Research Paper Library Science

Libraries: An Essential Tool for the Advancement of Knowledge Resources & Research in Recent Era

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ABSTRACT

This paper discusses some of the changes that have taken place in production, growth and distribution of knowledge sources in the field of education. It describes how the information needs, information seeking behavior and expectations of the users have changed due to the change in the media and access tools for retrieving the knowledge sources. It also discusses the role of the library and library professionals in this changing knowledge environment.

Keywords : Knowledge environment, Knowledge sources, knowledge users, Information seeking behavior

Introduction:
There is a tendency among some educators to view new technologies of instruction as a panacea to current shortcomings of teaching. However, the newness of a medium should not determine its appropriateness to the structure of a learning environment. Since late 1970s, technologies of instruction have been examined under new light, resulting in new understanding of instructional design.

An educational technology environment is a learning environment that is structured with precision using conventional and new technologies of instruction to achieve clearly started goals and objectives. Understanding the strengths and limitations of each technology of instruction is essential to the achievement of an effective instructional design. The educational technology-learning environment is an extended environment since it encompasses more than textbooks, notebooks, chalkboard illustrations, teacher's lectures, and occasional use of videotape recordings. It is an environment in which variety of technologies of instruction are integrated, such as planned museum visits, invited guest speakers, searching the internet for information and posting class work on the WWW for others to view and comment. The educational technology-learning environment is also an extended environment because it extends beyond the school physical space and time. From their homes, schools, or from public libraries students can access information they need to locate.

Changes in Information sources:
The major source of knowledge in the field of education are explicit and are available as different types of information sources. Due to change in electronic publishing most of the knowledge sources are available in the form of e – information resources, which is also termed as electronic information or on-line information resource or on-line resources or e-resources and is defined as a broader term that encompasses electronic journals and other full-text materials, indexing and abstracting services, the information of information aggregators, article delivery services etc..

* ***Books to e-books:*** Books are gradually shifting to e-books. A few e-book such as e-books from Springer, Elsevier, Willy etc, SPIE proceedings, AIP proceedings, IEEE proceedings etc are already prevailing in the field of science and technology and many more science and technology publishers are coming up with e-book option.

Journals to on-line journals: Current issues(of limited rolling years) are free with print subscription. Access to Elsevier Science Direct, IEEE journals, ASME, ASCE, Springer journals, Wiley journals is possible through Consortia. Back Issues(on-line archives) of the journals such PROLA(All APS journals), AIP journals, IOP(All IOP Journal before 10 years),OSA journals, Science Direct(Elsevier Physics, Materials Science & Mathematics back file) are accessible on subscription basis.

• ***Standards from print to CD:*** BIS standards, ASTM Standards, ASME standards, IEC standards etc are available mainly on stand alone or network version of CD. IEEE standards are accessible on-line through IEEE E-Library.

• ***Research Reports from print to on-line:*** Research report of CERN, KEK, DESY and other important research organization are available on-line.

• ***Patents from print to on-line:*** Patents are accessible on-line through INPADOC or the issuing authorities such as US Patent House, IBM Patent Office etc.

Changes in media of information resources
The media has smoothly transformed from print to microform to electronic (CDs and On-line). But interesting thing to note is during the metamorphosis the print part has prevailed with the other forms such as microforms, CD and On-line.

Changes in access tools to retrieve information sources
Literature Search is defined as "A systematic and exhaustive search for published material on a specific topic" Or "Systematic search, utilizing various indexes and catalogs, for materials on a specific problem or topic, often done with an aim to be comprehensive" Or A thorough exploration of all information published about a given topic. Retrieval tools have changes from printed library catalogue cards and printed indexing and abstracting journals to Web-OPAC, search engines and online databases with lot of value additions such as full-text linking (through DOI and Crossref), references linking and Citations etc.

Access tools prevailing in the field of Higher Education are:
• **Indexing and abstracting database:** On-line indexing and abstracting services with full-text linking through DOI or Crossref, prevailing in the field of higher education, are:
Web-of Science which covers Science Citation Index, Current Contents and Physics Abstract(INSPEC)

Engineering Village which covers EI-COMPINDEX, INSPEC etc.

Other aggregators (some also act as document delivery services) J-Gate, Infotriev, INGENTA, EBESCO, PUBMED CENTRAL,BIOMEDNET, MEDLINE, OVID, JSTOR

• Publishers journal databases
Most of the publishes provide features like full-text linking(through DOI and Crossref), references linking and citations in their own journals. Important databases(also known as info-bases or knowledge bases) in the field of science and technology are CIRUS(Science Direct Database(Elsevier), CITATION(AIP & APS and Pub-Med), IOP, OSA(Optics Infobase), IEEE Electronic Library etc.

• E-print archives
E-Print Archives gives access to preprints from worldwide. "ArXiv" of Los Alamo National Laboratory and "SPIERS" of SLAC & DESY laboratory are two popular e-print archive in the field of higher education.

• Search engines
In the field science and technology "Google Scholar" is one of the best search engines that provides contextual search facility for most of the publishes scientific information with full text link, reference link and citation.

Information Technology-based Library Services
New information technology can potentially support a range of traditional and nontraditional library services. Most of the library services generated using information technology resemble closely to those generated manually with improvements and modifications to suit the requirements of automated services. Examples of some of Itbased library services are given below:

- OPAC and WebPAC
Remote access to the Library catalogues (OPAC) was possible only through a telnet connection before the Web was launched. The web-based interfaces are now available for most of the integrated library software packages including Libsys. Web sites are increasingly providing links to their webPAC instead of telnet links to their Library OPAC. Exploiting the provisions of hyperlinking that the web provides, various searchable elements of a bibliographic record in a webPAC are hyperlinks to other records in the database.

- Information Alerting Services
As the name implies, information alerting services or Current Awareness Services (CAS) are produced by the libraries for their users to alert them about new developments in a given field of study. Information alerting services are issues periodically by the libraries either for internal distribution amongst staff and employees or externally to other users. The alerting service may be issued as a newsletter reporting new developments, programmes, forthcoming seminars and conferences, events, training programmers, etc. It may also consist of recent additions of books and other documents in the library for a specified time period. Most library integrated system facilitate generation of such a service organized according to subject category for a given time period. Alerting service may also consist of an indexing service issued by a library or a commercial publisher or a society that regularly indexes the contents of periodicals and some other publications systematically in a specified subject field. Such indexing services are issued at a regular interval. Abstracting services are essentially indexing services wherein an abstract of articles are included in addition to its bibliographic details. Index India and Reader's Guide to Periodical Literature are examples of indexing services. Biological Abstracts, Chemical Abstracts and Index Medicus are example of abstracting services.

- Digital Reference Service
Reference service and imparting instructional training to the library users are key areas of activities for any library. The technology now allows reference librarians to reach out to the users using the network instead of waiting at the reference desk for users to come by. Besides, imparting instructions on mechanisms of using a library, a reference librarian is also involved in delivering reference service that require deep intellectual understanding of subject. Although automated libraries are not yet sufficiently advanced to offer interactive reference services, electronically-mediated reference services are increasingly available through libraries and information centres. Digital reference service, also called "Ask-An-Expert" or "Ask-A-Librarian" services are Internet-based question and answer service that connect users with individuals who possess specialized subject knowledge and skill in conducting precision searches (Davis, 2000).

-Real-time Digital Reference Service: Library Chat Rooms
Several libraries have started experimenting with offering real time digital reference service, using chat software, live interactive communication activities, call counter management software, web contact software, bulletin board services, interactive customer assistance system or related technologies. Many libraries are experimenting with Internet chat technology as an innovative method to extend and enhance traditional and remote reference service. While digital reference service is asynchronous method of information delivery, the Internet chat providing the benefit of synchronous communication between a user and a reference librarian (or mentor). Interactive reference services facilitate a user to talk to a real, live reference librarian at any time of day or night from anywhere in the world.

- Electronic Document Delivery Services
The term "electronic document delivery systems" implies delivery of electronic version of a document that might involve reproduction of an electronic copy of a document if it is not available in electronic format. The libraries had been using fax machines for immediate delivery of photocopies of articles via telephone lines. The first use of electronic document delivery was based on scanning technology. With maturity of scanning equipment and technology, document supply services started scanning the documents as bitmap page images. Applications are built in such a way so as to automatically produce a hard copy together with a header page containing the address of the applicant which can again be send by snail mail or facsimile. A software package known as "Ariel" is used in several libraries in developed countries for delivery of scanned articles via Internet. The Ariel software is loaded on an Internet-enabled computer, can receive and send electronic information to other libraries which have installed Ariel. Availability of most of the peer reviewed research journals in electronic format, inexpensive technology to scan articles and improved electronic delivery mechanisms are some of the enabling factors that have contributed to well-established electronic document delivery system now available commercially. More recently most of the secondary services that were available on CD ROM or through online search services are now available on the Internet where the bibliographic references are linked to their full-text on the publisher's site. The technology has now been perfected and there are several electronic document delivery services that allow a user to download an article in full-text from their site or deliver them electronically as attachment to e-mails.

- Library Web Sites
Libraries are using web technology to create home pages as starting points or as gateways for searching information about the library. A home page reflects characteristics of an academic institution. It provides an opportunity to the library to propagate its services and facilities to the academic community worldwide. The home pages of libraries are increasingly used as an integrated interface designed to deliver detailed information about a library as well as to provide access to all computer-based services offered by a library.

- Web-based User Education
The www provides a dynamic environment for distributing information over a large network and web-based instructions is a suitable tool to do so. Web-based guides and teaching tools can be easily updated, accessed, and printed on demand.

They may include colour graphics and screenshots. The web-based user education provides a high degree of interactivity and flexibility to the users offering them the benefit of self-pace, graduated to teach from basic to highly advanced levels and designed in a wide range of formats that accommodate diverse learning styles. The proliferation of digital resources will generate greater demands on reference and instructional services. With availability of digital resources that can be used anywhere at any time, requirement for instructional and reference services would also grow. Failure to develop both the technological aspects and required service components would lead to under utilization of digital resources.

Conclusions

Electronic information resources have become the vital part of human life in 21st century. It has rapidly changed the way of seeking and disseminating information. It is clear from the study that how electronic information resources are useful to preparation of classroom teaching and research work. This study helps the librarians in planning and developing electronic information resources in providing modern services to their library users.

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