computer anxiety, computer self-efficacy and Internet experience in influencing the students' intention to use e-learning: A case study from Saudi Arabian governmental universities. *TOJET: The Turkish Online Journal of Educational Technology*. 2010;9(4):22–34.
- [7] Weber AS. *The development and current status of web-based learning in Qatar and the GCC States*. Occasional Paper 5. Doha: Center for International and Regional Studies, Georgetown University School of Foreign Service in Qatar; 2010.
- [8] Hussein HB. Attitudes of Saudi universities faculty members towards using learning management system (JUSUR). *Turkish Online Journal of Educational Technology*. 2011;10(2):43–53.
- [9] Al-Harbi KA-S. E-Learning in the Saudi tertiary education: Potential and challenges. *Applied Computing and Informatics*. 2011;9(1):31–46.
- [10] Alkhalaf S, Drew S, Alhussain T. Assessing the impact of e-learning systems on learners: A survey study in the KSA. *Procedia – Social and Behavioral Sciences*. 2012;47:98–104.
- [11] Al-Mushasha NF, Nassuora AB. Factors determining e-learning service quality in Jordanian higher education environment. *J Appl Sci*. 2012;12:1474–1480.
- [12] Farooq U, Javid C. Impact of e-learning on English Language Learning at Undergraduate Level at Taif University (KSA). *Edulearn12 Proceedings*. 2012;:6961–6969.
- [13] Al-Qahtani AAY, Higgins SE. Effects of traditional, blended and e-learning on students' achievement in higher education. *J Comput Assist Learn*. 2012;29(3)–234, (published online on 23 AUG 2012).
- [14] Al-Shahrani K, Al-Shehri S. Conceptions and responses to e-learning: The case of EFL teachers and students in a Saudi Arabian university. *Monash University Linguistics Papers*. 2012;8(1):21–31.
- [15] Al-Nuaim HA. The use of virtual classrooms in E-learning: a case study in King Abdulaziz University, Saudi Arabia. *E-Learning and Digital Media*. 2012;9(2):211–222.
- [16] Oyaid AA, Education policy in Saudi Arabia and its relation to secondary school teachers. ICT Use, Perceptions, and Views of the Future of ICT in Education. Ph.D. Thesis University of Exeter, UK, 2009.
- [17] Al-Khalifa HS. E-Learning and ICT integration in colleges and universities in Saudi Arabia. *E-learn Magazine*. 2009.
- [18] Al-Asmari A. The use of internet among EFL teachers at the colleges of technology in Saudi Arabia. Dissertation Ohio University, 2005.
- [19] KKU Deanship. The role of e-Learning in re-engineering the control over the quality of educational performance. 2011. available at: <http://elearning.kku.edu.sa/en/node/3/1358>
- [20] Mirza AA. Is E-Learning finally gaining legitimacy in Saudi Arabia? *Applied Computing and Informatics*. 2008;6(2).
- [21] Al-Draiby O. E-learning and Its Effectiveness in Saudi Arabia. *Faculty of Computer and Information Technology, KAU, Jeddah*. 13-1-2010. 2010.
- [22] Al-Kahtani SA. Computer-assisted language learning in EFL instruction at selected Saudi Arabian Universities. PhD Dissertation, Indian University of Pennsylvania, USA, 2001.
- [23] Sait SM. Use and effect on internet in Saudi Arabia King Fahd University of petroleum and minerals, Dhahran, Saudi Arabia. International Council of Association for Science Education (ICASE). Penang, Malaysia, 2003.
- [24] Bates T. A personal view of e-Learning in Saudi Arabia. 2008. available from: <http://www.tonybates.ca/2009/11/05/a-personal-view-of-e-learning-in-saudi-arabia/>
- [25] Almohaisen I. *E-learning in the Kingdom of Saudi Arabia*. National Centre for Distance and E-Learning Seminar. Riyadh: Keynote speech; 2007.

- [26] Saudi Gazette. Kingdom's e-learning industry to reach \$125 million this year. 2008. <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=200804244097> (Accessed 4/12/2013).
- [27] Saudi Gazette. E-learning helped in achieving high literacy rate. 2011. <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=2011021793970> (Accessed 4/12/2013).
- [28] Al-Asmari AR. Evaluating the Prospects of Integrating Technology in Pre-service EFL Teacher Training. *Arab World English Journal*. 2011;2(2):133–166.
- [29] Al-Qahtani AAY, Higgins SE. Effects of traditional, blended and e-learning on students_ achievement in higher education. *Journal of Computer Assisted Learning*. 2013;29(3):220–234.
- [30] Turban E, King D, Viehland D, Lee J. *Electronic commerce: A managerial perspective*. Upper Saddle River, NJ, US: Prentice Hall; 2006.
- [31] Alkhalaf S, Drew S, Nguyen A. Validation of the IS impact model for measuring the impact of e-learning systems in KSA Universities: Student Perspective. *International Journal of Advanced Computer Science and Applications (IJACSA)*. 2012;3(5):71–76.
- [32] Hiltz SR, Turoff M. The evolution of online learning and the revolution of higher education. *Communications of the ACM*. 2005;48(10):59–64.
- [33] Williams V, Peters K. Faculty incentives for the preparation of web-based instruction. *Web Based Instruction. Educational Technology Publications, Englewood Cliffs, NJ*. 1997:100–107.
- [34] Olcott DJ, Wright SJ. An institutional support framework for increasing faculty participation in postsecondary education. *The American Journal of Distance Education*. 1995;9(3):5–17.
- [35] Jackson G. Incentives for planning and delivering agricultural distance education. *Agriculture Education Magazine*. 1994;66(8):15–16.
- [36] Abouchedid K, Eid GM. E-learning challenges in the Arab world: revelations from a case study profile. *Quality Assurance in Education*. 2004;12(1):15–27.
- [37] Al-Shehri AM. E-learning in Saudi Arabia: To E or not to E, that is the question. *J Family Community Med*. 2010;17(3):147–150.
- [38] Al-Asmari AM, Khan MSR. *E-learning experiences at King Khalid University. A Case Study*. Unpublished Paper, 2011.
- [39] Alkhalaf S, Drew S, AlGhamdi R, Alfarraj O. E-Learning system on higher education institutions in KSA: Attitudes and perceptions of faculty members. *Procedia – Social and Behavioral Sciences*. 2012;47:1199–1205.
- [40] Alqurashi F. 2009. ELearning in EFL: Problems and Solutions. Ninth international conference on interactive computer aided blended learning (ICBL). Brazil.
- [41] Allen EI, Seaman J. *Sizing the opportunity: the quality and extent of online education in the United States*. New York, USA: Alfred P. Sloan Foundation; 2003.
- [42] Alshwaier A, Yousse A, Imam A. A new trend for e-learning in KSA using education clouds. *Advanced Computing: An International Journal (ICIJ)*. 2012;3:1.
- [43] Alkhalaf S, Drew S, Nguyen A, Nguyen J. *The potential role of collaborative learning in enhancing e-learning systems: Evidence from Saudi Arabia*. Australian Society for Computers in Learning in Tertiary Education; 2011.