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The Experience of the E-Learning Implementation at the Universiti Pendidikan Sultan Idris, Malaysia

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Abstract

This article reports on the development of e-learning in the global and Asia-Pacific contexts taking into account the impact it has towards fulfiling Malaysia's needs of establishing a knowledge workforce through the provision of lifelong learning via open and distance learning (ODL). This article also discusses the experience of implementing e-learning at the Universiti Pendidikan Sultan Idris (UPSI), Malaysia. Various factors contributing to the success of this implementation are discussed. The challenges and constraints faced by UPSI and ways of overcoming such challenges will also be highlighted.

INTRODUCTION

E-learning is defined as a network or online learning that takes place in a formal context and uses a range of multimedia technologies (Garisson & Anderson, 2003). It is essentially a learning system that is supported by electronic hardware and software either online (synchronous) or offline (asynchronous). The learning is carried out either individually or on a small or large group basis and can be used as a hybrid to the face-to-face format, or exclusively in open and distance learning (ODL). As such, e-learning is not confined to the boundaries of the online format but also includes the offline format using any form of electronic media to facilitate the teaching and learning processes.

The prospects of e-learning are immense. It continues to grow at a tremendous rate both in education and training. The growth rate for the different education and training markets is projected at 10 -15 percent annually. These markets command a value of US$ 2 trillion out of which the USA has a share of US$740 billion (RocSearch, 2003). It is very likely that e-learning will become the future trend in learning, notably in ODL, where the market is fast expanding. In the USA alone, the K-12 academic sector has been the largest in the e-learning market and is estimated at US$1.8 billion. Higher education will emerge at the top with US$23 billion in 2006 increasing to US$44 billion in 2011. Where the institutions of higher learning in USA are concerned, 60 percent utilise e-mails, 42 percent use Internet resources while 31 percent use WWW pages as the modes for the instructional delivery (Wende, 2000).

In the Asia Pacific region, Japan has the highest number of Internet users, estimated at 55.9 million followed by 33.7 million in China. Malaysia has 6.5 million users (Table 1). However, in a 2004 survey, the number of Internet users in Malaysia has increased to 8,187,000 (Jaring, 2004).

Table 1: Internet Users in Asia (AEN Survey Research, 2002).

Country	No. of Internet users
Japan	55,930,000
China	33,700,000

Republic of Korea	24,380,000
Malaysia	**6,500,000**
Indonesia	4,000,000
Thailand	3,536,000
Philippines	2,000,000
Singapore	1,500,000
Vietnam	1,010.000
Brunei	35,000
Laos PDR	10,000
Myanmar	10,000
Cambodia	10,000

In terms of the growth rate, e-learning revenues in Japan are estimated to surge from 82.3 billion Yen in 2003 to 198.5 billion Yen in 2006 (E-Learning, undated). In the Asia Pacific region, between the period 2000-2005, China will have the highest growth rate in e-learning for the corporate education sector (41 percent) followed by the Republic of Korea (31 percent). Malaysia's growth rate is 16 percent (Table 2).

Table 2: Growth Rate of E-learning in the Corporate Education Sector between 2000-2005. (AEN Survey Research, 2002)

Countries	**%**
China	41
Republic of Korea	31
Philippines	29
Indonesia	28
Thailand	23
Australia	22
Singapore	18
India	17
Malaysia	16
Hong Kong	13
Taiwan	13
New Zealand	09
Other APAC regions	22

As far as the e-learning scenario in the Malaysian is concerned, a recent survey conducted by the Multimedia University revealed the following (MMU, 2003):

- E-learning will become an important field with more than 50 percent of top academic management, staff/academics and students/clients accepting the concept.

- Sixty-five percent of institutions provide some form of training or instruction utilising aspects of the online or e-learning format.

- Only 2 percent use e-learning at the advanced level, 19 percent are highly involved, 16 percent exploring the possibility while 63 percent are at the implementation level.

There is a drastic need for skilled workers in the technology-related area and it is envisaged that such a demand could be met by providing training programmes in the ODL setting via e-learning. Corporate training in areas such as banking, finance and insurance is already moving into e-learning because of immense cost savings and an increase of employee productivity (Frost & Sullivan, 2004). The advent of e-learning is changing the global education and economic system. It presents a number of prospects and challenges with economies evolving into knowledge-based areas fully supported by electronic technology.

The impact of e-learning is thus tremendous, especially in education, and it also influences the world economy as evident in the global market trend. Economies are predominantly knowledge-based either in the manufacturing or agro-based sectors. In education, curricula and instruction must be reviewed in the light of demand of information and communication technology (ICT)-related technologies, as well as in the pedagogical shift from the teacher-dominated role to the student-centred role in the delivery mechanism. E-learning will be the future learning trend, especially in ODL. The Internet or Web-based application will be the main instructional and learning mode used in most ODL institutions. There will a great demand for higher education in Southeast Asian countries among working adults, for example, more teachers need to be trained to cope with the increasing numbers of school-going children.

The e-learning market in ODL is expected to grow. Conventional universities cannot cope with the rising demand in higher education either for professional development or for lifelong learning. Working adults cannot leave their jobs but they need to be trained and be equipped with the latest knowledge and skills especially in area related to ICT. ODL is thus expected to grow 33 percent each year for the next five years (IDC, 2000). Such an expansion is clearly evident from the exceptionally high growth in the students' intake by the Open University of Malaysia (OUM) reaching the estimated 25,000 students in only four years following its inception.

THE IMPLEMENTATION OF E-LEARNING

The implementation of the e-learning system by any institution can be achieved using one of three approaches. This implementation will depend on the level of readiness in terms of the budget, infrastructure and human resources such as experience, skills, knowledge and attitude. Some institutions are already practising e-learning in one way or other without using the network but by deploying the computer stand-alone learning materials such as the CD-ROMs, CAI courseware and other locally produced courseware.

There are three main approaches to use e-learning within education:

1. Using the technologies to support or supplement the traditional face-to-face course

2. Integrating online activities into a traditional course to enhance the learning experience

3. Delivering a course that is entirely online

In Malaysia, there have been some attempts to incorporate e-learning into the educational system. They include the following:

- The Smart Schools project under the Multimedia Super Corridor (MSC) flagship. Apart from the Smart Schools, teachers in normal schools are provided with laptops and LCD projectors to teach selected subjects, namely, mathematics, science and English using stand-alone multimedia.
- The setting up of the virtual universities – the Universiti Tun Abd Razak (UNITAR) in 1998 and the Open University of Malaysia (OUM) in 2000.
- The establishment of the Multimedia University in 1999 to support the MSC projects.
- The establishment of the National Digital Library.
- The usage among higher institutions of learning of various forms of technology to support or supplement the delivery of traditional courses.
- The usage of e-learning in the distance learning programmes made available by universities.

E-LEARNING AT UNIVERSITI PENDIDIKAN SULTAN IDRIS (UPSI)

At UPSI, the planning for e-learning integration into the teaching and learning programmes began in 2000. The e-learning infrastructure was built and included networking, proper lecture and tutorial rooms equipped with basic multimedia projection systems and the design of digital curricula and courses using the WebCT Learning Management System (LMS). The provision of training to the lecturers was also undertaken and covered the use of presentation and word processing tools such as *PowerPoin*t and *Word* to create teaching and learning materials either online (synchronous) or offline (asynchronous). The preparation and training reflected the objectives of using e-learning at UPSI. The objectives of e-learning and instruction (ELIT) are as follows:

- To develop e-learning materials
- To use the synchronous and asynchronous e-learning materials in teaching and learning.
- To use e-learning materials to support conventional teaching

The IMPLEMENTATION OF E-LEARNING AND INSTRUCTION

At UPSI, e-learning has been implemented in three phases:

- Design and development
- Evaluation.
- Implementation and institutionalisation

The implementation of e-learning at UPSI involved the above three phases and users, particularly lecturers, were categorised according to their level of computer competency. UPSI identified the three categories of users at the basic, intermediate and advanced levels as follows:

Basic level: Some experience using *Word* and simple *PowerPoin*t presentations but no experience in e-learning and instruction.

Intermediate level: A little experience on e-learning limited to producing and using

PowerPoint presentations.

Advanced level: Some experience producing *PowerPoint* presentations and using them in e-learning.

The classification was undertaken in order to include everyone in the e-learning endeavour. UPSI realised that some lecturers were more comfortable or felt more proficient in teaching using "chalk and talk" with the support of the overhead projector and transparencies. To overcome this situation, these lecturers were introduced to the *PowerPoint* presentations and permitted to discover the advantage of using *PowerPoint* in relation to transparencies. In other words, UPSI has been very careful about the introduction of the technological innovation among faculty members into teaching and learning and effected a progressive introduction via multimedia and Internet. This progressive introduction of technology has now received their acceptance and attention, and they find it relevant in their teaching approach and have built up their confidence in using it; more importantly, they realise the advantages of using the technology in their instruction.

E-LEARNING FACILITIES AT UPSI

The implementation of e-learning at UPSI required that lecture and tutorial rooms could accommodate 70-90 students each time and be equipped with the LCD projector, computer system and document camera. Most of these rooms are connected to the LAN and Internet. Lecturers or instructors are required to bring only their CDs, floppy diskettes or thumb drive. Some lecturers bring their laptops to the class. Figures 1 and 2 depict such a classroom setting.

Figure 1: E-learning Tutorial Rooms

Figure 2: E-Learning Lecture Hall

THE DESIGN AND DEVELOPMENT COMMITTEE

A working committee, called the Design and Development Committee, has been set up to monitor e-learning projects (Figure 3). The committee members are selected from the three main centres or faculties, namely, the Centre for Educational Technology, the ICT Centre, the Faculty of ICT, the Faculty of Cognitive Science and Human Development and the Quality Assurance Centre as well as the relevant academic faculties that would provide the course content experts.

To implement e-learning, the Learning Management System (LMS) is required. UPSI has chosen the proprietary WebCT, apart from the Blackboard and Multimedia Learning System (MLS), as the main LMS. The WebCT was developed by the University of British Columbia, Vancouver, Canada. The Design and Development Committee has customised the WebCT tools to suit UPSI's instructional needs. Figure 4 shows an example of a home page that has been designed for an education course, KDP2053: *Pedagogi Pendidikan*. In the course home page, students can have access to the course objectives, content, course grades and can anticipate the learning activities tools built into the Web page (Figure 5).

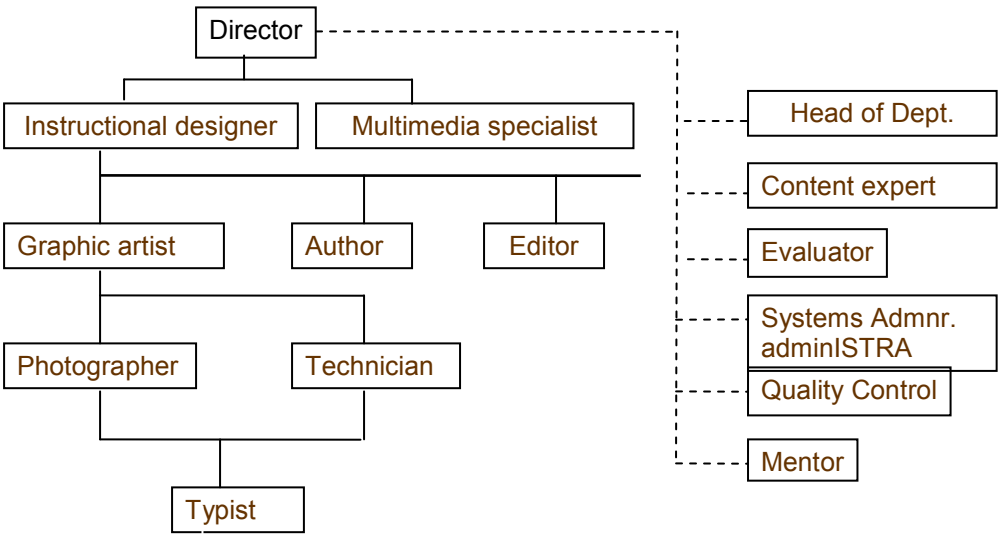

Figure 3: The Design and Development Committee

Figure 4. The Webct Home Page for an Education Course.

Figure 5. Examples of course design elements -- the UPSI instructional style.

BENEFITS OF THE E-LEARNING SYSTEM: THE UPSI EXPERIENCE

It is a big challenge for the implementers to realise the benefits of online learning. Some of the benefits of online learning experienced at UPSI are as follows:

- Tools for managing instruction and learning (e.g.,. online registration, the tracking of students' progress, etc.) have been created
- Support services for face-to-face instruction are available
- The problem of large classes has been minimised
- Learner-centred programmes are available
- Instructional time is controlled
- Immediate responses to teaching is possible
- Remediation and practice can be made
- Flexible learning -- anytime and anywhere – is permitted

BARRIERS TO ONLINE LEARNING: THE UPSI EXPERIENCE

Like any other educational innovation, there are pitfalls and barriers confronting the introduction of e-learning. These barriers pose as challenges but UPSI is confident that e-learning can facilitate the teaching and learning process in higher education particularly when universities do not have the manpower, funding or space to accommodate large enrolments of students.. From our experience, we have identified the following dimensions as areas of challenge to focus our attention:

- Accessibility and equity:
- Maintenance of system and infrastructure and safety
- Selection of appropriate hardware and software

- The potentialilty and limitations of the selected systems tool design (e.g., WebCT)
- Technical skills and support
- Top management support
- Courseware design and development team
- Pedagogical skills
- Training of lecturers, students and support staff
- Provision of efficient e-learning network (LAN, WAN, Internet)
- Recognition/reward
- Intellectual property and copyright
- Problems of adoption and innovation

KEY TO SUCCESS OF E-LEARNING IN HIGHER EDUCATION

Based on our experience, the success of online learning in higher education may be attributed to the following factors:

- Sustainable government sponsorship
- Total commitment and support from top management
- Participation, cooperation and support from major universities
- Advanced technical skills
- Technical support
- Expertise in instructional design
- Marketing experience and skills

RECOMMENDATIONS

We feel the following recommendations are relevant to ensure the successful implementation of e-learning at the national level:

- The setting up of a special commission on e-learning at the national level to looking at the curricula, online teaching-learning methods and materials, the training of teachers on ICT skills, the Smart Schools facilities and infrastructure.
- The creation of a national integrated e-learning network through which all learners can receive high quality advice and guidance and participate in lifelong learning.
- The provision of an excellent delivery infrastructure with the capacity and technical support to enable all communities of learners wishing to participate in e-learning to do so at locations of their choice.
- A further investigation by Malaysia's primary providers of distance learning programmes -- OUM and the School of Distance Education, Universiti Sains Malaysia – into the opportunities that e-learning can offer to create a knowledge society to promote national knowledge and economic growth.
- The introduction of a national plan to raise ICT skills.
- The promotion of interoperability compatible with emerging international guidelines and quality standards such as SCORM (Shareable Content Object Reference Model).
- The continued development of competence in instructional design, graphics design and programming which facilitate the production of high quality Web- based materials.
- Promoting assurance that e-learning will greatly benefit a bilingual nation in the design and delivery of learning processes.

CONCLUSION

E-learning will gradually dominate the teaching learning system. The Ministry of Education needs to have some guidelines to help schools and higher learning institutions to implement e-learning successfully and efficiently. In USA, the Department of Education has set up a special commission related to Web-based learning in educational establishments. The e-learning implementers need to work with SCORM or other e-learning standards for a common interoperability software. This will promote high quality learning experiences and provide different instructional and learning methods. Teachers and students must have technical and cognitive skills in ICT so that they become effective users of the technology.

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