THE E-LEARNING SYSTEM DILEMMAS IN IRAN

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Abstract - The projection of Information and Communication Technology (ICT) has begun to have its impact in Iran. The benefits gained from ICT are widely accepted and the Iranian government is encouraging institutions for adopting ICT practices. E-learning is an important branch of ICT which has attracted the attention of many people, especially those in the educational and academic sector. However, e-learning requires a great deal of vigilance compared with other ICT branches such as for example, e-business. This paper reviews the main prospects for e-learning and defines certain aspects for its implementation in Iran, offering some suggestions for the future.

Keywords - E-Learning, ICT, E-Business, Iran.

INTRODUCTION

The online learning may be defined as "Learning via the Internet." [7] It may be called e-learning, online learning, web-based learning, virtual education, or just another expression. Whatever it is called, it is here and is here to stay. The question is not what to call it but how to make it work, [4] and how to put it to use.

E-learning may govern the future of education worldwide. It provides limitless and flexible access to knowledge and education, and enables economic growth for the country. On the other hand, the educational system is being shifted from the traditional teacher-to-student approach, where teacher controls the classroom education, to learner-to-learner [6] approach, where learners must seek education (knowledge) and interact with each other.

There may be seven core strategies that will help online learning work today and in the foreseeable future. [7] These strategies are:

- *Cater to the learner:* The success depends on the learner actually using the knowledge and improving (i. e. learning) from it.
- *Save time and money:* Take advantage of the built-in time/money savings. The same two benefits that rocketed e-learning around the globe in boom times are even more important in a slower economy - as long as it makes sense.
- *Cultivate the technology:* Everyone involved must be comfortable with the technology.
- *Consider the learning environment:* Take into account the adaptive capabilities, knowledge management (instructional methods) and standards.

- *Orchestrate the three sides of design:* Take into account the learning, multimedia and technological design factors of each e-learning module, course or curriculum. All three must work together in harmony for attractive and effective online learning, or it will be a crash course.
- *Think of cultural requirements:* English speakers no longer comprise the majority of Internet users. When designing or delivering e-learning to Iranian audiences, every aspect of the Persian language, culture and customs should be taken into account.
- *Partner with purpose and passion:* Partner with outside vendors strategically, intelligently and with commitment. Also, avoid accidental and unstable partnerships.

Despite the huge potential benefits of e-learning, its track record so far has not lived up to the buildup, especially when compared with the many other online services available to computer-literate consumers. In many cases, the unsatisfactory experiences of key user groups have led educators and learners to conclude that the disadvantages of distributed electronic learning far outweigh its advantages. For example:

- Teachers and course designers have had little or no capacity for real-time discussion of, or reaction to, learners' concerns with content or presentation.
- Content providers have been unnecessarily restricted in their source material, course design and workflow options.
- Corporations, higher education institutions and other organizations have found it difficult to adopt core content to their local learners' needs.
- Learners have been put off by inconsistencies in presentation and navigation, and by discontinuities between different functional areas of the online experience (e.g. content access, group discussion, testing, etc.).
- Administrators (corporate or institutional) have had to deal with multiple systems and unnecessary manual data transfer.
- Many users, including students, are fairly computer-literate. Even where they have not used an e-learning system before, they have high expectations born of their other computing and online experiences. Shortfalls are highly apparent.

While much of these dissatisfactions can be attributed to the quality of the content and support, most have arisen directly from the inflexibility and 'unfriendliness' of the e-learning design and the underlying technical platforms. Indeed, many instances of poor quality learning material can also be traced back to the limitations of the content generation and distribution tools involved.

Facing the prospects of e-learning in Iran, the following factors represent the essential need for an e-learning revolution in Iran.

- Traditional universities can not grow at the same rate as the young population that requires education. Many new universities of this type would have to be built in order to retain the current educational level for those who wish to continue their higher education.
- Developing countries such as Iran do not have sufficient numbers of qualified professionals to serve as teachers, faculty members and mentors.
- When studying in the same system, many students often see each other as supportive

friends and educational collaborators. Teaching students via e-learning in a collaborative environment may enhance mutual understanding, and cooperation.

- Without some feasible system for educating the youth of developing nations, these countries are likely to fall further behind the developed world in terms of economic growth and prosperity.

E-learning in Iran has yet to pick up the expected acceleration. There are a number of possible reasons signifying the hindrance of e-learning in Iran, but the two most influential factors are:

- Lack of appropriate vision, planning and management.
- Lack of public awareness and cultural education.
- Relatively poor communication technology and infrastructure.

This paper refers to the above factors by describing a number of impediments and vague e-learning conditions which are retarding the e-learning implementation in Iran and offers guidelines and possible solutions.

E-LEARNING INSTIGATION

In order to initiate any enterprise initiative, a great deal of research and study is required to identify the overall picture in terms of requirements and what vision is in mind. Consider a plan to construct a nuclear station in a specific location. Many factors may need to be investigated, such as strategic and geographical suitability, population, natural environment, and so forth. Education is a very sensitive and susceptible issue and any e-learning initiative also requires careful planning, design and implementation. Issues such as audience, method of delivery, quality control, system reliability, flexibility and so forth must be taken into consideration for the implementation of any e-learning system. Therefore, if the instigation of e-learning lacks the necessary administration, management and control, circumstances may arise where scattered e-learning platforms are formed which merely aim at employing the IT technologies without considering the pedagogical aspects of e-learning.

One of the most important parameters of e-learning instigation is management. So far, e-learning in Iran lacks the necessary centralized control and management. There have been various sources declaring the establishment of online education or virtual university platforms in Iran. However, in general, a number of e-learning aspects are rather unclear or uncertain such as:

1. Implementation aspects.
2. Pedagogical aspects.
3. Technological aspects

In the following sections, the above aspects are discussed followed by suggestions.

IMPLEMENTATION ASPECTS: NATIONAL OR LOCAL E-LEARNING IN IRAN

The higher education system in Iran is operating under the umbrella of the Ministry of

Science, Research and Technology (MSRT) providing the same academic and research guidelines and standards. The need for a centralized body to manage and control the quality and distinctiveness of education has enabled a consistent degree awarding environment throughout the Iranian higher education system.

The local approach of online education may promote variety and competitiveness among the higher education institutes. However, the local approach may discourage the consistency in the quality and delivery of education in the country as a whole. A wide range of higher education institutes around the globe have either implemented their own institutional online platform, or use WebCT, [10] Blackboard [2] and other e-learning system providers. Establishing institutional e-learning platforms may discourage collaboration within the national or international educational system. Although individual institutions can tailor specific e-learning systems according to their specific needs which can enable them to use their academic and economic efficiencies to provide competitive e-learning environment and e-courseware, however, this can influence the consistency in learning and degree standards throughout a nation. On the other hand, the main problem with e-learning system providers is that there is no control over the administration and management of the e-learning system by the user. It may resemble the use of Hotmail or Yahoo mail to have a personal email environment without having any control over its complete operation, administration and management.

The national e-learning platform on the other hand, can facilitate a consistent and manageable setting providing the same highest quality education throughout the country. Such national online education should operate under the flag of MSRT but with the collaboration and participation of higher education institutes, ICT experts and other relevant authorities. A number of countries have already decided on the national e-learning approach. Among them, UKeU system [9] in the United Kingdom, African Virtual University [1] in Africa, and Canadian Virtual University [5] in Canada have already established national e-learning platforms.

NATIONAL E-LEARNING APPROACH

Iran should benefit from the national e-learning approach as the online educational provider for the higher education system in Iran. Therefore an organization within the MSRT should be established which takes the responsibility for administration, policy and decision making, communication, legal and legislative issues, scientific, research, technology and management of the e-learning notion, implementation and maintenance. Such an organization may be composed of:

- An executive policy and decision making committee assembled in MSRT
- Three subcommittees responsible for:
  - Technical
  - Academic
  - Administration, Communication, Legal and Management of the national e-learning project.

The technical subcommittee (TS) is composed of ICT experts, who are responsible for the ICT related research, supervision and control of the technical issues concerning the e-learning environment. It should collaborate with other subcommittees in maintaining a reliable and flexible system.

The academic subcommittee (AS) is responsible for providing the best quality education and to ensure that the optimum academic requirement is met. It should maintain a strong link with other subcommittees.

The administration, financial, legal and management subcommittee (AFLM) is mainly responsible for the administration, financial, legal and management issues. It is also responsible to the executive committee for keeping them up-to-date on the progress and problem issues. Figure 1 illustrates the structure of such organization.

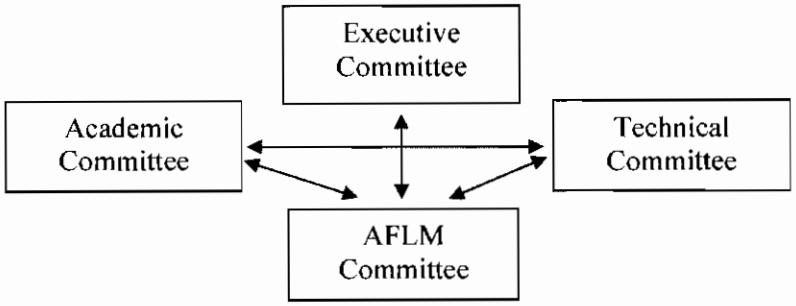

Figure 1: E-learning Committees of MSRT

There are great potentials for academic and ICT experts in Iran and there has already been considerable research and development towards e-learning implementation but without appropriate national orchestration. The MSRT should use its power and status as the umbrella organization for higher education in Iran and should invite potential academics, ICT experts and e-learning developers to offer their views, plans and designs for implementation of e-learning. Such people would describe and present their views to an audience of international e-learning experts. The e-learning organization of the MSRT composed of the executive committee and three subcommittees should take the evaluation, arbitration, and decision making responsibilities to select potential candidate(s) based on the overall judgment of the proposed projects. The MSRT is the main orchestrating body and is answerable to the government. Once the project candidate(s) is/are selected, the three subcommittees are responsible for the supervision of the candidate(s) to fulfill the appropriate stages of the project. The E-learning organization of MSRT should continue the supervision, enhancement and maintenance of the national e-learning system alongside its responsibilities via the higher education system of Iran.

PEDAGOGICAL ASPECTS: COURSEWARE DESIGN AND DELIVERY

One of the key differences between classroom learning and electronic learning is that e-learning, like other forms of distance learning, involves a separation between creation of content, presentation of content and support for the learners. In a traditional classroom, the teacher designs the material, presents it, and answers the learners' questions. The

Internet allows the separation of these tasks. This means, potentially, that considerable flexibility and economies of scale are possible with regard to distribution of courseware. The main focus here is on the design of electronic courseware (e-courseware) rather than its delivery, but it would be wrong to suppose that creation and efficient distribution of courseware is all that is required for good education. A successful e-learning system needs to concentrate as much, or more, on support for learners as on creation of the content to be delivered to them. Appropriate e-courseware: [8]

- Requires high-quality educational material.
- Must be developed by professionals who understand e-learning.
- Should use state-of-the-art design process and tools.
- Must be based on sound pedagogical principles.
- Should aim for optimum delivery.

HIGH QUALITY EDUCATIONAL MATERIAL

The starting point for good courseware design is high-quality teaching material created by teachers and educators (in collaboration with ICT professionals) who are experts in their field. The material must be fit for purpose – there will be large differences between material intended for motivated learners and material for reluctant learners, and between requirements for vocational and academic courses. For example, if the purpose of a course is to teach skills rather than to impart knowledge, then the courseware must provide activities for the learner to develop those skills. Preparing materials for e-learning is very different from writing lectures or even text books. The material should be designed specifically for e-learning, not simply rehashed lecture slides or classroom material. Much more so than lectures or texts, the material must be kept up to date. A huge advantage is that it is easily possible to reuse material from one course in other related courses. For example, part of a course in civil engineering might be used in a course for mechanical engineering. Thus design for reuse is important.

ACADEMICS WHO UNDERSTAND E-LEARNING

The shift from classroom learning to electronic learning requires new teaching skills and processes in order to create appropriate teaching materials and to support the learners. New skills are required for the creation of the media itself, but the shift from classroom teaching to distance learning and from teacher-push to self-directed learning requires a fundamental re-appraisal of the role of the educator.

In the classroom, the teacher can direct the learning process, but in e-learning, the student is in charge. However, the system should have adaptive and intelligent functionalities in order to guide the student while performing his/her learning process. [3] The creation of e-courseware requires a degree of discipline and quality control that has not always been present in face-to-face teaching. Some educators and trainers will find the shift painful, whereas others will find the new field exciting and rewarding.

STATE OF THE ART COURSEWARE DESIGN PROCESS AND TOOLS

Traditionally, the teachers of classroom courses in higher education have each created material in an individual style that may not be easy for others to present. Each tutor has been responsible for specification, choice of subject matter, authoring, graphic design, and delivery of the course material.

This unplanned design process is not appropriate when the course materials will be electronically published and reused. The design process should provide a clear separation between the various tasks involved in creating and delivering courseware, so that the appropriate staff and resources can be involved at each stage. For example, it is useful to separate creation of basic material from the creation of media used to present it and to use media professionals for some of the production (graphics, animation and so on). The courseware design process contains several stages:

- *Specification* – determining the educational goals of the course and deciding what material should be covered.
- *Overall course design* – choosing the order and style of presentation, inclusion of tests and assessments, and so on.
- *Module design* – deciding how the material is presented in each module.
- *Module production* – creating the media and designing the learner interaction and assessments.

The design process should include a quality assurance process (by the MSRT Academic subcommittee) to check the material at each stage. Ideally, this should involve external moderation, including reference to published codes of practice, specifications and standards.

SOUND PEDAGOGICAL PRINCIPLES FOR E-LEARNING

E-learning technology has strengths and weaknesses compared with other educational delivery mechanisms. If e-courseware is designed to use the strengths of the new technology, then a whole new form of learning is possible. This means that the designers of e-learning material need to re-examine the pedagogical principles upon which their courses are based in the light of the delivery mechanisms that they will use. There are several key pedagogical principles that should be observed in the creation of e-courseware:

A. Self-directed learning.
B. Interactive participation and problem solving.
C. Practice and testing.
D. Appropriate use of media, animation, visualization and simulation.
E. Reflection.
F. Collaborative learning.
G. Assessment and learner feedback, with facilitation and modification of courseware delivery accordingly.

A. Self-Directed Learning

The learner is viewed as an active seeker of knowledge rather than a passive receiver.

It is widely believed that learning is most effective when the learner creates his/her own conceptual framework and populates it, preferably in the course of solving a problem. Knowledge is constructed rather than absorbed. The courseware should allow exploration, retracing pathways, and finding more material. The software can keep track of which sections have been covered and online questions can check for comprehension and suggest further material. Opportunities for further study should be linked into the basic material.

B. Interactive Participation and Problem Solving

Course maintenance rates are considerably higher when the learners are actively engaged in the educational process rather than passive recipients, as long as there are appropriate levels of support. Hence, the e-courseware should engage the learners in an interactive process, rather than simply delivering media. This may be achieved through adaptive design criteria for the system.

Learners will remember material if they are required to think deeply about it. A good way to get learners to think deeply is to engage them in a problem-solving task rather than simply to present material. However the task must seem relevant or it will turn the learners off rather than engage them and this must be integrated into the course structure.

C. Practice and Test

The learner should be able to experiment with new ideas and try them out in simulated and adaptive practice. E-courseware should be able to provide better facilities for such experimentation than other forms of courseware, since the delivery medium (the personal computer) is inherently interactive, unlike, for example, a book. Providing a way to try things out not only provides a way to consolidate learning, it can also support formal and informal assessment.

D. Appropriate Media: Animation, Visualization and Simulation

It is an open question whether the use of multimedia material improves learner motivation or comprehension in general. Pictures can help enormously with understanding, but gratuitous use of multimedia does not aid learning, and simply creates distracting noise. However e-learning allows interactive animation and visualization in a way which is not possible using other media:

- A fast physical process can be slowed down or an invisible process can be visualized.
- Animations may be used, for example, to show changes in molecules during chemical processes or the flow of electricity through circuits.
- A student nurse can interact with a 3-D rendering of the body to study physiology.

E. Reflection

E-learning allows the learner to study at his/her own pace. This occurs both at a macro level (studying for example on Monday and Tuesday evenings) and at a micro level (going back over one module several times in order to understand it and then going more quickly over another one). But e-learning also allows a unique combination of real-time interaction and the ability to freeze time for reflection. E-learning is able to support reflection better

than face-to-face teaching. E-learning system should provide the learner with the ability to freeze time to reflect or to deal with cognitive overload, both during presentation of course material and during interactions with tutors or fellow learners.

F. Collaborative Learning

Collaborative learning means that learners engage in a joint task to answer a question or solve a problem. Numerous researches have shown the benefits of collaborative learning. Computer-mediated interaction can increase the level of learner participation in classes (i.e. the percentage of learner talk vs. teacher talk) and that the participation is more equal than face-to-face discussions (i.e. the discussion is not so likely to be dominated by a few learners). The courseware should support and encourage group discussion and interaction between learners. The role of the tutor in such discussions should be limited, in order to prevent learner-tutor interactions dominating the conversations.

G. Assessment and Feedback

The system should regularly check and monitor the learner's understanding and progress. The presentation of subsequent material may have to be modified (adaptively) according to the learner's ability and progress. There should be regular and timely feedback to the learner on his or her progress and actions he or she may have to take with respect to his or her role in the e-learning academic environment. Tutors should observe the learner's progress and try to provide support for those who have difficulty cooping with the course. Those learners with unsympathetic and unwilling attitudes towards their education should be dealt with disciplinary actions.

TECHNOLOGICAL ASPECTS: INFRASTRUCTURE, COMMUNICATION AND SECURITY

The current communication infrastructure of Iran is incapable of comprehensively fulfilling the Internet users' requirements. However, e-learning system and courseware should be designed to cope with low communication bandwidth. Excess use of multimedia should be avoided and if used, appropriate compressions should minimize their delivery sizes.

The infrastructure has to be able to handle high peak communication and Internet traffic. The infrastructure system may have to be designed in modular form and appropriate routing facilities should enable the smooth operation of the e-learning framework.

As in many Internet-based enterprises, security is an important factor in e-learning. All possible loop-holes and backdoor security breaches must be investigated and appropriate plans of action must be enforced. This should be implemented without creating inflexibility and non-friendly environment for users.

CONCLUSIONS

This paper presented a number of drawbacks for the implementation of e-learning in Iran. The paper discussed a number of issues that have retarded its implementation and has offered some suggestions in the process. The need for a supervisory body to identify,

administer and manage potential e-learning developers and also to carry out continuous research into e-learning were emphasized. The pedagogical, technological, and implementation aspects were described and recommendations were offered towards the development of e-learning in Iran.

ENDNOTES

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