Providing Open Access for Scholarly Information in Libya

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Abstract— Digital libraries support the transition of academic institutions towards digital universities, and introducing ETD digital repositories is believed to be 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 the Libyan country. 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, development and user satisfaction. Conclusions highlighted some important lessons learned to date.

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

I. INTRODUCTION

Many universities around the world have taken steps to make available their theses and dissertations, either locally on the institution's server or internationally on the internet. These initiatives focus on broadening accessibility of intellectual works in form of published papers or defended graduate theses and dissertations. 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.
Procedure for Paper Submission

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. 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],[2],[5],[4],[6], 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 top 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.
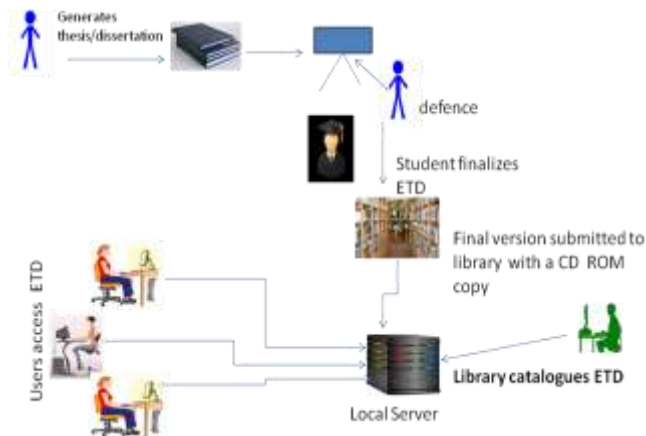

Fig.1 Life cycle of Born-Digital ETD at Libyan Academy

V. METADATA STNDARDS

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 [7]. 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/special regions), resource rights, name of degree, degree level, area of study, and Language.

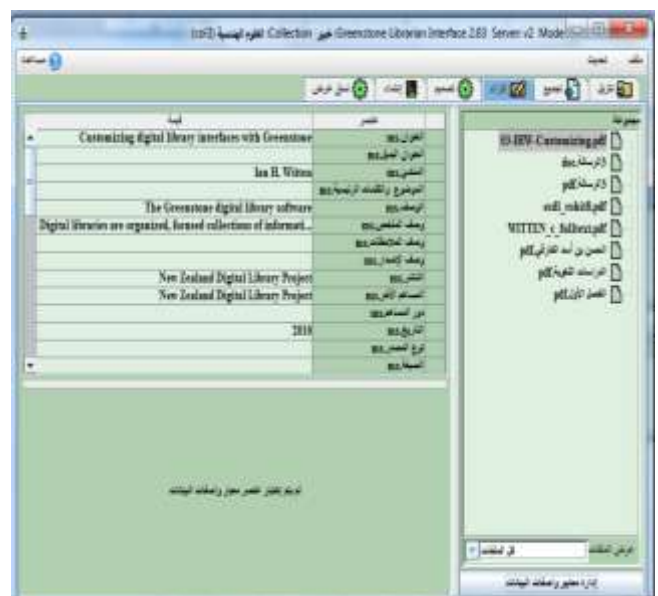

Fig. 2 Metadata set editor (ETD metadata)

Fig.3 User interface for assigning metadata to a document

VI. 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 [8] 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

VII. 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 obsolesce" 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 [9]. 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 [10],[11],[12].
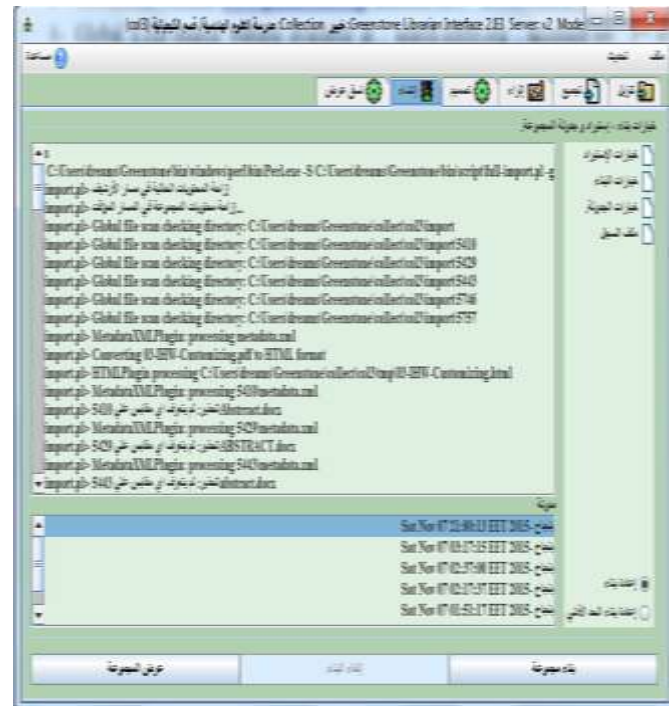

Fig.4 A snap shot of user interface

VIII. 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 and dissertations 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.

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