Interdisciplinary Journal of Virtual Learning in Medical Sciences

Original Article

The Challenges of Implementing E-learning Courses in Iran's Higher Education: A University Management Perspective

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ABSTRACT

Background: Integrating e-learning into the higher education of developing countries entails identifying the challenges of setting up e-learning courses in these countries. The present article aimed to identify these challenges in Iran. For this purpose, Isfahan University was selected as a leading institution in innovative developments. The University launched its e-learning courses in 2012, and the associated challenges were evaluated from the viewpoints of university officials at the time.

Methods: This research was a qualitative study. Based on the literature review, a guideline devised by Ojo and Awiah was used for semi-structured interviews. This instrument categorizes the technological challenges in developing countries into strategic, operational, and thematic limitations. Further, researchers divided the thematic problems into two subgroups: administrative and cultural–legal problems. Then, they interviewed 10 university officials who were course supervisors during 2012-2013 and were practically involved in addressing the problems of organizing these courses in that period. After gathering data, an analysis was conducted by coding the interviews. Then the challenges and their solutions were determined.

Results: The major challenges in setting up e-learning courses were lack of strategic insight and planning for using e-learning courses in line with the University's mission (strategic challenge) and lack of active participation by instructors and learners in e-learning due to limited face-to-face interactions between them in online classes (operational challenge).

Conclusions: Research findings pointed to the need for a change in outlook on the part of authorities and policymakers for the purpose of identifying and removing the existing challenges of implementing e-learning in higher education institutions.

Keywords: E-learning, Challenges, Developing countries, Solutions, Isfahan University

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Please cite this paper as:
Abdellahi SM, Bagherzadegan A, Aghakasiri Z. The Challenges of Implementing E-learning Courses in Iran's Higher Education: A University Management Perspective. Interdiscip J Virtual Learn Med Sci. 2020;11(4):246-255.doi:10.30476/ijvlms.2020.84373.1007.

Received: 05-03-2019
Revised: 05-12-2019
Accepted: 10-12-2019

Introduction

Garrison defines e-learning as "electronically mediated asynchronous and synchronous communication for constructing and confirming the knowledge." (1). Thus, E-learning is a product of evolution in distance learning, which involves utilizing the latest technologies for structuring education and addressing the demands of a growing population of learners in different societies (2).

In parallel with other developing countries, Iran has adopted distance education and e-learning in the last 2 decades. Accordingly, the country's higher education officials have expressed interest in setting up virtual courses in universities. In this regard, a number of technology-oriented universities have launched virtual courses in some disciplines in recent years. Among them, Isfahan University managed to organize e-learning courses in graduate-level programs after several years of protracted planning and preparation. This delay was due to some challenges and considerations regarding the implementation of this innovative approach. Other universities did definitely face similar challenges and looked for viable solutions before making any investment on switching from traditional to online education.

Considering its socio-economic status, Iran as a developing country, faces challenges similar to other developing countries in terms of implementation and development of e-universities. Table 1 shows the results of the studies related to these challenges in some of these countries (3-8).

As seen in Table 1, the solutions proposed to implement e-learning projects in developing countries are different based on the differences in human and contextual factors. Therefore, in each country the solutions must be compatible with the educational Infrastructure in that country, and no two developing countries are identical in these regards (9, 10). Further, the above review shows that developing countries are facing many cultural, legal, economic, social, and technological challenges in implementing e-learning, which are not comparable to those of developed countries. The latter group of countries have previously confronted and overcome these challenges in their societies. As a consequence, despite the rapid expansion of e-learning in many developing countries in the last two decades, these nations have made a relatively slow progress in this area. For instance, statistics show that the number of Iranian universities providing e-learning courses increased to 13 in 2008, and at the same time, the number of students of these institutions increased to seven thousand people (11). This is an insignificant rate compared to 3.5 million students studying at Iran's traditional universities in the same period. In recent years, a few researchers have studied the factors that slow down the rate of e-learning expansion in Iranian society. Their studies point to three basic challenges in setting up e-learning courses and e-universities in Iran:

1. Problems at the macro-planning and policymaking level

In the area of macro-management, educational policies have not been clear (12).

1.1. There have been no documents providing a road map for this new approach in Iran's public and higher education.

1.2. There has been no clear policymaking perspective on the development of e-learning courses.

1.3. Lack of policymaking centers dedicated to the development of e-learning content; considering the objectives of Islamic revolution, in order to ensure fair public access to e-learning services, these centers must regulate educational policies through a decentralized approach, and lay emphasis on employing nongovernmental researchers and staff.

2. Justice was not observed in the nationwide distribution of e-learning services, and the relevant centers also lacked proper facilities (13).

3. Lack of legislation on e-learning practices:

A major problem in Iran's IT sector is the lack of supportive laws in the area of e-learning. In this regard, one can point to

Table 1. Challenges of e-learning implementation in some developing countries

Researcher(s)	Year	Country	Findings	Main Challenges
Al-Ghaith et al. (3)	2010	Saudi Arabia	Factors that influence adoption and usage of e-service, using survey questionnaires from 651 participants	Perceived Complexity, Privacy, and Compatibility. Also, the quality of the Internet and its relative advantage was an important factor.
Ssekakubo et al. (4)	2011	Sub-Saharan Countries	Failure of the majority of LMS-supported e-learning initiatives, partly or in whole, due to the existing barriers	Some of the most probable causes of failure were identified as high ICT illiteracy rates, usability issues of LMS, poor marketing strategies and insufficient user/technical support
Mubarak M Alkharang, George Ghinea (5)	2013	Kuwait	Due to a number of factors, the available implementation models may not necessarily be followed in all stages when used by different countries and societies.	Lack of management awareness and support, technological barriers, and language barriers
Touray et al. (6)	2013	A Comparative and systematic literature review of 1107 studies in developing countries (2000-11) and a case study of Gambia in autumn 2012	43 ICT barriers were identified and grouped into eight categories, namely socio-cultural, political and leadership, technical, infrastructural, legal and regulatory, economic, educational and skills, security and safety	Three special challenges were revealed in the case study, namely, lack of Internet exchange points, micromanaging, and invisible hands
Tarus et al. (7).	2015	Kenya	Universities had no operational and/or competitive e-learning policies	Inadequate ICT and e-learning infrastructures, financial constraints and failure to prioritize e-learning in universities' budget allocations
Aldowah et al. (8)	2018	Yemen	Individual challenges were found to be the least concern from the respondents' perspective. The instructors were ready and motivated to implement e-learning, however, they needed more training on e-learning technology.	The most important challenges were related to either organizational (context), technological (technical), or course issues.

the lack of clear laws to support researchers' intellectual rights, inadequate legal support for innovative plans at individual or organizational levels, and lack of intellectual property rights. Other legal gaps include lack of regulations to monitor and evaluate e-learning systems, and lack of educational or institutional regulations for setting up e-learning courses (13).

Ojo and Awuah classified the challenges

to the adoption and dissemination of IT-based approaches (such as e-learning) in developing countries into three components, namely strategic, thematic, and operational limitations (14):

● *Strategic limitations* refer to problems such as differences in government policies or institutional planning.

● *Operational limitations* refer to the lack of resources for setting up IT projects in developing countries. They include factors such as HR constraints, improper communication infrastructures, financial and investment difficulties, limited number of projects and the subsequent decline in staff experience.

● *Thematic limitations* refer to issues such as cultural barriers to the use of technology at educational institutions in developing countries (e.g. computer games). These limitations should be considered in the implementation of IT projects like e-learning in developing countries.

Based on the abovementioned model and literature review, the challenges to the effective implementation of e-learning in Iran can be outlined as follows:

1) Strategic Challenges: related to the weakness in administrative outlook and strategic planning for e-learning implementation (12, 15):

○ Lack of an integrated national policy for improving IT-based educational projects, especially e-learning.

○ Lack of concurrence over the e-learning concepts due to the novelty of this phenomenon, and absence of scientific authority that develops the relevant concepts.

○ Diversity of macro-policymaking centers in charge of e-learning implementation.

2) Operational Challenges: related to inadequate provision of the required infrastructure for e-learning implementation

○ Slowness of the Web and its low influence in Iran (15).

○ Inadequate investment and shortage of facilities for e-learning development in universities (15)

○ Low information literacy of instructors and students, and disregard for the concept of e-learning among educational institutions in Iran (15)

○ Low number of skilled instructors capable of using IT for e-learning (11)

○ Poor e-learning infrastructure due to the lack of a Persian operating system, lack of supporting Persian script on the Internet, inadequate investment on the needed software and online content, and insufficient instructor training (15).

3) Thematic Challenges: related to inadaptability issues typical of developing countries such as Iran:

○ Traditional outlook towards the structure, objectives, methods and contents in Iran's higher education; one should take note of the fact that instructional process in Iran is basically teacher-centered. It is based on behavioral and cognitivist learning theories rather than the constructivist learner-centered approach, which is appropriate for e-learning (15).

○ Legal problems in implementing e-learning in Iran (13).

Thus the present study aimed to evaluate the challenges of setting up virtual education courses in Isfahan University. To that end, interviews were conducted with the University officials who were in charge of the e-learning programs in 2012-2013 academic year. A review of literature reveals that, so far, no research has directly investigated this problem in Iranian universities. The results of this study can help other universities in the country to make the right decisions on the allocation of institutional and technical support for launching virtual education courses.

Methods

This was a qualitative study performed through interviews. The target group included 15 university officials who supervised e-learning courses at the time under study (2012-2014). After preparing the research tools, researchers interviewed the target group until data saturation was reached. Upon each interview, the researchers asked the interviewee to introduce other individuals

for the next interviews. Using this method, 10 suitable subjects were identified and selected. They announced their readiness for interviews through phone contacts. To protect the privacy and confidentiality of the respondents, only their positions were revealed in this study.

Semi-structured interviews were conducted based on Ojo and Awuah's model (14) in the offices of the interviewees at Isfahan University. These interviews took place at the early stages of the first semester of e-learning courses (November-February 2012). By the end of that semester an interview was also performed with the head of Virtual School to investigate the identified challenges and applied solutions. Each interview lasted for almost one hour, and the recorded voices were transcribed afterwards. The research tool was a researcher-made guideline, which was based on the proposed model by Ojo and Awuah. They categorized the challenges to IT adoption in developing countries into three areas, namely strategic, operational and thematic challenges (14). Moreover, they divided the thematic challenges into two subcategories: (a) administrative challenges referring to the inefficiency of domestic facilities in making preparations for e-learning implementation, and (b) cultural – legal challenges, which are rooted in public outlook (14). In each section, the relevant literature was reviewed to identify the general limitations to implementing IT projects. Then, in view of those challenges, the respondents were asked about their opinions on the challenges to e-learning implementation at Isfahan University. To ensure the validity of the research, two interviewees were asked to analyze the tools before the interviews, and some limited modifications were made. After preparing the interview transcripts, trustworthiness model was used to validate the analysis (16). Based on this model, the contents of the interviews were coded and main themes were extracted. Then the results were reviewed and returned to two interviewees for final revision. Afterwards, some limited changes were applied.

Results

a) Strategic Limitations

● *Lack of comprehensive guidelines devised by the Ministry of Science, Research and Technology (MSRT) for the purpose of expanding e-learning in universities:*

Five interviewees (50%) pointed to the problems in attracting initial investment to launch e-learning. The reasons included the inadequate budget allocation by MSRT for e-learning development in universities and lack of clear guidelines, standards and manuals to improve coordination among universities, including Isfahan University:

"Our budget is earned through student enrolments in the courses and payment of tuition fees approved by MSRT. Of course, students do not pay for the required hardware and software in the courses, and based on the university's cultural policy, these costs are covered by the official budget. To date, we have only looked at e-learning problem from a scientific, not financial, perspective, and we have not received any funding from MSRT to do so" (Interviewee 8, the head of online school at the time).

● *Lack of planning for expanding e-learning in Isfahan University:*

This was due to the fact that the former authorities found e-learning in contradiction with the strategic aims of the University at that time. Being a leader of innovative development in Iran, Isfahan University focused its policies on developing all fields in higher education, training researchers at graduate and postgraduate levels and developing interdisciplinary content. Accordingly, the authorities believed that these goals could only be achieved through permanent attendance of instructors and students in classrooms, and in-person exchange of ideas/experiences. Therefore, they did not consider e-learning as a suitable means of advancing knowledge, and did not consider incorporating it in their long-term plans before identifying its advantages in all dimensions (seven interviewees (70%) highlighted this issue).

b) Operational Challenges

● *Improper communication infrastructure in Iran and limitations in face-to-face interactions between instructors and students in online classes:*

Eight interviewees (85%) believed that the first and foremost challenge for the University officials was to pave the way for active participation of instructors and learners in e-learning through a strong communication channel. In this respect, low Internet bandwidth would hamper interactions among instructors and learners.

● *Lack of experienced instructors in e-learning courses:*

Given the novelty of e-learning courses in Iran, very few instructors are experienced in teaching such courses.

● *Extensive time needed to prepare online contents:*

Five interviewees referred to this barrier. As the head of online school maintains:

"One problem that caused a two-year delay in launching online courses in Isfahan University was concerned with receiving approval for the curriculum by Online Education Development Council at MSRT. The managers of the online programs at the University were obliged to prepare 30% of total content based on MSRT standards. They submitted it to the Council for investigation and evaluation".

c) Administrative Limitations

● *Faculty's reservations regarding engagement in e-learning courses:*

Four interviewees (40%) believed that the faculty's concerns were rooted in their habit of adopting traditional methods, and also the absence of continuous annual briefings on the benefits of e-learning.

● *Faculty resistance to change:*

Instructors, especially the older and more experienced ones, resist change in their roles and duties and are not readily aligned with transformations in online education. In Isfahan University, most instructors had over 20 years of experience in teaching traditional courses. They were not interested in engaging in e-learning courses since they were too busy and did not have sufficient time to develop content and participate in instructor training courses for e-learning. As the chancellor of Isfahan University asserts: "An instructor with 25- 30 years of experience is not prepared to participate in training courses for online education. The best thing we can do is to teach professional skills for better access to online resources, information and analyses." (Interviewee 1, Chancellor of Isfahan University).

● *Heavy costs of holding training courses for instructors:*

Instructors had different skill levels with online instruction. It was impossible to hold an identical training course for all of them. Hence, different courses had to be arranged based on their background and familiarity with relevant concepts, which imposed heavy costs on the University.

d) Cultural and Legal Limitations

● *Lack of a reward system to encourage faculty engagement in online education*:

By the end of the first e-learning semester at Isfahan University, the faculty were paid daily wages. However, five interviewees (50%) believed that online education fundamentally differs from night-time or ordinary teaching. Instructor activities in online education are broader than traditional education methods. Therefore, they engage full-time in all steps of preparing contents, presenting them, and monitoring and evaluating student activities. Hence, they should spend much more time and energy than their counterparts in traditional education.

● *Given their cultural considerations, potential e-learning stakeholders in Iran, including policymakers, practitioners and learners, did not have a positive view of e-learning courses*:

Two interviewees stated that, based on the views of some national leaders and policymakers, access to the networks, especially the Internet, poses a threat to the cultural values of the Islamic Republic. In this respect, authorities have introduced some special concepts like "Clean Internet". Besides, they have taken measures by proposing solutions such as "National

Internet" as well as limiting the Internet bandwidth. This has hampered investment in this area and reduced the quality of online courses. Furthermore, in the employment sector, the officials at MSRT and industries do not regard e-learning graduates on the same level as their peers receiving traditional face-to-face education.

- *A competitive culture that limits cooperation among teachers in online education:*

Two interviewees believed that the competition between faculty members prevents them from engaging in teamwork with their colleagues. "In foreign countries, a group of young researchers, each with an expertise in a specific area, usually work in a team with an experienced researcher to perform a creative activity, such as co-authoring a book or doing research", said one interviewee. However, in Iran, a professor may "refuse to take on a supporting role in a project" (e.g. e-learning), if they do not play a pivotal role in advancing that project. "Many professors believe that they should take a leading role in group activities, and refuse to work with others when they are not at the forefront."

Discussion

The findings of the present study are in line with other studies that have generally examined the challenges of implementing e-learning in Iranian society (11-13, 15). They show that officials in Iranian universities face similar challenges in this area to those of their counterparts in other developing countries (3-8). For example, consistent with the findings of Taurus (7) and Scacobo (4), inadequate funding for e-learning development in domestic universities was found to be a major challenge in Iran. Moreover, similar to the studies in Saudi Arabia (3) and Kuwait (6), poor Internet quality was deemed to be a common challenge to teacher-student interaction in most developing countries. Other similar findings point to the lack or inadequacy of infrastructure for e-learning due to the emphasis on traditional face-to-face education (7) and the lack of an integrated national policy that encourages investment on online education in universities (8).

Also, in line with the present findings, Feizi (12) and Ahmadpoor (13) show that, in addition to the well-known common challenges in Iran and other developing countries, a few specific socio-cultural challenges emerged in Iran following the Islamic Revolution. They highlighted the challenges originating from stake-holders' cultural perspectives, multiplicity of decision-making centers, diversity of e-learning policies and manuals, and the existence of competitive culture among faculty members.

The research findings showed that Iran's higher education should take a measured and coherent path to achieve the potentials of e-learning. Initially, a central department in the MSRT should be in charge of policy-making and coordination among universities and stakeholders in this field. Then, each university should adopt appropriate policies for e-learning development based on its mission, priorities, and financial and human resources. In addition, university officials should consider the basic components in project implementation and preside over the activities in this process. One of the prerequisites for success in this area is to observe of the standards required to ensure the quality of education. The next important point is to pay attention to the standards that enhance faculty engagement as a means of driving change in this field. Considering this point and the results of the present study, the following suggestions are proposed to address the challenges to e-learning implementation in Iran's higher education:

(A) Eliminating operational and strategic challenges:

1. Adopting a systematic vision to determine the perspectives and goals of e-learning in the country's higher education, and developing an integrated policy to foster coordination among universities.

2. Collaborating with other successful partners to explore the best methods of expediting e-learning implementation as

well as reducing the costs (collaborations can cover areas such as the development and sharing of e-content and other resources, budget allocations, instructor training, and the development of e-learning infrastructures).

3. Setting up the necessary technological equipment in universities (software, hardware and broadband Internet).

(B) Addressing thematic challenges:

1. Planning the execution of projects in universities and adapting them to new educational conditions; taking into account the time required to prepare instructors to perform their duties in electronic environments; holding training courses tailored to instructors' needs and time constraints.

2. Motivating educators to participate in e-learning and improving their knowledge and awareness of this educational style.

3. Holding appropriate training courses along with briefings (it is necessary to hold a wide range of training courses to improve faculties' e-learning skills. Joining these courses should be voluntary and they should be followed by evaluations).

4- Using blended learning in a pilot project across a small number of institutions before a full switch to e-learning.

(c) Addressing legal challenges:

Among legal solutions for e-learning development in Iran, one can highlight the developing of infrastructures to establish justice in distribution of resources, standardizing and granting permissions to e-learning centers for providing the desired services, monitoring their performance within legal frameworks, and protecting researchers' intellectual properties. In addition, with regard to the moral principles that enhance cooperation among instructors, one can promote collective research by providing further support. Education and research policies can also be organized with the aim of linking researchers in interdisciplinary joint initiatives so that different specialties can meet e-learning needs through cooperation, and each one can act as a supplementary to the other fields.

The e-learning environment undergoes a constant change, and it is influenced by the exchange of data in the information society. Given the countless thematic and operational-strategic challenges in developing countries like Iran – indicated in the literature review (3-8) – the information society in these countries is not fully developed, and e-learning implementation may entail substantial efforts to tackle potential flaws and alterations in educational infrastructure besides the existing challenges. Furthermore, as stressed by Nawaz and Kundi (10) e-learning solutions must be compatible with the human and contextual factors in any country.

Developing countries should lay the groundwork for integrating e-learning into their higher education systems. For this purpose, universities should precisely pinpoint the requirements for implementing e-learning in their educational plans. The main point is that the officials at any institution should specify the requirements for an e-learning program and its compatibility with its strategic goals and resources. Then, they should develop pilot online courses before implementing them at the university level. This will ensure the achievement of objectives without scarifying educational and professional standards.

Ethical Considerations

After obtaining permission from the President of the University of Isfahan, the researchers introduced themselves to the interviewees and explained the objectives of the study to them. Participation in the study was voluntary. Researchers assured the participants that their information would remain confidential and that only their official institutional title would be used to indicate their views if necessary.

Authors' Contributions

All authors contributed equally to the study design, data collection, data analysis, and writing and revision of the manuscript. They also read and approved the final version

of the manuscript.

Conflict of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

We wish to express our gratitude to the officials supervising e-learning courses at Isfahan University in 2012-2013 academic year, who helped us conduct this research by sharing their valuable time and insight.

Funding/Support

No funding was provided for this work.

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