Status of e-learning at several major universities in Saudi Arabia

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ABSTRACT: Although e-Learning in Saudi Arabian universities is still relatively new, many universities are making great strides in implementing good infrastructure and using e-learning to extendthe reach of education beyond conventional limits. These universities, being pioneers, are learning from the practices of others and adopting these to suit their situations with varying results. In order to better understand the status of e-learning practice in Saudi Arabia,a comprehensive survey was conducted in early 2010 at several major universities by a team of international and local consultants over a period of two weeks. The survey revealed that all the universities are well equipped in terms of technology infrastructure. However, almost all the universities face challenges such as the lack of capable human resource support in areas such as e-learning pedagogy and content production. The universities adopt various initiatives to overcome the challenges and some of the initiatives can be useful to other universities facing similar challenges. It was also found that the extent of adoption of best practices varies greatly among the universities. This paper presents the results of the survey and discusses some of the outcomes.

Introduction

Many universities in Saudi Arabia face great challenges in delivering quality education to an ever increasing student population. The growth in the number of candidates eligible to enter university outpaces seat availability at all the universities. To cater to the excess, several conventional universities also admit students for distance learning (Entisab). In the normal practice these students register at the university and then study on their own without further support from the university. They only come back to the university to sit for their exam.

The Saudi Arabian Government has always been supportive of efforts to advance education, including e-learning initiatives, at universities and national level. In 2007the National Centre for e-Learning and Distance Learning was established to help promote e-learning and distance learning within the Kingdom of Saudi Arabia (alMegren et al 2007). The Ministry of Higher Education (MOHE) of the Kingdom of Saudi Arabia realises that better support can be provided to the distance learners and some remote colleges through e-learning. Thus, it has set e-learning as a high priority area in the National ICT Plan (MICT 2004) of the Kingdom of Saudi Arabia. It has provided funding and infrastructure to ensure most universities have the necessary technology infrastructure to practice good e-learning.

The ICT infrastructure in Saudi Arabia has grown rapidly. Just three years ago, many universities were making do with small bandwidth to the Internet, at most 20 Megabits per second (Mbps) leased-lines of uncertain quality, and broadband penetration was unheard of. In 2009 most universities have more than 100 Mbps leased line connected to the Internet and according to the 2009 CITC Report the internet penetration in Saudi Arabia was estimated at 38.5%. Mobile broadband is also playing a bigger role in providing connectivity. Thus, a broad segment of society can now access web-based e-learning if available and many universities, especially the major ones, are leveraging on the high Internet penetration and the easy availability of access to computers and laptops to better support their conventional and distance learning students through e-learning. The universities are in various stages of e-learning implementation and many are still experimenting, trying to find a suitable model that works best for their situation.

There have been many researches in the area of e-learning and distance learning in Saudi Arabia but most of these are in the form of general e-learning research for master or doctorate degree. During the First International Conference on e-Learning and Distance Learning held in Riyadh, Saudi Arabia in 2008 (http://eli.elc.edu.sa) many papers were presented on many aspects of e-learning by local researchers. There were also some research carried out in non-formal adult and community education. Al Saif (2007), for example, studied the use of

elearning within the Saudi prison system among male and female inmates in the prisons in Riyadh, Makkah and Qassim. He noted that the educational system in prison parallels that of regular schools, but does not cater to those who have never attended school and is limited to a few basic subjects such as religion studies, self-development, electricity and plumbing. Also, it was found that the inmates were very receptive towards distance education and web-based learning, but as would be expected their attitudes were influenced by the extent of their computer and internet skills and prior education and training. Besides the academic focussed researches and the few specific researches on non-formal education not much is known about the e-learning practices at the universities. In order to better understand the current e-learning practices so that better support can be provided, MOHE has appointed a team of local and international e-learning consultants to conduct a survey on the status of e-learning at several major universities.

The Survey

The survey was conducted through questionnaires and interviews and draws from research on e-learning and the assessment of quality. In particular, it uses the ELQ - E-learning Quality model as outlined in *E-learning quality: Aspects and criteria for evaluation of e-learning in higher education*, published by the Swedish National Agency for Higher Education(Astrom 2008) as a basis but this was modified to better suit the conditions in Saudi Arabia. This instrument was used after discussions MOHE.ELQ consists of ten quality aspects considered as crucial when assessing quality in e-learning. Each of these ten aspects has quality criteria associated with them. Key Performance Indicators corresponding to the quality criteria were derived and used as the basis for the development of a standard set of questionnaires and interview schedules.

MOHE selected 21 universities to participate in this study. Out of these 21 universities, 9 were selected for visits. Selected groups in the universities were invited to respond to the questionnaires posted online. The questionnaires were also used in interview sessions during the visits. The one day visits to the nine universities provided a more complete picture of the direct and indirect dimensions that impact distance learning and e-learning in Saudi universities. In general the universities selected for the visits were known to be active in e-learning. The people interviewed at each university varied but covered the range of Rectors, Vice Rectors, Deans of e-learning, Deans of Distance Learning, Deans of IT, Directors of Business Intelligence, Deans of Academic Development, Deans of Quality Assurance, Deans of Library Affairs, Deans of Women's Colleges, College Deans, Directors of e-learning, e-learning consultants, production staff, instructional designers, teachers and some students. The female member of the team was able to visit many of the universities as well as have separate visits to two female campuses.

The priority focus of the questionnaires and the visits was to gather information related to the following:

- The practice of distance learning that include e-learning tools used, the virtual learning environment and related ICT infrastructure in the universities;
- Best practice examples of e-learning implementation that can be used as examples for other universities; and
- Assessment of current state and recommend areas for improvement.

Results and Discussions

Although the survey covers many aspects of e-learning practice, in this paper only three major areas of the survey will be discussed. These areas basically describe the broader details of e-learning situation at the universities.

Overview of E-Learning Practice in Saudi Arabia

At all universities e-learning is understood as the provision of learning over the Internet and managed by a Learning Management System (LMS). This is a restrictive definition of e-learning and is more appropriately called Internet-based learning or online learning(Clark & Mayer 2008).However, some universities expand the above definition to include use of electronic equipments such as Smartboard and Smart Lectern, usually combined in a Smart Classroom. Distribution of learning material in Compact Disks does not appear to be practiced widely.

Promotion and management of e-learning at the universities are by a specially created Deanship – the E-Learning Deanship, headed by a dean or by the E-Learning Department under the Vice-President (Academic). The deans and heads of department are usually professors with an e-learning background. As most of these entities are still relatively new, about three years or less, they face many challenges such as lack of academics trained in e-learning and courseware production support staff. There is also the need to promote and educate faculty and students on e-learning besides ensuring the entire basic infrastructure are in place.

Most universities in this study are conventional universities with full-time, on-campus students. The universities are large, some with student population exceeding 50,000. In addition, three universities also enrolled distance learners, also in large numbers, usually exceeding 30,000. These distance learners are fresh school leavers who are eligible to be admitted to the universities on a full-time basis but for a lack of seats. In the usual practice the distance learners register at the universities, obtain their study material, study on their own and only return to the universities to sit for the exam. They are not usually provided with any academic or counselling support and not surprisingly the attrition rate has been quite high.

The universities use e-learning to extend the learning space and contact hours for the conventional students. In most implementations students are provided with study material (most often lecture notes in pdf format and PowerPoint slides) and online forum for group discussions with their peers. There may also be some video lectures. Many universities also conduct online exams using the Multiple Choice Question format. The exams are supervised and usually held in computer labs. It was also noted that unsupervised online exams were also being tried out in order to better understand the challenges. Authentication of students remains a major challenge.

In universities with distance learners e-learning is used to better support the distance learners and hence hopefully to reduce the attrition rate. All universities provide distance learners with videos of lectures and additional learning resources such as lecture notes, PowerPoint slides and some purpose-designed material. The learners are also supported through the online forum and helpdesks. One university noted that their implementation has been very effective, managing to turn-around the distance learning programme from one that was on the verge of closure to one of choice. Even conventional students, it seems, are trying to opt for the distance learning programmes.

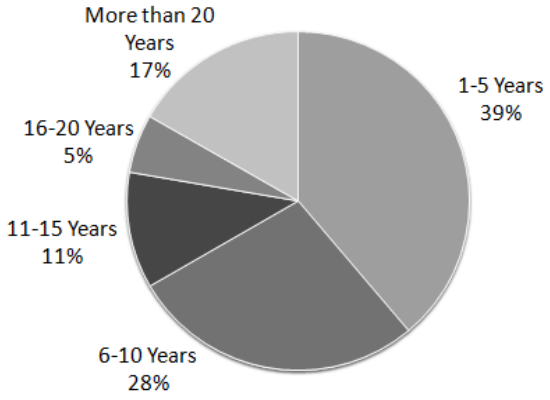

Figure 1: Years of teaching experience of academic staff

The majority of faculty members of the universities have more than 5 years teaching experience (see Figure 1). This long experience may be a challenge to the promotion of e-learning in the universities. As, e-learning and the widespread use of ICT is still relatively new in Saudi Arabian universities, these "older" faculty members may not find the technology and pedagogy for e-learning easily acceptable. They will need to be convinced and trained. However, the large number of young lecturers at most universities who will most probably be more at ease with the technology and concepts of e-learning offer promise of rapid development for e-learning in Saudi Arabia.

Learning Resources

Many universities develop e-learning resources and materials in-house. These are usually developed by the professors and consist of lecture notes and PowerPoint slides. There is awareness that specially designed resources would be more suitable for self-managed learning. However, the lack of specialist staff such as Instructional Designers and Multimedia Programmers mean that most universities are making do with what is most easily available. Explicit pedagogical and technical criteria for the development of the e-learning material were not observed. Development was based on expediency because of the limitations posed by the available human resources. As a way to overcome some of the challenges some of the universities outsource their courseware production. The usual outsourcing model is to appoint a courseware development company (usually foreign) and to have several company representatives stationed in-house while the bulk of the development is in the company's back office somewhere. Some universities are also starting to train their professors to produce pedagogically sound basic instructional material by providing training in Instructional Design. Professors are motivated through grants for courseware developments and annual awards for various categories of courseware.

As can be seen in Figure 2, in spite of all the challenges, the percentage of courseware developed by in-house specialist departments is a respectable 30% and those developed by professors, mainly lecture notes and PowerPoint slides is 21%. This shows that there is still a lot that can be done to improve e-learning courseware within the universities. Training professors, because of their large contribution to the total production can make significant gains in quality improvements. However, this is not easily achieved because of the acute shortage of trained specialists in the area of courseware production across the Kingdom. There is some optimism in this regard because of the many young professors who are taking a keen interest in this area and are savvy enough to learn on their own and contributing to their respective departments.

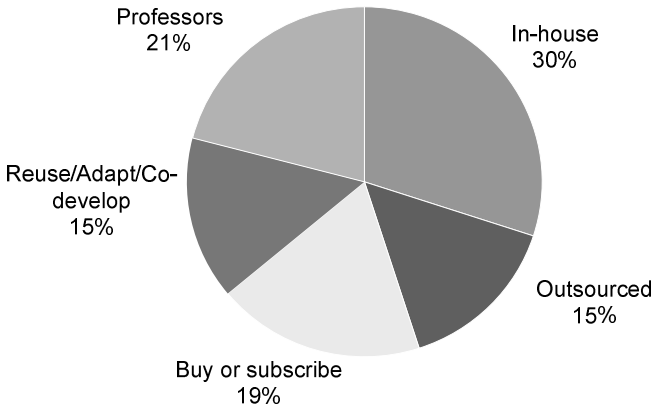

Figure 2: Average percentage contribution to courseware production by various sources

Allthe universities face difficulty in finding, recruiting and retaining e-learning staff to support their various initiatives, especially trained e-learning academics and instructional designers. As more universities embark on e-learning and developing their own e-learning content,the demand for trained human resources in related areas will increase greatly. In the short term most of the specialists will be from outside Saudi Arabia. However, some universities are trying to alleviate the problem by creating in-house capacity through creative ways. For example, one university appointeda senior professor at each faculty to champion and organise e-learning activities at their respective faculties.The Dean of E-Learning provide the training and other support resources for the activities. Other universities encourage departments to produce more e-learning courses by offering grants to departments to develop the courses. The emphasis is on courses and departments rather than individual innovators in order to ensure sustainability and acceptance of the courses. Applications for course developments are reviewed and approved at the department level with final approval after feedback from the Dean of Academic Development.

Many of the universities are also turning to Open Educational Resources (OER) to select and adapt suitable material for their use. Some universities have graduated beyond being just users of OERs; they are also contributing to the OER community. In fact one university launched their Open Access initiative in as early as 2008 and have joined MIT's Open Courseware Consortium. Since then this university has shared 300 courses and almost 900 open course files on their university Open Courseware site. Other universities encourage their

faculty to adapt and repurpose OER material, and have collaborated with major OER providers, such as MIT, to mirror the hosting of Open Courseware on their servers, thus facilitating good local access to these resources. Many universities are also building their own digital repositories and digital libraries by acquiring contents from publishers. However, many of these contents are not in Arabic and are therefore not easily accessible to many learners. Early efforts in translation of some material were noted, where individual professors or departments of universities collaborate with publishers or owners of the material to translate the contents into Arabic. This is being done on individual professors or departmental basis, in an ad hoc manner. Access to the translated material is limited to within the university.

All the universities realise the importance of copyright and intellectual property policies. However, because of other more pressing priorities, the issue of copyright and intellectual property has not yet been adequately addressed. Most universities are at the discussions and fact-finding stage and some form of policy may be implemented in the near future.

E-Learning Technology Infrastructure

The ICT infrastructure of some Saudi Universities is up to the highest standards but for several others the infrastructure is still under development or at the planning stages. However, MOHE has allocated sufficient funding for all universities to develop or improve their ICT infrastructure. Internet bandwidth at the main campuses is adequate, ranging from 93 Mbps to 380 Mbps. Most universities can have adequate bandwidth as the Government has provided adequate backbone for the purpose;it's just a question of the where this fits into the present stages of development at the universities. For universities with remote campuses, bandwidth between the main campus and the remote campuses can be quite small, 2 Mbps is usual. All these universities are planning to provide better connectivity to the remote campuses soon so that better access to e-learning can be provided.

Outside of the universities, at the national level, the availability of Internet infrastructure and connectivity can be inconsistent and this needs to be addressed to ensure students, especially from remote areas, can effectively participate in the e-learning initiatives. It is interesting to note that some universities do not yet have wireless access within and around the campus buildings. Having this facility will enable learners to access learning from anywhere within campus area, thus making widening access and making more learning more flexible.

Most of the Universities have implemented a Learning Management System (LMS), mostly Blackboard, while several have also implemented additional tools like Virtual Classrooms, online assessment tools and learning object repositories. One major challenge for the universities when using any applications is incomplete compliance with the requirements of the Arabic Language. Not all software complies fully or at all to these requirements. Thus, even though a new version of particular software is available, some universities are still using the older versions because of lack of compliance with the Arabic Language.

One university has creatively integrated formal (and commercial) e-learning tools such as virtual classroom with informal web 2.0 tools such as *YouTube*, *Facebook* and *Google Apps* to provide a more flexible and interactive learning environment. To encourage more faculty staff to participate in e-learning this university has strategically shared faculty usage reports to top management and initiated certain faculty incentives (e.g. awards), which has encouraged more faculty members to get involved with e-learning. The response has been very encouraging and as a result, they have recently upgraded their LMS (*Blackboard*) license from 50,000 to 70,000 users, and increased the concurrent users' capacity to 7,000.

It was also noted that there exists at some universities a mismatch between available capacity and user expectations. For example, some universities purchased licenses for much larger number of concurrent users than can be currently supported by the available bandwidth.One university recently purchased licenses for 7,000 concurrent users of avirtual classroomsoftwareand another university purchased 10,000 concurrent licenses for virtual classroomsoftware. Thesevirtual classroom software'suse real-time videos that require large user bandwidth for good experience. The universities do not have sufficient bandwidth to cope with the perceived number of concurrent users.

Almost all universities have implemented or are in the early stages of university wide e-learning infrastructure implementation. These are usually ambitious infrastructures that have been planned to meet all anticipated needs. However, these are usually only hardware. No proper thought was given on how to encourage staff to

participate actively in e-learning. Training is carried out in an ad hoc manner and staff incentives and motivation not properly planned. In such a situation e-learning suffers due to lack of staff participation, even though a lot of money has been spent on infrastructure. Also, because of a lack of budget only certain parts of the plan can implemented instead of the whole. This approach can lead to incompatibility and difficulties in future.

Finally, while most of the universities visited appear to have impressive plans to build and implement integrated virtual learning environments, they did not have clear plans on how to use these environments effectively to facilitate learning beyond increasing communications and interactions and providing access to recorded lectures. The seamless weaving of e-learning into the curriculum for pedagogical reasons is not yet taking place.

Conclusions

All the universities are using e-learning to supplement conventional teaching and to extend teaching as well as to support distance learning students. An attractive feature of e-learning to the distance learners is the flexibility. Learners can study in their own time and from anywhere. The use of e-learning in the Saudi Arabia is essential for the effective education of the female half of the population and more resources could be specifically targeted to this area. E-learning facilitates the connection of the meager specialist resources (specialist teachers) to students in remotely located areas.

The practice of e-learning at the universities does not appear to exhibit any explicit strategy for communication, cooperation and interactivity that is based on pedagogical needs, available technology and human resources. The universities are relatively new to implementing e-learning so the strategies are still not yet clear. In order for teachers to make greater use of communication, cooperation and collaboration, they need to be exposed to models, professional development and/or learning designs for collaborative e-learning.

Good practice requires that the virtual environment (LMS, virtual classroom, etc) is selected on pedagogical need and also since the environment will be accessed by many people at anytime and from anywhere it must be reliable and robust and aligned with the institution's technical infrastructure. Most universities selected similar proven and robust Learning Management Systems, virtual classroom and assessment managers. The systems are also mostly integrated with single sign-on for easy access.

All the universities are expanding their e-learning practice, from only at specific faculties to university-wide. This expansion is based on lessons learnt during the early stages of implementation and its perceived benefits. However, the expansion must be carried out in a holistic manner so that all the pieces can work togetherand adequatecapacity is allocated.Many good things are taking place at the various universities; however, there are still many challenges that need attention, including:

- Faculty members need to be convinced of the effectiveness of e-learning
- The standard of computer literacy and understanding of the requirements of e-learning among students and teachers must be improved.
- Improve understanding and effectiveness of support staff in managing technical and pedagogic requirements of e-learning environments.
- Perceived lack of benefits for using e-learning
- Inadequate managerial understanding, strategic planning and funding in public sector organizations.
- The lack of coordination and conformity in procedures, standards and specification, leading to duplication in efforts.

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