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Managing Access to E-journals: A Study of Technical University Libraries of North India

Seema Vasishtha Dr.

PEC University of Technology, seema313@gmail.com

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Managing Access to E-journals: A Study of Technical University Libraries of North India

Abstract: Electronic journals have opened up many exciting opportunities for academic and research libraries in developing countries and have emerged as a major component of their collections. This article examines the present scenario of access management of e-journals in technical university libraries of North India. The study is based on the analysis of various facilities available for providing seamless access to e-journals. Questionnaire method was used to collect the data. Comparative data of seven technical university libraries are drawn in tabular form for presenting the results. The study endeavors to gain some insights into various issues involved in managing access to e-journals viz. licensing issues; availability of infrastructure; dissemination of e-journals; methods being followed for user education and promotional activities related to e-journals.

Introduction: Recently, digital environment has made accessible so many exciting opportunities for academic and research libraries in the form of e-journals, that these have become the most popular form of e-resources which are gaining ground with the growth and expansion of the Internet. Tech-savvy users, being aware of many value-added features of e-journals, demand easy and seamless access to current information in the form of e-journals on their desktops. Providing seamless access to e-journals has always been the utopia of library and information professionals. The main concern of libraries is to provide anywhere anytime access to the users for e-journals. Johnston (1998) raised an important concern by arguing, "With the introduction of e-journals comes the question of accessibility, for the quality of the text and its academic standing is of little importance, if the access is difficult or impossible." Therefore, furnishing consistent and persistent access to e-journals has emerged as a significant challenge due to the involvement of many modalities. Various protocols necessary for providing consistent access are to choose an appropriate acquisition approach; negotiating for site license agreements; selecting unconventional means of dissemination of e-journals; making the users cognizant about e-journals, and above all, building a compatible infrastructure for prompt access of information from e-journals.

This paper presents results of a research work undertaken to review present facilities for providing seamless access to e-journals in technical university libraries of North India.

Review of literature: Quite a significant proportion of the recent literature about e-journals has concentrated on the various aspects of managing access to e-journals. Lo (2001)

discussed the results of a continuous study of issues pertaining to access of e-journals which were distributed via the Taiwan Academic Network (TANet). She reported that if e-journals are to succeed as a new channel of scholarly communication, the issue related to access needs to be given due consideration. Felts (2002) highlighted that too many places to locate e-journals has emerged as one of the persistent problems in finding journal literature. Jackson Library at the University of North Carolina at Greensboro (UNCG), has simplified the process with Journal Finder, a locally developed software solution that seamlessly integrates e-journal content, pay-per-view content, local print holdings, unmediated document delivery (fully funded by the Library), and interlibrary loan, for comprehensive, unmediated, 'one stop shop' access to journal articles. White and Davies (2005) described work by the Library and Information Statistics Unit (LISU) based at Loughborough University to support decision making by managers in academic information and library services in the UK in the realm of providing access to scholarly information through serials. A model was built against which to assess a series of propositions, or 'deals', from different publishers for e-journals collections through the National Electronic Site License Initiative (NESLI). Anderson (2005) revealed the issues related to implementing access to e-journals for the users of the Eastern Washington University Libraries (EWUL). The demand of the users is for convenient 24-hour access to full-text journals in a rapid, convenient manner. They want 'anytime, anywhere' access to information and they do not want to enter a library to obtain it. EWUL chose to provide access to full-text journals in two ways i.e. through the OPAC and through Cold Fusion Database. Patra (2006) shared the experience of introducing e-journal services in Central Glass and Ceramic Research Institute. She described in detail the activities related to provided e-journal services to the users and its impact on library operations. The author felt that e-journals have added a lot of weightage to library collections and improved the services being provided by the library. Caudle and Schmitz (2007) investigated how ARL academic libraries are providing access to e-journals through their library websites. Using a checklist the authors evaluated the websites for the presence of A-Z lists, links from the catalogue, a way to search e-journals by title and subject and a link to databases. In another study conducted by Yue and Anderson (2007) showed how a team led by the electronic resources access librarian in the University of Nevada, Reno Libraries created a flowchart document illustrating the highly complex processes involved in considering, negotiating, purchasing, and implementing new electronic-journal subscriptions.

It is clear from the review of literature that many studies have come from developed countries and there is a substantial lack in comprehensive research related to the managing

access to e-journals as far as India is concerned. No study carried out in India so far has focused much on the infrastructural and other facilities related to managing access to e-journals in technical university libraries in India.

Objective: The study was carried out keeping in view the following objectives:

- To ascertain factors responsible for commencement of e-journal service and total number of e-journal databases subscribed by various libraries under study.
- To find different modes of subscription of e-journals adopted by these libraries.
- To analyze the details of IT infrastructure available in various institutions.
- To identify practical solutions accepted by libraries in making the users' aware about e-journals and educate them in retrieving information from them promptly.

Scope of the study: The scope of this study is limited to the libraries of seven technical universities in North India namely Dr B R Ambedkar National Institute of Technology, Jalandhar (**NITJ**); National Institute of Technology, Kurukshetra (**NITK**); National Institute of Technology, Hamirpur (**NITH**); Punjab university of technology, Chandigarh (**PEC**); Thapar University, Patiala (**TUP**); National Institute of Technology, Srinagar (**NITS**) and Sant Longowal Institute of Engineering and Technology, Longowal (**SLIET**).

Methodology: The study being empirical in nature has been designed to know the facilities and issues related to access management of e-journals in technical university libraries of North India. The core of the paper is a comprehensive survey carried out in the months of March and April 2012, to assess the facilities for providing seamless access of e-journals in the above mentioned libraries. A structured questionnaire was used as the tool for the survey and mailed to the Chief Librarian/Librarian-in-charge of each library and the response rate was 100%. Besides, discussions were held with many librarians for clarifying a few responses. The filled in questionnaires were subjected to further analysis, and data is presented in tabular form with interpretation.

Data Analysis: An analysis of the present scenario of various facilities for e-journal access in these seven libraries is presented below:

Commencement of e-journal service: E-journals have matured with the speedy rise and development of the Internet and accepted by library fraternity to be an integral part of library collections. Table-1 depicts the year of establishment of the institute, year of start of Internet connectivity and year of start of e-journal service in libraries under study. It is clear from the table that a majority of libraries (5 out of 7) have started the e-journal service in 2003.

Table-1: Year of Commencement of E-Journal Service

Sr. No.	Institute	Year of Establishment	Year of Commencement of Internet Connectivity in the Library	Year of Commencement of E-journal Service in the Institution
1.	NITH	1986	2003	2003
2.	NITJ	1989	2002	2002
3.	NITK	1963	2003	2003
4.	NITS	1960	2005	2003*
5.	PEC	1956	2002	2003
6.	SLIET	1989	2003	2003
7.	TUP	1956	2003	2004

* E-journal service was started in the institute but its library got Internet connectivity in 2005.

Factors responsible for commencement of e-journal service: The scenario in the libraries under study is very congenial for the growth of e-journals supported by many factors such as demand of users for more e-content and formation of library consortia. Librarians were asked to give rank to the various factors, which led to the start of e-journal service in their libraries, starting from '1' for the most preferred one. To analyze this question, their preference ranking has given different points based on the choice counts such as rank 1 (6 points), rank 2 (5 points), rank 3 (4 points), and so on. Various factors are analyzed based on the cumulative points given to each choice and presented in Table-2. It is depicted in the table that librarian's initiative has obtained the maximum points as 31, followed by demand of the users for more e-content (25 points), formation of INDEST (24 points) and planning of the Head of the institution (23 points).

Table-2: Factors Responsible For Start of E-Journal Service

Institute	Demand of users	Librarian's initiative	Proposal of Head of Institution	Need of the Hour	Special Grants Received	Formation of INDEST
NITH	1	5	3	4	2	6
NITJ	4	5	3	2	1	0
NITK	4	5	3	1	2	0
NITS	5	2	3	1	4	0
PEC	3	5	4	2	0	6
SLIET	3	5	4	0	0	0
TUP	5	4	3	2	1	0
Total	25	31	23	12	10	12

Total number of online databases accessible: A comparison of the total number of online Databases subscribed by different libraries under study is highlighted in table-3. The table shows that the number of full text e-journals accessible from various databases by the

libraries varied considerably ranging in number from six at PEC to twenty four at TUP. A comparison of the total number of bibliographic/ indexing-abstracting databases subscribed to by different libraries is also given in this table, which depicts that the number of bibliographic/ indexing-abstracting databases subscribed by the libraries varied drastically with PEC subscribing to only one such database; NITH, NITJ, NITK and TUP subscribing to three databases each whereas for NITS the total number of subscribed bibliographic/ indexing-abstracting databases is 5.

Table-3: Accessibility of Full-Text E-Journal Databases

Online Databases	NITH	NITJ	NITK	NITS	PEC	SLIET	TUP
Full-Text E-Journals through Pub./ Vendors/ Aggregators etc	10	9	16	9	6	8	24
Bibliographic/ indexing-abstracting/ cataloguing databases	3	3	3	5	1	2	3
Total	13	12	19	14	7	10	27

Modes of subscribing to e-journals: There are various acquisition approaches available for providing contents of e-journals to the users like direct subscription from the publisher, placing order through a single or more vendors and approach of consortia purchasing for e-journals. Various modes opted by the university libraries under study are given in table-4. It is indicated in the table that all the libraries have opted for the consortia approach for subscribing to e-journal resources. Table-4 also reveals that 3 out of 7 libraries place order for e-journals to vendors too while 2 libraries namely NITK and TUP have also chosen the method of direct subscription from the publisher.

In India, INDEST consortium and UGC-INFONET are two major ventures that are successfully proving as boon for the science and technology libraries. The Ministry of Human Resource Development (MHRD) has set up the "Indian National Digital Library in Engineering Science and Technology (INDEST) Consortium". The Ministry provides funds required for providing differential access to electronic resources subscribed for the consortium to the core members through the consortia headquarters set-up at the Indian Institute of Technology (IIT), Delhi (Arora, 2010). University Grants Commission (UGC) has a consortium for e-journals through UGC-INFONET. It uses the Education and Research

Network (ERNET) infrastructure. On behalf of the UGC, Information and Library Network (INFLIBNET) Centre is executing the UGC-INFONET project in collaboration with ERNET. This consortium promotes the use of electronic database and journals by the research and academic community (Thanuskodi, 2010). Table-4 also depicts that all the libraries under study are member of INDEST Consortium except TUP, which is also a member of UGC-INFONET.

Table-4: Modes for Subscribing to E-Journals

Technical University Libraries	Modes		
	Publisher/ Aggregators	Consortia	Vendors/Agents
NITH	-	√ (I)	√
NITJ	-	√(I)	-
NITK	√	√(I)	-
NITS	-	√(I)	-
PEC	-	√(I)	√
SLIET	-	√(I)	-
TUP	√	√(I) (U)	√

(I=INDEST Consortium, U=UGC-INFONET Consortium)

Reasons for opting consortia approach: Libraries under study were enquired about reasons for opting consortia approach and their options are presented in table-6. An analysis of table-6 brings forth the fact that in the technical university libraries under study, the main reason for adapting to consortia approach is the reduced subscription cost for 5 out of 7 libraries followed by pooling of expertise for technical support and better terms of licenses for 3 out of 7 libraries for each reason.

Table-6: Reasons for Opting Consortia Approach

Technical University Libraries	Reasons		
	Reduced subscription cost	Pooling of expertise	Better terms of licenses
NITH	-	√	-
NITJ	√	-	√
NITK	-	-	√
NITS	√	√	-
PEC	√	-	-
SLIET	√	-	-
TUP	√	√	√

Site license agreements: The library has to enter a license agreement on the behalf of its users, as librarians are no longer purchasing the journals rather they are seeking permission for their users to access online content. These site license agreements are to be negotiated for seeking maximum benefits for the users of the concerned institutions. Table-7 depicts the mode and frequency of negotiations being done by the libraries under study. It is clear from the table that as the purchases are being done through the consortia, negotiations of site license agreements are also made through consortia by 3 libraries namely NITH, NITK and TUP. No library is negotiating changes to site licenses through vendors. Two libraries namely NITK and SLIET are also negotiating changes to license directly with the publishers. Frequency of negotiating license terms varies with 2 libraries namely NITH and NITK usually discussing about them. Whereas 3 libraries never negotiate about changes in site license agreements and 2 libraries rarely bargain about the terms and conditions.

Table-7: Negotiation of Site License Agreements

Technical University Libraries	Negotiations			Frequency
	Through Vendors	Directly with the Publisher	Through Consortia	
NITH	-	-	√	Usually
NITJ	-	-	-	Never
NITK	-	√	√	Usually
NITS	-	-	-	Never
PEC	-	-	-	Never
SLIET	-	√	-	Rarely
TUP	-	-	√	Rarely

Mode of licensing: Access to e-journals is based on authentication via User ID/password, IP Address or both. Various modes of licensing of e-journal resources opted by the libraries under study are given in table-9. As shown in the table, all the libraries have preferred IP activation and whole range of IPs got activated to provide access to every possible corner of the institute. Only NITJ has opted for user ID/password option along with the IP activation, which helps in providing off-campus access.

Table-9: Mode of Licensing

Technical University Libraries	Modes	
	IP activation (range)	User ID/ Passwords
NITH	Y (Whole range)	-
NITJ	Y (Whole range)	√*

NITK	Y (Whole range)	-
NITS	Y (Whole range)	-
PEC	Y (Whole range)	-
SLIET	Y (Whole range)	-
TUP	Y (Whole range)	-

* To select users on demand, generally faculty members only

Dissemination of E-Journals: The users must be made well versed with the available e-journals and this can be done through different mechanisms such as the library catalogue, library web pages or by using commercially available e-journal management software. Table-10 shows that all the libraries under study are providing URL of e-journals on their library webpage. Only PEC and NITJ also has links from the OPAC to the electronic full text journals.

Table-10: Dissemination of E-Journals

Technical University Libraries	Modes of Dissemination	
	E-journals are linked with OPAC	E-journals' URL on library web page
NITH	-	√
NITJ	√	√
NITK	-	√
NITS	-	√
PEC	√	√
SLIET	-	√
TUP	-	√

Organization of e-journals on the library web page: The most common access point is to provide a list of e-journals on library webpage; the list may A-Z publishers list, A-Z journal title list or subject-wise list. An enquiry was made about the mode of listing of e-journal resources on their respective library web page by the libraries under study. The responses are given in table-11. It is evident from the table-11 that all the libraries under study are mentioning e-journals on web page in the form of A-Z publishers list. No library is following any norms/standards for organization of e-journals on library website. Only two libraries namely NITK and TUP are providing bibliographical details (metadata details) of each e-journal title (subscribed) on their website. Only TUP is maintaining subject-wise list of the subscribed e-journals.

Table-11: Listing of E-journals on Library Web Page

Technical University	Listing of E-journals
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	URL of the Library	A-Z publishers/ aggregator list	A-Z Title list	Subject- wise list
NITH	http://www.nith.ac.in/library/index.html	√	-	-
NITJ	http://www.nitj.ac.in/index.php/central-facilities/central-library	√	-	-
NITK	http://www.nitkkr.ac.in/about_library.htm	√	√	-
NITS	http://www.nitsri.net/library/index.htm	√	-	-
PEC	http://pec.ac.in/library/Library.asp	√	-	-
SLIET	http://www.sliet.ac.in/Facilities/Library/General.php?dId=19	√	-	-
TUP	http://cl.thapar.edu/library_home.html	√	√	√

Other facilities related to e-journals on library website: Amenities related to e-journals given on the library websites are shown in Table-12. It is evident from the table that only 4 out of 7 libraries are maintaining interactive library website and only 5 out of 7 libraries have provided active hyperlinks of e-journals on their websites. It is very important that library staff should help users at the time of any problem while accessing e-journals. More than half of the library websites (4 out of 7) have listed names of library staff along with their designation, telephone numbers and e-mail IDs. NITH has just listed the names of library staff members without any contact details and two library websites namely PEC and NITS have no details mentioned about library staff. It is also indicated that no library website is providing links to external search engines to help users in finding the desired content. Some e-journals are available freely in public domain and are called as open access journals. It was enquired from the libraries whether these are making available any information about such e-journals.

Table-12: Features related to E-journals on Library

Features	Technical University Libraries						
	NITH	NITJ	NITK	NITS	PEC	SLIET	TUP
Interactive Library Website	-	√	-	-	√	√	√
Active Hyperlinks	√	√	-	-	√	√	√
Contact No. of Staff	-	√	√	-	-	√	√
Links to External Search Engines	-	-	-	-	-	-	-
Links to Open Access Journals	-	-	-	-	√	-	√
Licensing information	-	-	-	-	-	-	-
Copyright Issues	-	-	-	-	-	-	-

Online Help Module	-	-	-	-	-	-	-
FAQs	-	-	-	-	-	-	√
Suggestion Box	-	-	-	-	-	-	√

The table also reveals that only 2 out of 7 libraries namely PEC and TUP are providing information about open access e-journals on their websites. Not a single library website has provided any information about licensing matters or for copyright issues related to e-journals. No library website has given any online help module to help them with accessibility of e-journals. Only one library website namely TUP has provided help to users in form of FAQs and Suggestion Box.

Infrastructure for accessing e-journals: To provide hassle free access to full text of an article, technical and back end support mechanism are very essential. The number and types of computing facilities can enhance or hinder the use of e-journals. The technical university libraries under study have Internet connection from different service providers like BSNL, Reliance, Bharti Infotel, Tulip etc. In a majority of libraries, Internet bandwidth is less than 10 Mbps. Table-13 provides the details of the computers available in the library.

Table-13: Details of IT Infrastructure

IT Infrastructure	Technical University Libraries						
	NITH	NITJ	NITK	NITS	PEC	SLIET	TUP
Server (Number)	No server	IBM (1)	IBM (1) NAS (1) Web (1)	IBM (1)	IBM (1) HCL (1)	HCL (1)	IBM (1) Xeon (1)
ISP	BSNL	BSNL	Reliance	BSNL	TULIP	BSNL	Bharti Infotel
Bandwidth	≥ 100 Mbps	Between 10 to 50 Mbps	≤ 10 Mbps	≤ 10 Mbps	≤ 10 Mbps	≤ 10 Mbps	≤ 10 Mbps
No. of computers available	12	30	40	5	15	36	30
No. of computers for users	3	10	30	1	2	30	20
Name of separate section, if any	N	E-media Resource Centre	E-Resource Library	N	N	Digital Library	Digital Resources Laboratory
Printers for users	N	3	N	N	N	N	3
Printing charges	N	No charges	N	N	N	N	Rs. 1 per page
CD/DVD writing facility	√	√	√	√	√	Only CD	√
USB ports for pen drives	N	N	√	√	√	N	√
Antivirus	N	N	MacAfee	MacAfee	MacAfee	N	Symantec
Uninterrupted	√	N	√	√	√	N	N

power supply							
Wi-Fi enabled campus	N	√	√	√	√	N	√
Compulsory laptops	N	N	√	N	√	N	N

N = Not available

It is clear from the table-13 that NITK has maximum numbers of computers i.e. 40 and all these are with Internet connectivity. Out of these, 30 are for the users. NITS has the least number of computers as 5 and only one for the users. PEC is having only two computers for the users. Provision of a separate section consisting of a number of networked terminals within the library helps to provide easy access to e-journals. Four out of 7 libraries have a separate section to access e-journals with number of terminals varying from 10 to 30. Antivirus software is a program that helps to protect the computer against most viruses that can hamper the working of the computer. To keep computers virus free, installation of a proper antivirus is a must. Four out of 7 libraries have their computers installed with antivirus. Other ICT facilities and requirements for students to enhance the access of e-journals in some of these libraries include availability of wireless network connection called Wi-Fi in various locations of the campus like hotels, library departments etc.; mandatory laptops and so on. Five out of 7 institutes have their campus Wi-Fi enabled and laptops are made compulsory for the students only in 2 universities. No library is providing online tutorials or online help-desk for the benefit of the users.

Access Timings at Various Other Locations in the Institute: Utilization of the e-journals is also facilitated by the sufficient access timings of various other locations in the institute to access e-journals. Various other locations to access e-journals may be departmental libraries, laboratories, computer centre, hostel or faculty cabins etc. Librarians were enquired about the timings of various locations other than the library where e-journals can be accessed. It is evident from table-14 that 3 out of 7 institutes have 24x7 access to e-journals in departmental libraries and laboratories and 2 libraries have this access for working hours only. Similarly, 4 out of 7 institutes have 24x7 access at faculty cabins and for 2 institute access to e-journals is provided for working hours only. A majority of institutes have 24x7 access in computer centre except PEC. A majority of institutes, except NITS, have 24x7 access in hostels.

Table-14: Timings of Various Locations to Access E-journals

Technical University Libraries	Access Timings				
	Laboratories	Departmental Libraries	Faculty Cabins	Computer Centre	Hostel

NITH	No Access	No Access	24x7	24x7	24x7
NITJ	24x7	24x7	24x7	24x7	24x7
NITK	RWH	RWH	RWH	24x7	24x7
NITS	No Access	No Access	No Access	24x7	No Access
PEC	RWH	RWH	RWH	RWH	24x7
SLIET	24x7	24x7	24x7	24x7	24x7
TUP	24x7	24x7	24x7	24x7	24x7

RWH= Routine Working Hours (9 am to 5 pm from Monday to Friday)

Off-Campus Access: Site licensing of e-journals by the method of IP activation restrict the access to only bonafide users within the institute campus. Off-campus access refers to the locations that are not physically present in the campus of the institute. Providing off-campus access will enhance the use of e-journals as it facilitates the users to access e-journals at any location of convenience. However, as per data analyzed, only NITJ is providing off-campus access by arranging user ID/passwords for the faculty only.

Facilities for Saving the Searches from E-journals: One of the major drawbacks of e-journals is that the users have to search a large database for the desired article, and that article is to be saved appropriately for future access. It was enquired from the libraries which facilities are being provided for saving the searches made from different e-journals.

It is clear from table-15 that all the libraries are allowing saving e-journal articles on CD/DVD or sending them as e-mail attachments. Only 4 out of 7 libraries are permitting use of pen drives. Only 2 libraries i.e. NITJ and TUP have provided printers to the users so that they can take the print out of the searched articles from the e-journals.

Table-15: Facilities of Saving the Searches from E-journals

Technical University Libraries	Facilities			
	Take Print-Outs	Save on CD/DVD	Use Pen Drives	E-Mail Attachment
NITH	-	√	-	√
NITJ	√	√	-	√
NITK	-	√	√	√
NITS	-	√	√	√
PEC	-	√	√	√
SLIET	-	√	-	√
TUP	√	√	√	√

Maintenance of the IT Infrastructure: Maintenance of the infrastructure is very essential for smooth functioning of the system. In all the libraries, the IT infrastructure is maintained by the computer centre.

User Education: Keeping users informed about e-journals is a big challenge. To make full use of e-journals, users are not only to be made aware of their availability, but also they should be trained and educated for accessing the material they require. Due to technical intricacies involved in accessing e-journals such as plethora of interfaces and complexities of varied value-added features, it is not easy for the users to retrieve exact information from the chaos of the net. Therefore, the education of users to access e-journals effectively is very vital. Rigorous user education programs should be an integral part of access management strategies for e-journals.

It is clear from the table-16 that frequency of imparting user education is not at all satisfactory. Only 2 out of 7 libraries are providing user education on regular basis and similar number of libraries is providing it only on demand of the users whereas 3 out of 7 libraries are providing it rarely. There are a number of methods suggested by the experts for imparting user education. A majority of the libraries (6 out of 7) are providing hands-on training, 4 out of 7 libraries are using the method of lecture cum demonstration, whereas 2 out of 7 libraries are either making use of printed material or audio-visual aid for providing education to users on e-journals. Only NITK is making use of ICT training as a method of providing user education.

Table-16: User Education

Technical University Libraries	Frequency	Methods				
		Lecture cum Demonstration	ICT Training	Audio-Visual Aid	Printed Material	Hands-on Training
NITH	On-demand	-	-	-	-	√
NITJ	Rarely	√	-	√	-	√
NITK	Regularly	√	√	√	√	√
NITS	Rarely	-	-	-	-	-
PEC	On-demand	√	-	-	-	√
SLIET	Rarely	-	-	-	-	√
TUP	Regularly	√	-	-	√	√

Promotion of E-journals: Ashcroft (2000) has stated that the access for e-journals can be assured only through effective promotion. If the users are to reap full benefits of e-journals, formulation of marketing strategies, which go beyond mere notifications, is the need of the hour. Librarians were asked to indicate types and methods employed in promoting the use of the e-journals.

Table-17 indicates the use of a variety of offline promotional activities in the technical university libraries under study. Out of the 7 libraries under study, only 4 libraries are arranging publishers' presentations and providing printed guides/posters for users' awareness. Three out of 7 libraries are using both the methods of organizing workshops/class presentations and distributing FAQs related to e-journal resources in print form. Only 2 libraries are circulating table of contents.

Table-17: Promotional Activities (offline)

Technical University Libraries	Offline Promotional Activities				
	Circulating Table of contents	Printed FAQs	Printed Posters	Workshops/class presentations	Publishers' presentations
NITH	√	-	√	√	√
NITJ	-	√	√	-	-
NITK	-	-	√	√	√
NITS	-	-	-	-	-
PEC	-	-	-	-	-
SLIET	-	√	-	-	√
TUP	√	√	√	√	√

Table-18 depicts the use of online promotional activities for dissemination of e-journals. A majority of the libraries, 4 out of 7, are notifying new developments on their web sites. NITK and SLIET are using E-mails as alerting service to promote the e-journals subscribed. Use of advanced technologies such as web 2.0 is less popular as only one library (NITJ) has employed this technique for promoting the e-journal service. Web tutorials are not well established practice of promoting e-journals as only one library (NITK) is making use of this technique.

Table-18: Promotional Activities (online)

Technical University Libraries	Online Promotional Activities			
	Alerting service (Email)	Web-tutorials	Notifications on website	Use of advanced technologies
NITH	-	-	√	-
NITJ	-	-	-	√
NITK	√	√	√	-
NITS	-	-	-	-
PEC	-	-	√	-
SLIET	√	-	-	-
TUP	-	-	√	-

Findings & Discussion:

1. Transition from print journals to e-journals in the libraries under study was somewhat sudden in the year 2003 with the launching of the INDEST Consortium. Few libraries were not even equipped with the basic infrastructure required for starting accessing e-journal service; one such example from this study is NIT Srinagar.
2. Undoubtedly, consortia purchasing has emerged as the most viable method for e-journals subscription and INDEST consortium has emerged as the major cooperative venture for technical libraries as compared to UGC-INFONET.
3. A major factor for opting consortia approach is reduced cost of e-journals for individual libraries and botheration of negotiating with several publishers/vendors/aggregators etc, which is taken care of by the consortia. In this case of technical universities, it is attended by INDEST and UGC-INFONET consortia.
4. Besides librarians' initiative to start e-journal service, users of technical libraries are also pressing hard for making available journals in electronic form showing a clear indication of the fact that the present scenario is witnessing increased inclination of users for the e-content.
5. The number of e-journals accessed by institutions varied considerably. Thapar University, Patiala has the highest collection of e-journals amongst the libraries under study followed by NIT Hamirpur. A total of 7314 e-journals are accessible to Thapar University, Patiala whereas only 2680 e-journals are accessible to Sant Longowal Institute of Engineering and Technology.

6. As conceived by Medeiros (2008), e-journals can be disseminated to users via library websites or OPAC. However, in a majority of technical libraries, OPAC has failed to include e-journals. As regards the library website, most of the libraries have provided A-Z publisher/aggregator/vendor list, very few libraries under study have given A-Z e-journal title list. Only one library i.e. Thapar University, Patiala has innovatively offered subject-wise list in the form of subject portal.
7. To provide hassle free access to full text of an article, technical support is very important. More than half of the libraries have a separate section to provide easy access to e-journals with a number of networked terminals exclusively meant for users varying from a high of 30 terminals each at NIT Kurukshetra and Sant Longowal Institute of Engineering and Technology to only one computer for the users in NIT Srinagar.
8. Unless the library is providing off-campus access, it is not possible for the users to access the electronic journals beyond the limitations of the campus. Hence, they are deprived of 24x7x365 access as usually conceived. It is clear from the present study that only one library namely NIT Jalandhar is providing off-campus access to the e-journals by arranging user ID/passwords from the publishers.
9. For a majority of libraries bandwidth is ≤ 10 Mbps. However, NIT Jalandhar and NIT Hamirpur have bandwidth ≥ 100 Mbps.
10. Most of the libraries have scanty user education programs, which can eventually affect users' ability in searching and extracting relevant information from the e-journals. Only 2 libraries, NIT Kurukshetra and Thapar University, are providing user education on regular basis. Hands-on training is most feasible method used for providing user education by most of the technical university libraries.
11. Not even a single library is providing online tutorials or online trouble-shooting modules to assist the users with e-journals.
12. A few libraries are organizing publishers demo at their place to make users familiar with the complexities of the interface. Only 3-4 libraries are conducting workshops or distributing printed guides for making users aware of the new form of information called e-journals. Only NIT Kurukshetra is providing web tutorials to access e-journals and only NIT Jalandhar is using web 2.0 or 3.0 technologies for promoting them.

Conclusion

Technical universities are the pioneer institutes in India imparting technical education and creating skilled human resources. This venture calls for modern, rich libraries excelling as information hubs. Managing access to information is the basic function of libraries, which includes managing access to the internet-based resources as well. The present study provides a valuable insight to the plans and procedures adopted by the technical universities in India related to access management of e-journals. The study clearly indicates that even after more than ten years of inception of e-journal service in technical university libraries, these libraries are merely functioning as a platform to receive the e-journals from the consortia and delivering them to the users. But the chaos such as lack of 24X7 access, lack of subject portals on library websites, lack of inclusion of e-journals in library OPACs and lack of activities related to user education programs and promotional strategies are highlights of this study. The present scenario demands for more promotional activities and regular user education to make searching/browsing of e-journal databases a delightful and fruitful experience for the users.

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