CHAPTER 1

INTRODUCTION

1.1 Introduction:

The present age of information has changed the traditional library concept. Nowadays, the concepts of digital library, electronic library are being popularized. Application and development of Information Communication and Technology (ICT) brought a revolution in collection and services provided by libraries. The knowledge that was traditionally kept closed in a book, journal, conference proceedings, research reports, thesis or dissertation etc. has now got an opportunity to break the barriers and reach out to maximum users in minimum time. ‘Open Access’ has expedited the process of dissemination of information to anyone, anytime and anywhere.

The Open Access movement led to development of Institutional Repositories that emerged as a new strategy in 2002. The leadership of the Massachusetts Institute of Technology (MIT) in the development and deployment of the DSpace institutional repository system http://www.dspace.org/, created in collaboration with the Hewlett Packard Corporation, has been a model pointing the way forward for many other universities.

Information explosion, lack of library budget, space problem, high information demand, increasing subscription amount of journals, have forced the libraries to seek different ways by which one can collect, store and disseminate information among the users. To solve such problems, the concept of Institutional Repositories is developed among the academic institutions all over the world. Institutional repositories contain digitized assets of the institute like books, journals, conference proceedings, theses and dissertations, research reports, datasets, newspaper clippings, datasets etc.
The Open Access movement which started with Budapest Open Access Initiative (BOAI) in 2002 has now spread its wings to almost all developed and developing countries with several National and International Organizations framing Policy Guidelines for development of open access.

1.1.1 Definition of Institutional Repository:

According to Clifford Lynch “a university based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long term preservation where appropriate as well as organization and access or distribution.”

Institutional repositories may be made accessible to users locally or globally with or without restrictions. These repositories contain pre-prints/ post-prints of research articles, research reports, conference papers, teaching materials, project reports, doctoral theses and dissertations, datasets resulting from research projects, committee papers, computer software, works of art, photographs, audio/video recordings, patents, standards etc. The IR may cover content of which copyright is owned by the workforce or the institution or for which permission has been obtained from the publisher to include a copy of the content in the repository. The content of the IR is institutionally bounded, scholarly in nature, cumulative in growth and perpetual in access.

1.1.2 Need for Institutional Repository-

Institutional repository is essential for any organization because of the following reasons-

1. Technological changes.
2. Significant increase in the overall volume of research.
3. Increasing need of archival and access to unpublished information bearing objects.
4. Increasing demand to access knowledge objects from anywhere at any time.
5. Increase in uncertainty over who will handle the preservation archiving of digital scholarly research materials.

1.1.3 Benefits of Institutional Repository-

Kamila (2009)² and Thorat & Patil (2011)³ have identified the benefits of institutional repositories for the user, for the contributor who contributes his/her documents to the repository, for the organization whose faculty members deposit their research work and benefits from library, teaching and learning point of views.

A) For the user

- Easy access, best quality material in original digital format for the users.
- Gray literature, material not easily found through conventional means, will be actively recruited for the repository. This can include material such as working papers, pre-prints, white papers, conference presentations.

B) For the contributor

- Greater citation, digital platform to publish publications, preservation of the publications in digital form, easy to reuse.

C) For the Organization

- The scholarly material produced by the university is available in one place, reflecting the intellectual achievements of the institution, and serving as a valuable marketing tool.
- Documents reflecting the institutional history of the university, both scholarly and non-scholarly, are preserved for future use, much like a traditional archive preserves paper material.
- Material that is not traditionally published is included in the repository, including drafts of unpublished articles or book chapters, unpublished research, student works, learning objects, and creative works.
D) Other Benefits

- Increased visibility to the Library
- Responsiveness to local user needs and preferences
- Showcase and preserve scholarly output and historic documents
- Support teaching and learning
- Provide curatorial stewardship for disorganized and scattered digital materials

An institutional repository contains various documents like books, journals, conference proceedings, research reports, datasets, electronic theses and dissertations, software, newspaper clippings etc. It is built using open source digital repository software like DSpace, EPrints, Greenstone, Fedora etc. Although, there are lot many benefits of depositing research reports/work to repository but due to barriers like copyright infringement, lack of awareness, absence of mandatory policies of deposition of documents in institutional repositories, faculty members/students are still reluctant to contribute to the repository. Repository Administrators face a difficult time in promoting the benefits of repositories, how they help in increasing the citation count of the individual researcher as well as the institution etc.

For implementation of a repository, the institution needs to perform pilot testing of software to be used for building the repository and then finalize the most suitable and user-friendly one depending on various parameters. Trained staff is required for successful implementation and operation of the repository.

Along with other pre-requisites, the institutional repository must have well framed preservation policy in order to preserve the digitized documents, withdrawal policy including the rules for withdrawing items from the repository and copyright policies that inform the researcher/author about his/her rights after submitting the documents to the repository.
1.2 Significance of the present study:

In the age of information explosion, information gets scattered and is available in various forms. Theses and dissertations are a type of grey literature and the research results produced, remain limited only to the researcher and the department/university to which the theses or dissertation is submitted. They are one of the forms of primary sources of information which contain detailed, sometimes unexplored information about a particular concept. When the thesis or dissertation is submitted in print format, it becomes difficult for the information contained in it to become accessible and disseminated to outsiders/users throughout the world. In this way, the valuable information of the thesis or dissertation mostly remains unnoticed or unused by anyone.

Many times the user remains unknown about the required information because of lack of resources. Due to increasing rates of subscription of print and non-print journals, escalating prices of books, databases etc. users are depending on quality resources which are available through open access via World Wide Web.

The emergence of Institutional Repositories works as a boon for such users. Also, for the individual institute/university it becomes the best way in which institutes can digitize the scholarly publication of their faculty members. These repositories contain pre-prints/post-prints of research articles, research reports, conference papers, teaching materials, project reports, doctoral theses and dissertations, datasets resulting from research projects, committee papers, computer software, works of art, photographs, audio/video recordings, patents, standards etc.

E-Theses & Dissertations provide a technologically advanced medium with endless multimedia capabilities that far exceed the print and bound copies of theses and dissertations housed traditionally in individual university libraries. A worldwide repository of electronic theses and dissertations (ETDs) could provide worldwide access to the most up-to-date research generated by masters and doctoral students. E-theses repositories is one of the most important types since it enables the user to know the variety of research topics in which research has been
conducted all over the world. Till date (i.e. 30.7.2014) 284 E-thesis repositories are registered in Registry of Open Access Repository (ROAR)\(^4\) and 1477 E-thesis Repositories in Directory of Open Access Repositories (OpenDOAR)\(^5\). With the presence of a huge collection like this, it becomes important to analyze these repositories according to

- country of origin and subject(s) covered
- barriers faced while building the E-thesis repositories
- documents covered other than ETDs
- Software and hardware requirements, file formats included
- Copyright and preservation issues
- Metadata and interoperability standards
- Budget and Human Resource required
- accessibility issues
- time period covered & currency of information
- user opinion
- language

The present research work is important and will be useful for users/information seekers who want detailed information about various aspects of ETDs and E-thesis Repositories. With the help of the web questionnaire tool, researcher will be able to get first-hand information from the repository administrators’ right from the initial stages of implementation of E-theses repository to the final stage of self-evaluation of the functioning of repository.

1.3 Statement of Problem:

E-thesis or Electronic Theses and Dissertation (ETD) are digitized format of the print theses or dissertation. Yiotis\(^6\) mentioned theses including dissertations as ‘cherished academic genre’ of literature for universities holding them. Digital Access to Research Thesis-Europe (DART-Europe)\(^7\) defines Electronic theses and dissertations mentioning the different forms that it may take-
• It may be an electronic version of a recently produced printed thesis. A typical example would be a text-based piece of work produced in Word and converted into PDF.
• It may be a text-based thesis produced some time ago that has been scanned and converted into PDF.
• It may be a digital thesis that includes audio or visual material and it may not even be designed to be read in a traditional linear format. A thesis of this type, which incorporates multimedia as an integral part of the work, may not have a paper equivalent.
• It may be a publication-based thesis which includes only a limited amount of text followed by the bibliographic details of the associated publications (including links to electronic versions of the relevant journal articles etc).

While browsing the literature available on open access and institutional repositories, the researcher found that not much research has been done on electronic theses and dissertations. The literature discussed mostly about open access journals or institutional repositories in general. The available literature on ETDs is scattered and there is not an exhaustive source to provide information on ETDs right from their initial stages of inception till the last stage of evaluation and enhancing the ETD Program. Since, thesis and dissertation is one of the most important types of grey literature and there was not a single doctoral research work found exclusively on this theme, therefore the researcher was motivated to undertake the study of 'E-thesis Repositories in the World: A Critical Analysis' which will provide authentic information from repository administrators of E-thesis Repositories across the world. Also, the work could result into a comprehensive source of ETD and its related concepts.

1.4 Aims & Objectives of the present study:

The researcher aims to make the present research work a comprehensive source of information covering various aspects of ETD. The research discusses the concept of ETD right from its origin till present status at a global level. The aims and objectives of the present study are divided into various sections according to the
background information, materials deposited, hardware and software requirements, accessibility issues, budget considerations, human resource required. Metadata and interoperability standards, preservation policies and copyright issues of ETDs.

Section A: Background Information of E-Theses Repository
1) To identify time required for planning, pilot testing, final implementation of E-theses repository and to perform other pre-requisites prior to implementation of E-theses repository.
2) To find out the reasons of contributing to E-thesis repositories and identify factors that act as barrier in setting up E-theses Repository.
3) To determine the subject coverage and country wise distribution of E-theses repository.
4) To study the objectives for setting up an E-theses repository and ways of creating awareness amongst institutional members about E-theses repository.

Section B: Repository Materials
5) To identify type of documents (other than ETDs) included in E-theses repository and discover the number of E-theses and other documents (if any) in the repository.
6) To know which file formats are supported by the repository.

Section C: Hardware & Software
7) To find out the software used for setting up E-theses repository, factors influencing the choice of repository software and server connectivity issues of E-theses repositories.

Section D: Ways of Providing Access to ETDs and Usage Monitoring Techniques
8) To identify the ways in which access is provided to E-theses deposited in the repository and to find out the information regarding authorized contributors to the repository.
9) To investigate the various monitoring techniques of use of ETDs and check the usage frequency of ETDs.
Section E: Budget Consideration & Human Resource
10) To explore issues related to budget considerations and human resource management of the E-theses repository.

Section F: Metadata & Interoperability Standards
11) To find out the metadata and interoperability standards of the repository.

Section G: Preservation Policy
12) To enquire about the long term preservation policy and withdrawal policies employed by the E-theses repository.

Section H: Copyright/IPR Issues of E-Theses
13) To explore issues related to Copyright protection/ IPR of E-theses.

Section I: Language Compatibility, Linkages with other ETDs & Currency of Information
14) To find out language compatibility, linkages with other national and international level ETD Projects and frequency of updating the E-theses repository.

1.5 Hypotheses:

1. The maximum number of E-theses repositories in the world is created by the Institutes and Universities of developed countries due to presence of information resources, finance, good infrastructure, research facilities, Information Technology development etc. E.g. United States of America, United Kingdom etc. (Proved in Chapter 5, Q.1d)

2. Maximum number of E-theses repositories is devoted to scientific disciplines compared to social sciences because of majority of research conducted in the stream. (Proved in Chapter 5, Q.1c)

3. Open Access Repositories are on a rise compared to Subscription based due to popular demand of Open Access by research community. (Proved in Chapter 5, Q 21)
4. DSpace is the most widely used open source software package for building institutional repositories. (Proved in Chapter 5, Q 17)

1.6 Scope & Limitations:

The present study provides context to growth, development and management of E-theses repositories in the world covered by The Registry of Open Access Repositories (ROAR) and Directory of Open Access Repositories (OpenDOAR). According to ROAR, the first e-theses repository was developed in 1993 (Biblioteca Digital de Teses e Dissertacoes) and the most recent one, MyTO Portal (Malaysian Theses Online) in 19th June 2014.

Both ROAR and OpenDOAR do not completely represent open access initiatives as they depend on voluntary registration. ROAR also includes archives in testing or development phase which may not be openly accessible. While ROAR can provide a graphical representation of the cumulative growth of records in Indian open access archives over the last few years, OpenDOAR has subject and content type classification potentially useful to librarians.

Some of these were under development or in testing phase and not yet registered with ROAR or OpenDOAR. Others are on intranets and not yet openly accessible.

Limitation of the present study:
The researcher will be considering only those E-thesis repositories whose interface is in English Language and which contain E-theses in English language. Other foreign language E-thesis repositories are not covered for the research study.
1.7 Research Methodology:

Research methodology consists of various procedural steps such as identification of appropriate research method, tools and techniques for data collection and analyzing the collected data.

For the present research, the list of E-thesis repositories available in the world was prepared from Registry of Open Access Repository (ROAR) and Directory of Open Access Repositories (OpenDOAR). Search was also conducted in various search engines especially Google using search statements like ‘E-thesis repositories’, ‘ETD repositories’, ‘ETD Repository Directory’. Some sites also provided links to other E-thesis repositories in the same country as well as World ETDs. Such URL were visited and checked by the researcher before inclusion in the research study. Various print and non print-articles, conference proceedings, books also helped the researcher to identify few E-theses repository.

The final list of repositories was prepared after checking and deleting the duplicate entries of the e-theses repositories retrieved from various searches. Only such repositories were included in the list whose website was active and which had no broken links. Some of the repositories were found to have shifted from their registered URL in ROAR or OpenDOAR.

The total number of e-theses repositories across the world retrieved till 1st February 2013 is 584, out of which 258 were having their interface in English language and consist of E-theses in English language. The final sample of E-thesis repositories to be considered for present research was prepared using the ‘Table for Determining Sample Size from a Given Population’ by Krejcie and Morgan (1970). With reference to the table, for the present Population of 258 repositories, a sample size of 154 E-thesis repositories was selected. From each country, only those E-thesis repositories were selected which had a collection of more than 1000 E-theses.
Only regarding India (being the mother country), out of the 31 repositories which were identified, 27 repositories were found in working condition and were considered for the present research.

Descriptive research methodology was found to be the most appropriate one for the present study. Since the population considered is vast in scope and nature, therefore Survey Technique will be employed using Questionnaire tool. In order to expedite the distribution of questionnaire and to get quick response in minimum possible time, Web Survey Questionnaire was framed using the ‘SurveyMonkey Web Survey Questionnaire Tool’. The researcher paid annual subscription of ‘Gold Plan’ for the SurveyMonkey Questionnaire in order to avail facilities like unlimited questions, unlimited responses, question and answer piping, question randomization or flipping, text analysis for open responses and SPSS integration. The subscription period was from 15th March 2013 to 14th March 2014.

The e-mail ids of Repository Administrators were collected by individually browsing all the 154 E-theses Repository websites. In case, direct e-mail ID of the Repository Administrator was mentioned on the website, then the questionnaire was mailed using the ‘Contact Us’ option provided in the website. The First mail was sent on 22nd March 2013, First reminder on 29th April 2013, second reminder sent on 24th June 2013, third and last reminder was sent on 2nd August 2013. The reminder mails were posted in the institutional mail ids of the Repository Administrators as well as in the NDLTD listserv Mailing List. The researcher also made calls to E-theses Repository Administrators in India but could not get a positive response. The Research Guide also made calls to some of the Indian repository administrators who then filled in the web questionnaire.

In due course of work, the researcher received lot of support and help from one of the Board of Directors of NDLTD (Networked Digital Library of Theses and Dissertations, USA), Ms.Iryna Kuchma (EIFL Open Access Program Manager) who posted information regarding the research work and promoted the web questionnaire link in the Social Networking Site of NDLTD (Facebook Page of NDLTD). Ms.Kuchma also posted the questionnaire link to ‘NDLTD listserv’ through which the questionnaire was sent to approximately 500+ NDLTD listserv
members from across the world. Due to the promotion by NDLTD, the researcher could receive response from 28 E-theses repositories. Ms. Kuchma also provided explanation and additional information about some ETD concepts through e-mail.

Fig. 1.1: NDLTD Board of Director Member Ms. Iryna Kuchma’s Mail informing the Researcher to Join the NDLTD Listserv Group

Fig.1.2: NDLTD’s Iryna Kuchma’s Mail informing about the advantage of joining NDLTD Mailing List
E-theses Repository Development & Management Survey:
https://www.surveymonkey.com/s/36QC2Z6

Shantashree Sengupta, doctoral researcher from the Department of Library & Information Science, University of Pune (India), is looking for some input to her PhD on 'E-thesis Repositories in the World: A Critical Analysis' under the guidance of Prof. Dr. S.K. Pal. As part of the research study, they are conducting a survey of E-thesis Repositories in the world. The answers provided will remain confidential and will be used only for the present research purpose. They will be grateful to the help provided, if you have any questions about the survey, please contact shanta5hrees@gmail.com.

E-theses Repository Development & Management Survey
www.surveymonkey.com

Dr. Shanta Sengupta, doctoral researcher from the Department of Library & Information Science, University of Pune (India), is currently doing research on 'E-thesis Repositories in the World: A Critical Analysis' under the guidance of Prof. Dr. S.K. Pal.

Fig. 1.3: NDLTD Facebook Posting of the Web Questionnaire Link

Fig. 1.4: NDLTD Twitter Posting of the Web Questionnaire Link
The last response was received in December 2013. The web questionnaire subscription ended in 14th March 2014 after which it was the web-link was closed. The data analysis and interpretation was conducted by the researcher after March 2014.

The country wise distribution of e-theses repositories is as follows-

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<td>TOTAL</td>
<td>43</td>
<td>258</td>
<td>154</td>
<td>96</td>
</tr>
</tbody>
</table>

Table 1.1 : Country wise Distribution of E-thesis Repositories

The interpretation of responses received is presented using tables and graphs.

1.8 Chapterization:

The entire research study has been divided into six chapters. The brief content of each chapter has been given below:

Chapter 1: Introduction

This chapter provides general information about open access, institutional repositories, and its benefits for the research community, organization; statement of the problem. The aims and objectives, scope and limitations, significance of present study and research methodology of the study are presented in this chapter.

Chapter 2: Review of Literature

The information published in various forms of literature in global platform related to the present topic of research are collected and discussed in the chapter. The researcher referred various books, print and non-print journals, ProQuest Database, Emerald Database, Science Direct, ERIC and EBSCO databases, conference proceedings, journals in subjects other than library and information science etc.
Chapter 3: Open Access Repositories: A Historical Review

The present chapter details the concept of 'Open Access (OA)' by giving an overview about history of open access, defining it, types of OA, explaining its needs and barriers to open access; needs and barriers are explained as mentioned by SPARC Open access document. The chapter also includes various National and International Policy Guidelines for the development and promotion of Open Access like BOAI, ECHO, Bethesda Statement, Berlin Declaration, Salvador Declaration, UNESCO Guidelines, National OA Policy (India) and National Knowledge Commissions recommendations on Open Access. The advantages of Open Access institutional repositories are also discussed with a sneak preview of commonly used open source software packages for building an institutional repository. Copyright issues related to Open Access are also covered.

Chapter 4: E-Thesis Repositories: An Overview

The present chapter discusses the concept of electronic theses and dissertations in detail by covering the history of ETDs, the benefits and risks involved; NDLTDs ‘Standard Set of Metadata Elements’; file formats of ETDs; preservation strategies and copyright issues’ brief introduction of fully operational ETD Projects and National and International Level; and NDLTDs Guide to Set up ETD Program. The chapter concludes with a list of commonly used terminologies for ETD system and their meaning.

Chapter 5: Data Analysis and Interpretations

The responses received from the data collected from the Online Survey received from 43 countries are presented and discussed in this chapter. The analysis of the questionnaire has been divided into eleven sections similar to the online questionnaire dealing with personal information of the repository administrator, background information of the implementation of the repository, repository materials, budget, copyright and preservation issues, accessibility issues, metadata, hardware and software requirements etc. Interpretations are done in tabular and graphical manner.
Chapter 6: Findings, Conclusions and Suggestions

In this chapter the research objectives will be verified with the findings of the data collection, conclusions are drawn and appropriate suggestions are given. The chapter concludes with suggestive list of research topics in the field of ETDs on which research may be conducted in future.
References:


