Orbital E-Education Framework for the University of Mustansiriyah (UoMust), Baghdad, Iraq

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Abstract: - An e-education strategic approach has been proposed to leapfrog and address the educational needs of the University of Mustansiriyah in Baghdad, Iraq. The University suffered destruction during the war in 2003. An Orbital e-education framework was designed based on the e-learning system of the School of Distance Education in the Universiti Sains Malaysia (USM) in Penang, Malaysia. The data for this study are gathered through a survey research design with questionnaires using Six-point Likert scale. The questionnaire was distributed in Baghdad and responses were collected from about 10% of the university academic working staff. The findings revealed that the orbital framework was accepted by the Iraqi academics. The framework were deemed capable of dealing with the all the educational dimension in the University and Iraq.

Key-Words: - E-learning, Orbital, Distance Education, ADDIE, Stability, Scalability, Wireless, Capacity Building

1 Introduction
E-education means e-teaching and e-learning together with the different managerial and strategic measures required to support teaching and learning in an Internet environment. It will include a local, regional, national and international view of education….. “New methodologies in teaching, particularly methods that promote creativity and practical experience are urgently needed” (Husain, 2004) [1]

The University of Mustansiriyah (UoMust) was opened in 1963 and now boasts 12 colleges and five center of excellence. This university was severely damaged in 2003; it was completely looted and burned as shown in Figure 1)

Fig. 1 Pictures for the university after fires stop in the colleges of science (taken by one of the authors, ASFE)

2 Research Problems
Since rebuilding is focus of the research, the whole endeavour is viewed in a holistic manner to include the science information about the e-learning strategies, theories, models, systems, software engineering of e-education systems, computer networking, website development, CBT development, e-learning & education networking, building capacity,…etc, and the way of coordinate the education activities in Iraq.

3 Objectives
This research is a trail to solve the university of Mustansiriyah problems through proposing an e-e-education framework which is a combination of the orbital framework with the School of Distance Education in the Universiti Sains Malaysia (USM) e-learning system.
4 Malaysia & USM Facts
In Malaysia now 20 public universities and 17 private universities are open universities. The Malaysian government has been very proactive towards ICT development, and Malaysia was ranked 30th in the world for Internet penetration and 26th for e-readiness [2, 3]. The Internet penetration grew from over 3.5 million subscribers in 2000 to 10 million by early 2005. The Internet penetration grew by 171%. Most of these users surf the Internet daily with an average of 10 hours per week, mainly for e-mailing activities, education research and information research. Almost 84% of Malaysia’s 27 million people had a mobile telephone service by March 2007. USM with 26 colleges and 34 center of excellence is one of the best Malaysian universities with great history in using educational technologies since 1971. It is located in Penang and it is also one of the best universities in Asia.

5 Methodology - ADDIE
The methodology model that has been used by the researchers is: Analysis, Design, Development, Implementation, Evaluation, (ADDIE) model as shown in Figure 3.

6 Significance of the Research
All the Iraqi Higher Education sector in general and The University of Mustansiriyah in particular needs to build e-learning system to solve all the university big problems, and for:
1- Lack and real serious shortage of well-trained lecture and professors.
2- Lack of educational materials like laboratory equipments, libraries, text books, photo copies machines, etc.
3- To Update and expand university curricula. (Textbooks have not changed since the 1950s; international academic journals have been scarce since 1984; methods of Teaching which are outdated; and the range of disciplines is too narrow).
4- The University immediate boost to close the knowledge gap that has existed since the 1980s between Iraqi universities and those in some neighbouring countries and in the West.
5- It is very important to university which its old standards, to start using the new educational technologies and to use the e-learning systems in its educational activities.
6- It is very important to the Iraqi academic staff now to rebuild their universities infrastructures with high level standards of the international universities in the world.
7- It is very important to the University to transfer the technology and experience to its educational activities and to begin from where the other ends, to reduce the gap between Iraqi universities and universities in modern new world.

7 The Orbital Framework
To change the situation in IHE, we need to build a complete education system with the student or the learner at its centre. Researches and all the up-to-date educational theories have proven that and encourage designing learning environments centralising the student or learner.

The educational elements in Iraq which must be considered in any framework design and playing a big role in any learning process are: 1- Pedagogy, 2-Ethics, 3-Evaluation, 4-Technology, 5-Interface Design, 6-Institution, 7-Management, 8-Wireless Technologies, 9-Time, 10-Content Control, 11-Human Resources Capacity Building, 12-Evaluation, 13-Learner, as shown in Figure 4.

The current Iraqi education framework which is a souvenir of the country’s uprising in mid of the
seventieth of the last century is progressively out of touch, especially after the war's damages and emerging new needs of society and the learners it serves.

In the electronic teaching and learning process, the stability of the system is of paramount importance. If we are designing or trying to design e-learning or e-education activities in unstable countries where everything is not stable or going to be stable in the near future, and we also believe adopting such a stable framework could push strongly towards the stability of the learning process.

We believe that the technological is the base and the foundation for our framework and for that we give this trajectory the main position inside the design and build all other elements according to its up to date new technological shapes after the ICT revolution which changes all old standards and concepts. These trajectory's elements are:

7.1 Technological Trajectory
The e-learning elements here must be scalable and stable and the elements are: Technology, Wireless technology, interface design, and technological human resources capacity building.

One computer to one learner is a very difficult formula to reach in any learning institution, especially with the same specification [4]. Internet speed, or bandwidth, was a crucial issue for performance in large e-education networks. “E-learning should ensure sufficient bandwidth is available to support the type of online learning applications being used and to ensure e learners have opportunities for face to face experiences in conjunction with their e-learning.” [5]. In the Technological trajectory, we have four dimensions, and they are:

7.1.1 Technology
The technological dimension of e-learning examines issues of technology infrastructure in e-learning environments. This includes infrastructure planning, hardware, and software and according to that the changes in the education system in Iraq will be completely 180 degree turn, and everything will up to date and new.

7.1.2 Human Resources Capacity Building
MacDonald et al. [6] stated that if people did not have positive attitude, knowledge and skills of ICT, the e-learning program fails. Knowledge and skills have a direct impact on using e-learning. Since most of Iraqi universities suffers from the lack of required skills [7, 8] and we think Iraq needs to increase the believing in ICT which we think it will reshaped the education system completely.

7.1.3 Interface Design
The interface design refers to the overall look and feel of e-learning programs. The interface design dimension encompasses page and site design, content design, navigation, accessibility, and usability testing [9, 10], and it is a very important element because it could be the way to the success, or they fail of any framework.

7.1.4 Wireless Technology
The growing development and application of wireless Information and Communication Technologies (WICT) opens new windows and opportunities for education improvement and redesigns the organizational and educational settings and shapes [11]. To increase process polychromic, i.e., the There is also a social context that includes different cultural formations, situations and moods, degrees of proximity and mutual recognition among people, etiquette and other elements that define what is or is not allowed in certain situations.

7.2. Organizational Trajectory
The e-learning elements here must be standardized according to the progressed university standardization and the elements are: Institutional, Management, Resources, and the Time. Furthermore, the organizational standard must be
stable, and do not influence by the country or society changing winds only if it is to the better. The Stability of the universities is one of its basic academic characteristics, and we can find very clearly how the rules and regulations of the big names' universities like Cambridge, Oxford, UCL, etc. still same from long years ago and this a big indication for these universities organizational stability.

In the Organizational trajectory, we have four dimensions, and they are:

7.2.1 Institutional
The institutional dimension is concerned with issues of administrative affairs, academic affairs, and student services related to e-learning.

7.2.2 Resources
The resource support dimension of e-learning examines the online support and resources required to foster meaningful learning.

7.2.3 Management
The management of e-learning refers to the maintenance of the learning environment and distribution of information and lack of ongoing support from management, failure to perform meaningful reviews to ensure an environment of continuous process improvement, etc[12].

7.2.4 Time
Time is considered a very important dimension in any innovative implementation of e-learning framework with considering the differences between the student achievement capabilities and the individualized differences, but we can keep time open without any upper limits or an end. Availability of time must be adequate time and compensated time for users to become educated and skilled in how to use an innovation. This condition refers not only to the organization’s willingness to provide time (such as paid time or release time) but the users’ willingness to devote learning time to use the innovation [13].

7.3 Educational Trajectory
The e-learning elements here must be modularized according to the Iraqi student’s characteristics, and the elements are: Pedagogical, Evaluation, Ethical and the Content control. In IT and in general Modularity definition is the property of the software (computer programs) that measures the extent to which programs or software have been composed out of separate parts called modules.

Modularity in learning is the same concept, and it is defined as the property of allowing encapsulating, exposing and separately reusing parts of a learning resource. The framework has been designed to modularize the digital learning content, and it has been addressed as a part of the concept of learning objects. The framework presented in this research can be used as the basis for a good foundation for modularization of the VLE. By modularizing the VLE, new functional components can be easily added in a way that makes them work as an integrated part of the overall learning environment[14].

In the Educational trajectory, we have four dimensions and as a word of the truth Khan 2009 framework had covered three dimensions completely, and we cannot find any missing element in his work in the field of pedagogical, ethical and evaluation as educational dimensions, but we also believe that content control should be added here as a new dimension to the educational trajectory. With any technology, the effects on teaching and learning to depend on integration with curriculum and instruction [4].

7.3.1 Pedagogical
The pedagogical dimension of e-learning refers to teach and learning. This dimension addresses issues concerning content analysis, audience analysis, goal analysis, media analysis; design Approach, organization, and learning strategies.

7.3.2 Ethical
The ethical considerations of e-learning relate to social and political influence, cultural diversity, bias, geographical diversity, learner diversity, the digital divide, etiquette, and legal issues.

7.3.3 Evaluation
The evaluation of e-learning includes both the assessment of learners and the evaluation of the instruction and learning environment.

7.3.4 Content Control
The central ideology of learning theories is that learning occurs inside a person. Learning theories
are concerned with the actual process of learning, not with the value of what is being learned.

In general content must be cooperative, collaborative and each learner has a learning path that caters for learners learning needs and interests in a productive. Students learn in differing ways and the manner in which information is presented to them affects their ability to learn [15]. Students need to utilize the different learning styles interchangeably during the learning process in order for them to have an effective learning experience. Technology-enhanced student-centered learning environments organize interrelated learning themes into meaningful contexts [16].

In order to achieve that, Moodle can help us and it are developed to facilitate the collaborative creation of content, organization, control and to manage the publication of documents in a centralized learner learning environment.

As a final result the e-Learning context, advancement in network technologies, e-Learning technologies, and content development has facilitated multiple content presentations, personalization and ubiquitous learning.

![Diagram](image)

**Fig.6** The Orbital e-education framework for UoMust

After studying each element and its direct effect to the student in the e-learning process, the framework was akin to the mechanics of orbital motion of the electrons that is moving in circular orbits at the constant speed around a nucleus, and when we finally understand the electron movement, we discover that each electron actually moves in a "wave pattern" where bodies (learning elements) with a slight difference en masse orbiting around a common barycentric (student as the core of the learning process) (Fig. 6). As such, the framework was reshaped into an orbit shape with the three trajectories and the design as orbital e-education framework.

## 8 Conclusion

The research fix that e-education has come of age at many levels and education is a completely dynamic process and cannot be static and all its dimensions have the same influence on the end outcome and during the process. In the orbit framework the middle trajectory is the technological trajectory (no technology no e-education or e-learning) but all the trajectories have the same influence to the education process with same quality and quantity and all dialogue to learner as the core of all the process.

The e-education orbital framework accommodates the various students pedagogical and delivery needs which occur in higher education, it also covered widely the ordinary educational dimensions and new dimensions. The first to look for is stability, sustainability, modularity, and standard ability of learning. Nevertheless, it should not be considered comprehensive and complete, because of the fast development and utilization of online learning technologies, which continue to grow to include more sophisticated virtual environments for learning. It is complete for UoMust with its present situation and conditions, but we cannot say it is complete for the UoMust lifelong learning.

Most of the academics in UoMust believe that e-education is the key to develop the university as one of the higher education universities in Iraq and a questionnaire results from 6 degree likert scale show us that (Mean = 4.9 from 6 and 82%). Furthermore, the economic and cost factors are very important and play a big role in the learning process (Mean =5.2 and 87%).

**References:**


