Published in In Murthy, TAV and others, ed. Conference papers of *2nd PLANNER-2004*, Imphal, India, 4-5 December, 2004: Ahmedabad: INFLIBNET Centre, 2005, Pp 65-70

Electronic Theses and Dissertations for Indian Universities: A Framework

J K Vijayakumar,
Scientific Technical Officer, Information and Library Network Center (INFLIBNET-UGC), Ahmedabad
Dr T A V Murthy,
Director, Information and Library Network Center (INFLIBNET-UGC), Ahmedabad
Prof M T M Khan,
Professor & Head, Department of Library and Information Science, Bundelkhand University, Jhansi

Abstract

Digital libraries of electronic theses and dissertations (ETDs) offer an alternative to this waste of valuable academic scholarship and offer researchers and University Libraries in India opportunities to explore the possibilities electronic publishing trend in academic sector. The emergence of UGC Infonet, the aspiring and dream project of University Grants Commission, which also aims at Content Creation by Indian Academic Sector, will definitely boost this idea The idea of E- Theses and Dissertations (ETD) is coming up in International scenario, which can be easily located, readily accessible and delivered over the web. While describing a framework for Indian Universities to go zbout with creating their own Institutional Repositories of Theses and Dissertations, the paper also high lighten the Formats, Software and copyright issues related to ETD archiving. It suggests DSpace as the software.

0. Introduction

Even though the electronic publishing and writing offer demanding environment in academic scholarship, the theses and dissertations are still written and published in print and archived in shelves in university libraries where the vast majority gather dust, read by perhaps one or two interested researchers who access them in print with lot of difficulty, often for a fee and most are never consulted at all. Digital libraries of electronic theses and dissertations (ETDs) offer an alternative to this waste of valuable academic scholarship and offer researchers and University Libraries in India opportunities to explore the possibilities electronic publishing trend in academic sector. The emergence of UGC Infonet, the aspiring and dream project of University Grants Commission, which also aims at Content Creation by Indian Academic Sector, will definitely boost this idea.

1. UGC-Infonet

As technology is becoming a driving force in the contemporary education systems, University Grant Commission has launched an ambitious programme to bring about a qualitative change in the academic infrastructure, especially for higher education. Under this initiative UGC is modernizing the University Campuses with State-of-the-art campus wide networks and setting up its own nationwide communication network named UGC-Infonet. UGC-Infonet will be a boon to the higher education systems in several ways to facilitate spread of quality education all over the country. This will function as a tool to distribute education material and journals to the remotest

of areas and a resource centre for researchers and scholars for tapping the most up-to-date information. [*UGC Infonet Site*].

As a main feature of UGC Infonet, a data center with large server capacity is being set up, where content of common interest can be maintained. Each University will have the option of hosting their website, digital content like ETDs and the E-journals subscribed through INFLIBNET Consortia.

2. Theses and Dissertations in India

Indian universities play a major role in generation and dissemination of knowledge by conducting research works and producing Ph D theses as a unique genre of information sources. Every year, nearly 8000-10000 Ph Ds are awarding in India. The purpose of the thesis is to provide an experience in scholarship, which will be of enduring value to the student in understanding how new knowledge is acquired and communicated within the chosen field. These works contain valuable content, including focused literature reviews and details on research, which are not generally made available elsewhere. At present there are some lacunas in publication, control and access theses information in India, and some attempts have been made to address them. At the moment, most unpublished theses are hard to get hold of, as they are filed only in the university library where the student has worked. The Indian thesis literature is beset with many problems like Lack of Systematic acquisition, Lack of Access, Uncertain publication practice, Enormous Growth in the number of theses etc [*Urs, 1999*]. In western countries, these problems were addressed already and serious attempts have been made to solve them. In North America, less than 5% of all accepted dissertations and masters' theses are initially conceived of and executed as electronic documents.

3. Benefits of ETD

- Broader exposure of university research through greater accessibility;
- Opportunities to use new forms of creative scholarship through use of interactive elements, multimedia, hyperlinks, etc.;
- Ability to have a hyperlink to the thesis/dissertation on homepages and electronic CVs;
- Professional development experience for research students as they learn the basic skills of scholarly publishing in an electronic format;
- Conservation of paper, library storage space and of library staff time;
- Theses and dissertations more immediately accessible: publication occurs near point of submission rather than three to four months later; and
- The option to have theses or dissertations accessible to any potential reader every day at any time.

4. Electronic Theses and Dissertations for Your University

4.1 Format to create ETD

The text-based portion of the thesis or dissertation should be a PDF file. PDF format allows documents created through word processing like MS Word to be made available on the Web. PDF makes it possible for the fonts, format and pagination to remain consistent when viewed from different platforms such as Windows, Macintosh, and Unix and different web browsers such as Internet Explorer and Netscape. Acrobat Reader can be downloaded for free, thus providing

everyone with access to the document. All over the world it has been setting standards for archiving digital materials in PDF, so archiving is better insured.

PDF stands for *Portable Document Format*. Adobe Systems developed the PDF standard and provides the premiere package for creating and manipulating PDF files, Adobe Acrobat. The process of converting to PDF takes instructions that would ordinarily be sent to a specific printer and prepares them to be viewed or printed on any computer with the free Acrobat Reader installed.

Postscript is a standard language developed by Adobe Systems, which is used to send instructions to postscript compatible printers. These instructions describe the contents of all text and graphics to be printed, and where on the page each piece of content is to be printed. Ordinarily, these instructions are transferred to a Postscript printer, which interprets them, creates a printed copy based on the instructions, and then discards the instructions.

Other file types for image files can be .gif, .jpeg, or .tif; for video files .mov, .mpg, or .avi; and for audio files .aif, .midi, .snd, .wav, or as CD-DA, CD-ROM/XA, or MPEG-2.

4.2 Facilities Required

Researchers need to create their original thesis using a word processor, such as Microsoft Word or WordPerfect and once it is done, then it can be converted to a PDF file, which will retain the original document format (for the purpose of future editing). Conversion into a PDF file is a straightforward process. Libraries and Campus labs have to be equipped with Windows based computers set up to convert theses and dissertations written in Microsoft Word to Adobe Acrobat (.pdf) format. This application will allow us to convert the word processing document to PDF format as well as create bookmarks. Researchers must submit the document on disk, CD, or Zip drive; the conversion machines are not attached to the network. Library staff can provide assistance with using the software to convert files, but cannot assist with document preparation.

4.3 Software to Manage ETDs

D-Space is a groundbreaking digital library system that captures, stores, indexes, preserves and redistributes the intellectual output of a university's research faculty in digital formats.[*http://dspace.org/*].. The future of E-theses and of archiving and searching in general depends on institutions being able to deliver top quality services, with a high degree of interoperability. This means, among other things, that systems must continue to be developed and they must be able to handle many different types of digital object. It is believed that DSpace will fulfill these requirements to a higher degree and will continue to improve in this way in the future [*Jones, 2004*]. As an open source system, DSpace is now freely available to other institutions to run as-is, or to modify and extend as they require to meet local needs. From the outset, HP and MIT designed the system to be run by institutions other than MIT, and to support federation among its adopters, in both the technical and the social sense.

INFLIBNET believes that it is our responsibility to lead the charge for a realistic assessment of how we can head off an otherwise inevitable loss of academic resources. Awareness building in Open Archives and Institutional Repositories in Indian academic Institutions will be the main focus of **INFLIBNET** in coming future. For long-term preservation of our knowledge base and cultures, we have to find out an economical way to save digital content for future generations. Institutions in India started using variety of open source archiving solutions like Green Stone, E-

Print, DSpace etc since 2000. After experimenting all popular solutions, **INFLIBNET** decided to opt DSpace for its Institutional Repository and archive its publications, conference proceedings, lecture notes etc. The capability of Dspace to handle multilingual content, even at Metadata level using globally accepted UNICODE standard was the important issue for selecting this solution, especially a country like India with its mullti-lingual dilemma in digital content creation and storage.

At **INFLIBNET** we have downloaded Dspace from http://dspace.org/. It has been installed in test-bed and experimented its capabilities and performance. After all sorts of testing required, Dspace was customized according to our requirements and it was installed on one of the WWW Server on Linux (RedHat 9) platform. Then we have requested Corporation for National Research Initiatives (CNRI) site for providing *Persistent Identifiers (CNRI Handles)* which promotes interoperability among open archives through Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). The Handle System® covers assignment, management, and resolution of these persistent identifiers and are compliant with the IETF's Uniform Resource Name (URN) specification. The customized Dspace Archive is accessable through Web at *http://dspace.inflibnet.ac.in* [*Patel, Vijayakumar and Murthy*]

4.4 Role of the faculty and review process

Faculty will continue to be responsible for upholding the quality of the thesis or dissertation, whether that thesis or dissertation is submitted using electronic formats or through paper. The electronic format can facilitate communication among members of the dissertation committee and the student. Electronic distribution of drafts allows multiple readers to markup and comment within one copy of the work simultaneously, regardless of the readers' physical location, and to see others' comments. It also allows the student to collate the comments of all readers within one document.

For defense, some committees may require that students provide all members of the committee with a paper copy of the ETD before the defense; others may elect to read on-screen or to have committee members take individual responsibility for working from screen or paper they print out themselves. Printed versions of the textual components of an ETD can always be made available to committee members at their request. If non-text elements of the ETD are part of the defense, the committee can consider the most effective way to ensure that all members of the committee have access to non-text elements during the defense.

After the committee approves thesis or dissertation, it can be sent to a particular contact person in the library for processing, who will be responsible for processing ETDs by making sure that the file's formatting is correct, the links work, etc. Metadata of ETD can be created and made available for searching and accessing.

4.5 Issue of Copyright

The copyright issue involves two components: Protecting the information/work produced as part of the research program; and Granting license to University or to any ETD Programme to make the work available for use. This also includes obtaining permission to use parts of the work that have already been published in other sources.

If the material we are quoting or reproducing does not fall under the general guidelines of "fair use" then we will need to get written permission from the copyright owner. Since a dissertation

or thesis is published for non-profit educational purposes, the author is permitted limited use of copyrighted material under the guidelines of "fair use." The purpose, amount, nature and effect of the work reproduced determine whether or not one must seek permission from the copyright owner.

More information about copyright issues in general, as well as those related to ETDs

- Visit the University of Pittsburgh ETD copyright page at http://www.pitt.edu/~graduate/etd and link to copyright.
- Visit http://www.library.pitt.edu/research/copyright/, the University Library System's site that includes copyright information, news and resources through its Research Help section.
- Visit http://www.ndltd.org/cpright/index.htm, a web page developed by the Networked Digital Library for Theses and Dissertations.
- Refer to the Chicago Manual of Style.

5. Indian Initiatives

As a bibliographical tool to know about theses of awarded Ph Ds, Association of Indian Universities started publishing of Doctoral Bibliographies in all subjects and Theses of the Month column through its weekly publication *University News*. In 1994, INFLIBNET hosted a regularly updated free online union database of Ph D theses submitted to Indian universities. At present it is freely available for searching at INFLIBNET website and contains around 1,40,000 of unique bibliographical records covering all subjects and all universities. Being the data supplied by the Universities themselves, it is considered as the only authoritative online-tool available to find-out the research out put of Indian Universities. [*Vijayakumar, Hosamani and Murthy, 2003*]. Recently University of Mysore, in collaboration with NISSAT and Ford Foundation initiated a project called Vidyanithi to host individual full-text thesis from various universities who are willing to become a member of this project [*http://www.vidyanidhi.org.in*]. Even though, this project tries to evolve as a national depository for Indian theses, but it is not compulsory for Universities to become a part of this project. All these efforts are, off course, helpful for researchers in locating theses, but in the case of access, still we need remedies.

6. Conclusion

Popularization of ETDs and its full advantages for faculty, students, and researchers are the foremost attempt to be start of. Brochures, communications, websites etc conveying this information need to be written, designed, published and disseminated to all affected by this far-reaching change. Workshops and training programmes for both students and faculty need to be developed that cover issues of copyright and choice of access, and that encourage research scholars to carefully consider the ethics of restricting their research from access by the national and international scholarly community. Well-equipped computer labs must be put in place to provide workstations, software, and technical support staff for students writing ETDs. And standards need to be developed for the presentation of dissertation research—standards which facilitate the development of a useful and easily navigable digital collection of works, but which do not unnecessarily constrain the use of software and design considerations graduate students deem essential to their research. Careful consideration of these requirements and their full support will contribute substantially to making this transition smoothly. The potential ETDs have to transform graduate education in ways that benefit both students and the scholarly community depends upon it [*Vijayakumar, Murthy and Khan*].

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