

Emerging Technologies in Library and Information Centres

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Abstract: In the digitalized world, library and information centre's are attaining more number of web Tools(Electronic Resources) because of its perceived benefits, such as easy access to information and its comprehensiveness. This paper highlights the Web Technology /Digital Technology/ Web oriented resources availability, offers its features for teaching, learning and research. It also provides different types of electronic resources, accessing methodology and application in library and information centre's and also highlights the SWAYAM, NPTEL(National Programme on Technology Enhanced Learning), CEC(Consortium for Educational Communication), DELNET, INFLIBNET and open access electronic tools for higher education and research. The main objective of the paper is to expose the availability of different kinds of web tools, open access technology and how to utilize in library and information centres and also to create awareness among the students, research scholars and faculty.

Keywords: Higher Education, Web Tools, Electronic Resources, Swayam, NPTEL, INFLIBNET and DELNET

I. Introduction

Information and Communication Technology(ICT) plays a vital in higher education teaching and research. Application of web technology is essential part of the library and information centre's in this current scenario. The unprecedented technological advancement of the 21st century, no doubt has impacted on library services globally and in India in particular. Christopher Edwards in his article has rightly pointed out "providing access to information has traditionally been about buildings, based around institutions offering services to onsite users. Building tomorrow's libraries will not simply be a matter of installing rows of computer with Internet access: our users will increasingly expect to be able to access material from where they live and work. Providing access will increasingly be about developing electronic information services such as Internet portals and acting as a broker between content providers and remote user"(Christipher,2001). H.K.Kaul has opined that "our public library system in the country failed totally in bringing knowledge to the doorsteps of every individual. It is advisable for us to look at the problem afresh especially when the computer and communication technologies have now become available to us at a minimal cost (Kaul, 2002). Library systems were re-structured to accommodate ICT in library operations, because of the belief that the success of a library can be measured by the extent if ICT use by the library (Yapa,2003). The University Grants Commission and Ministry of Human Resources Development, Government of India has taking many initiatives for development of higher education and research. In higher educational institutions research process is one of the essential activity for higher education development and professional development of the faculty. Research activity helps the faculty for effective teaching and learning process. These are two issues helps the faculty for research. One is dealing with academic performance indicator score that gives weight age to research and another one is for effective teaching purpose. (Keller,2015) Information and Communication Technology has changed drastically after introduction of computer, internet, wireless communication etc., that has forced the information control knowledge centre's to adopt according to the recent trends. In this article features and services of the library, resources which are available in the information centre's for the young aspirants. It also provides utilization methods, different types of accessing methods in the libraries and Government initiatives for the higher education and research. Remedial measures to be taken for the students by the management, head of the institutions, teachers and the librarians.

II. Teaching, Learning and Research

Teaching and learning is one of the non stop process in the Higher Education System. ICT enables self-paced learning through various tools such as assignment, computer etc as a result of this the teaching learning enterprise has become more productive and meaningful. ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teachers capacity and ability fostering a live contact between the teacher and the student through e-mail, chalk session, e-learning, web-based learning including internet, intranet, extranet, CD-ROM, TV, Audio-videotape. Edusat technology has become very powerful media for interactive participation of experts and learners and it reaches the unreachable. Emerging learning Technology (ELT) of bogging, Integrated Learning Modules, a Pod Cast, Wikis, Enhancement of Browsers, e-learning, M-learning, U-learning have started making rapid strides in teaching learning processes.

III. Application of Web Technology

Information and Communication Technology has given wonderful opportunity for the librarians and knowledge centre's. It would be applicable in right manner and in order to reach information at the right time for the right person. There are many commercial and open e resources available in the universe for teaching, learning and research. Here some of the important information resources are highlighted in the following passage.

3.1. SWAYAM PRABHA

The Ministry of Human Resource Development (MHRD) and University Grants Commission (UGC) are in constant efforts for growth and development of Higher Education and Research. Ministry of Human Resources Development provides two programmes for higher education among them one of the important resource is SWAYAM –Massive Open Online Courses (MOOCs) and SWAYAM PRBHA Higher education Satellite Channel. Swayam Prabha is a good initiative by the MHRD, Government of India. Due to rapid technological development, education sector also has to work with the ICT. The rapid expansion of higher education system has brought several pertinent issues related to the standards of its quality and equal opportunity and availability of higher education facilities to all the categories of people of the society. This channel curriculum based course contents at Undergraduate and Post-graduate level cover different subject disciplines and also from 9th – 12th Standard students. All courses would be certified and ready in their detailed offering through SWAYAM, the platform for offering Massive Open Online Courses (MOOCs).

Swayam Prabha provides 32 Channels, among this from channel 1 to 16 provides Humanities (Language, Literature, Arts, History and Philosophy), Social Science (i-iv Categories), Economics, Commerce, Physical Science, Mathematics, Physics, Chemistry, Life Science, Botony, Zoology, Bio Science, Applied Science, Allied Physical and Chemical Science and also Engineering Subjects- Chemical Engineering, Civil Engineering, Computer Engineering, Electrical, Electronic Engineering, Mathematical Engineering, Humanities, Social Sciences and Management.

From channel 17 to 32 telecast Mechanical Engineering, Mathematics, Metallurgy, Physics, Biology, Chemistry, Physics, Arts, Liberal Arts and Humanities, Agriculture, Vocational and Allied Sciences, Culture and State Open Universities Programs-all the subject are covered, Secondary School Education, Higher Secondary School Education, and Teacher Education.



Fig.1. <https://www.swayamprabha.gov.in/>

3.2. NPTEL

National Programme on Technology Enhanced Learning (NPTEL) is one of the best Open Courseware in India. It is a joint initiative from IITs and IISc to offer online courses and certification in various topics Learn for free and candidates have to pay a small fee to write an exam and get a certificate from Ministry of HRD,

Government of India. NPTEL provides web courses and video courses. Both the courses free and easy downloadable from the NPTEL website. There are more than 1000 courses proposed by the Institute, among this Engineering Courses, Social Science and Management Subjects. Online course instructors also have to focus on the scope of student interaction.

3.3. Consortium for Educational Communication (CEC)

CEC has established and is running an exclusive 24X7 CEC-UGC Higher Education Satellite Channel initiated by Ministry of HRD called Vyas channel. The 24X7 transmission is based on educational content produced on various undergraduate subjects to supplement the classroom teaching. The advantages of having such channel is that education can reach to large number of viewers across millions of house-holds. The knowledge and information gap which exists due to lack of communication in remote places gets bridged to a great extent through this mode. With the mission to carry knowledge to households and students, teachers and public to bridge the knowledge and information gap and to provide the same quality of higher education to all, the channel on higher education was launched on 26th January 2004. The undergraduate educational programmes are being telecast on Vyas 24hrs Higher Education Channel available on DD Direct Plus, a DTH platform of Doordarshan and also on Dish TV, a private DTH operator. To ensure the reach and availability of our channel throughout the country and globally, CEC is using the powerful medium of internet and is thus webcasting the channel.

3.4. INFLIBNET

Information and Library Network (INFLIBNET) centre is an autonomous interuniversity centre of the University Grants Commission of India. INFLIBNET provides services to all Universities, Arts and Science Colleges, Engineering Colleges etc., INFLIBNET is involved in modernizing university libraries in India and connecting them as well as information centre's in the country through a nation-wide high speed data network using the state-of-art technologies for the optimum utilization of information. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India. INFLIBNET under taken projects and provides many services for the higher education viz. INFONET, Shodhganga, N-List, e-PG Pathshala, Vidwan subject Expert database. The following passage describes the **Shodhganga** one among the services provided by the INFLIBNET.

3.4.1 Shodhganga

Shodhganga is a reservoir of Indian Theses. Theses and dissertations are known to be the rich and unique source of information, often the only source of research work that does not find its way into various publication channels. Theses and dissertations remain an un-tapped and under-utilized asset, leading to unnecessary duplication and repetition that, in effect, is the anti-theses of research and wastage of huge resources, both human and financial. Shodhganga portal provides more than 2 lakh full text thesis. It is highly useful for the research scholars.



Fig.2. <http://shodhganga.inflibnet.ac.in/>(Shodhganga Homepage)

3.5. DELNET

Developing Library Network (DELNET) established by National Informatics Centre at New Delhi. It provides Online Journals, free e-books, Theses/Dissertations, Multimedia databases, Full text databases, other online databases GISTNIC, MEDLINE, NLM, US Patents, Full Text, Union Catalogue of books, Union Catalogue of Journals, Sound Recordings, Video Recordings, Cambridge Dictionary online etc., Recently Delnet launched DELNET DISCOVERY PORTAL with vast resources. DELNET has been established with the prime objective of promoting resource sharing among the libraries through the development of a network of libraries. It aims to collect, store, and disseminate information besides offering computerised services to users, to coordinate efforts for suitable collection development and also to reduce unnecessary duplication wherever possible.

3.6. National Digital Library

Ministry of Human Resource Development (MHRD), through its National Mission on Education through Information and Communication Technology (NMEICT), has sponsored and funded the National Digital Library (NDL) pilot project. Indian Institute of Technology, Kharagpur is administering this pilot project. It is bringing together the available resources from different academic institutions, government organizations and other private sectors. After collecting all the resources, it is processed by the programmers and distributed through its server. It provides individual and institutional membership to the users.

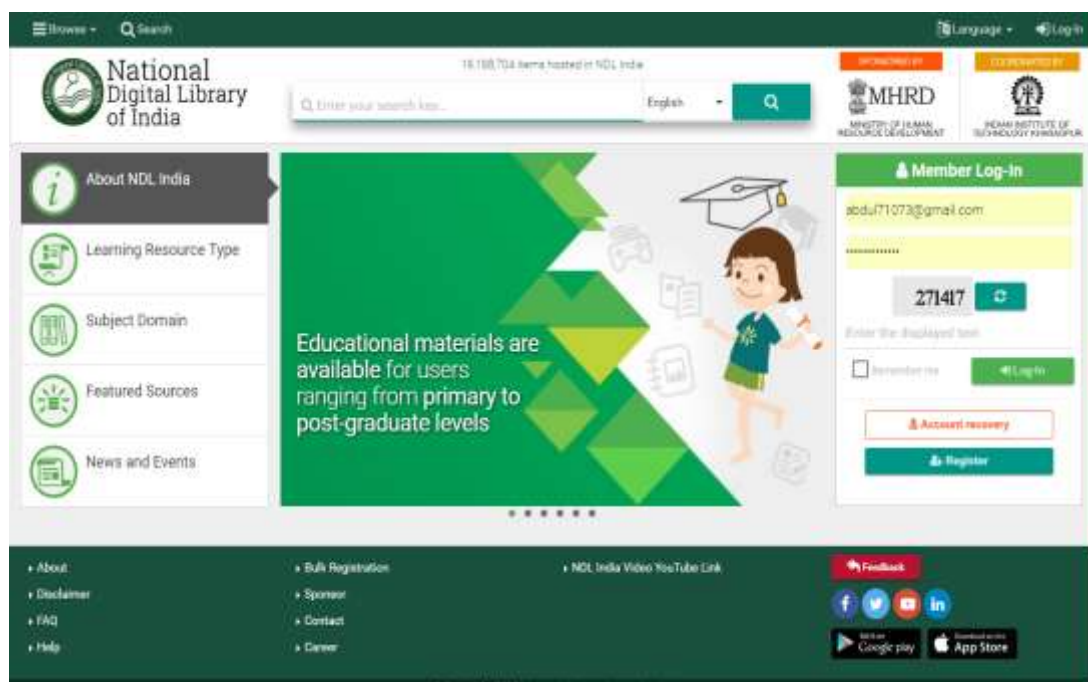


Fig.3 <https://ndl.iitkgp.ac.in/> (Homepage)

3.6.1 Available Resources

Repository hosts contents from multiple subject domains like Technology, Science, Humanities, Agriculture and others.

- Repository integrates contents from different Indian Institutional Repositories
- More than 60 types of learning resources are available
- Educational resources are available for users ranging from primary to post graduate levels.
- Theses and Dissertations
- NDL contents will be available in various forms like text, audio, video etc. The nature of media can be chosen by the user to retrieve the materials in the desired format.
- Items are available in more than 70 languages.
- 10 Million items have been authored by 3 lakh authors.

3.6.2 Featured Sources/Resource Providers

- ❖ DLI (Digital Library of India) More than 5,00,000 global classical books
 - ❖ LIBRIVOX More than 2 lakhs audio books
 - ❖ SNLTR Digitization of literary works by Rabindaranath Tagore
 - ❖ INFLIBNET (Information Library Network) Hosts nearly lakh+ thesis and synopsis reports authored by Indian researchers from different institutions.
 - ❖ KRISHI KOSH More than 50,000 agricultural books, journals, articles and reports.
 - ❖ NCERT (National Council for Education, Research and Training Hindi and English books on different subjects for students from primary to 12th Standard.
 - ❖ NPTEL National Programme on Technical Enhanced Learning
- MHRD sponsored project that hosts 10000 Video lectures in Engineering Domin.

3.7. Managing Reference Resources using Software

In this IT era, where information passes across the globe in lightning speed and with blooming communication technology. As the amount of available data grows managing information becomes more difficult. So the research scholars, students and faculties are facing problems in identifying, collecting and arranging the data in their respective research. To solve this problems, different types of Reference Managers are available. They are

1. Connotea
2. JabRef
3. Librarian
4. Mendeley
5. Zotero
6. LITEULIKE
7. RefDB

Eg: Mendeley: This reference manager includes the features of quick and simple installation, world plugins, citation styles with more than 1000 formats, journals, quick search, select the citation style, instant bibliography, creative, flexible formatting, collaborate on bibliographies and share bibliographies. It also enables to generate the citations and bibliographies in Microsoft word, open office and latex.

3.8 Harvesting Open Access Resource

Due to revolution in the information technology, lakhs and crores of information resources available in the Internet. Any title can be searched through web and typically hundreds or thousands of documents can be found on a topic, within seconds. The resources are open access(free) or paid resources to utilize effectively for education and research. There are lakhs of open access resources available in the internet for higher education and research. Among the free sources, some of them are DOAJ (Directory of Open Access Journals) www.doaj.com ; DOAB (Directory of Open Access Books) www.doabbooks.com apart from this so many open access sites are available. DOAJ- accessing of free journals in full text form and DOAB- for accessing of free books in PDF format.



Fig.4 Directory of Open Access Journals

3.9. Citationmachine.net

There are different styles (types) of References / Bibliography writing available in the web resources and also in books. For Eg. APA (American Psychological style), Chicago model, MLA style are followed etc., In India APA style is familiar for bibliography writing. It gives the details of reference bibliography styles according to our request like book, magazine, newspaper, website, journal etc., In the Internet era Bibliography styles and Journal metrics also available in the web resources. An exclusive web resources are available for writing the bibliography For EG. www.citationmachine.net is an open access site for bibliography style making. Under the Fig.5 www.citationmachine.net site convert the style of references / bibliographies according to our request. If we enter the author names, title, place of publication and year of publication and select the required style for conversion as per our request. It is essential for every Journal, Article, Book, Research Reports bearing Bibliography / References.

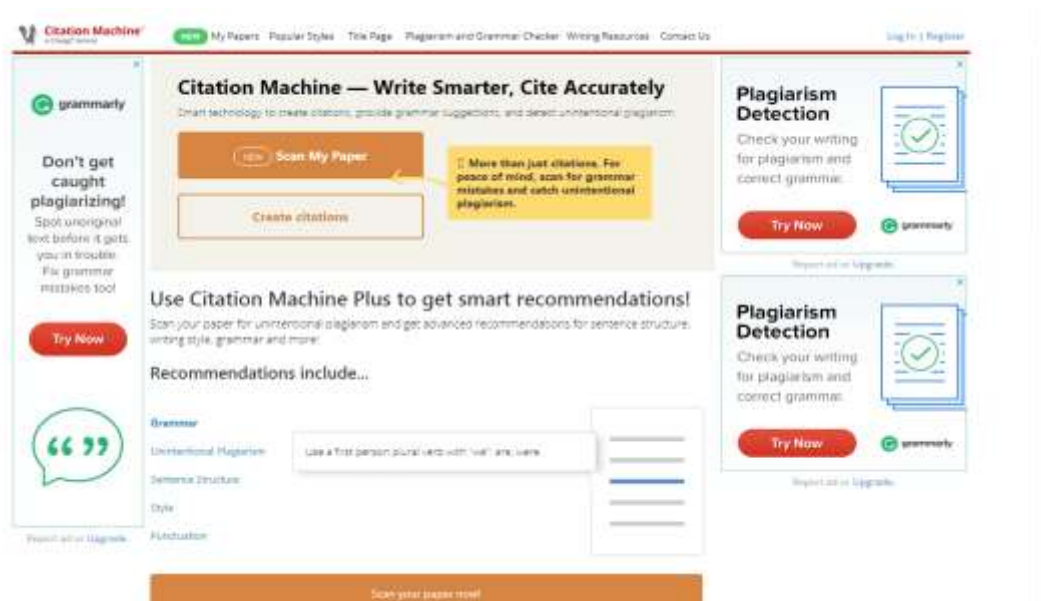


Fig.5 www. Citationmachine.net (Homepage)

3.10 Plagiarism, Copyright and Ethics

Plagiarism means taking information or ideas from another writer and using them in your own work, without acknowledging the sources in an accepted manner. In academic work plagiarism can be a serious offence. So, the writers and publishers should take care of their work. Copyright, in the context of academic programmes and academic publishing, generally refers to ownership of products, ideas or knowledge. In educational research and writing there might be copyright issues about the right to claim credit for research findings and for written material. There are questions about 'ownership' wherever there is scholarship. Here we move into the realm of ethics. In educational research there are well developed ethical guidelines for both conduct of research and presentation of research findings. There are many open access tools available for plagiarism detection Eg. Dupli Checker, PaperRater, Copyleaks, Viper etc.,

IV. Suggestions

In accordance with the above ICT facilities Suggestions were given for growth and development of Library and information Centre's initiative is one of the important factor. The library science professionals, management of the concerned institutions and the government may take initiatives for growth and development of Teaching, Learning and Research. Sufficient financial assistance, manpower and infrastructure facility is bridge the development of higher education and research. User awareness programmes, conferences, seminars, workshops may be conducted to create awareness among the faculty, students and research scholars is need of the hour.

V. Conclusion

The Information and Communication Technology has affected all walks of life and Library and Information Science is not untouched with it. It has made tremendous changes in the working style of Library and Information Profession. The essential skills for library professionals are listening skills, managerial skills, leadership, technological skills, learning skills and administrative skills.. It is observed from this paper Information and Communication Technology occupy each nook and corner of the entire universe. The Library and Information Science Professionals should adopt the latest technology and fulfill the users(Students, Research Scholars and Faculty) needs. The students involves the use of the modern electronic gadgets which will of immensely useful to the society. Hence it is in the best interest of the students that the teaching community should learned and try to implement what they have learnt using the Internet. Moreover the management and the government assistance also extend their contributions to establish and execute the same in case of Self Financing Institutions.

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