# Trends in ICT for Librarian 2.0: Open Courseware, Open Access Journals and Digital Library Initiatives

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#### **Abstract**

Attempts have been made to explore the impact of Information and Communication Technology on entire gamut of Library sector. Conceptualize the transformation of conventional libraries into Librarian 2.0 and Web 2.0 providing changing scenario of information industry. Further describes the role of Libraries in supporting Teaching and Student Community by means of developing indigenous knowledge and organizing the content of open access e-journals, digital repositories, free courseware's and instructional materials to the users by establishing state-of-the-art ICT facilities.

Keywords: Librarian 2.0, Web 2.0, Courseware, Digital Library, Open Access

#### 1. Introduction

The information age we are in now is in the process of rapidly replacing the industrial era. Alvin Toffler in his famous book "Third Wave" rightly observed that the civilization has witnessed three great revolutions "Agricultural Revolution" "Industrial Revolution" and "Information Revolution". The digital age has provided new opportunities for higher education and research and the libraries in institutions of higher learning are to face new challenges.

Developments in Information and Communication Technology's (ICT), the libraries have been integrated at the electronic frontier to facilitate rapid transfer of information on a global scale. Advances in computer storage and telecommunication methods, online access to databases, electronic journals, electronic knowledge banks, direct document delivery, tele-text, teleconferences, bulletin boards, CD-ROMs, networks etc., have been

the revolutionary developments in the last two/three decades that have brought a great change in communication, storing and handling of information. The digital or electronic resources are dynamic in nature to share information globally and there has been an increased scope for automated delivery mechanism. Libraries today are termed as Digital Libraries and Hybrid Libraries. Knowledge preservation and dissemination have rapidly changed. Unlike simply providing access to holdings in print format, the electronic resources are procured to meet the information needs of the clientele. In the light of Information Bill 2002, it must be the fundamental professional concern of the Librarians to endeavor to predict, grasp, analyze and materialize such expectations and needs.

The world of Library and Information Centers has been witnessing a sea of changes due to development of information and communication technologies (ICT), which has not only changed the way information is generated, organized, stored and distributed but more importantly have become indispensable tools for teaching, learning and



7<sup>th</sup> International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, 2009 © INFLIBNET Centre, Ahmedabad research. Therefore strategies for building 21st century libraries the librarians must focus on the ability of librarians and libraries to not just adapt to change, but to prepare for it, facilitate it and shape it especially developing a modern libraries in the form of Virtual Learning Resource Centre to encompass an Information One Stop Point for academics to achieve excellence to build a strong knowledge society for national development in the context of IT enabled knowledge management.

#### 2. Librarian 2.0 and Web 2.0

The information environment in which libraries find themselves is continuously changing. The ways in which people today communicate, interact, acquire and share knowledge have changed due to advancements in the information and communication technologies. Hence the libraries must compete for their survival. Libraries have to integrate several technologies in their services in order to attract the users. Library 2.0 is the new concept where users are not only information consumers

but also content creators. It is a library with out any boundaries and with the fullest participation of users as architects. In fact, the term - Library 2.0 is coined by Michael Casey on his LibrayCrunch blog. Library 2.0 is the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections.

According to Soundararajan and Somasekharan (2007), Library 2.0 could be understood to have these four essential elements:

♦ It is user-centered. Users participate in the creation of the content and services they view within the library's web-presence, OPAC, etc. The consumption and creation of content is dynamic,

and thus the roles of librarian and user are not always clear.

- ♦ It provides a multi-media experience. Both the collections and services of Library 2.0 contain video and audio components. While this is not often cited as a function of Library 2.0, it is here suggested that it should be.
- ♦ It is socially rich. The library's web-presence includes users' presences. There are both synchronous (e.g. IM) and asynchronous (e.g. wikis) ways for users to communicate with one another and with librarians.
- ♦ It is community innovative. This is perhaps the single most important aspect of Library 2.0. It rests on the foundation of libraries as a community service, but understands that as communities change, libraries must not only change with them, and they must allow users to change the library. It seeks to continually change its services, to find new ways to allow communities, not just individuals to seek, find, and utilize information.

Web 2.0 is the a method by which data and services previously locked into individual web pages for reading by the human beings can be liberated and then reused. The important characteristics of web 2.0 are:

- ♦ Web 2.0 allows data to be exposed, discovered and manipulated in a variety of ways distinct from the purpose of the application originally used to gain
- Web 2.0 **permits the building of virtual applications**, drawing data and functionality from a number of different sources as appropriate.
- ♦ Web 2.0 is **participative**. The traditional Web has tended to be somewhat one sided, with a flowf

content from provider to viewer. Web 2.0 allows the users to actively participate online by means of blogging, sharing files, or

- ♦ Web 2.0 applications **work for the user**, and are able to locate and assemble content that meets our needs as users, rather than forcing us to conform to the paths laid out for us by content owners or their intermediaries.
- ♦ Web 2.0 applications are **modular**, with developers and users able to pick and choose from a set of interoperating components in order to build something that meets their needs.
- Web 2.0 is about **sharing**: code, content, ideas.
- ♦ Web 2.0 is about **communication** and **facilitating community**. People communicate.
- Web 2.0 is **smart**. Applications will be able to capture user knowledge and deliver services to satisfy their needs.
- Web 2.0 is built upon **Trust**, whether that is trust placed in individuals, in assertions, or in the uses and reuses of data.

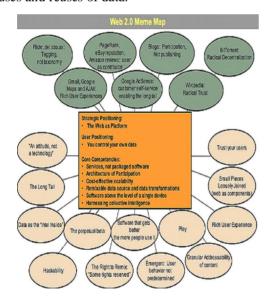


Figure -1

Figure 1 shows a "meme map" of Web 2.0 that was developed at a brainstorming session during FOO Camp, a conference at O'Reilly Media. Available at http://www.oreillynet.com/pub/au/27 (Accessed on 10th Dec 2008)

The uniqueness of Web 2.0 and the current developments of Library 2.0 is the level of integration and interoperability that is designed into the interface through the library portal or intranet. In order to take advantage of the concepts inherent in Library 2.0, all the advanced functionality and features of web 2.0 should be integrated into the content to serve the users with treasure of knowledge.

MySpace, FaceBook, Frappr, and Flickr are networks that have enjoyed massive popularity in Web 2.0. While MySpace and FaceBook enable users to share themselves with one another detailed profiles of users' lives and personalities and Flickr enables the sharing of pictures. Skype – connects users to expert discussions, conversations and communities of practice and participation there as well users latest tools of communication. So also, Blogs and wikis are fundamentally 2.0, and their global proliferation has enormous implications for libraries in content creation and access.

## 3. Role of Libraries in Higher Education

Higher education is witnessing transition from student to learner; from faculty centered to learner centered institutions; from teaching to the design and management of learning experiences; from student to a lifelong member of a learning community and all these suggests changes in teaching and learning process. UNESCO aims to ensure that all countries, both developed and developing, have access to the best educational facilities necessary

to prepare young people to play full roles in modern society and to contribute to a knowledge nation.

Education is a never-ending process. Information use skills are the important and essential part of education, which helps, in a greater deal for its continuum. To know how to use a library and search information is an essential part of "education for life". Systematic information management skills and educating the user would introduce the users to the right methods that would enable them for the rest of their lives to use information resources i.e. educational resources, courseware's and digital repositories more effectively in education, research and development. In this competitive world, even today, the existence of Librarianship as a visible profession is still being questioned?. When peeped into the developments like Web1.0 to Web 2.0, Internet to Internet 2.0 and Library to Library 2.0, it is essential to develop librarian-faculty/ students collaboration to reveal the un-noticed rich resources (Print and online) especially the free resources available to the society. As a Library professional, we need to explore and use the ICT skills rather than creating it and ensure with our content, organizing and marketing skills that, the resources are made available in an integrated manner as a central information mall like Big Bazaar. To achieve this, develop a web site/intranet database that provides links to the content to the open access e-journals, digital repositories, free courseware's, instructional materials, higher education and scholarship opportunities in various disciplines has to be created and sensitized to the user community.

## 3.1. Open Educational and Courseware Resources

The National Knowledge Commission of India (NKC), constituted on 13<sup>th</sup> June 2005 with a overarching aim is to transform India into a vibrant

knowledge-based society, NKC's Working Group on Open Access and Open Educational Resources and Working Group on Libraries have strongly recommended open access to public-funded research literature and supported establishment of open courseware repositories for countrywide dissemination of quality courseware to many cross-sections of people. At an international level, the Open Knowledge Initiative (OKI) is a MIT led community effort that has defined a service-oriented architecture to facilitate the construction and use of educational applications.

Some of the major Open Educational and Courseware Resources to support learning, teaching and research activities at national and international are highlighted below.

## ◆ Consortium for Educational Communication (CEC) (www.cec-lor.edu.in)

Consortium for Educational Communication (CEC) is an inter-university centre on electronic media, established by the University Grants Commission (UGC). The CEC in coordination with its 17 Educational Multimedia Research Centres. has been producing television programmes in various subject categories in English, Hindi and regional languages. Some of the audio-visual programmes are based on syllabus-based topics at the school, polytechnic, college and university levels. Produced educational programmes are broadcast on the national educational television channels such as Vyas Higher Education Channel, Gyan Darshan, and Doordarshan. The television programmes produced in CEC and broadcasted in educational channels are reusable. Thus, CEC established the Learning Object Repository (LOR) and the Digital Video Repository (DVR) to provide worldwide access to these qualitative learning resources. This facility is a great boon to the students and teachers for face to face learning as well as to other users globally.

## e-GyanKosh (www.egyankosh.ac.in, www.sakshat.ac.in)

IGNOU has initiated the establishment of a National Digital Repository of learning resources eGyankosh. This e-repository of knowledge envisages storing, indexing, preserving, distributing and sharing the digital learning resources for open & distancing learning institutes. The repository supports seamless aggregation and integration of learning resources in different formats such as self-instructional study materials, audio-video programmes, and archives of radio and television-based live interactive sessions. The repository facilitates any time access to its collections  $(24 \times 7 \times 365)$ , offering interoperability and federated searching facility. This repository was started with two communities: India and Pan African e-networks. Under the community India, there are subcommunities based on IGNOU various divisions/ courses/schools.

## ◆ National Programme on Technology Enhanced Learning (NPTEL) (www.nptel.iitm.ac.in, http:// youtube.com/nptelhrd/)

This is a joint venture comprising of seven Indian Institutes of Technology i.e. IIT Bombay, IIT Delhi, IIT Guwahati, IIT Kanpur, IIT Kharagpur, IIT Madras, and IIT Roorkee and Indian Institute of Science (IISc), Bangalore. With the objective to enhance the quality of engineering education in the country by developing curriculum based

video and web courses, this programme is initially started in five major Engineering Subjects i.e. Civil Engineering, Computer Science & Engineering., Electrical Engineering, Electronics and Communication Engineering and Mechanical Engineering. Faculties from these various institutions are involved in developing their classroom course material in electronic form. Currently, the program has 120 web based courses and 115 video courses in the core sciences, computer science, civil engineering, electrical engineering, electronics and material engineering.

### ♦ Ekalavya Project

The Ekalavya project launched by IIT, Bombay is an Open Source Educational Resources Animation Repository (OSCAR) provides webbased interactive animations for teaching various concepts and technologies. OSCAR provides a platform for mentors/professors to suggest ideas for animation and for developers/students to create content based on the suggested ideas and guidance. This portal aims at a free exchange of knowledge and ideas, by placing all the relevant academic material in the open source, thus making considerable contribution to society.

## ◆ UNESCO-SALIS e-Learning Portal (http://salisonline.org/)

The UNESCO-SALIS e-Learning Portal is a collaborative project of Society for the Advancement of Library and Information Science (SALIS) and UNESCO office in New Delhi. The project aims to raise awareness and enhance information literacy competency skills of laymen as well as information professionals and educators in the South Asian sub-region. Its objectives are fully in line with UNESCO's mandate to bridge the digital divide and UNESCO's vision of knowledge societies. It

covers the course on ICT, information literacy, its standards, models, assessments, information service for disabled people, right to information, etc. Indian library experts, in collaboration with lifelong learning experts, have developed the content of the modules in this e-Learning portal.

◆ NCERT Online Textbooks (http://www.ncert.nic.in/textbooks/testing/Index.htm)

NCERT- National Council of Educational Research and Training (NCERT), New Delhi is an apex resource organization set up by the Government of India to assist and advise the Central and State Governments on academic matters related to school level education. NCERT publishes school textbooks, mainly in English, Hindi and Urdu. It has initiated a step towards making school textbooks freely available on the Internet for students and teachers. Most of the textbooks available in this portal are in new edition, based on the National Curriculum Framework 2005. The educational planners in NCERT expect that a variety of pedagogical possibilities would open up for students and teachers across the country through this initiative.

Online courseware and educational resources at an international level are briefly described below.

Contents
Free lecture notes, exams, and videos from MIT that
which offers 1800 courses providing access to access
educational content
A free, public website for high school and
College students that offers NROC content.
It is a nonprofit organization of scientists and physicommitted to making the world's scientific and meliterature a freely available public resource
Provides free, searchable, access to course materials for educators, students, and self-learners around the world.
Research Papers in Economics is a collaborative effect hundreds of volunteers in 64 countries to enhance dissemination of research in economics
encourage the development and sharing of open learning, free content and open networks
Provides access to content of the School's most pocurses.
It is a project of Cornell University Library & allows Caccess to 512,597 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology and Statistics

Sciences, Chennai)	
EduCause	EduCause Learning Initiative (ELI) that supports new collegiate learning environments that use IT to improv quality of teaching and learning, contain or reduce risi costs, and provide greater access to higher education.
Open Learning Initiative (OLI) http://www.cmu.edu/oli/overview/index.shtml http://oli.web.cmu.edu/jcourse/webui/free.do	The OLI project, initiated by Carnegie Mellon, offers modules based upon crucial elements of instructional design grounded in cognitive theory, formative evaluat for students and faculty, and iterative course improven based on empirical evidence.

#### 3.2 Open Access Journals

### • e-journals@INSA (www.insa.ac.in)

The Indian National Science Academy (INSA) is a scientific academy funded by the Government of India. It was established in 1935. INSA publishes 4 peer-reviewed journals, organizes scientific discussions and brings out proceedings and monographs. The e-journals@insa is a project of the Indian National Science Academy that was started in July 2002. Initially this was a NISSAT supported project entitled "Building Digital Resources: Creating Facilities at INSA for hosting S&T Journals on Online", to facilitate conversion of INSA journals from print to digital format and host these materials online.

## ♦ Sociological Bulletin (CD-ROM)

Indian Sociological Bulletin published by ICSSR has been retrospectively digitized all the back volume issues of the journal in e-format by TISS, Mumbai and available in CD-ROM format.

- ◆ **E-LIS** http://eprints.rclis.org
- ◆ Librarians Digital Library http:// drtc.isibang.ac.in
- ◆ DLIST (Digital Library of Information S & T) http://dlist.sir.arizona.edu
- ◆ **MemSIC** http://memsic.ccsd.cnrs.fr

## ♦ Indian Academy of Sciences (IAS), Bangalore (www.ias.ac.in/pubs/journals/)

The Indian Academy of Sciences (IAS) is a scientific academy funded by the Government of India established in 1934 and publishes 11 journals. All journals are open access and fulltext literature is available as PDF files on each journal's website.

## ▶ IndianJournals.Com

(www.indianjournals.com)

 IndianJournals.com provides single window access to multidisciplinary Indian journals published by different scholarly societies and institutions. It provides access to eleven open access journals and periodicals. This journal gateway also provides access to subscriptionbased content.

## ◆ MEDIND@NIC: Biomedical Journals from India (http://medind.nic.in)

The Indian MEDLARS Centre at the National Informatics Centre has initiated two unique projects with support from the Indian Council of Medical Research. The first one is INDMED@NIC that indexes 70+ prominent biomedical journals of India from 1985 onwards. This INDMED bibliographic database is available online. Another project, MEDIND@NIC is an open access initiative from NIC that provides open access to the full-text content of 38 Indian biomedical journals. MEDIND@NIC aims

at providing online access to full-text Indian biomedical periodicals to the users within and outside India. Also Medknow Publications Private Limited provides access to medical journals freely @ www.medknow.com/journals.asp

## 3.3 Digital Library and Metadata Harvesting Services in Indian context

◆ Archives of Indian Labour: Integrated Labour History Research Programme (http://www.indi alabourarchives.org/)

The Archives of Indian Labour (AIL) is a collaborative project of V.V. Giri National Labour Institute and the Association of Indian Labour Historians carried out with an objective to preserve and make accessible archival documents on the working class of India to the people.

◆ **CSIR Explorations** (http://csirexplorations.com/)

Digital Library developed by CSIR containing three databases i.e. E-Thesis, EMR (Extramural Research) and CSIR Publications.

◆ **Digital e-Library** (http://mobilelibrary. cdacnoida.in)

The Centre for Development of Advanced Computing, Noida (CDAC Noida) initiated a mission-mode project in bringing the one million books, available with the Digital Library of India with a Mission to "Internet enabled Mobile Digital Library brought to use of the common citizen for promoting literacy" covering northern and central India such as Delhi, Uttar Pradesh, Haryana, Madhya Pradesh, Himanchal Pradesh, Uttarakhand, Punjab, Rajasthan, and Bihar.

### ♦ Digital Library of India

(www.new.dli.ernet.in/, www.dli.cdacnoida.in/, http://dli.iiit.ac.in/)

The Digital Library of India (DLI) is the greatest digital library initiative in South Asia, spreading all over the country and establishing a network of four mega scanning centres and 21 scanning centres, which feed the digital contents into the digital library systems. DLI is a part of the Universal Digital Library (UDL) and Million Books Project, coordinated by the Carnegie Mellon University, USA. DLI is available in three portals, hosted in three cities, i.e. Bangalore, Hyderabad and Noida. More than one lakh documents are scanned and made available. The documents of DLI can be browsed by title of document (beginning alphabet to be chosen); author's last name (beginning alphabet to be chosen); range of years; subject; language; or name of scanning centre. Using a search interface available in the main page, the documents of DLI can be searched by the title of the document, name of author, subject, year, language, name of scanning centre, scanning location, name of vendor, or name of source library.

## ♦ Cross Archive Search Service for Indian Repositories (CASSIR) (http://

casin.ncsi.iisc.ernet.in/oai/)

The CASSIR is a metadata harvesting service for Indian repositories, a project initiated by the National Centre

for Science Information (NCSI) of the Indian Institute of Science (IISc) and supported by DSIR. CASSIR covers eighteen Indian open access repositories:

- Catalysis Database (ePrints@NCCR IIT Madras)
- DRS at National Institute of Oceanography

- DSpace at ICFAI BUSINESS SCHOOL (IBS), Ahmedabad
- DSpace at IIMK
- DSpace at National Chemical Laboratory, Pune, India
- DSpace at Vidyanidhi
- DSpace@DRTC
- Dspace@NITR
- DU Eprint Archive
- ePrints@IISc
- ePrints@IIT Delhi
- ETD @ Indian Institute of Science
- Indian Institute of Astrophysics
- DSpace at ISI Library, Bangalore
- NAL Institutional Repository
- OneWorld South Asia Open Archive Initiative
- OpenMED@NIC
- RRI Digital Repository

#### ♦ Open Index Initiative (OII) (http://oii.igidr.ac.in)

The Open Index Initiative (OII) is a collaborative effort of 16+ volunteers working in Indian social science libraries across 5+ Indian cities, with a basic objective to develop an exhaustive online database with index and abstract to journal articles, book reviews, conference papers, and working papers published in Indian social science journals or published by Indian social science institutions. The Open Index Initiative (OII) portal facilitates information on forthcoming Conferences/Seminars/Workshops in India in Social Sciences, Indian Social Science Associations and Professional Bodies, Book Reviews, Index to Articles of Economic and Political Weekly (EPW, 1992-2005), Index to Journal Articles, Open Source Software and Experts, Online Directory of Social Science Institutions, Theses and Dissertations, Union

Catalogue of Journals and Working Papers Online.

 Scientific Journal Publishing in India: Indexing and Online Management (SJPI) (http:// sjpi.ncsi.iisc.ernet.in/harvester/)

The Scientific Journal Publishing in India (SJPI) is a project funded by international development agencies, having as project goal to improve the accessibility of scientific literature published in Indian journals by introducing an indexing system. This is a kind of demonstration of a system that would be self-sustaining under the existing infrastructure to support Indian scientific journals and academic publishing. The project popularizes to editors and administrators of Indian scientific journals and academic publishing, a free and open source software (FOSS), named Open Journals Systems (OJS) developed by UBC Public Knowledge Project. OJS assists with every stage of the refereed publishing process, from submissions to online publication and indexing.

## Search Digital Libraries (SDL) (http:// drtc.isibang.ac.in/sdl/)

The Search Digital Libraries (SDL) is a metadata harvesting service for open access repositories in the area of library and information science, a project initiated by the Documentation Research and Training Centre (DRTC) of the Indian Statistical Institute (ISI Bangalore). In this service, OAIPMH compliant software (PKP Harvester) harvests metadata from the registered open access repositories in the subject area of library and information science.

### ♦ Open J-Gate (www.openj-gate.com)

Open J-Gate, a searchable portal of open-access journals that provides access to 4,300+ open

access journals and million plus records of articles. Open J-Gate is the first corporate initiative in India to promote and support open access initiatives. The bibliographic database is maintained in a well-index database, having the metadata such as, the title of the article, name of authors, author email-id, author's affiliation, source, keywords, abstract and full-text links to each article. Open J-Gate consists of seven main subject categories, such as: Agricultural and Biological Sciences, Arts and Humanities, Basic Sciences, Biomedical Sciences, Engineering and Technology, Library and Information Sciences and Social and Management Sciences.

#### 4. Conclusion

World Summit on the information Society (WSIS) emphasizes for sharing and strengthening of global knowledge for development, which can be enhanced by removing barriers to equitable access to information for economic, social, political, health, cultural, educational, and scientific activities and by facilitating access to public domain information, including by universal design and the use of assistive technologies. Access to information and knowledge can be promoted by increasing awareness among all stakeholders of the possibilities offered by different software models, including proprietary, open-source and free software, in order to increase competition, access by users, diversity of choice, and to enable all users to develop solutions which best meet their requirements. As a Library professional dealing with information content, organization and dissemination, we are proficient in understanding the location of availability of information resources especially in the eenvironment and what is fun in just knowing its availability unless, provide Sensitization and Information Literacy Training Programs to create

awareness about the aforesaid avalanche of information treasure so as to support learning, teaching and research activities of the user community. Effective leadership practices, change management, communication, and continuing dialogue with Librarians are the key in order to fully realize the role of Librarian as educator. The final outcomes of becoming aware of and recognize opportunities for liaison still need to be realized. While some Librarians are naturally more suitable for and comfortable with this role, others need active encouragement, positive experiences and a supportive environment to realize their full potential.

#### References

- DAS, Anup Kumar Open Access to Knowledge and Information: Scholarly Literature and Digital Library Initiatives: the South Asian scenario. New Delhi: UNESCO, 2008. p-137.
- 2. JHA, Ajeet Kumar. Open Educational Resources, Courseware & Repositories: A Paradigm Shift In E-Learning. In ILA-TISS 2008 International conference on Knowledge for All, edited by M Koganuramath. Mumbai: Sita Books, pp.75-88.
- 3. http://www.oreillynet.com/pub/au/27 (Accessed on 10th Dec 2008)

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