Use of Information Technology in Library & Information Science Education

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Abstract

IT covers areas which can be grouped into the broad disciplines of computers and communications covering the development and management of information systems like libraries, databases and networks—both online and off-line; and reprography and mass communication covering the technologies used for presentation and dissemination of information. This paper briefly discusses the impact and use of all these technologies on library and information science (LIS) education.

1. INTRODUCTION

Information Technology (IT) is usually referred to with different connotations. Library management specialists refer to IT as a technology used in the operation and management of activities of libraries and information centres. Computer and communication specialists refer to it as their discipline covering the activities of processing and communication of data and information. Those belonging to the field of reprography—covering the areas of photography, audio, video and optical digital technologies and technical writing refer to IT as the technology covering their areas of activity. However, IT can be taken to cover all these disciplines and areas which can be grouped into the broad disciplines of

(i) Computers and communications covering the development and management of

information systems like libraries, databases and networks—both online and off-line, and

(ii) Reprography and mass communication covering the technologies used for presentation and dissemination of information.

This paper briefly discusses the impact of all these technologies on library and information science (LIS) education.

2. MODES OF LIS EDUCATION

As is the case with education in other subject disciplines, LIS education is also imparted mainly in two modes,

(a) the traditional classroom teaching and

(b) the distance education. There may be variations of either of these modes of instruction like personal tutions and self-education.

However, after the advent of IT, educational instruction has taken new modes like television (TV), audio, video programs, etc. The use of IT

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made so far in LIS education can be broadly classified into the modes of:

(a) Audio and video taped lectures or instruction,

(b) Online access to course materials,

(c) Video-conference-based instruction or teaching , and

(d) Hypertext and artificial intelligence (AI) based teaching and instruction.

An offshoot of IT which has entered the LIS education is that of virtual-reality (VR) which would provide virtual classrooms, virtual libraries and similar situations. A few recent developments in the use of IT in LIS education, particularly distance education in the USA and the UK are briefly discussed below. These developments are going to have a strong bearing in the LIS education in several developing countries also.

3. USE OF IT FOR LIS EDUCATION

While computers were first used for educational instruction in the USA in the 1960s, telecom networks were started being used for this purpose in the 1970s. The School of LIS, University of Wisconsin. Madison has been a pioneer in the use of audio teleconferencing. It provides a wide range of continuing education programs through this mode. Apart from this, the Lowsiana State University, the University of Wisconsin-Madison and Emporia State University use audiographics (a combination of voice and data transmission using conventional telephone lines) for both credit and continuing education programs.

The first use of videoconferencing for continuing education for LIS professionals was the 'ALA Satellite Teleconference on Copyright' which was aired on 7 February 1978. Notable among the institutions presently developing regularly such video-conferening series are Nebraska Library Commission, the Commonwealth Libraries, Pennsylvania Department of Education and the 'Down links for Excellence' produced by School of LIS, University of Missouri-Columbia.

Button[1] quotes three generations of distance learning historically linked to the technologies used. The first generation is traditional correspondence teaching in which the sole form of communication between the student and the teacher was textual, and information flowed from the instructor to the student without discourse. Student, peer-to-peer communications were non-existent in the first generation. The second generation is of multiple media. To the text of the first generation, the second adds other media including video and audio tapes, and with increasing frequency, broadcast media (both radio and TV). Interaction patterns in the second generation largely remain the same as in the first generation. In sharp contrast, the third generation education is social in nature and emphasis communication among all members of the academic community.

However, software development for computer and network-based teaching is a tedious and costly process. Some of the American efforts which made a significant progress in this direction are the Athena Project at MIT[2], the Andrew Project at Carnegie-Melon University and the work at Stanford University. They have developed models for such instruction. The Michigan Community College Telecommunication Network developed a programme for training library technical assistants through telecommunications, primarily through interactive video. The project began in 1992 and it could provide a state-wide coverage.

Actual use of TV in LIS education appears to have begun at Indiana University School of LIS in the early 1970s. The use of video-taped courses in this discipline for distance learners began at the University of Corolina in 1982. New instructional TV (ITV) courses were arranged in Corolina State University in Fall 1995. Classrooms were equipped with oversized TV monitors allowing students at different locations to see and hear each other and to interact in real time at near broadcast quality. Classrooms were completely controlled by the faculty members with simple switching

operations on computer, video, slide projector and overhead camera.

3.1 E-mail and Internet Use

In addition to distance learning through communication networks, two recent and closely related technologies being used for this mode of education are e-mail and Internet. In the e-mail use, in addition to communicating the instruction texts, an e-mail reflector is also used to automatically direct them to all the students. In the use of Internet, a World Wide Web (WWW) home page is used which gives details of the course including its purpose, methodology, grading standards, syllabus, background materials, etc. Hypertext links to other relevant web sites which provide access to a wealth of material that students would not normally get otherwise. A number of schools currently use Internet providing gopher, web sites and e-mail and conferencing on the Net on a regular basis.

3.2 America Online (AOL)

Internet service offers non-credit courses to about five million people. It expects to offer credit courses soon in collaboration with University of California Beryl Extension Department. Instruction is provided as online lectures in a virtual auditorium. The text is actually keyed-in on the screen by the lecturer. Students key-in questions at prescribed timings during the online session. Libraries of supplementary course material are also available. These can be downloaded. AOL users also have access to WWW. In addition, distance education web sites[3] provide an overview of the field of distance education. The New York Virtual College is pioneering supply of multimedia courseware directly to students' homes.

3.3 Use of Artificial Intelligence (AI)

Intelligent tutoring systems using AI have been found to be highly effective in increasing student motivation and learning. However, development of these systems is expensive. Efforts are being made to reduce these costs by developing authoring tools and creating courseware in modular fashion. Achieving these

will be an excellent breakthrough to make IT-based educational systems highly effective.

The ALISE (Association of LIS Education) Library Statistical Report[5] provides a lot of details on the use of technology for LIS education. As per its 1966 report, 17 universities have used some form of telecommunications to deliver courses. According to available information, South Corolina LIS School is the only accredited programme school which offers complete MLIS degree programme primarily by telecommunications. Delivery of courseware is primarily via live interactive satellite channel supported by e-mail, electronic and audio conferencing and gopher and web sites.

In the United Kingdom also there have been several initiatives in using IT for LIS education. A prominent such effort is the Computers in Teaching Initiative (CTI) which was established in 1985[6] to promote use of IT (what it calls the learning technology) in education at various levels. It also identifies 'courseware' and 'resourceware' for various courses covering different disciplines.

4. DRIVERS AND INHIBITORS

There are some advantages as well as bottleness in the use of IT in education. Dixon[7] calls them 'drivers' and 'inhibitors'. The drivers include:

(a) Economy in conducting the programs

(b) Enhancing public image of the universities

(c) Getting competitive advantage in attracting best students, staff and resources.

The inhibitors include:

(i) Problems of credibility—whether the computer-aided learning (CAL) can live upto its claims are to be satisfactorily answered

(ii) Lack of good quality software for computer-assisted teaching—software for computer-assisted learning is to be specially written and this is a teadeous and costly process

(iii) High cost of courseware preparation—course material preparation

using multimedia with hypertext links for controlled dissemination and preparation of home page for web sites would be quite expensive

(iv) Instruction is not individualised suiting the learners capacity for assimilating the lessons communicated

(v) Cultural change—the professional culture of university teachers values a personalised teaching style and shuns use of materials prepared by external faculty or other specialists.

While launching any IT—based teaching programs, these factors must be considered to avoid problems or failures in their operation of the programs.

5. USE OF IT FOR LIS EDUCATION IN INDIA

In India 69 universities conduct LIS programs at BLISc and MLISc levels[8]. Out of these, 54 universities conduct MLISc programs. In addition, Indian National Scientific Documentation Centre (INSDOC), New Delhi and Documentation Research & Training Centre (DRTC), Bangalore conduct a master's degree course in information science. Almost all the MLISc courses in the universities have in their syllabi computerisation of libraries and use of audio, video and CD-ROMs and also library and information networks. But many of them do not have competent faculty to teach these topics. INSDOC and DRTC are however better placed in the use of IT in their courses. Their courses provide substantial use of computers, CD-ROMs and online networks including operation of e-mail and Internet services. Some of the LIS departments in the universities get these topics taught by the faculty from the computer science departments or computer centres of the universities. But these do not provide students the right type of training as these computer specialists do not usually have a detailed knowledge of the procedures, work flow and of the services provided in libraries. The situation is gradually changing as more and more LIS faculty are themselves undergoing training in library automation, networking and use of non-print media. Also, the LIS departments are acquiring computers with indigenous software like SANJAY and LIBSYS and the Unesco-promoted CDS/ISIS software and CD-ROM databases for training their students. The libraries in the universities are establishing the e-mail facilities with the support of INFLIBNET (the Information & Library Network of UGC) which are generally available for the LIS departments also. We can thus expect much more use of IT in LIS education in the country in the coming years and a similar scenario will be emerging in many other developing countries also.

As regards use of IT for distance education, the Indira Gandhi National Open University (IGNOU) is in the forefront among the Indian universities. It uses the main Doordarshan TV channel for telecasting its lessons in various disciplines. The telecasting of LIS topics is done usually thrice a month. Time-table for TV lessons is announced in the IGNOU Newsletter. In addition, the University has established, in collaboration with Indian Space Research Organisation (ISRO), teleconferencing facilities with its main production centre and earth station at New Delhi and connecting it to its 17 Regional Centres located at various places in the country. Teleconference topics and dates are announced a month before to the Coordinators at the Regional Centres for informing the students. The distance learners can interact with the faculty from the nearest such teleconference node. The University has also started during March 1997, telecasting some of its programs/instruction on Asianet TV. The University has also been producing audio and video tapes of lessons and other courseware and distributing to the learners. Multimedia courseware is also expected to be produced soon. Similar efforts are also being made by other open universities and other universities providing distance education, in the country.

The trend in the use of IT in LIS education in India appears to be that in the classroom or on-campus instruction, use of computers, CD-ROMs, e-mail and Internet keeps increasing progressively, parallelly followed by development of application software programs for library automation and database

development and management. For distance education, production and distribution of courseware in the form of audio and videotapes is progressively increasing which will soon be followed by multimedia and teleconference-based courseware.

5.1 Expected developments

The availability of public data networks like I-Net in the country and the further augmentation of the already functioning networks like ERNET, NICNET, etc is giving a boost to the Indian libraries and LIS departments in academic institutions, to use these networks for information services as well as education. This combined with the availability of computers, CD-ROMs, and multimedia and the related software at reduced prices will enable LIS education and research to be mostly IT-based in a few years. Most academic institutions offering distance education programs are likely to use audio and video teleconferencing, interactive teaching both through satellite channels and also through some cable TV networks. Parallelly, cable-TV operators are also likely to make commercially published multimedia courseware by the turn of the century or a couple of years thereafter. Siti Cable, a cable-TV operator is already beaming IGNOU video programs in the city of Kochi (Kerala) during 0700 to 0730 hrs. Thus in India in about five to six years we may see distance education programs in LIS also becoming available to homes through television channels and cable TV networks. Teaching through these channels may be supplemented by course materials which may be supplied through data networks in electronic formats or in hard copies.

5. ACKNOWLEDGEMENT

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