

Role of Libraries in Promoting E-Learning: A Review of Singapore Initiatives

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Introduction

Recent developments in technology, Internet, and World Wide Web have created many new opportunities allowing consumers to buy products and use services from the sanctuary of their homes. E-learning is one of the many manifestations resulting from convergence of new technologies and emergence of the web. E-learning is referred to by several other names like online learning, virtual learning, distributed learning, distance learning, etc. Like-wise, online learning may also be confused with the terms technology-based instruction, computer-based training, computer-based instruction and web-based training. Each of these terms is used for slightly different types of activities.

Technology-based instruction has the broadest meaning and refers to training through any media other than the traditional classroom. That includes computers but also refers to television, audio tape, video tape and print. Computer-based training is a part of technology-based instruction and refers to courses presented on a computer that is mostly not connected to a network. Web-based training is a form of computer-based training and refers to courses that are available on an intranet, extranet or the Internet that are also linked to learning resources outside of the course. Live interaction with other students or instructors is possible. Steed (1999) states that web-based training refers to training or

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instructional materials (including courses, videos, tests and multimedia materials) that are stored at a central location which can then be accessed by anyone connected to the Internet or company intranet, anywhere, at any time. In this paper, e-learning, distance learning, distributed learning and online learning have been used interchangeably. The following are main characteristics of e-learning:

Distance between learner and instructor. That is, the learner and instructor are physically separated from one another.

Independent or group study. The set-up of the learning environment is such that it allows learners to participate either individually or in groups, or a combination of both.

Delivery options. Instructions may be provided in a variety of media from printed materials, audio cassettes, video tape, computer-based training programmes, CD-ROMS, to live satellite audio and video-conferences.

Learner-focused. There are now technology that personalizes content and anticipate the learner's future information and learning needs by recognizing patterns in how people learn. It can also match content with each individual's learning style.

Learning can happen any time and any where. The learner is not required to participate in a course at a specific time or location. He/She can sit for the training programme in the comfort of his/her home or at another office location, during lunch time or at midnight, whichever suits the learner's mood best.

Learning can be interactive. Again technology plays an important role here in allowing the learner to interact with other learners through dedicated chat rooms and discussion forums. Or engage the learner by involving simulations of actual work place situations.

Learning can be asynchronous or synchronous. Asynchronous learning means that learning does not occur simultaneously. Some examples of asynchronous e-learning

include taking a self-paced course whereby the learner can stop at any point exchanging email messages with a mentor

Learning materials are current. It is relatively easy for the content provider to remotely change and update material online based on new information or new needs of the learner.

The above characteristics of e-learning coupled with its appeal to adult learning pedagogy had made corporate e-learning an attractive option. Several authors and organizations have discussed the importance, characteristics, and implications of e-learning. Notable among them are (Basu, 2001; Beer2000; Driscoll, 1998; Gilroy 2001; Hartley, 2000; Lambe, 2001; Masie Center, 2000 and WR Hambrecht Co., 2000). This paper review s how the e-learning option has been exploited by public sectors organizations in Singapore, in particular by the National Library Board, the national agency responsible for development and management of library services in the country.

E-Learning in Singapore

In Singapore, what is driving e-learning is mainly a concerted push by the government to promote it. A leading example of the government's role in Singapore can be found in the *Infocomm 21 Blueprint* formulated by the Infocomm Development Authority (IDA) of Singapore (released on 4 March 2000). This blueprint contains 3 broad strategies to develop a sufficient pool of high caliber Infocomm manpower and Infocomm-savvy workforce to sustain the growth of the Singapore economy. Strategy 3 was spelt out as "Establish Singapore as the E-Learning Hub for the Region". Thus, the government has articulated and made a conscious effort to promote e-learning together with other Infocomm-related activities. Major e-learning initiatives in the public sector are summarized in the next section.

The IDA has a division called the e-Learning Practice whose role is to "act as catalyst and facilitator to enable Singapore to become the trusted e-Learning hub for the Asia-Pacific Region."

It collaborates with relevant government agencies and industries to implement programmes to create a vibrant e-Learning business environment and to attract and develop world-class e-Learning Service Providers and talents to make Singapore their regional headquarters and home. Its primary focus is to facilitate and promote the development and adoption of e-learning capabilities to corporations and communities in key sectors of the economy.” (www.ida.gov.sg)

The Ministry of Manpower (or MOM) launched the Strategic Manpower Conversion Programme in e-Learning or SMCP (e-Learning) in April 2000. This programme aims to train a pool of skilled manpower to develop e-learning solutions to address the growth of e-learning as an alternative medium for training. It hopes to address the growing manpower and skills demand for e-learning professionals in Singapore. Its first area of focus is e-Learning Instructional Design. Under the SMPC (e-Learning) programme, employers who send their staff for this training can enjoy incentives such as course fee support and training allowance. There are other areas currently under development like the setting up of an E-Learning Charter under the auspices of the Singapore IT Federation and a committee on e-learning standards.

In a survey conducted by the Ministry of Manpower in 1999, about 57% of Singaporeans cited the lack of time as the main constraint to learning. The flexibility that e-learning brings can go a long way to encourage more adult learners to participate actively in lifelong learning. The Ministry therefore sees the development of e-learning as an important tool in facilitating lifelong learning among our workforce (E-Learning 2000 Conference).

E-learning is strategic to Singapore because of the recognition that lifelong learning is important if the economy and people are to keep up with the rapid pace of change. E-Learning is likely to make skills upgrading more practical for adults and economically viable for companies to provide to workers (One

Learning 2001 Asia Conference). IDA in its *Infocomm 21 Blueprint* report defined this sector to include “all organizations that are involved in the distribution and sales, or services and solutions related to the Computing, Telecommunications and Communications, and Online Digital Media Industries”. Moreover, in the same report, it explicitly stated establishing Singapore as the e-learning hub for the region as one of its three-pronged strategy to promote the sector.

All these initiatives have helped create a vibrant e-learning industry in Singapore with many active tie-up's between private and public sector organizations as well as a few public sector organizations going out on their own.

The Ministry of Defense (MINDEF), one of the first to experiment with computer-based learning introduced a programme called “Spot-On” which stands for “self-paced, on time, on need”. Spot-on has reduced the in-camp training time for the Singapore Armed Forces (SAF) by enabling its national servicemen (NSmen) to e-learn. One such course, developed by the Defense Science and Technology Agency (DASTA) is the Bionix Infantry Fighting Vehicle (IFV) Automotive System Maintenance Course e-learning course. It has reduced the four weeks in-camping training to a just a little over three weeks or a 25% time reduction (DASTA 2001).

The Civil Service College launched Singapore Learning Exchange, a service that allows users to search for a course, sign up, pay for it and even complete it - all from the comfort of their desks. The software will help trainees sort out training needs, find the right courses, apply for them and get approvals from their bosses - all online. It will also help companies and trainers keep track of trainees' records and help with administrative tasks such as billing. For a start, some 120,000 civil servants will be able to tap into the services provided by the Learning Exchange, which combines existing software services run by Accenture and the Government. The Internet-based service was developed by management and technology consultancy Accenture and is the first of its kind in the region (E-Learning in Singapore, 2001).

Schools have been a main focus of e-learning activities in Singapore. The Ministry of Education (MOE) has targeted to have 30% of (school) curriculum time to be IT-based by end 2002 (One Learning 2001 Asia Conference & Exposition). In 1997, the Singapore government injected a big push to e-learning in schools with the announcement of the S\$2 billion Master Plan for IT in Education. Of this S\$600 million per year will be allocated to maintain and replace hardware, software and train teachers between 1997 and 2002 (Computer Times, 18 July 01).

To initiate its staff across all work spectrums to online learning, the MOE has created a Virtual Institute of Training and Learning (VITAL), an e-learning system that supports multimedia learning, synchronous and asynchronous interactivity and track and report progress of individual learners. It has a suite of online courses both asynchronous and synchronous, offers virtual resources with links to books, other e-learning websites, case studies, government white papers, an online evaluation feature and more. Hence starting with the teachers themselves as well as changing the curriculum so that students get exposed to e-learning, e-learning will become entrenched in the Singapore school system. This bodes well for the future of e-learning in Singapore as the next batch of corporate workers will adapt to virtual learning more easily.

Library Initiatives

The National Library Board was established in 1995 with a responsibility to spearhead the library development in the country. Its mission is to expand the learning capacity of the nation to gain competitiveness and to create a gracious society. It has redesigned library services and introduced several innovative services to promote information literacy and a reading culture. NLB made much use of technology to improve overall public and reference library services to its users. Even though it started experimenting with e-learning as early as the beginning of 1998, compared with its fellow public sector organizations, NLB could be said to be a

“newbie” to the e-learning community. It conducted a pilot e-learning programme in end 1999 and from there had started exploring the range of e-learning software available in the market. It has moved cautiously towards the adoption of e-learning although it is recognized by top management that e-learning is appropriate to NLB’s environment.

E-learning is particularly suited to NLB’s needs as its approximately 800-strong staff are scattered in various public, government, special and school libraries all over the island. Online learning was seen as one of the ways to train more NLB staff without having to radically disrupt their work schedule as well as saving on transportation costs and reducing the inconveniences of applying for time-off and getting another colleague to stand in for staff in their absence.

By early 1999, NLB had started studying various online learning management systems and was looking for one that provided seamless integration between the course-teaching part and the course administration part. It was also trying to understand how to prepare its staff to learn online. The i.Learn project thus came at a very opportune time and allowed the organization to use this project to:

- Gauge staff response to e-learning
- Experience and understand the cultural and logistical difficulties of e-learning
- Learn from this pilot and prepare for implementing enterprise-wide e-learning

NLB’s participation in this project lasted about five months from November 1999 to March 2001. This relatively short period was due to the fact that i.Learn was only extended to statutory boards around the last half of 1999. It was initially launched for the staff from the Ministries only.

Once NLB’s top management approval was obtained for NLB to participate in i.Learn, the next step was to work with

NLB's IT and Training departments. The IT Department was charged with linking up with the server at the Institute of Public Administration and Management (IPAM) to access the programmes while the Training Department was responsible for processing the staff training nominations like obtaining the name and identification card numbers as well as getting the staff's Reporting Officer to support the online courses that the staff had signed up for. These staff particulars were submitted to IPAM for it to create identification codes for each staff to log on to the system.

An understanding was reached between the Human Resource Training Department and all managers that staff could take the course during normal working hours. No quota on the number of courses was set but staff was advised to enroll only the number of courses that they think they could complete in a five month period.

With the technological infrastructure and the enrolment workflow in place, a publicity email was sent to all NLB staff to invite them to participate in i.Learn. Over a 3 weeks registration period, a total of 102 enrolments were received. Before and during the registration, three "road shows" were organized by the project team to show the staff how i.Learn looked like and go through the steps of logging on to the system, selecting the courses and working on a course.

A study was carried out by Tan Sock Gnee (2001) to assess the readiness of NLB to embark on e-learning seeking feedback from the participants registered in e-learning courses in the pilot project. Forty-two per cent registrants from a total of 102 responded to the questionnaire seeking feedback about the NLB – e-learning pilot program. Only 19% registrants completed the course indicating 89% drop-out rate. A majority (70%) of the e-learners reported that they had not participated in any online training program before. Most of the participants (58%) said that the screen design was easy to follow and that they understood the various icons used in the e-learning courses. However, 49%

complained about the web page and software download speed. Still an overwhelming number (79%) reported that they did not request for any help from the e-learning administrator. The survey drew a fairly equal number of respondents who indicated their willingness to participate in future online courses, while 50% stated that they would recommend the e-learning courses they took to their colleagues. A few participants expressed preference to access the e-learning programmes from home rather than the workplace. They think they would have more time and would be distracted less to go through the course if they were out of the office.

The study concluded that at the point in time when the pilot project was running e-learning was still a nascent pursuit in NLB. It was recommended that NLB should establish an e-learning strategy providing guidelines on how e-learning should be implemented organization-wide. Such a strategy should provide direction for the organization on what it wants to achieve through e-learning and how it will go about achieving these goals. The study also emphasized that promoting an e-learning culture was important to take maximum advantage out of these efforts. Such a culture will help change the mindsets that e-learning is real learning. It was also suggested that policies and procedures are necessary to guide staff and managers for monitoring the e-learning process. It was suggested that future studies of e-learning in NLB should focus on finding out what types of courses are suitable online delivery and how the returns from investment in e-learning be measured.

Conclusion

In line with the emphasis of Singapore Government in exploiting information technology for national competitiveness, public service institutions were quick to undertake initiatives to promote e-learning among their staff. This is part of the campaign for readiness for e-governance in the country. The Library and Information sector was no exception in this national campaign. National Library Board, which had earlier won awards for use of

technology and introduction of network services, took full advantage of the positive climate and introduced a pilot project for e-learning. Evaluation of the project indicated that steps need to be taken to make e-learning activities more popular and productive. NLB has recently created a subsidiary called *One Learning Place (OLP)* that is focusing on strategies for realizing the full potential of e-learning opportunities.

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