

Reality of E-Learning and its Application with University of Kufa

Ebtesam Najim Abdullah AlShemmary¹, Bashar Dhayaa Noor², Zainab Dalaf Katheeth²

¹Collage of Education for Girls

²Informatics Center for Research and Rehabilitation

^{1,2}University of Kufa, Najaf, Iraq

¹Email: ebtesamnajim@yahoo.com; dr.alshemmary@gmail.com

Abstract - Currently, the conventional education does not confer new educational content for the generations. The traditional education merely cannot keep up with modern technology. The proceeding of application of advanced educational mechanism supporting traditional education, such as e-learning have the ability to improve, support and build a distinct generation, that is one of the most important challenges that must be worked on. This paper presents the concept, importance and tools of e-learning. Also, will discuss availability of the necessary requirements for application of e-learning at the University of Kufa UOK, and where is the site of university in the e-learning. This paper introduced number of necessary mechanisms to increase community awareness of its institutions and governments of the importance of e-learning as contemporary technology challenge. The results described in this paper confirmed that the application of e-learning is an important pillar for the development of educational level to the highest levels to convoy with enormous technological development and work to identify the direction of the next generation towards the successful society effectively.

Keywords - on-line education; learning environment; electronic teaching aids; higher education; information system.

I. INTRODUCTION

The world is fast entering the Information Era. Transactions and commodities may be packaged through data. There is a general agreement that we have entered the information economy, that higher education is a critical element in this knowledge society. This has placed a new demand on its teaching and research functions, with growing emphasis on lifelong learning and more flexible forms of higher education delivery. Notwithstanding, there is also a widespread skepticism as to whether educational systems will be able to overcome their traditional inertia and respond to the challenge of the knowledge-based revolution [1].

In 2001 Marc Rosenberg suggested the following definition of eLearning: “the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance”. In less than two short years this definition has expanded to include wireless as well as internet technologies with the two technologies often working together to delivery focused learning to the job-site [2].

Paul Jackson, et.al. (2003) believe that any business in the world today cannot survive without online services [3].

E-learning is a means of education that incorporates self-motivation, communication, efficiency, and technology. The isolation intrinsic to e-learning requires students to communicate with each other and the instructor frequently in order to accomplish their assigned tasks. E-learning is efficient as it eliminates distances and subsequent commutes. Distance is eliminated because the e-learning content is designed with media that can be accessed from properly equipped computer terminals, and other means of Internet accessible technology [4].

E-learning provides the potential to provide the right information to the right people at the right times and places using the right medium [5].

Many universities and learning organizations have been developing courses using a variety of media, multimedia and hypermedia, with most common the World Wide Web (WWW) and the Internet, to deliver distance education programs, with e-learning being the most popular form. In parallel, Learning Management Systems (LMS), like WebCT, Blackboard and Desire2Learn, have been advanced in order to enable educational institutions and corporations to manage their networked learning delivery [3].

E-learning refers to the use of Web-based technologies and applications in order to deliver a broad range of online learning solutions. The learning context can be accessed

from the web via computer and the educators/learners can communicate with each other using e-mail or discussion forums. However, if we focus too much on the technology aspect of the e-learning system and less on pedagogical and educational issues we are unlikely to be able to deliver solutions of a high learning quality. The potential benefits of e-learning in facilitating “always on” learning can only materialize when learning solutions are introduced as part of a well-planned, specific goal focused and adequately supported educational environment [3].

This section within background that this study sought to carry out a description of actuality of e-learning and its applications at the University of Kufa with the objective of identifying the current and future trends. Section 2 refers to the types and methods of e-learning. Advantages, disadvantages and limitations of e-learning are discussed in

Section 3. While, e-learning in UoK today, followed by a description of ways how to development e-learning in the university are discussed in Section 4. Finally, the results and conclusions are established in Section 5 and 6 respectively.

II. TYPES AND METHODS OF E-LEARNING

E-learning intersects numerous fields of thought and practice, and cannot be trivialized into a simple formula for success. As Figure 1 suggests, writings on the ‘theory’ of e-learning encompass an array of academic perspectives: training and education, learning and knowledge, technology and the investigation of individual market segments [6].

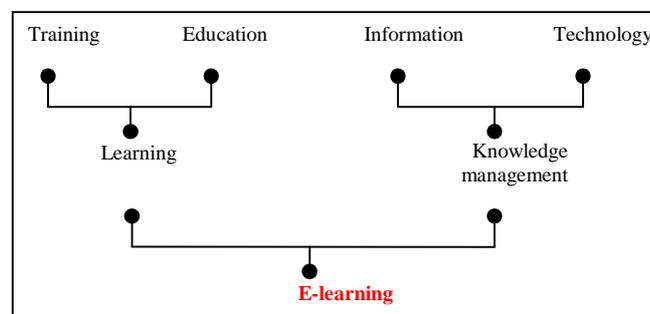


Figure 1: Merging language and fields of study.

Various types of e-learning are described by using the criteria time and distance. Table 1 gives a brief overview of these ‘types’ of e-learning. Like any learning process, e-learning depends on effective communication of human knowledge, whether this occurs in a face-to-face classroom or across the Internet. The effectiveness of e-learning also depends on establishing two-way communication between teachers and learners, and among learners themselves. On the other hand, online technologies can also be used to foster interactive and collaborative engagement. This can be either synchronous or asynchronous: learners and instructors may either have regular, scheduled sessions whether they all ‘meet’ simultaneously online, or (more commonly) use electronic forums to exchange ideas in their own time [5].

Asynchronous e-learning, commonly facilitated by media such as e-mail and discussion boards, supports work relations among learners and with teachers, even when participants cannot be online at the same time. It is thus a key component of flexible e-learning. Asynchronous e-learning makes it possible for learners to log on to an e-learning environment at any time and download documents or send messages to teachers or peers. Students may spend more time refining their contributions, which are generally considered more thoughtful compared to synchronous communication [7].

Synchronous e-learning, commonly supported by media such as videoconferencing and chat, has the potential to support e-learners in the development of learning communities. Learners and teachers experience synchronous e-learning as more social and avoid frustration by asking and answering questions in real time [7]. Methods can be classified according to types of e-learning as follows [8]:

A. Synchronous e-learning:

- 1- Real time chatting.
- 2- Conferences that provide a synchronous communication and interaction.
- 3- Audio Graphics conference.
- 4- News Groups or Groups Ware.
- 5- Video Conference.

B. Asynchronous e-learning:

- 6- E-mail.
- 7- File Transfer.
- 8- Bulletin Board.
- 9- Web pages.

To achieve e-learning should provide a number of requirements can be summarized by [8]:

1. Material and technical requirements include:
 - Computer devices.

- Training rooms suitable for training students and teachers to use e-learning applications.
 - Internet network.
 - Local area network.
 - Programs to design and manage e-learning.
 - E-library.
2. Requirements of human(team trained and experienced in e-learning, as well as a team for the maintenance and management services and e-learning systems)
 3. Regulatory requirements and administrative.
 - Financial support to the requirements of e-learning
 - Promotion and adoption of e-learning in educational institutions and recognition.
 - Support and encourage research and studies in the field of e-learning.

Table 1. Types of E-learning

	Near in place	Partly distant in place	Distant in place
Distant in time	Asynchronous e-learning .For example, taking a self-paced course, exchanging e-mail messages with a mentor and posting messages about a topic a discussion group.		
			Trainers and trainees never meet. For example, courses are distributed via the internet and communication via e-mail only.
Partly distant in time	Face –to- face training is combined with for example electronic conferencing within one organization or campus.	Trainers and trainees meet for a kick off, and for an evaluation .The learning goes on at a distance in time and place.	Trainers and trainees use for example IRC or other tools to communicate about a problem or the courseware.
Near in time	Synchronous e-learning: communication occurs at the same time between individuals and information is accessed instantly. For example, real time chats, audio or video.		
			Trainers and trainees do not meet physically, but by using for example a video conferencing system a course is given or students are able to ask questions.

III. ADVANTAGES AND DISADVANTAGES OF E-LEARNING

A. E-Learning Advantages

E-learning is beneficial to education, corporations and to all types of learners. It is affordable, saves time, and produces measurable results. E-learning is more cost effective than traditional learning because less time and money is spent traveling. Since e-learning can be done in any geographic location and there are no travel expenses, this type of learning is much less costly than doing learning at a traditional institute. Flexibility is a major benefit of e-learning. E-learning has the advantage of taking class anytime any where [4].

E-learning allows the student to choose what suits him from the teaching method some preferred way video, audio or print. E-learning allows the possibility of application of the sources in different ways and many allow modification according to the method best for the trainees [9].

E-learning helps students develop knowledge of the Internet. This knowledge will help learners throughout their careers. E-learning encourages students to take personal responsibility for their own learning. When learners succeed, it builds self-knowledge and self-confidence in them [4].

B. E-Learning Disadvantages

One disadvantage of e-learning is that learners need to have access to a computer as well as the Internet. They also

need to have computer skills with programs such as word processing, Internet browsers, and e-mail.

E-learning also requires just as much time for attending class and completing assignments as any traditional classroom course. This means that students have to be highly motivated and responsible because all the work they do is on their own. Learners with low motivation or bad study habits may fall behind. Another disadvantage of e-learning is that without the routine structures of a traditional class, students may get lost or confused about course activities and deadlines causing the student to fail or do poorly [4].

Develop e-learning introverted students for not learning the position they were in a real place, but the actual confrontation is through the multiple places where the student alone in his home or place of work. In traditional education a student can exercise social events, cultural and sporting, while it is difficult in e-learning [8].

Despite the importance of e-learning, but there are some obstacles that limit the development or spread of e-learning, including [10]:

- 1- Lack of clarity of the regulations, methods and techniques in which the e-learning effectively.
- 2- Lack of awareness of community members in this type of education, and stand the negative of it.
- 3- Work rules and old regulations hinder innovation and limit its spread.
- 4- The high cost of design and production of educational software.
- 5- Weak response of the students with the new style and interaction.

IV. UNIVERSITY OF KUFA AND E_LEARNING

To study the use of e-learning tools and factors affecting its use in teaching at higher education, a questionnaire consisting of 31 questions was designed and submitted for review to a panel of advisor consisting of the Head of Information System, and 5 Senior lecturers who taught IS subjects. After the panel's suggestions were incorporated, the questionnaire and cover letter were sent to IS lecturers in the collages. Data collection through a questionnaire survey was taken for 60 samples distributed over a wide range in UOK, and the collection of amount of data in a relatively short time.

The objectives of the survey were:

- To gauge the use of e-learning tools in teaching IS.
- To seek information on how e-learning tools have boosted teaching, the obstacles to their use, and the factors that contribute to their successful usage in teaching.

The questionnaire consisted of five parts. The first part of the questionnaire gathered the respondent's background such as, their highest educational attainment, teaching experience and IS subjects that they have taught. The second part of the questionnaire was dedicated to collect data on the use of e-learning tools in teaching. The third part of the survey was focused on how e-learning tools have boosted teaching in IS. The fourth part of the questionnaire focused on the e-learning advantages and disadvantage. The fifth part of the survey was designed to identify the obstacles to e-learning tools integration in teaching. Respondents provided information through questions on these topics.

The degree of agreement on these items to the use of e-

learning tools in support teaching were rated using a Likert scale, starting from NO COMMENT (if respondent never encountered the situation mentioned), STRONGLY DISAGREE, DISAGREE, SLIGHTLY DISAGREE, SLIGHTLY AGREE, AGREE and STRONGLY AGREE. The data analysis was identifying the items by grouping the same category scale. To get a clearer picture of the degree of agreement on an item, the number of respondents whose response is slightly agree, agree or strongly agree for an item were added together to form single agree category. The number of respondents whose response is slightly disagree, disagree or strongly disagree for an item were added together to form a disagree category. The percentage for each category against the total number of responses is calculated.

V. RESULTS

This paper presents the extent of using e-learning patterns, as well as its advantages and disadvantages, and the findings related to the obstacles encountered towards the application of e-learning tools in UOK. The study sought to achieve its goals through the resolution and explain the results of Questionnaire as follows:

1. Study results relating to the individuals:

As seen in Table 2, 6 members representing 10% of the study have Ph.D., While 9 members of the study, corresponding 15% of the total number of study have Master, 8.33% of study have Higher Diploma, 36 members of the study, representing a rate of 60% of the total number have Bachelor and 4 members of the study, corresponding 6.67% of the total number of study have Diploma.

Table 2. Study Distribution According to the Qualification

Qualification	Repetition	Percentage
Doctorate	6	10%
Master	9	15%
Higher Diploma	5	8.33%
Bachelor	36	60%
Diploma	4	6.67%
Sum	60	100%

Table 3. Study Distribution According to the Number of Experience Years

Number of years of duty at the university	Repetition	Percentage
≤ 5 years	25	41.6%
> 5 years	35	58.3%
Sum	60	100%

Table 3 shows 58.3% of the study, their experience of more than five years. While 25 members equivalent to 41.6% have less than five years of experience. Table 4 elucidates that 85% of study attended in the field of

computers over than three training courses. While 4 members have less than three training and 8.3% rate of members have no training courses.

Table 4. Study Distribution According to The Number of Training Courses

Number of training courses in the field of computers	Repetition	Percentage
≤ 3 years	51	85%
> 3 years	4	6.6%

I didn't participate	5	8.3%
Sum	60	100%

2. Study results relating to the methods of e-learning:

The percentage value for each item is calculated as shown in Table 5. Note that the paragraph (*using the display devices like data show in the educational process*) has got the highest agree rate 61.6%, which reflects abundance of display devices to use. While the highest disagree rate was 70% for the paragraph (*participation in video conferences held by the UOK with international universities*). This kind of conferences begins in 2009, but

there is a lack of awareness and knowledge of this type of conference. Thus, did not participate or profiteer global communication with universities. The paragraphs (*Are you been training teachers to use methods of e-learning?*) and (*Are you using the interactive whiteboards in teaching?*) win by 11.6%, the highest percentages of abandoned without comment. That is, because the teaching staff has been trained to use computers, but they haven't special training courses for e-Learning.

Table 5. Respondents' Usage of E-Learning Methods at the University

Items	Agree (%)	Disagree (%)	No Comment (%)
Are there a sufficient number of computer labs at the university?	31.6	65	3.3
Are there a sufficient number of computers (laptop or desktop) at the university?	46.6	45	0.3
Are you using the display devices (i.e. data show) in the educational process?	61.6	31.6	6.6
Are you been training teachers to use methods of e-learning?	38.3	50	11.6
Is there a presentation of student's research by (i.e. power point or flash ...)?	48.3	45	6.6
Are you using the video, sound, in education?	40	51.6	0.3
Do you have a mail account on the University's website?	40	51.6	0.3
Do you have a personal web site?	51.6	41.6	6.6
Are you using the interactive whiteboards in teaching?	26.6	61.6	11.6
Did you participate in video conferences held by the university with international universities?	28.3	70	1.6

3. Study results relating to the Acquaintance of e-learning methods:

Consequence of management support and follow-up website activation of each college, the paragraph (*Is there a*

website for the College?) in Table 6 gain 83%. While the paragraph (*Did you know the number of service programs available on the network of University*) obtained highest rates of rejection and neglect. That is, due to the lack of notice with availability services on the website.

Table 6. Acquaintance of the Existence E-Learning Methods at UOK

Items	Agree (%)	Disagree (%)	No Comment (%)
Is there an intranet on UOK?	81.6	18.3	0
Is there a website for the College?	83.3	11.6	5
Did you know the existence of a virtual library at the UOK?	81.6	13.3	5
Did you know the existence of an electronic library appointed the University's website?	73.3	21.6	5
Did you know the number of service programs available on the network of University	25	65	10
Did you participate in the forum is free to the University's website?	50	43.3	6.6
Are you participated in the Consultation Forum on the University's website?	35	56.6	8.3

4. Study results relating to the e-learning characteristics:

A. E-learning advantages

Table 7 denotes that the frequent use of computer technologies in e-learning increases the students' level and his/her skill in the use of computers. Because of the flexibility of e-learning, using e-learning is not limited to the scientific terms but also literary terms.

B. E-learning disadvantages

E-learning increases students' social isolation, because of dealing with electronic, thus spending time in front of the technical means at expense of social interaction. Table 8 shows that e-learning not limits the Professors' role for students' morally and behavior guiding. Also, the students' burdens and responsibilities are not increased.

Table 7. Responses of Using E-Learning Advantages

Items	Agree (%)	Disagree (%)	No Comment (%)
Raise the level of student achievement of the scientific material	95	1.6	3.3
Encourages the student to participate instead of just listening	90	5	5
Raise the level of the computer culture and skills of the students	98.3	0	1.6
Presents scientific material in an interesting way	88.3	3.3	8.3
The use of e-learning in the field of scientific disciplines only	41.6	48.3	10

Table 8. Responses of Using E-Learning Disadvantages

Items	Agree (%)	Disagree (%)	No Comment (%)
Increases the social isolation of the student (spending time in front of the technical means at the expense of social interaction)	68.33	30	1.67
Limits the role of Professor in guiding students morally and behavior	56.6	41.6	1.67
Increases the burdens and responsibilities of the student	56.6	41.6	1.67

5. Study results relating to the e-learning limitation

Table 9 elucidate that the most important limitation of e-learning is the administration support and encouragement to the use of e-learning by students and professors.

Table 9. Responses for E-Learning Limitation

Items	Agree (%)	Disagree (%)	No Comment (%)
Lack of financial allocations towards software and media appointments	78.3	16.6	5
Lack of management attention to the application of e-learning	90	6.6	3.3
Professors fear of reducing the role in the educational process	66.6	31.6	1.6
Lack of computer equipment at the university of insufficient	75	20	5
Weak skills by students in the use of computers	85	13.3	1.67
Work rules and regulations hinder the mechanisms of e-learning	85	11.6	3.33

VI. CONCLUSIONS

This paper has aimed to study the reality implementation of an e-learning environment and its applications in UOK. The scale of adoption and applications of e-learning across all educational facets in UOK has need specialized support to develop qualified staff. The findings of this study have several similarities with other findings on the use of ICT tools in higher education in the developed nation [11]. The similar factors are: time must be allocated to faculty members, the institution have to provide a proper evaluation and incentive plan on integration of ICT tools in teaching, reliable ICT tools and good network connection for the continuous use of ICT tools in teaching, and quality technical support. The survey result has again verified that these factors are of great importance for faculty members. These factors are not hierarchical in nature, but are all equally important.

There are challenges associated with the implementation of e-learning by teachers into their classroom such as skill development, changes in their role and the pedagogies they employ. However, urged the faculty and students to develop their skills to use computers and Internet, especially in the educational process. Also, encourage students to use e-courses and gives them homework on the website continuously and sent electronically are capable to supporting e-learning and its

application in the UOK. Future work will focus on applying E-learning to other applications [12-16].

REFERENCES

- [1] Becta, "ICT and E-Learning in Further Education: Embedded Technology", evolving practice-a report to the learning and skills council, 2004.
- [2] A. Zimnas and et al., "IDEL - A simple Instructional Design Tool for E-Learning", World Academy of Science, Engineering and Technology, 2009.
- [3] M. Kumar Nayak and P. Phon Suesawaluk, "Advantage and Disadvantages of E-Learning Management System", Fourth International Conference on e-learning for Knowledge-Based Society, Thailand, 2007.
- [4] Kristy and Megan, "E-Learning Concepts and Techniques", 2006.
- [5] Namahn, "E-Learning A Research Note", 2002.
- [6] <http://www.muo.com.au>, "What is Electronic Learning?".
- [7] S. Hrastinski "A Study of Asynchronous and Synchronous E-Learning Methods Discovered that Each Supports Different Purposes", 2008.
- [8] Nasser Abdullah Nasser Al-Shahrani, "Demands the Use of E-Learning in the Teaching of Natural Sciences in Higher Education from the Perspective of Professionals," Umm al-Qura University, 2009.
- [9] M. Ahmed Basqr, "E-Learning and Its Impact on Faculty Members: A Case Study for the Department of Information Science, University of Umm Al-Qura", Umm al-Qura University, 2009.
- [10] M. Abdulaziz, "Fact of Using E-Learning for Ungovernmental Kingdom Schools in Al-Riyadh Civil", King Saud University, 2008.
- [11] Spotts T. H., "Discriminating Factors in Faculty Use of Instructional Technology in Higher Education", Educational Technology & Society, Vol. 2, No.4, 1999.

- [12] Zhang, Y. and L. Wu, "Stock market prediction of S&P 500 via combination of improved BCO approach and BP neural network," *Expert systems with applications*, Vol. 36, No. 5, pp. 8849-8854, 2009.
- [13] Zhang, Y. and L. Wu, "Improved Image Filter based on SPCNN," *Science in China E edition: Information Science*, Vol. 51, No. 12, pp. 2115-2125, 2008.
- [14] Zhang, Y. and L. Wu, "Weights optimization of neural network via improved BCO approach," *Progress in Electromagnetics Research*, Vol. 83, No. pp. 185-198, 2008.
- [15] Zhang, Y. and L. Wu, "Image segmentation based on 2D Tsallis entropy with improved pulse coupled neural networks," *Dongnan Daxue Xuebao (Ziran Kexue Ban)/Journal of Southeast University (Natural Science Edition)*, Vol. 38, No. Compendex, pp. 579-584, 2008.
- [16] Zhang, Y., S. Wang, and L. Wu, "A Novel Method for Magnetic Resonance Brain Image Classification based on Adaptive Chaotic PSO," *Progress in Electromagnetics Research*, Vol. 109, No. pp. 325-343, 2010.



Ebtesam Najim Al-Shemmary, born in Najif in Iraq, 1974. DR. Ebtesam received MSc. and Ph. D. from University of Technology, Baghdad, 1999 and 2007. She is IT-RDC manager in University of Kufa. Her general specialization is Computer and Control Engineering and specific specialization is Mechatronics Engineering (Robotics and Image Processing). She is especially well known for profound contributions to different fields of computer programs, biometrics and automatic identification system. Dr.AlShemmary interesting research are statistical analysis for health, medicine studies and information technology. She has some research in international and local journal in different fields of computer science. Dr.AlShemmary worked as rapporteur of computer department of the faculty of Education for Girls in, University of Kufa in Iraq. Also, she is a member in many committees in Kufa University, like scientific committee, examination committee.

Vitae