

## **Global Adoption of Electronic Theses and Dissertations**

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### **Introduction**

Electronic theses and dissertations (ETDs) are a relatively new mode of research and scholarly communication. Lippincott states that an ETD program provides a process, standards, and software to automate functions, as well as a digital infrastructure for access and preservation (Lippincott, 2006). As a primary source of information, theses and dissertations are particularly useful to researchers, but many languish in obscurity in university libraries and archives. Digital library technologies have helped ETDs gain momentum (Jin, 2004). Theses submitted in support of a PhD are difficult to access, as they are only collected by the library of the university that granted the degree. ETDs can be easily located, readily accessible, and delivered over the Web (Vijaykumar and Murthy, 2001). Most university libraries are very enthusiastic about electronic theses, but thesis supervisors and university administrators have sometimes been less keen on the idea. In most cases, it is necessary to change university regulations in order to require students to deposit an electronic copy of their thesis, which can be a time-consuming and frustrating process (Greig, 2005). This paper attempts to view the status of use and adoption of ETDs in various different parts of the world, and gives a brief history of ETDs, key issues governing ETD projects, potential merits of ETDs, with a glimpse on ETD initiatives in India.

### **Methodology**

This paper explores the issue of ETD initiatives, adoption, and subsequent implications from studies carried out in different parts of the world. Though there has been a substantial growth of literature on ETDs of late, only selected papers have been reviewed. This paper discusses facets of ETD that are relevant to academic and digital librarians interested in including an ETD repository in their institution.

### **Literature Review**

Zhang, et al. (2001), in their study of the Korean Institute of Technology Information (KISTI), found a significant increase in the use of ETDs, adding that that most users appear to be domestic users along with users from many other countries. Ichiro (2005), exploring work in the UK, highlighted linkage between repository systems and educational processes, and recommended an institutional repository with open access. Greig (2005) found that many UK university libraries are introducing electronic theses and described strategies and challenges in implementation. Copeland, et al. (2005) looked at the Networked Digital Libraries of Theses and Dissertations (NDLTD), DSpace, and EPrints, along with infrastructure for ETDs in the UK. Lippincott (2006) explores ETD programs, submission software, formats, costs, access, and preservation, among other issues.

Park, et al. (2007) conducted a survey on ETDs in 26 university libraries in Korea and found the National Library leading the development of a system. Alhaji (2007) evaluated the status of ETDs in Nigerian university libraries and found that although there are automated services in those universities,

theses and similar materials have not been digitized, due to lack of funds, facilities, and skilled staff, and the constant failure of the electrical supply. Salmi (2008) stated that university libraries of the Arab Gulf States have the infrastructure for ETD programs, although there are technological, administrative, and legal barriers. Yiotis (2008) found that California libraries adapted their ETD models to the needs of their institutions and their graduate students, along with considering human and technical resource allocation. Deng and Reese (2009) present methods for mapping and metadata transfer from DSpace to OCLC, to improve ETD workflow generating MARC records from Dublin Core DC metadata.

## History and Development of ETDs

Fox, et al., (1999) describe the origins of a major ETD project in the US, beginning with 1987 with a workshop that focused on applying SGML, followed by the development of an SGML Document Type Definition (DTD) for ETDs. Virginia Tech University in the US began requiring electronic submission of theses and dissertations in 1997 (Seasmans, 2003). In the early 1990s, Adobe's Portable Document Format (PDF) became available. This format is widely used for ETDs. The University of Waterloo now receives nearly half its theses and dissertations electronically, and provides open access to about 500 ETDs a year (Jewell, 2006). In the mid-1990s, Cranfield LIS, as a member of the European Initiative in Library and Information in Aerospace (EURILIA) project, participated in a thesis scanning project. Cranfield LIS later collaborated to test the uploading of thesis metadata and full text. The UK has been a leader in ETDs, with funding from the Joint Information Systems Committee (JISC). ETDs fit in with the mission and strategic direction of JISC, including making research available quickly (Bevan, 2005).

## Merits of ETDs

Bandra (2002) identifies the merits of ETDs:

- To empower students to convey a richer message through the use of multimedia and hypermedia technologies;
- To improve graduate education by allowing students to produce electronic documents, use digital libraries and understand issues in publishing;
- To increase the availability of student research for scholars and preserve it electronically;
- To lower the cost of submitting and handling theses and dissertations;
- To empower universities to unlock their information resources; and
- To advance digital library technology.

Bevan (2005) observes that ETDs may help improve and streamline a university's thesis submission process.

## Usefulness of ETDs

In the past, a university's quality was related to its library, but in the future it may be related to a digital library of ETDs. Researchers will discover innovations. The availability of ETDs may be a recruiting tool for faculty and graduate students (Moxley, 2001). ETDs present clear benefits to scholarship. Theses and dissertations are original research and are underused. Open access to ETDs may improve their quality, since more people will read them (McColl, 2002). ETD programs can improve technological literacy and give faculty quicker access to research (Bishop, et al., 2007). Some institutions with an ETD program do not accept print submissions, while in other institutions, participation is voluntary. Some institutions maintain an archive of ETDs in the library, but use paper copies for the thesis committee and university administration (Lippincott, 2006).

## Key Issues Governing ETD Projects

Bishop, et al., (2007) list issues that govern the adoption of ETD:

- Technical and archival
- Philosophical, legal, and intellectual property
- Procedural and policy

## Software

Selection of ETD software is a fundamental issue. Copeland, et al., (2005) list availability and sustainability, interoperability, suitability, and other factors to consider when choosing. The most widely-adopted systems are DSpace and EPrints. EPrints is open source repository software developed at the University of Southampton in the UK. DSpace was developed at the Massachusetts Institute of Technology(MIT) (Yiotis, 2008). DSpace is used all over the world, in places such as the Philippines, Russia, India, Canada, Japan, 15 African nations, the US, and the UK (Yiotis, 2008).

## Indian Scenario

Digital libraries in India began in the mid 1990s, with the support of the government, and a conference on digital libraries in 1996. The digital library movement in India is still in the beginning stages (Sujatha, 2008). The Action Plan of the National Task Force on Information Technology and Software Development made it mandatory for all Indian universities to host their theses and dissertations on a designated website. This policy provided a framework for creating a digital library of ETDs. INFLIBNET began work to make post-graduate research available in 1994, hosting a database of PhD theses submitted to Indian universities. A number of institutions have worked together to create an Indian ETD library, including IISC, Bangalore, IIT Delhi, New Delhi, Indira Gandhi Institute of Development Research, Mumbai, and Sri Venkateswar University, Tirupati (Bansode and Pujar, 2008). Another project is *Vidyanidhi*, a Sanskrit word that means “treasure of knowledge.” It began as a pilot project in 2000 at the Department of Library and Information Science, University of Mysore, with the sponsorship of National Information System for Science and Technology, Government of India (Sujatha, 2008).

Das, et al., (2007) point out that some institutional repositories in India are for the specific purpose of hosting ETDs. *Vidyanidhi* and ETD@IISc are examples. *Vidyanidhi* has the largest number of ETDs in India, followed by DSpace@TIET, ETD@IISC, and DSpace@NCL. Figure 1 depicts some of the leading ETD repositories in India.

Figure 1. Leading ETD Repositories in India



In recent years, doctoral theses in India have been produced electronically, but there has been no government initiative for the storage and dissemination of ETDs. National policies on institutional repositories are also lacking. Very few institutions require electronic submission and deposit. There are a few established ETD repositories, and a few in the planning stage. Ghosh reveals that digital preservation is also in progress (Ghosh, 2008).

### Local Experiences

Most universities in India have not yet opted for mandatory electronic submission of theses and dissertations, as is the case in the UK, US, and other countries. Most librarians have not taken the initiative to set up local repositories voluntarily. There are 15 universities and more than 50 business schools in Orissa where students are required to submit theses, but none of these institutions has created an ETD repository. It is possible that prominent academicians, professors, and institutional administrators are not sufficiently aware of the utility and growing significance of ETDs, or they are not prepared to abandon the paper thesis, submission, or the librarians of these institutions lack skill and experience in creation and maintenance of ETD repositories, or it may be due to lack of adequate ICT infrastructure. It is strongly recommended that the library community consider these issues seriously and try to find overcome the barriers.

### Future Study

One important area for further research is the details on how ETD projects are created. User studies are essential, and comparative studies of repositories could also be undertaken.

### Conclusion

The greatest advantages of ETDs are avoiding duplication in research work, ensuring quick retrieval of information, promoting resource sharing, and providing a permanent solution to the problem of space.

It is time for librarians to apprise academicians, professors, administrators, and policy makers of the importance of ETDs to teaching and research. Librarians should take the opportunity to attend workshops and conferences to gain knowledge of ETD repositories. It is essential for librarians as information professionals to take the initiative to make progress in this crucial area.

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