

Empirical Investigation of the e-Learning Approach in Saudi Universities

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ABSTRACT: *E-Learning, Technology Mediated education and virtual university are similar terms for a trend of the modern educational approach. It is about the integration of modern information and Communication technologies (ICTs) such as computer systems, and communication tools to support educational professionals with a particular focus on quality improvement and cost efficiency. This paper presents an empirical study on the e-Learning strategy and its implementation at the Saudi Higher Education institution from the perspective of strategy, people, and technology. A survey instrument administered to faculty members at different universities was used to measure how ready higher education organizations towards the application of ICTs are in the educational process; A particular focus has been made on the attitudes of faculty members towards the implementation of the e-Learning approach as a strategy for higher education quality improvement and achieving academic excellence.*

Key Words: *Education, e-Learning, Information and Communication Technologies, Quality, Saudi University*

Introduction

In today world's most developed countries, Information and Communication Technologies (ICTs) are ever-present in the higher education sector and constitute a fundamental part of institutional infrastructure. During the beginning of this 21st century, we are witnessing an exponential expansion of these technologies within the higher education (HE) institutions. They touched virtually every dimension and aspect of our universities. Just to mention few examples, electronic databases and computers networks are means to store vital records about enrolled students, faculty members, administrative staff, and management information, as well as educational course contents and research materials. University websites are playing a key role in determining the institution position at the local and the global scales, and serve as informational platforms that can be accessed from anywhere in the world, at any time, for all members of the community interested in engaging with the HE institution. Web technologies such as search engines, e-mail messaging, social networking, discussion forums, electronic

libraries, and online courses provide us with opportunities that would not exist without ICTs; these opportunities would include academic collaboration between distant faculty members and students, joint research works, international visibility and personal and professional networking. Virtual Laboratories Environment (VLE) provides both students and faculty with good opportunities for remote access to hardware and software to be used in coursework development and delivery as well as fundamental and applied research. Constantly, online libraries associated with wireless networks have been altering the fundamental concepts of time and space for academic work and study on physically fixed locations. Networked classrooms, equipped with audio-visual equipment, have largely expanded the range and scope of educational materials that can be presented to students and the methods by which information and ideas can be generated and shared. The open educational resources (OER) concept suggested by the UNESCO in 2002 was successfully implemented by the Massachusetts Institute of Technology (MIT) within its Open Courseware (OCW) project. Since then, the development and the use of OCW has gained a significant momentum in higher education organizations worldwide, allowing institutions to make notable achievements in terms of the number of online offered courses and the quality of their contents (D'Antoni, 2008). OCWs can provide students and faculty members with free access to high quality courses, new curricula, and up to date pedagogical approaches not yet available in less-developed countries. And finally, various combinations of online and virtual resources have laid a most important foundation for the expansion of the e-Learning movement in the higher education business (Altbach et al. (2009)). With the blooming of these web technologies especially the internet, the popularity of e-Learning programs forces us as educators to think about what these advanced technologies can offer us to improve the traditional way of teaching our students and to prepare them for an ever global competitive job market. The new era of e-Learning needs several types of academic people to work together. We as educational professionals should be the main actors as usual; we should be equipped with the required skills and competencies in order to effectively and efficiently make use of these technologies.

Design of high-quality contents is considered to be one of the most important factors toward the successful implementation of the e-learning strategy. It is also important to note that the course content should be clearly presented and delivered, both from pedagogical and technological perspectives. To ensure the quality and user friendly of educational contents, electronic and digital art designers can provide assistance to educational professionals to ensure that multimedia technologies are properly implemented to course contents. Especially, in Web-based courses, a friendly and visually pleasant design of the course is necessary. In order to support efficient delivery, an e-Learning program would need technically competent persons to manage network and computer systems in order to ensure that video streaming and Web-based contents can be accessed smoothly and instantly. Thus, an academic and administrative department is needed to gather different professionals, including faculty members, web designers, and networks

technicians. The administrative department usually called the IT department, can be assigned the duty to develop online curricula and maintain records for enrolled students, and to ensure that the whole program operation is running smoothly towards its intended objectives.

All these operations need to be incorporated within a global, official and well developed strategic plan of the organization towards the implementation of the e-Learning at the higher educational process. This is well explained from the following citation from Professor Emeritus, Fred Louckwood, scholar of distance education and e-Learning:

Whether you are an 'early adopter' or one of the 'late majority'— a teacher, trainer, administrator or decision maker—you will find the arguments persuasive. In particular, I believe you will be convinced that the future of online learning is as a medium for communication, not a delivery method; it will be an online learning environment where pedagogy and technology are interrelated and where interaction is paramount. Prof Emeritus, Fred Louckwood "Delevering learning on the Net : the why, what & how of online education", Martin Weller, 2002.

Recently, Altbach et al. (2009) and Barasubramanian et al. (2009) addressed some important issues to decision-makers of higher education institutions in developing countries towards the crucial role that can play ICTs in the enhancement and enforcement of the three traditional activities of the university known as the teaching, the scientific research and the community services. ICTs have been considered as strategies in the hands of higher education institutions to improve learning process quality, to further increase the learner's accessibility to educational programs, and to reduce educational and research costs. These new technology enablers play a very important function in the strategic management of the institution towards achieving academic excellence within the highly competitive market place.

The present paper aims to identify institutional directions and guidelines for addressing the needs of academics in Saudi universities in order to adopt the e-Learning approach as a strategy for quality improvement and academic excellence. Through this empirical investigation, we are mainly targeted to achieve three objectives, namely: (a) to present a thorough evaluation of faculty perceptions towards web-based education; (b) to report on their perceived requirements for the implementation process of the e-learning approach, and (c) to provide inputs for any collaborative project that would aim to develop a national strategy for the e-learning approach.

The outcomes from this study would be of particular importance to higher education decision-makers at the institutional level and the national level (i.e. the Higher Education and Scientific Research Department) as well as to educators and business organizations in the area of e-Learning.

Literature Review and Theoretical Background

According Liu and Wang (2009), developing a specific definition of the term "e-learning" is a foundation for the process of development, implementation and improvement of the any e-learning system. Researchers in the area of web based-education and e-Learning have made enormous efforts to develop definitions for the term of e-Learning from different angles and perspectives.

A variety of terms and definitions (very often overlapping) were presented in the open literature under the umbrella of e-Learning. It is sometimes difficult to get a firm grasp on the varied terms. Indeed, it can easily be seen that more than twenty terms have been used to describe the application of ICTs in education. These terms would include: web-based education, technology enhanced learning, internet mediated teaching, , online education, computer mediated communication (CMC), Web-based Training, e-learning, virtual classrooms, Virtual Laboratory Environments, e-Campus, cyberspace learning environments, computer-driven interactive communication, open and distance learning (ODL), distributed learning (DL), blended learning, electronic course materials, and mobile learning, etc .. (figure 1) (Altbach et al, 2009).

Most of these terms are usually used in an interchangeable way, but their positioning is not always precise or appropriate, given that many applications of ICTs constitute "technologically clever ways of replicating traditional, face-to-face education models" than they do more innovative distance education models. Nonaka and Takeuchi (1995) are considered among the pioneers of e-learning while Saba Inc. was among the first of e-learning companies established in late 90s. The web and the internet platforms, software and the hardware that articulate the e-learning strategy have been developed by those companies and based on the scholarly contributions of educators. Practical applications provided by these firms constitute the basis for the development of the e-learning theory and its deployment among users (Barasubramanian et al. 2009).

It was asserted by Altbach et al, (2009) that e-learning "refers to any type of learning using electronic means of any kind (TV, radio, CD-ROM, DVD, mobile phones, personal organizers, Internet, etc.)". In addition, e-learning is regarded as "a relatively new phenomenon" that can be used "for a variety of learning purposes that range from supplementary functions in conventional classrooms to full substitution of the face-to-face meetings by online encounters". It provides practical and innovative solutions that use the Internet technologies to produce knowledge and enhance the efficiency of the learning process. It must satisfy three main conditions: (1) e-learning should be networked, (2) Should be delivered to users via computers equipped with Internet technology and (3) e-learning focuses on the largest scope of learning—learning solutions that go far beyond the traditional paradigms of teaching. It is stated by the Conference Board of Canada's workplace that 'e-learning uses Information and communications

technologies (ICTs) to deliver content (learning, knowledge and skills) on a one-way [asynchronous] or two way [synchronous] basis' (Murray, 2001).

According to Khan (2001), e-learning is viewed as synonymous with web-based learning (WBL), Internet-based training (IBT), advanced distributed learning (ADL), web-based instruction (WBI), online learning (OL) and open/flexible learning (OFL). E-Learning was defined as the appropriate application of the Internet to support the delivery of learning, skills and knowledge in a holistic approach not limited to any specific contents, technologies or infrastructures.

Based on the above review of the literature, a common structure of e-Learning forms can be deduced. This is based on four major elements as presented in figure 1 (Broadbent, 2002). These are: The Learner or the student; The Content; The Instructor and; The Technology. It is the author's belief that the e-Learning structure is best presented as a quality triangle which reflects the fact that the objective of the e-Learning approach is to improve and to enhance the quality of the educational process. Since the learner is the main customer of this process, it is very obvious to locate him at the heart of the structure; the other components i.e (Content, Instruction and Technology) have to be in line with his requirements and expectations.

Critical Success Factors (CSFs) are defined as 'Those issues that should be guaranteed by the institution for successful implementation of the e-Learning approach'. In the contest of higher education institutions, the CSFs would be the set of enablers that should be provided by the institution in order to successfully implement the strategy in its educational process and to improve the quality. These Critical Success Factors (CSFs) should be used to analyze the reasons behind the success and the failures stories of similar educational institutions. They will be very helpful for organizations working on their e-Learning strategic planning such as universities in the Arab world. This important issue has been well developed in the open literature;

A summary of e-Learning Critical Success Factors (CSFs) proposed in the literature has been presented by Liu and Wang (2009); These CSFs include: (1) time management flexibility for education and training, (2) dynamic educators participation, (3) the development of control mechanisms that would ensure training to occur, (4) quality of content, (6) promotion of interactive components among trainers and trainees, (7) the use of standardized web technologies and (8) gradual implementation of the process. Selim (2005) proposed a list of eight e-learning CSFs; these are: (1) instructor's attitude and perception towards ITCs, (2) instructor's teaching style, (3) motivations of learners and their technical competency, (4) learners' interactive collaboration, (5) e-learning course content and structure, (6) availability of Internet access, (7) ITC infrastructure and (8) organizational and institutional leadership support for the e-learning strategy.

In a very recent study, Forsyth et al. (2010), identified six CSFs for e-learning; They were: (1) student support, orientation and the sense of the institution's presence to the student, (2) educational design of engaging, relevant, authentic learning materials and activities, including program design, (3) inspired and empowered teachers, (4) academic and administrative teamwork, (5) well designed and secured web spaces, (6) target-designed administrative systems. Based on the above analysis, and taking into account the nature of the Saudi higher education context, it can be concluded that the most important CSFs for the e-Learning strategy to be successful in Saudi Arabia would include the elements summarized in table 1.

Most universities in north America, Europe, and Asia have adopted the e-Learning strategy with great success to improve the quality of their education, however the review of the open literature shows some remarkable failures due to the existence of some institutional and cultural barriers which hamper the efforts undertaken by these institutions to adopt the e-learning paradigm. According to recent studies (Forsyth et al. (2010) and Schnekenberg (2010)), The major difficulties and barriers to e-Learning are: (1) lack of central infrastructure and clear processes, (2) cultural disjunction, lack of clear understanding of the concept of e-Learning by the institution and a sense of isolation, (3) technology related problems, (4) administrative barriers and challenges, (5) financial constraints, and (6) student and teaching challenges. They argued that the most substantial difficulty was seen to be the lack of central infrastructure and process.

The present paper assumes from a strategic perspective that the successful implementation of the e-learning approach in Saudi Arabia depends on the capabilities of top management to actively drive faculty members in an organizational change through an official e-learning strategy. The motivation of academics to acquire the required competencies and to make use of the ICTs innovative technologies is greatly influenced by portfolios of competence development measures and institutional incentives that higher education institutions should offer within a well defined institutional framework. Two vital preconditions govern the active participation of faculty members in eLearning innovation: first, faculty members need to become aware of the technology-driven change and the potential of eLearning; and secondly, they need to develop eCompetence to make persistent use of ICT in their personal work routines and teaching practices (Schnekenberg (2010)).

Research Methodology

Participants In this initial phase, the survey questionnaire was communicated to participants of the workshop entitled "Integration of Information and Communication Technologies in Higher Education: Concepts and Applications" organized by Hail University, on 3-4 January 2011. In total 41 responses from academic members and experts on e-Learning in Higher education, coming from 8 Saudi universities and 2 from specialized e-Learning Centres, were gathered and analyzed. In the following sections a discussion of the statistical analysis of the survey results will be presented.

Table 2 summarizes the survey respondents profiles from 8 major Saudi universities covering the main regions in the Kingdom as shown in figure 2; Examination of this table shows that the respondents to the survey questionnaire were well established faculty members with (7.32% Professors, 4.88% Associate Professors, 65.85% Assistant Professors and 21.59% lectures) ; Faculty members were 53.66 percent and university leadership constitutes 46.34 percent; Other respondent's characteristics such the academic degree, professional experience, area of specialization, teaching level at the university (Graduate, undergraduate) and the teaching type the respondent carry on are shown in the table as well.

Instrument

The survey instrument described in early work by Benchicou et al (2010), in similar higher education context was adopted and used in the present study. The principal objective of the survey was to report on faculty members perceptions and experiences concerning the use of ICTs in higher education and the implementation of the e-learning approach in their courses. The questionnaire instrument was organized into seven major parts:

Part 1 - Initial Information about the respondent.

Part 2 – Official e-Learning Strategy.

Part 3 - ICTs competencies (e-Competences) of the faculty member .

Part 4 - Motivations and incentives measures.

Part 5 - e-Learning Quality Factors.

Part 6 – Barriers to e-Learning.

Part 7 – Information and Communication Technology Infrastructure

The survey used mainly the five-points Licker scale to measure the degree of application of the e-learning elements in the respondent's university or institution. The survey questionnaire was delivered to faculty members online using the web 2.0 technology (<https://spreadsheets.google.com/viewform?formkey=dFdreWY4cmNqbEdu1pKOEK1WURpVmc6MQ>). A sample of the questionnaire is shown in figure 2. Internal consistency of the survey instrument was measured by calculating the Cronbach's coefficient alpha. The Cronbach alphas of the six e-learning CSFs (part 2-7) calculated in the present study are shown in table 2. It is clear from this table that this coefficient ranged from 0.76 to 0.91, indicating that the survey and the scales used can be considered to be reliable and valid to carry on the empirical study.

Findings and Discussions

In table 4, we summarize the calculated average values and standards deviations for the six Success Factors identified and measured in the present study. The averages of the six components (ranging from 2.35 to 3.81) indicate that there is a clear evidence of the existence of an official e-Learning strategy at the Saudi higher education institution in general. This finding can correlate with the results shown in figure 4 which presents pie charts of faculty members' perceptions about the e-Learning strategy at their universities. This figure shows that only 19 percent of the institutions do not have an official strategy for e-Learning while 44% do have a strategy and 37% are in their way to develop a strategy. On the other hand, 51 percent of the universities have a documented policy and plans for training faculty members and providing them with the e-competences, while only 20 percent do not have any training policy and plans. This figure shows also that there is a positive tendency in the four elements of the e-Learning strategy (official strategy, training policy, membership of international consortium and e-Learning web link at university's homepage) as perceived by the faculty members. Table 5 which summarizes the results endorses further these findings.

ICTs competencies of faculty members with a computed mean value of 3.61 out of 5 were found to be very good; this would mean that this component would constitute an enabling factor for the successful implantation of the e-Learning initiative at the university. Figure 5 shows the radar chart for faculty members ICTs competencies; It is to be noted here that faculty members were found to have very good competencies in general software applications such as text editing, spreadsheets, presentations, search engines, social networking while their competencies in advanced web technology such as web development, multimedia development and e-Learning LMS were found to be good to fair and need some improvement efforts to be provided by the institution. The authors believe that these findings would be of vital importance during the planning process of training needs in implementing e-Learning approach.

Faculty members' perception towards motivations and incentives is measured in figure 6 presents. With a mean value of 3.76 out of 5.00 and the detailed components as shown in figure 6 would suggest that the proposed motivations such as the perception of e-learning as a vehicle for knowledge transfer, international collaboration, industrial cooperation, academic progress, training policy, financial incentives, adequate equipments and the sabbatical year were perceived as good to very good motivations for the e-Learning initiative. In figure 7, we present the results obtained for the barriers that obstruct the e-Learning initiative with an overall mean of 3.64 indicating in general the effective existence of some barriers towards e-Learning to be implemented at the Saudi university. The most important barriers in this context were the lack of administrative support, training, resources and equipments, the low competencies in web technologies (as seen from figure 5) for both teachers and students and more importantly the lack of students' motivation and poor student's engagement within the strategy.

To the questions concerning the quality of the courses delivered by academics and their subsequent willingness to learn and to adopt the ITCs in the educational process, the respondents confirmed that these two factors were not perceived to be real barriers to the strategy. These results confirm early findings by Nicolaou et al. (2005) concerning the e-Learning barriers in higher education institutions in European context.

To the question “How can web-based education and e-Learning components improve the education at the Saudi university?” faculty members answers scored the maximum average values among all six parts of the questionnaire with a value of 3.81 indicating that faculty perception about quality improvement in the educational process correlates positively with the adoption of the e-Learning strategy. Figure 8 shows that e-Learning components such as world-class universities web links, Virtual Laboratory Environments, Emails, social networks, discussion groups, Online resources, web sites for downloading scientific reports and research papers, and web sites for professional societies were perceived by faculty to improve the quality of teaching. Though obvious, this observation, constitute a good indicator of the willingness of faculty members to adhere to the e-Learning approach as a means for higher education quality improvement. This would help leadership and decision-makers at the institutions to adopt the e-Learning strategy and to make the necessary plans to surmount the barriers encountered during the adoption of the e-Learning approach (Nicolau et al. 2005). In general Saudi university has good ITCs infrastructure but these would need to be better employed to deliver high quality education to the students (Almohaisen, 2007). Based on these observations, in 2006, the Ministry of higher education established the National Centre for E-Learning and Distance Education (NCeDL) (<http://www.elc.edu.sa>) with the aim to develop the national e-Learning strategy and to provide nationwide e-learning development in higher education institutions with the collaboration of the Open University of Malaysia and Multimedia Technology Enhancement Operations or METEOR.

This national centre is responsible for research and development (R&D) initiatives aimed at facilitating e-learning in Saudi university, including the National Learning Management System ‘Jusur’, to store, manage and share learning objects within a nationwide Saudi universities network. Within this strategic perspective, public universities such as King Fahd University for Petroleum and Minerals in Dhahran, King Saud University in Riyadh and King Abdulaziz University in Jeddah, embraced the e-learning strategy in their educational process. The e-Learning Centre in the Deanship of Academic Development at King Fahad University of Petroleum and Minerals which was established in 2003, (<http://www.kfupm.edu.sa/dad/elearn/about/elearn.home.htm>) promotes the use of the web in teaching and learning at the university using WebCT platform to offer integrated access to online resources by students and instructors. KFUPM has also joined the global movement for open sharing of educational content online through the OpenCourseWare Consortium. KFUPM OCW (<http://ocw.kfupm.edu.sa>) contains Arabic and English language materials from

approximately 80 courses in the fields of engineering, sciences, industrial management, Accounting, management information systems and social sciences. As discussed by Al-Khalifa (2010) in her review paper about e-Learning in Saudi Arabia, the Saudi government is beginning to implement modern educational reforms and the Ministries of Education (MoE), the Ministry of Higher Education (MoHE), and the Technical and Vocational Training Organization (TVTC) are encouraging and supporting e-learning strategies for education and training. The e-learning strategy is being supported in higher education through the work of the National Centre for E-learning and Distance Education and within the universities themselves. Though the existence of the official e-learning strategy, it was noticed by the researchers that there are still many challenges facing the higher education institution in implementing the e-Learning strategy. Though human capacity is an important factor in the successful application of the e-learning strategy, there are still other barriers hampering the successful implementation; these include: Lack of belief in the effectiveness of e-learning in the higher education system; Lack and weakness of students and teachers in e-learning competencies especially in web development programs and multimedia, Lack of training in pedagogy and managing e-learning environment, Lack of incentives for adopting the e-learning strategy, Inadequate managerial understanding, strategic planning and funding in public higher education organizations, The lack of coordination and conformity in procedures, standards and specifications, leading to duplication in efforts, A lack of awareness of e-learning in the corporate sector.

Conclusions and Recommendations

World-class universities such as the MIT have been working hard to promote and to deploy the strategy of e-Learning in the Open Course Ware framework to enhance quality of learning and foster both students and faculty educational experiences worldwide. Considerable efforts have been made to ensure that this strategy and its associated educational facilities can reflect the excellence of the teaching, learning, research and community services expected from the university as organization of knowledge creation, sharing and dissemination. Today, the Saudi university faces the great challenge to benefit from the various advantages offered by this newly established educational technology. There is a clear conviction that the e-Learning approach will contribute in the enhancement of the quality of the higher educational system and to make benefit of the multiple advantages offered especially the international visibility at the personal and organizational levels. The present paper is a contribution towards the study of the e-learning approach and its implementation in the Saudi higher education context with the aim to identify guidelines and directions that address the needs of faculty members and the management to adopt the e-Learning approach as a strategy to improve the quality of education. The successful implementation of this approach depends on a set of critical success factors that were identified using an empirical investigation. The determined critical success factors (CSFs) include the following:

- The degree to which the higher education organization adopts officially the strategy with a clear vision towards quality improvement; this is believed to be assured by the overall e-learning strategy formally adopted by the Ministry of higher education.
- The degree to which academics adhere to the official strategy and develop ownership of the various measures in the context of their teaching, research and community activities.
- The extent to which the university leadership shows commitment to the approach and provide adequate support in terms of training, incentives, technology, resource development, and impact monitoring and assessment.

The present results stress on the strategic perspective for a successful application of the e-Learning approach; This depends on the capacity of leadership to actively involve faculty members into the expected organizational change; The most important conclusion drawn from the present empirical investigation is the crucial role of developing an organizational policy for e-learning through benchmarking from leading universities, scientific research and a democratic process that would guarantee large involvement of faculty members and experts from inside and outside the country. Knowledge transfer protocols (KTP) would lead to excellent results in this context. Higher education organizations are responsible for strategic leadership and commitment. They should ensure large scale investments in infrastructural resources and human capital. Quality management principles and organizational excellence models criteria, known basically as: (a) Customer Orientation, (b) Strategic planning, (c) Leadership commitment (d) Continual Improvement of processes and (e) People involvement and empowerment, should be taken by the institutions as fundamental pillars to the e-Learning strategy to make real success happen on the ground and not to duplicate the ready “Keys on hands” solutions adopted in general by public services in developing countries.

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References

- Altbach, P.G., Reisberg, L and Rumbley, L. E. (2009), Trends in global higher education: Tracking an academic resolution. UNESCO 2009 World Conference on Higher Education, 6-8, July, Paris, France.
- Almohaisen, I. (2007). E-learning in the Kingdom of Saudi Arabia. National Centre for Distance and E-Learning Seminar. Riyadh: Keynote Speech.

Al-Khalifa, Hend S. (2010), e-Learning in Saudi Arabia, in " CASES ON CHALLENGES FACING E-LEARNING AND NATIONAL DEVELOPMENT: Institutional Studies and Practices", Vol. II, Ugur Demiray, Anadolu university, Turkey.

Barasubramanian, K., Clarke-Okah, W, Daniel, J., Fereira, F., Kanwar, A., Abdurahman O. and West P. (2009), Les TIC au service de l'Enseignement Superieur. UNESCO 2009 World Conference on Higher Education, 6-8, July, Paris, France.

Benchicou, S., Aichouni, M. and Nehari, D. (2010), E-Learning in Engineering education : A Theoretical and Empirical Study of the Algerian Higher Education Institution, The European Journal of Engineering Education, Vol. 35, N. 3, pp. 325-343.

Broadbent, B.,(2002), E-learning, present and future, Ottawa Distance Learning Group. http://www.e-learninghub.com/docs/ODLG_2002.pdf .

D'Antoni, S. (2008), Open Educational Resources: The Way Forward, UNESCO, International Institute for Educational Planning, Paris.

Forsyth, H., Pizzica, J., Laxton, R. and Mahony, J. (2010), Distance education in the era of eLearning: chalanges and opportunities for a campus-focused institution, Higher Education Research and Development, Vol. 29, N. 1, pp. 15-28.

Khan B. H. (2001), A Framework for Web-based Learning. Educational Technology Publications: Engelwood Cliffs.

Liu, Y. and Wang, H., (2009), 'A Comparative Study on E-learning Technologies and Products: from the east to the West', System Research, Vol. 26, pp. 191-209.

Murray, D., (2001), E-learning for the workplace: creating Canada's lifelong learners. Conference Board of Canada, http://www.hrsdc.gc.ca/eng/hip/lld/olt/Skills_Development/OLTResearch/learn_e.pdf [28 February 2011].

Nicolau, C. T., Nicolaidou, I. A. and Contantinou, C. P., (2005), The e-Learning Movement as a Process of Quality Improvement in Higher Education, Educational Research and Evaluation, Vol. 11 (6), pp. 605-622.

Nonaka I, Takeuchi H., (1995), The Knowledge-Creating Company. Oxford University Press: New York.

Schneckenberg, D. (2010), Overcoming barriers for eLearning in universities – portfolio models for eCompetence development of faculty, British Journal of Educational Technology, Vol. 41, N. 6, pp. 979-991.

Tables

Table 1. eLearning CSFs proposed by different researchers

Gasco et al. (2004)	Selim (2005)	Zhang and Bhattacharyya (2007)
Management Flexibility	instructor's attitude towards technology	instructor's attitude towards e-learning
Active participation of trainers / teachers.	instructor's teaching style	participation of key personnel in the institution
Control mechanisms of training programs.	learners' motivation and technical competency	concrete aim of e-learning
The creation of quality content.	learners' interactive collaboration	computer and Internet environment
Promotion of interactive activities between trainers.	Course content and its structural design	management platform of the system
Use of standardized technologies	Availability of Internet access	professional technological staff
Gradual implementation.	ITC infrastructure and Organizational support	

Table 2: Descriptive information of the participants in the study

Participants Characteristics	Frequency	Percentage Frequency
1 – Faculty Academic Position		
Professor	3	7.32
Associate Professor	2	4.88
Assistant Professor	27	65.85
Lecturer	8	19.51
Others	1	2.44
2 – Faculty Position at University		
College's Dean	4	9.76
College's Vice Dean	4	9.76
Department's Chairman	7	17.07
Program Director	4	9.76
Faculty Member / Instructor	22	53.66
3 – Academic Degree		
Doctorate / PhD	32	78.05
Master	8	19.51
Other	1	2.44

4 – Professional Experience

< 5 years	9	21.95
5 < 10 years	11	26.83
10 < 15 years	11	26.83
15 < 20 years	7	17.07
> 20 years	3	7.32

5 – Major Field of Specialization

Engineering & Computer Sciences	10	24.39
Natural Sciences	2	4.88
Medical Sciences	5	12.20
Humanities and Education	13	31.71
Religions Sciences	8	19.51
Others	3	7.32

6 – Level of Teaching

Advanced Post Graduate Studies (MSc)	2	4.88
Bachelor and Diploma Courses	27	65.85
Laboratory and Tutorials	12	29.27

Table 3: Calculated Values of Cronbach's Alpha

Part	e-Learning CSF	numbers of questions	Cronbach's Alpha
2	Strategy	6	0.76
3	Instructor's e-Competencies	13	0.91
4	Motivations and Incentives	10	0.89
5	Quality Components	10	0.89
6	Barriers	10	0.86
7	Infrastructure	10	0.82

Table 4: Mean Values and Standard Deviations for the e-Learning measures

Part	e-Learning CSF	Scale	Mean Values	Standard Deviation
2	Strategy	3	2.35	0.79
3	Instructor's e-Competencies	5	3.61	1.33
4	Motivations and Incentives	5	3.76	1.09
5	Quality Components	5	3.81	0.97
6	Barriers	5	3.64	1.17
7	Infrastructure	5	3.66	1.02

Table 5: Official Strategy measures as perceived by faculty members

	Percentage (%)		
	Yes	In Progress	No
An official e-Learning Strategy does exist	43.90	36.59	19.51
Declared Training Policy	51.22	29.27	19.51
Participation to previous training on e-Learning	56.10	12.20	31.71
University membership in International Consortium	56.10	31.71	12.20
University Web contains an e-Learning link	53.66	19.51	26.83
Average	52.20	25.86	21.95

Figures

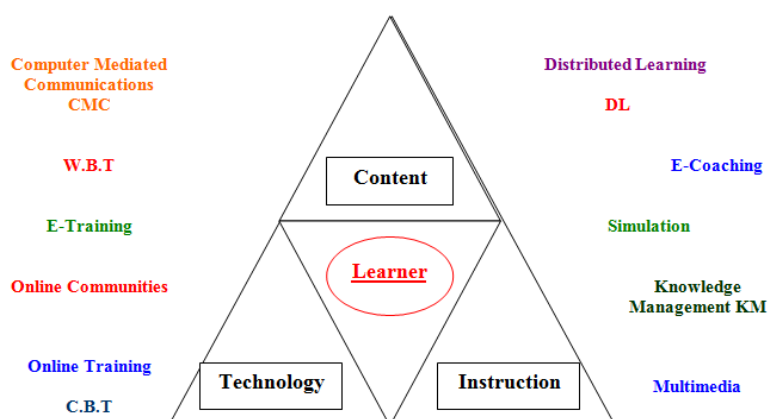


Figure 1: Basic Components of e-Learning Structure with the various terms used in the literature



Figure 2: Percentage Respondents Distribution among Saudi Universities



Figure 3: Schematic of the Online Survey Questionnaire used in the investigation

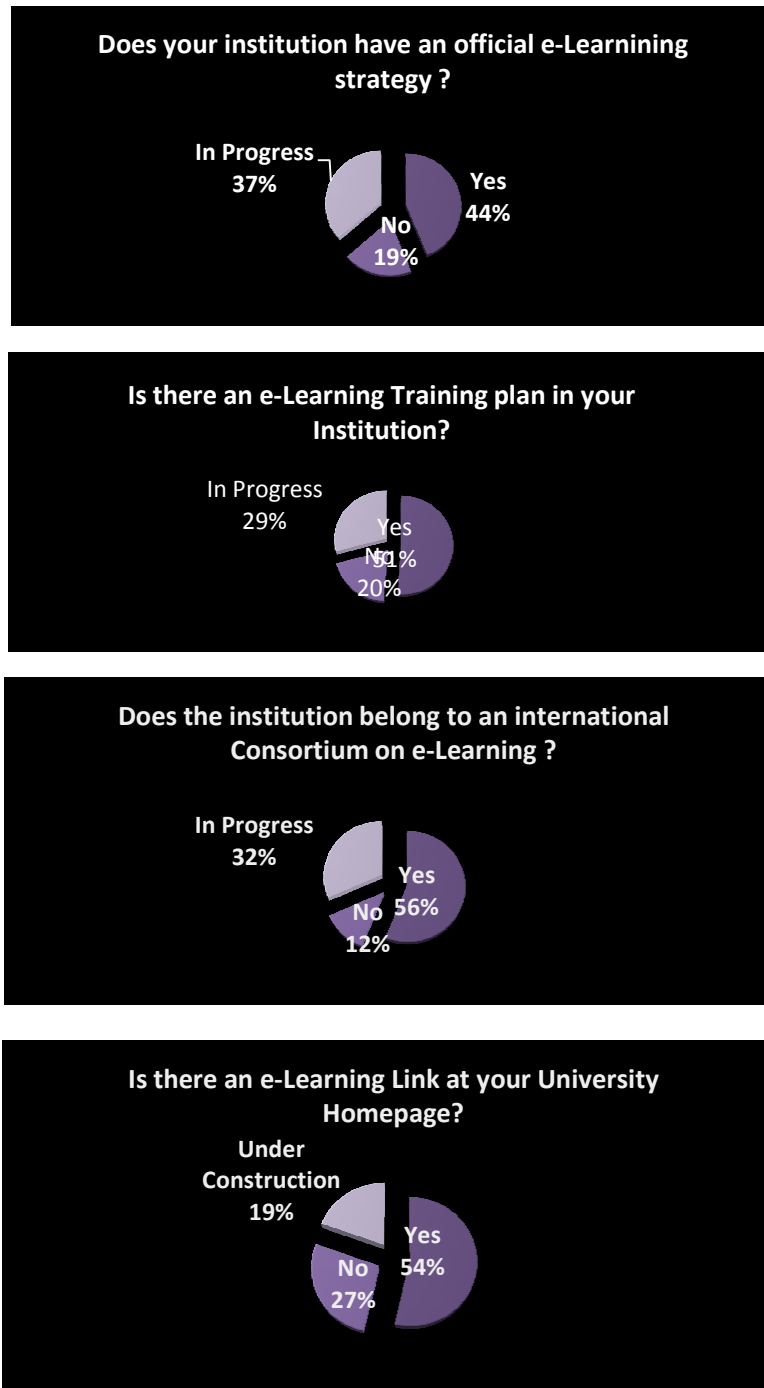


Figure 4: Official e-Learning Strategy as perceived by faculty members

Figure 5 Faculty members ICTs competencies

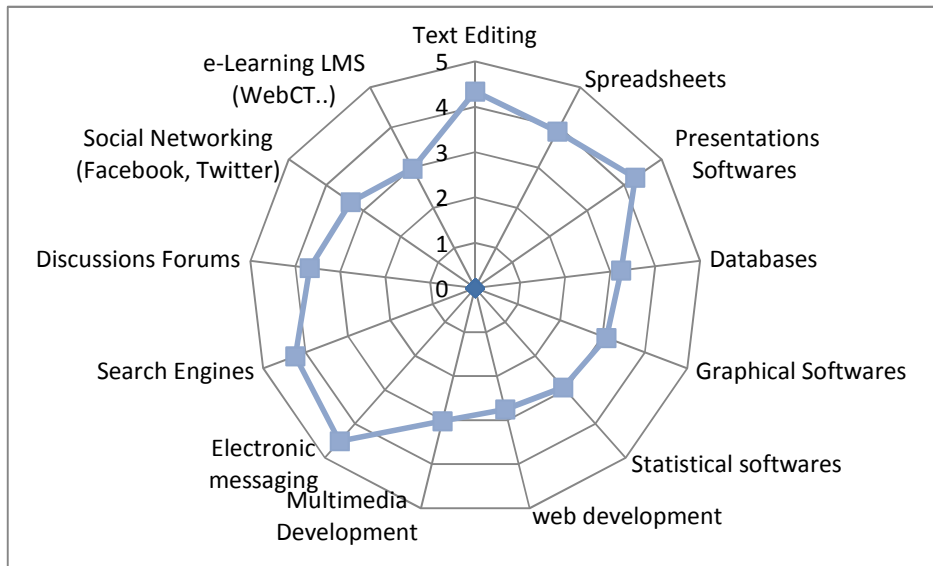


Figure 5: Faculty members e-competencies in ITCs

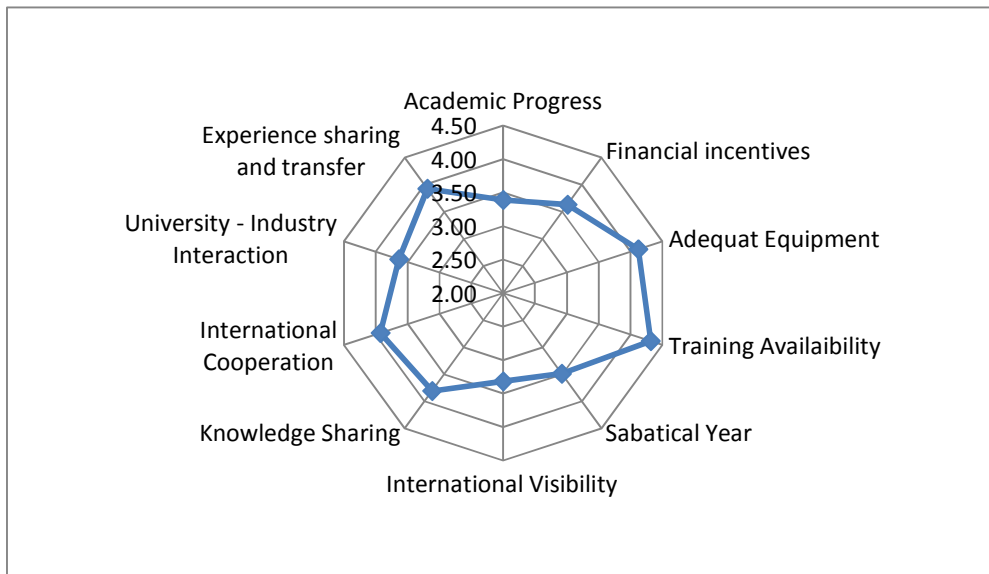


Figure 6: Motivations and Incentives Measures

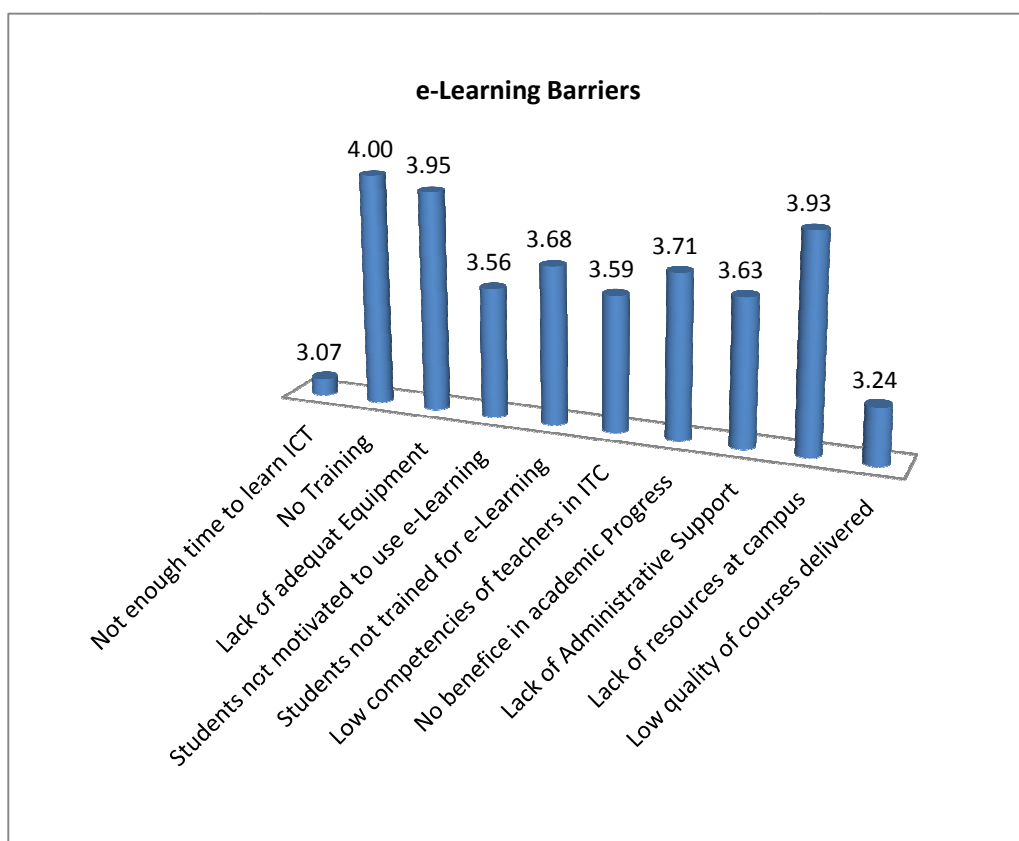


Figure 7: Barriers to the e-Learning Approach

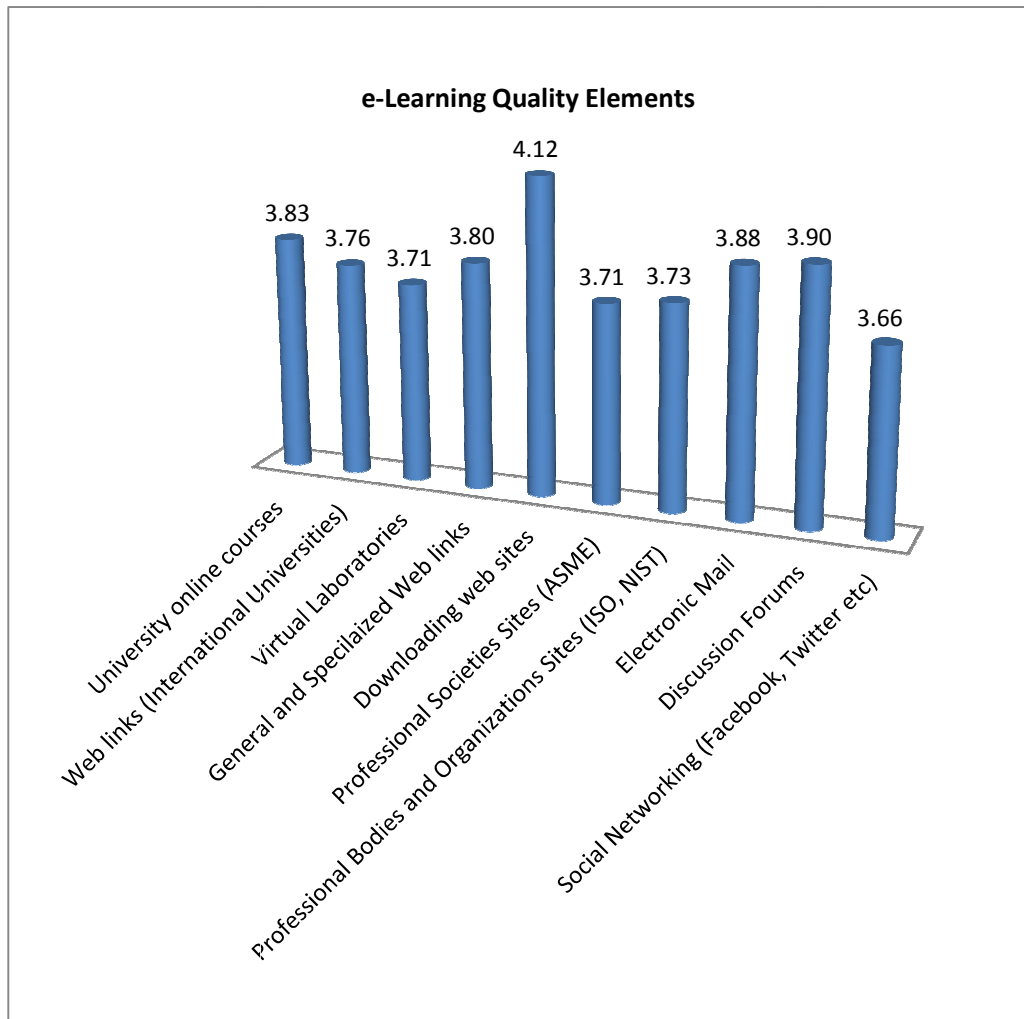


Figure 8: e-Learning Quality Factors