

Open Access ETD Digital Library in Libya

Mohamed A. Arteimi, Ahlam Al-Tajori

Electrical and Computer Engineering Department- Libyan Academy,

Computer Science Department-Libyan Academy

Arteimi@yahoo.com, ahlaaa2004@yahoo.com

Abstract— For thousands of years human beings have come together to learn and share knowledge, but Information technology is reshaping the landscape of learning and knowledge as it can deliver learning materials in the most effective format at any time. Digital libraries support the transition of academic institutions towards digital universities, it is believed that introducing ETD digital repositories is a step in this process. This paper describes an ETD Digital Library project at the Libyan Academy of Graduate Studies. The project aims to build digital library for theses and dissertations (ETD). This work is a project for the first institutional ETD digital library in Libya. The researchers developed a system based on Greenstone open source system for building ETD digital library. A metadata for theses and dissertations was developed in this research. The paper addresses issues related to project design, and development. Conclusions highlighted some important lessons learned to date.

Index Terms— Digital Library, Electronic theses and Dissertations, Open Access, ETD, Metadata.

I. INTRODUCTION

Many universities all over the world have taken steps to make available online their theses and dissertations, either locally on the institution's server or internationally on the internet. All these initiatives from America and Europe to Asia and Africa, focus on broadening accessibility of intellectual works in form of published papers or defended graduate theses and dissertations, and also fighting plagiarism. This paper gives a description of a digital library project for electronic theses and dissertations (ETD) at the Libyan Academy of Graduate Studies in Tripoli [1]. This project has national significance since efficient and reliable access to scholarly research products, contribute to the country's development, and enhance the development of science, as well as demonstrate a society's change towards information society build up, by providing open access to information for a wide range of users.

Digital Libraries aim is to provide access to intellectual resources, distribute them, preserve them, and ensures the persistence over time. This paper is based on author's firsthand experience on ETD initiative for the library of the Libyan Academy of Graduate Studies. The Libyan Academy is a governmental institution and its headquarter is situated in Tripoli, while there are two branches of the academy: one in Musrata city, and the second is located in Benghazi city.

II. DIGITAL LIBRARIES AND ETD'S

Digital Libraries will be a crucial component of any information society in the future, because of the wealth of information they preserve, and their wide accessibility.

Digital libraries represent a new concept that acts like a hub of many disciplines coming together as a new body, the disciplines include: information retrieval, data management, library science, information systems, and artificial intelligence. According to the Digital Library Federation we can extract the following definition of digital library:

“Digital Libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities [2]”.

ETD digital libraries are subclass of digital libraries. Literature on ETD initiatives proves that major ETD initiatives belong to developed countries and less number of ETD initiatives emerged in developing countries [3],[4].

III. DIGITAL LIBRARIES AND HIGHER EDUCATION

Traditionally, libraries are considered extremely important repositories and distributors of important intellectual resources such as Books, Technical reports, Conference papers, Maps, and Theses and Dissertations. As an effect of information and communication technologies, a new move towards automating the library functions have emerged with functions similar to traditional library with much more advantages such as easy access to resources from anywhere and at any time, as well as improved safeguarding of the library resources/ collections. Students go to libraries looking for materials to support them in their academic courses of study or retrieving and reading materials necessary for their graduation projects. This is important in higher education, and digital libraries must carry and make available collections to fulfill their needs. Besides that theses and dissertations are products of higher education, these works are reference material used by other students and researchers as they contain state-of-the-art results and up-to-date bibliographic reviews.

IV. RELATED RESEARCH

To obtain a complete picture of ETD digital repositories a literature survey was conducted. Enlisted examples are very useful real world applications dealing with electronic theses and dissertations. This section provides some successful examples of such initiatives, such as:

A. Indian Institute of Technology initiative

The IIT in Kanpur has initiated its digitization program in mid 2005 which was divided into four stages [5], at first stage a digitization of over 9000 Mtech and PhD theses took place, and this was the most stupendous and challenging task.

B. Latvia University ETD digital library

The University of Latvia, since 2005, started to collect and provide open access to theses at all levels including undergraduate projects, published research, Masters and PhD dissertations. The University adopted

a policy of mandatory submission for all successfully defended theses (about 6000 per year) and seeking the authors' consent for publishing them [6].

C. Lithuania ETD digital library

Lithuanian ETD began in 2004 after receiving financial support from UNESCO [7]. By the year of 2007, a network of academic libraries (<http://www.Labt.lt>) has combined 58 academic libraries: 16 universities, 22 research institutes, and 20 colleges. The network has accumulated over 1.5 million bibliographic record titles, and over 4.21 million corresponding record items.

D. ETD digital Library in Japan

Some universities in Japan have published electronic versions of dissertation abstracts or full-text even before the concept of institutional repositories emerged [8]. An online directory of dissertation bibliographies at Nagoya university registers several universities that have full-text dissertations online and other universities that have only abstracts.

V. PROJECT BACKGROUND

Recognizing the importance of academic research product in form of theses and dissertations along with initiatives undertaken in the international community for providing open access to information [3],[4],[9], a research proposal was submitted to the Libyan academy to investigate building ETD digital library at the Libyan academy. The Libyan academy is a governmental institution dedicated for providing educational courses leading to M.Sc and Ph.D degree certification. Since its inception in the year of 1995 the academy has more than 4000 graduates. The boom of research activities in Libya encourages enthusiastic scholars to initiate ETD projects for promoting international visibility and meet future needs for the country.

Currently there are 39 scientific departments at the Libyan Academy, belonging to seven schools, the senior management of the academy gave a valuable support by providing us with Five (5) theses/dissertations belonging to each department, that brings the total number of theses uploaded to the server to one hundred and ninety five (195) theses/dissertations, for experimentation purpose, while the library staff will take the responsibility for uploading the rest of “born digital “ theses as a first step. The next stage will be devoted to scanning the old theses that was submitted to the central library in print paper form (i.e not-born digital) and convert them to digital format, proofread the converted version of the theses/ dissertation, and then upload all of them to the server, Figure 1 shows the life cycle of ETD process at the Libyan Academy during the first stage of transformation.

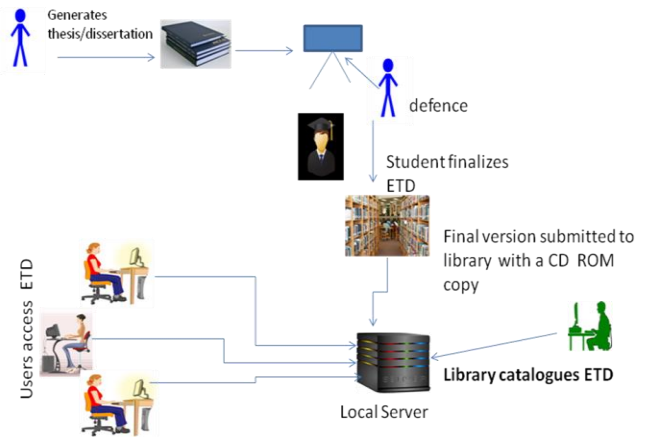


Fig.1 Life cycle of Born-Digital ETD at Libyan Academy

VI. METADATA STANDARDS

Greenstone is Open Source freely available software for building and distributing digital library collections. Greenstone is issued under the terms of the GNU General Public license [10]. Greenstone supports different file types or formats such as: PDF, Doc, PPT, and HTML. Greenstone software also allows non-textual multimedia such as audio, video and pictures to be included, and this would give the resources an added value.

Although Greenstone comes by default with international standard metadata such as Dublin Core for digital libraries. It was necessary to create an etd-ms metadata in order to include specific elements for theses and dissertations. The following metadata elements are included in the system:

Title, an alternative title, author of the work, keywords, full text of abstract, acceptance note, name of institution, country published in, advisor name, committee members, date of thesis, url identifier, coverage(time periods/spacial regions), resource rights, name of degree, degree level, area of study, and Language.



Fig. 2 Metadata set editor (ETD metadata)

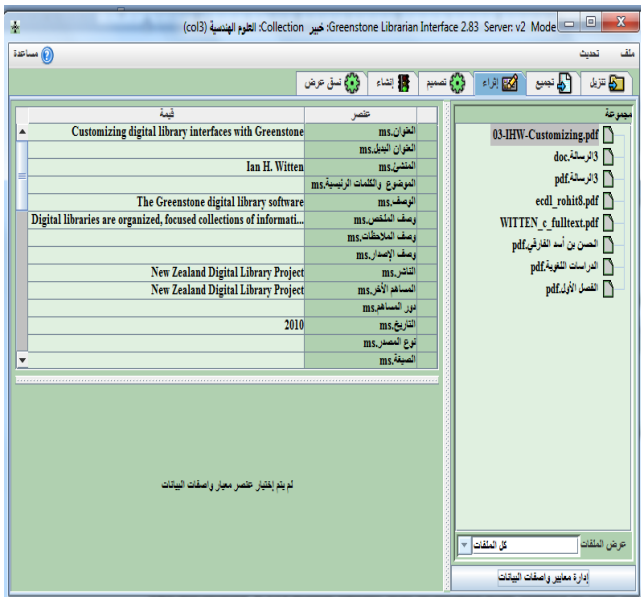


Fig.3 User interface for assigning metadata to a document

VII. EXPERIMENTAL DESIGN

The developed ETD digital library system was evaluated with respect to user satisfaction and ease of use in mind. A questionnaire was designed, containing 21 questions divided into five sections; the first section covers general questions such as name, gender, and field of study. Second Section investigates the importance of students use of digital library. Third Section is related to perception of students on ETD digital library. Section Four contains questions covering users' satisfaction. The final section investigates negative and positive aspects of ETD's digital library.

The research instruments used in the study are:

- ETD digital library designed for the central library of Libyan Academy [11] using Greenstone open source system, which is the focus of the study.
- For the purpose of this study a questionnaire was designed for evaluating the developed ETD digital library.

VIII. ISSUES AND CHALLENGES OF INFORMATION PRESERVATION

The main objective of digital preservation is to preserve the intellectual output in a digital format by utilizing existing hardware technology and information technology techniques. The Library at the Libyan Academy hosts more than 4000 thesis and dissertations, mostly not-born digital. This wealth of information resources can be lost in case of natural disaster such as earth quake or man-made disaster. We also believe that many theses/dissertations is based on Local case studies that include very valuable knowledge that can be interested to local and international researchers, but in the current situation cannot be reached or may not even know about their existence.

Preservation of information at the Libyan Academy will take two stages: the first is preserving born-digital theses/dissertations, and the second stage which is time

consuming is for "to be digitized" documents in which case the documents were submitted to the library in print paper form.

Any library in the digital era has to cope with two important issues: the first issue is about "technologies obsolete" because hardware and software technology change quite often, and safeguarding and keeping the digital resources for long time require special considerations. The second issue is related to training library staff to cope with the rich of information available on software applications, even after the software is used for creating the digital resources.

Open access allows full text of work to be made freely available for access by any one. Such material is still subject to copyright, but users can still freely print, download or use the material for research purposes, educational and non-commercial purposes, depending on the terms and conditions of the open access site. Institutional copyright policy/information on using publications such as theses/dissertations should be made available online [12]. While most students are honest and hardworking personnel, only few students take short cuts and few commit plagiarism, therefore several anti-plagiarism software systems are available for protecting unauthorized copying of work subject to copyright [13],[14],[15].

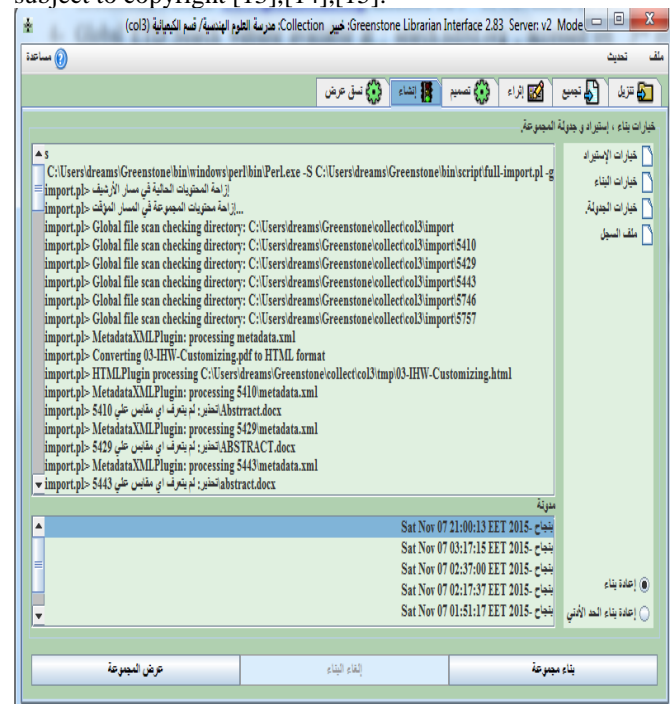


Fig.4 A snap shot of user interface

IX. CONCLUSION

The following discussion focuses on important factors that lead to the success of ETD digital library initiative in Libya, put in a form of recommendations which is a reflection of our research experience in this project

1- Local Libraries Cooperation

Libyan universities should establish a strategy for cooperation and engage in building a common framework for building institutional ETD digital

libraries and pursue for National ETD digital Library, and then start an international cooperation with the Networked Digital Library of Theses and Dissertations (NDLTD) that contained 4,292,629 theses /dissertations and scientific papers during writing of this paper

2- Political and Senior management support

The ministry of higher education in Libya can be very influential in introducing ETD digital library projects by issuing regulations to promote the adoption of ETD digital libraries at each Libyan university or research centre, that would unify the digitization work. This can be facilitated by establishing a consortium for resource sharing in Libya.

3- For the need of building and developing ETD digital libraries in Libya, a special attention should be paid to issue of “training for credits”, and this should be based on international training standards.

X. REFERENCES

- 1- Libyan Academy website: www.alacademia.edu.ly, last visit was on 8-11-2015.
- 2- Digital Library Federation web site: <http://www.digilib.org> , accessed on 3rd of November 2015.
- 3- M. Rafiq, “issues affecting ETD initiatives in Pakistan: a developing country perspectives,” world congress of Muslim Librarian of information society, Putra world trade centre, November, 2008.
- 4- M. Moshoeshoe , “Integrating the Lesotho digital library ecology with a view to influencing policies and development: focus on university and state library services,” First International Conference on African Digital Libraries and Archives (ICADLA-1), Addis Ababa, Ethiopia, July, 2009.
- 5- Indian Institute of Technology Library, <http://www.Libart.iitb.ac.in>.
- 6- R. Marvarts, etal., "The University of Latvia ETD program:a case study of local practice",2007, available at: www.epc.uu.se/ETD2007/papers.html.
- 7- V. Kuciukas, etal, "ETD discovery services in Lithuania", 2007, available at: www.epc.uu.se/ETD2007/papers.html.
- 8- I. Sugita, Y. Murakami," dissertations and theses in institutional repositories: case study in Japan", 2007, available at: www.epc.uu.se/ETD2007/papers.html.
- 9- D. Alemneh., S. Hastings, “ Explanation of adoption of preservation metadata in cultural heritage institutions: case of PREMIS,”ASIST conference, Pittsburgh, PA, USA, October, 2010.
- 10- Greenstone website: www.greenstone.org, accessed on 3rd of November 2015.
- 11- Libyan Academy Central Library website: www.alacademia.edu.ly/centers/Library.aspx , last access on 8-11-2015.
- 12- F. Ubogu, “Copyright and thesis in Africa,” Zimbabwe University Libraries Consortium Conference (ZULC), Crown Plaza Honomotapa, Zimbabwe, April, 2006.
- 13- Grammarly Plagiarism checker, available at: www.grammarly.com/plagiarism_checker, accessed on 8-11-2015.
- 14- Urkund Anti Plagiarism software available at: www.urkund.com , last access on 8-11-2015.
- 15- Viper Anti Plagiarism system: available at: Viper.en.softonic.com , accessed on 8-11-2015.