

EVALUATE E-LEARNING IN IRAQ APPLYING ON AVICENNA CENTER IN ERBIL

Thabit H. Thabit

Sinan A. Harjan

Cihan University , Erbil , Iraq

Abstract

The Accelerated growth of information and communication technology and the magnificent evolution in digital technology unlock new Prospects in different dimensions including education one. E-learning is now playing a very important role in learning processes and the major concern in all education institutions and universities. E-Learning approaches are new trends that are based on using computers and information and communication technology as a proxy to deliver and share educational materials which makes education available anytime, and anywhere. Khan suggested eight dimensional e-learning framework which serves as a base to help institutions to plan, design, implement and evaluate their e-learning programs. This paper discusses whether e-learning systems at Avicenna Center in Erbil meet the eight dimensional e-learning frameworks. Also it presents the most critical success steps to develop and evaluate Avicenna center , for the purpose to spread the e-learning in all over Iraq. This research measures the eight dimensional framework and calculates their materiality.

Keywords: E-learning , eight dimensional framework , critical success factors , information and communication technology

Introduction

The rapid growth of e-learning technology has brought new chances and methodologies in higher education and teaching methods represent in all the shapes of new technology learning . These shapes are typically used in place of traditional methods and mean that learners deliver their knowledge through the Internet rather than face-to-face tutoring.

E-learning is the use of electronic media , educational technology and information and communication technologies (ICT) in education[1]. E-learning includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-

ROM, and computer-based learning, as well as local intranet / extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlie many e-learning processes [2].

Kruse [3] addressed the benefits of e-learning for both parties: organization and learners. Advantages of organizers are reducing the cost in terms of money and time. The money cost is reduced by saving the instructor salaries, and meeting room rentals. The reduction of time spent away from the job by employees may be most positive shot. Learning time reduced as well, the retention is increased, and the contents are delivered consistently. On another hand, learners are able to find the materials online regardless of the time and the place; it reduces the stress for slow or quick learners and increases users' satisfaction; increases learners' confidence; and more encourages students' participations.

Khan's eight-dimensional e-learning framework is a detailed self-assessment instrument for institutions to organize their evaluation of e-learning readiness and opportunities for growth. The framework provides a structure for systematically reviewing e-learning initiatives and programs, so that desired learning outcomes are achieved. The framework is composed of eight dimensions, each reviewed by practical checklists of 50 - 70 questions. The checklist does not include a scoring system, but serves as an instrument that verifies that each area is cultivated [4].

In order to make such e-learning or blended learning works effectively a well-designed framework is needed. Khan's framework offers eight factors that help in planning, designing, and evaluating e-learning materials, e-learning authoring tools, and e-learning platforms, such as Learning Management systems (LMS). The framework dimensions are: institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. Khan's framework aims to serve as a self-assessment instrument for institutions to evaluate their e- learning readiness or their opportunities for growth [5].

In this paper, the e-learning system of Avicenna Center in Erbil is described in Section II. The eight dimensional framework is presented in Section III. Section IV investigates the critical success steps . the six principles of effective e-learning are discussed in Section V. Section VI presents the evaluation of e-learning in Avicenna center.
the eight dimensional framework

Khan [6] suggested eight factors of e-learning framework that provides a structure to help institutions reviewing e-learning initiatives and programs to achieve the desired learning outcomes. Each dimension represents “a category of issues that need to be considered in order to create successful e-learning experiences” [7]. The question: "What does it take to

provide the best and most meaningful open, flexible, and distributed learning environments for learners worldwide?" [8] originates the idea of Khan's framework. The framework aims to guide planning, designing, and implementing online programs and materials. Fig. 1 shows the eight dimensional e-learning framework which are listed below:

- Pedagogical dimension, which mainly concerns of issues related to teaching and learning such as course contents, how to design it, how to offer it to target audience and how the learning outcomes will be achieved.
- Technological dimension examines issues related to hardware, software and infrastructure. E-learning environment, LMS, server capacity, bandwidth, security and backup are also covered in this dimension.
- Interface design dimension concerns the overall look and feel of an e-learning program. Interface design encompasses web and content design, navigation, web accessibility, and usability testing.
- Evaluation dimension addresses the evaluation of e-learning at institutional level, evaluation learning assessments.
- Management dimension refers to the maintenance and modification of the learning environment, it also addresses issues related to quality control, staffing and scheduling.
- Resource support dimension related to all technical and human resources support to create meaningful online environment which includes web-based, digital libraries, journals, and online tutorials.
- Ethical dimension considers issues related to social and political influence, diversity, and legal issues such as plagiarism, and copy rights.
- Institutional dimension includes three sub dimensions: issues of administrative affairs related to financial aid, registration, payment, graduation and grades; issues of academic affairs related to accreditation policy, faculty and support staff, and class size; issues of student services related to e-learning which covers everything from counseling and library support to book store, internships, and alumni affairs.

Fig. 1. shows the eight dimensional e-learning framework as Khan suggested .



Fig. 1. The eight dimensional framework [9]

Every dimension in the eight dimensional framework has many components or sub dimensions[10] . Table 1. shows the most important components of the eight dimensional e-learning framework .

Table 1 : The main dimensions' components of the eight dimensional e-learning framework

Dims.	Sub-dims
Institutional	Administrative Affairs Academic Affairs Student Services
Management	People, Process and Product (P3) Continuum Managing E-Learning Content Development Management Team Managing E-Learning Environment
Technological	Infrastructure Planning Hardware Software
Pedagogical	Content Analysis Audience Analysis Goal Analysis Design Approach Instructional Strategies Organization Blending Strategies

Ethical	Social and Cultural Diversity Bias and Political Issues Geographical Diversity Learner Diversity Digital Divide Etiquette Legal Issues
Interface Design	Page and Site Design Content Design Navigation Accessibility Usability Testing
Resource Support	Online Support Resources
Evaluation	Evaluation of Content Development Process Evaluation of E-Learning at the Program & Institutional Levels Evaluation of E-Learning Environment Assessment of Learners

I. the critical success steps

There are many critical success steps in evaluating and developing the e-learning programs , the following is a list of top action to ensure the success of the program [11] :

- Conducting a thorough analysis and developing a training plan leads to the most efficient and effective learning solutions;
- Using a blended approach to training including classroom training, synchronous and asynchronous online training, and printed materials supports training for a widely distributed and changing audience;
- Developing e-learning content that is interactive, relevant to the audience, and includes the whys as well as the how will keep learners engaged and increase overall knowledge retention;
- Marketing the e-learning through a variety of mediums prepares and excites users for the new methods of training delivery;
- Allowing adequate time for e-learning on the job and ensuring managers support this type of learning increases the completion rate for self-paced learning;
- Tracking results and tying to performance reviews holds learners accountable no matter what delivery mode is selected;
- Providing adequate technical and operational support during training and after go-live for end users decreases frustration;

II. Six Principles of Effective E-Learning

Exploring the concept of effective practice in e-learning, begins with an understanding of the term ‘pedagogy’. Formerly restricted to erudite usage, the term is now used with increasing confidence and panache by those who discuss and debate educational principles[12].

There are six principles to make the e-learning more effect. Every center of e-learning must adopt them to success in its mission. These principles are [13] :

1. *The multimedia principle : adding graphics to words can improve learning .*

Graphics refer to a variety of illustrations including still graphics such as line drawings, charts, and photographs and motion graphics such as animation and video. Research has shown that graphics can improve learning. The trick is to use illustrations that are congruent with the instructional message. Images added for entertainment or dramatic value not only don’t improve learning but they can actually depress learning .

2. *The contiguity principle : placing text near graphics improves learning .*

Contiguity refers to the alignment of graphics and text on the screen. Often in e-Learning when a scrolling screen is used, the words are placed at the top and the illustration is placed under the words so that when you see the text you can’t see the graphic and vice versa. This is a common violation of the contiguity principle that states that graphics and text related to the graphics should be placed close to each other on the screen.

3. *The modality principle: explaining graphics with audio improves learning.*

If the e-learning center have the technical capabilities to use other modalities like audio, it can substantially improve learning outcomes. This is especially true of audio narration of an animation or a complex visual in a topic that is relatively complex and unfamiliar to the learner.

4. *The redundancy principle: explaining graphics with audio and redundant text can hurt learning.*

Some e-lessons provide words in text and in audio that reads the text. This might seem like a good way to present information in several formats and thus improve learning. Controlled research however, indicates that learning is actually depressed when a graphic is explained by a combination of text and narration that reads the text.

5. *The coherence principle: using gratuitous visuals, text, and sounds can hurt learning.*

It’s common knowledge that e-learning attrition can be a problem. In well-intended efforts to spice up e-learning, some designers use what called a Las Vegas approach. By that mean they add glitz and games to make the

experience more engaging. The glitz can take a variety of forms such as dramatic vignettes (in video or text) inserted to add interest, background music to add appeal, or popular movie characters or themes to add entertainment value. As an example, consider a storyboard for a course on using statistical quality control techniques to improve quality. To add interest, several stories about the costs of product recalls were added.

6. *The personalization principle: use conversational tone and pedagogical agents to increase learning.*

A series of interesting experiments summarized by Byron Reeves and Clifford Nass in their book, *The Media Equation*, showed that people responded to computers following social conventions that apply when responding to other people. For example, Reeves and Nass found that when evaluating a computer program on the same computer that presented the program, the ratings were higher than if the evaluation was made on a different computer. People were unconsciously avoiding giving negative evaluations directly to the source. Of course individuals know that the computer is not a person. However, deeply ingrained conventions of social interaction tend to exert themselves unconsciously in human-computer interactions. These findings prompted a series of experiments that show that learning is better when the learner is socially engaged in a lesson either via conversational language or by an informal learning agent [14,15].

III. Avicenna Center for E-learning in Erbil

Avicenna Center for E-learning in Erbil is dedicated to accelerating the adoption and best use of ICT-assisted Open Distance Learning (ODL). The project aims at establishing adequate local infrastructures and transferring best practice and professional know-how within target universities.

Avicenna Center for e-learning in Erbil was established in 2012 by UNISCO as a part of long scientific plan to strength the e-learning in the middle east in the period (2008-2013).

The main aim to consolidate the activities towards the implementation of 3 centers implemented after the first workshop. They include the following :

- Organization of the Avicenna e-learning centers .
- Development and revising the author contract drafts .
- Development of online courses using SMIL technology.
- Development of e-learning interactions.
- Improvement of online course sequences developed in Iraq.
- Discussion of the future development steps.

The Avicenna center has many logical sequences to achieve all its objectives , these objectives can be illustrated in the following module structure map as shown as in Fig. 2 .

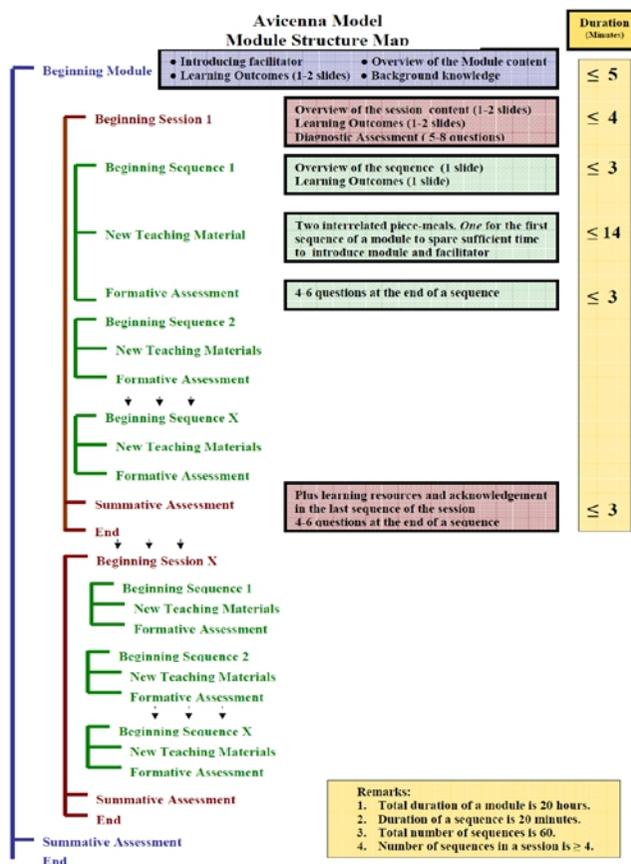


Fig. 2. Module Structure Map of Avicenna Center [4]

IV. The Evaluation of E-learning in Avicenna Center

According to all the dimensions , critical success factors and effectiveness principles , A 40 questionnaires were prepared by the researchers and distributed to a slide of staff and academics that work in Avicenna Center in Erbil. The questionnaire had two parts , the first part was about the materiality of each dimension and weight of each sub dimension , and the second part of the questionnaire was about staff and academics opinions to develop the activities of Avicenna center .

Table 2. shows the materiality of every dimension in the eight dimensional framework according to the questionnaire .

Table 2: The Materiality of All The Components of The Eight Dimensional E-Learning Framework

Dims.	Sub dims	Materiality	Weight	Sub Mat.
Institutional	I ₁	10.80%	25.50%	2.8%
	I ₂		44.70%	4.8%
	I ₃		29.80%	3.2%
Management	M ₁	13.90%	20.50%	2.8%
	M ₂		17.80%	2.5%
	M ₃		32.90%	4.6%
	M ₄		28.80%	4.0%
Technological	T ₁	18.80%	28.80%	5.4%
	T ₂		35.00%	6.6%
	T ₃		36.20%	6.8%
Pedagogical	P ₁	12.10%	12.50%	1.5%
	P ₂		19.80%	2.4%
	P ₃		9.20%	1.1%
	P ₄		22.40%	2.7%
	P ₅		18.40%	2.2%
	P ₆		17.70%	2.1%
Ethical	E ₁	9.20%	15.50%	1.4%
	E ₂		12.90%	1.2%
	E ₃		13.70%	1.3%
	E ₄		7.50%	0.7%
	E ₅		22.50%	2.1%
	E ₆		12.30%	1.1%
	E ₇		15.60%	1.4%
Interface Design	ID ₁	11.30%	19.70%	2.2%
	ID ₂		22.50%	2.5%
	ID ₃		20.10%	2.3%
	ID ₄		26.70%	3.0%
	ID ₅		11.00%	1.2%
Resource Support	RS ₁	14.50%	65.30%	9.5%
	RS ₂		34.70%	5.0%
Evaluation	E ₁	9.40%	21.70%	2.0%
	E ₂		25.90%	2.4%
	E ₃		23.00%	2.2%
	E ₄		29.40%	2.8%

Table 3 shows the opinions of staff and academics about the effect of the eight dimension on the effectiveness of the e-learning in Avicenna center.

Table 3: The Results of The Questionnaire

Dims.	Sub dims	partial	Total
Institutional	I ₁	2.50%	12.3%
	I ₂	3.80%	
	I ₃	6.00%	
Management	M ₁	1.20%	9.8%
	M ₂	2.40%	
	M ₃	3.70%	
	M ₄	2.50%	
Technological	T ₁	14.20%	25.4%
	T ₂	5.80%	
	T ₃	5.40%	
Pedagogical	P ₁	1.20%	12.6%
	P ₂	2.70%	
	P ₃	1.00%	
	P ₄	1.50%	
	P ₅	3.40%	
	P ₆	2.80%	
Ethical	E ₁	0.80%	5.5%
	E ₂	1.10%	
	E ₃	0.70%	
	E ₄	0.80%	
	E ₅	0.90%	
	E ₆	0.90%	
	E ₇	0.30%	
Interface Design	ID ₁	2.70%	15.4%
	ID ₂	2.80%	
	ID ₃	1.30%	
	ID ₄	6.10%	
	ID ₅	2.50%	
Resource Support	RS ₁	7.30%	12.8%
	RS ₂	5.50%	
Evaluation	E ₁	1.50%	6.2%
	E ₂	1.60%	
	E ₃	1.10%	
	E ₄	2.00%	

Table 4. shows the opinions of staff and academics about the effect six principles on the effectiveness of the e-learning in Avicenna center .

Table 4 : The results of The Questionnaire

Principle	Materiality	%	total
<i>Multimedia</i>	16.50%	35.2%	5.81%
<i>Contiguity</i>	22.50%	62.5%	14.06%
<i>Modality</i>	21.70%	69.6%	15.10%
<i>Redundancy</i>	12.50%	52.4%	6.55%
<i>Coherence</i>	11.10%	51.7%	5.74%
<i>Personalization</i>	15.70%	71.9%	11.29%

Table 5 shows the opinions of staff and academics about the effect of critical success factors on the effectiveness of the e-learning in Avicenna center .

Table 5 : The Results of The Questionnaire

C.S.F	Materiality	%	Total
C ₁	17.10%	55.4%	9.47%
C ₂	16.50%	62.8%	10.36%
C ₃	9.70%	88.9%	8.62%
C ₄	20.80%	45.8%	9.53%
C ₅	8.60%	52.3%	4.50%
C ₆	12.80%	47.3%	6.05%
C ₇	14.50%	71.2%	10.32%

According to all the results above , the degree of the eight dimensional e-learning framework in addition to the critical success factors and the six principles , the figures 3, 4, and 5 can illustrate them .

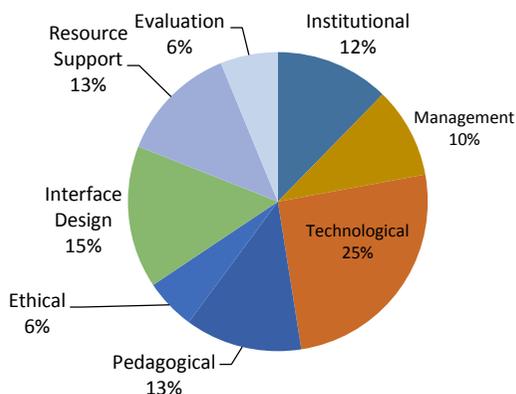


Fig. 3. The illustrate of Table 3

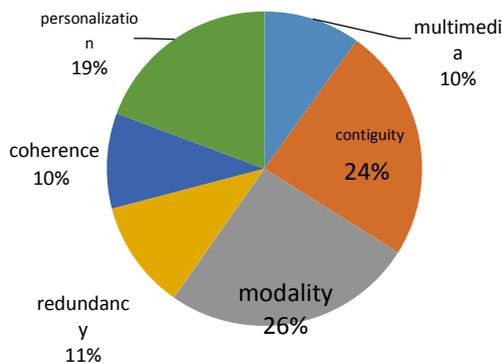


Fig. 4. The illustrate of Table 4

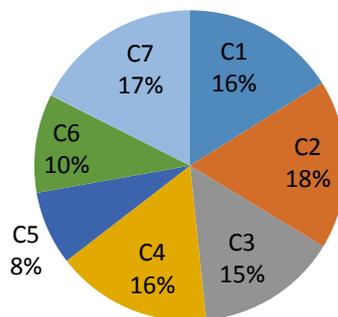


Fig. 5. The illustrate of Table 5

V. Results

1. The best dimension that have been applied in Avicenna Center in Erbil is technological dimension , it's about 25% , and the worst one is ethical dimension , it's about 6% .
2. The most effectiveness principle in Avicenna Center in Erbil is modality , it's 26% , and the less one is coherence , it's about 10% .
3. The most useful critical success factor in Avicenna Center in Erbil is (C₂) using a blended approach , and the less useful one is (C₅) Allowing adequate time for e-learning on the job .

VI. Conclusion

According to the results of this paper , Avicenna Center for e-learning in Erbil needs to :

1. Strengthen all the eight dimensions in Khan's framework to increase the effectiveness , especially ethical , evaluation and management dimensions .

2. Spread the culture of adopting the six principles of education in the center to reinforcement the eight dimensions .
3. Have clear steps for adopting and increasing the degree of critical success factors .
4. Develop a new department of training the staff to deal with e-learning centers .
5. Improve the university students skills to create a new generation compatible with e-learning technologies.

In addition , there is a strong relationship between the eight dimensions in Khan's framework and the six principles of education .

Acknowledgment

The authors thank Cihan University and Avicenna Center for e-learning in Erbil for supporting this work .

References:

- D. Palová, M. Vejcka , 2013 , On-line E-learning platform supporting education and practice of accountants in EU space , MIPRO , Opatija , Croatia, pp. 641-646.
- D. Tavangarian, M. E. Leypold, K. Nölting, M. Röser, and D. Voigt, 2004, Is e-Learning the solution for individual learning?, *Electronic Journal of e-Learning* , vol. 2(2) , pp.273-280.
- K. Kruse, 2014, The Benefits and Drawbacks of e-Learning. CoreBiz Technology Solution .
- S. Knight, 2004, Effective Practice with e-Learning , A good practice guide in designing for learning , 1st ed. Bristol, U.K. : Higher Education Funding Council for England , pp. 21-25 .
- B. Abu-Shawar, 2014,Evaluating AOU e-Learning Platform Based on Khan's Framework, presented at the sixth international conference on advanced cognitive technologies and applications , IARIA, pp. 99-104.
- B. H. Khan, 1997, Web-based instruction : What is it and why is it?, In B. H. Khan Web-based instruction , Ed. Englewood Cliffs, NJ: Educational Technology Publications, pp. 5-18 .
- B. H. Khan, 2001, Web-based training: An introduction ,In B. H. Khan Web-based training , Ed. Englewood Cliffs, NJ : Educational Technology Publications, pp. 5-12 .
- A. Marengo, and V. Marengo, 2005 , Measuring the Economic Benefits of E-Learning: A Proposal for a New Index for Academic Environments " *Journal of Information Technology Education* , vol. 4, pp. 329-346.
- R. Clark, 2002, Six Principles of Effective e-Learning: What Works and Why, the e-learning developers' journal, vol. 10, pp. 3-7.
<http://asianvu.com/bk/framework> .

Rita Ósz , Mariann Váraljai , János Fodor , 2013, New methods of the education in the E-learning's dimensions, ICETA , 11th IEEE International Conference on Emerging eLearning Technologies and Applications, Stary Smokovec, The High Tatras, Slovakia, pp. 305-310.

M.C. Lohman. 2007, Effects of Information Distributions Strategies on Student Performance, and Satisfaction in a Web-Based Course Management System. International Journal for the Scholarship of Teaching and Learning, vol. 1, no. 1, pp. 1-17.

Mikic, F. and Anido, L., 2006, Towards a standard for mobile technology. Proceedings of the International Conference on Networking, International Conference on Systems and International Conference on Mobile Communications and Learning Technologies (ICNICONSMCL'06), pp. 217-222.

Peter Toth, 2012, E-learning and Web Mining, Aniko Szakal (Ed.): Proceeding of 10th Jubilee International Symposium on Intelligent Systems and Informatics, SISY, Serbia, pp. 439-444.

Susana Martínez, Naharro Mónica Alagón Labarta , 2007, ELearningat the Polytechnic University of Valencia: A Bet for Quality Journal of Cases on Information Technology, Vol. 9(2), pp.11-14.