CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction:

Literature Search or Literature Review is an attempt to identify, locate and synthesize completed research reports, articles, books, and other materials about the specific problems of a research topic. It is a chronological presentation of growth and development of literature in a particular field over a period of time. It helps to narrow down the research problem, suggests new approaches to the planning of investigations and assists investigators to develop firmer understandings of theoretical implications. The researcher gets a guideline to formulate and identify the objectives, hypothesis, methods for collection and analysis of data.

The present literature review is grouped in the following manner:

2.2 Review of Literature at International Level
   2.2.1 Electronic Theses and Dissertations
   2.2.2 Institutional Repositories
   2.2.3 Open Access

2.3 Review of Literature at National Level
   2.3.1 Electronic Theses and Dissertations
   2.3.2 Institutional Repositories
   2.3.3 Open Access

The literature review was conducted using the following sources of information. These include Library & Information Science Abstracts (LISA), Library, Information Science & technology Abstracts (LISTA); Popular databases like Emerald, EBSCO, ERIC, ScienceDirect, JSTOR; E-journals like Information Research, Library Philosophy & Practice, Annals of Library & Information
Studies, Chinese Librarianship; Print Journals like DESIDOC Journal of Library & Information Technology, Library Herald, Journal of Indian Library Association; Thesis and Dissertations and various books were also referred. The researcher also referred journals from disciplines other than library and information science. These resources helped the researcher to get in-depth knowledge about the research problem.

The keywords/ search terms used for literature review are Electronic Thesis and Dissertations, ETD Repositories, Open Access, Open Access Initiative, Open Access Repositories, Institutional Repositories, Scholarly Communication, Digital Repositories, Open Source Software, ETD initiatives in the world, ETD initiatives in India, E-resources.

2.2 Review of Literature at International Level:

2.2.1 Electronic Theses and Dissertations (ETDs)

McMillan, G (1996)\(^1\) mentioned the importance of electronic theses and dissertations for graduate school libraries. The author suggests expanding current theses cataloguing and taking advantage of online information prepared by authors so that the bibliographic records provide OPACs with much more valuable information than does traditional theses cataloguing.

McMillan, G (1999)\(^2\) presented findings at Virginia Tech as a case study of shifting book-length works to electronic documents for the global digital library. He explains how the new genre of Electronic theses and dissertations (ETDs) are emerging in part as a result of the work to build the Networked Digital Library of Theses and Dissertations (NDLTD). Virginia Tech began requiring ETDs January 1, 1997 and has since received over 1450.

Sharretts, C., Shieh, J.& French, J (1999)\(^3\) described University of Virginia's attempt of implementing Electronic Theses and Dissertations (ETD). The researcher found that the uniqueness of the ETD lies in the fact that the whole
process was assimilated through the technical skills and intellectual efforts of faculty and students. It creates no extra network load and is fully automatic, from the submission of data, to the conversion into MARC, and the subsequent loading into the Library's online catalogue VIRGO.


Ubogu, F (2001) overviewed existing African theses and dissertation projects, including the Database of African Theses and Dissertations (DATAD) and the African Universities Dissertations Abstracts (AFUDA) projects. The author also discusses the status of the Rhodes University project and reports responses from other institutions in the region, and makes suggestions for accelerated involvement of tertiary institutions in Africa, especially Southern Africa, in the international network of theses and dissertations.

MacColl, J (2002) explained the importance of Electronic Theses and Dissertations (ETDs) in general and how the ETD movement in UK can be initiated. UTOG, the UK Theses Online Group, which was established several years ago, could not spread the awareness of importance of ETD. The author proposed a plan in order to develop a strategy for the development of ETDs in the UK. The researcher hopes that making submission of ETDs mandatory may be fruitful for the project.

Reich, V (2002) described the LOCKSS (Lots of Copies Keep Stuff Safe) model with respect to history behind its development, design and technology involved and the present status of the model. The author requests Publishers and Librarians to participate in the movement. The article provides detailed information about LOCKSS.

Bakelli, Y and Benrahamoun, S (2003) explored the problem of the long-term conservation and preservation of electronic theses in the Algerian context, and
shows how international recognised standards and techniques for setting up and organising the local ETD’s archives may be applied.

Hahsler, M (2003)\(^9\) presented a report on the effort of the library of the Vienna University of Economics and Business Administration to integrate a digital library component for research documents authored at the university into the existing library infrastructure. A project title ePub (electronic publications) was started in June 2001 that aimed to collect and manage the university’s research-related documents (PhD theses, working papers, and later on master’s theses) in electronic form and to make them available online.

Koulouris, A & Kapidakis, S (2003)\(^10\) examined the disposition policies of Electronic Theses and Dissertations (ETDs) among three institutions: National Documentation Centre of Greece (NDC), Virginia Tech (VT) and West Virginia University (WVU) of USA. The researchers also compared the implemented disposition policies by the three institutions and analysed their similarities and differences. It was found that the ETDs are freely available to onsite and offsite users. Since there was restricted usage of ETDs, they suggested alternative access policies to make them more open and accessible to all.

Andrew, T (2004)\(^11\) discussed the Theses Alive! Project of the Edinburgh University Library to investigate the technological and cultural issues involved for Great Britain higher education institutions wishing to attain electronic theses capability and to initiate a pilot national service through partner institutions as of April 2004.

Beaven, J (2004)\(^12\) emphasized on the importance for U.S. University Libraries to keep low-technology backups of their online thesis collection to prevent problems when formats of books and documents change.

Jones, R (2004)\(^13\) evaluated two open source software packages to deliver E-theses functionality via a Web-based interface ETD-db by Virginia Tech, and DSpace by Hewlett-Packard (HP) and the Massachusetts Institute of Technology.
(MIT) and found that DSpace was much ahead of ETD-db. Jones carried out the research in the backdrop of the Theses Alive! Project through which UK institutions can implement their own E-theses or Electronic Theses and Dissertations (ETD) online submission system and repository.

Fineman, Y (2004)\(^{14}\) stated that ETDs in music are not living up to their potential since the students preparing musical ETDs face additional challenges and problems with the integration of a variety of music formats and software into text documents and with the appropriate use of copyrighted materials. The researcher argues that the advantages of electronic theses and dissertations (ETD) in music are far more than the disadvantages and it’s very unfortunate that many people are reluctant to use it.

Yi, J (2004)\(^{15}\) introduced the China Networked Digital Library of Theses and Dissertations project initiated by the China Academic Library and Information System and current research into related technologies, including metadata standards, OAI metadata harvesting protocol, standard document format and intellectual property protection.

Baty, P (2005)\(^{16}\) reported the online selling of dissertations that are openly published on university Web sites to students to pass off their work in Great Britain.

Bevan, S (2005)\(^{17}\) described the issues involved in the introduction of mandatory submission of electronic theses at Cranfield University. The research concluded that there are a number of issues that will need to be addressed from the points of view of librarians, academic staff and registry staff and that one effective method of managing the process is to set up a working group with all stakeholders in the process.

Copeland, S., Penman, A. & Mime, C. (2005)\(^{18}\) described the key findings of the UK JISC-funded Electronic Theses project that was led by The Robert Gordon University, as well as the results of associated projects that formed part of the
JISC-funded "FAIR" programme, and the way in which the recommendations will be taken forward.

Grant, C (2005) reported the introduction of VALET for ETDs, that will be available freely as open-source software, VALET is a Web submission solution for managing electronic theses and dissertations.

Greig, M (2005) described the strategies that have been adopted by staff at Glasgow University Library in trying to implement electronic theses and the challenge that have been faced. The article also covers the external developments, which may help speed up the transition to electronic theses.

Kushkowski, J (2005) reported on the Web citation behaviour of print and electronic thesis authors at Iowa State and Virginia Tech from 1997 to 2003. It examines the rates of Web citation in economics theses and dissertations between 1997 and 2003. The study suggested that students who are required to publish their theses digitally exhibit citation behaviour that is no different from students who produce their theses in print.

Orphan, S (2005) reported that the U.S. Networked Digital Library of Theses and Dissertations (NDLTD) offer tutorial for graduate students and their faculty advisors. NDLTD provides support for institutions to initiate and sustain their electronic theses and dissertations programs.

Russell, J (2005) provided information on the Electronic Theses Online Service (EThOS) Project in Great Britain. The aim of the project was to open up repositories of theses in British libraries such as the British Library and the National Library of Wales.

Susan, H., Lona, H. & Wolverton, J (2005) conducted survey of selected academic institutions in the U.S. to identify these factors for consideration, and to present an array of potential strategies for successful implementation of ETD initiatives.
Wojtas, O (2005) reported on a project by the Joint Information Systems Committee (JISC), the Consortium of Research Libraries in the British Isles and the British Library to preserve printed and electronic theses and academic dissertations centrally and make them generally accessible.

Atkinson, L (2006) presented the results of a recent University of Calgary Archives project to investigate the replacement of existing theses and dissertations database which is developed using D Space. It was found open source software, WebGenCat is a more sophisticated database than D-Space and it more closely meets the needs of the University Archives in all aspects of its functionality. Also, it provides more appealing display and is user-friendly than D-Space.

Arabito, S. & Asnicar, F (2006) explained ‘OpenstarTs-a lean approach’ to Electronic Theses & Dissertation publishing included in the project "University and work opportunities in Friuli Venezia Giulia", under a grant from the Italian Department of Education and Higher Education. The OpenstarTs is an action project of The University of Trieste which aims at overcoming the present weaknesses of slow cataloguing, duplication of tasks, lack of space and unfit deposits.

Hoover, L (2006) studied the presence or absence of an abstract, keywords, full-text availability, classification number, and subject headings for citations obtained by the Web-based methods of access, compared the search options, the description of types of information in ETD citations, and the appendix, a webliography of the sites discussed and effective electronic retrieval of agricultural and food information. He studied the Agriculture and Food Related Theses and Dissertations Available on the Web.

Jewell, C., Oldfield, W., & Reeves, S (2006) discussed issues associated with open access (OA) to electronic theses and dissertations (ETDs) and to describe the University of Waterloo E-thesis Project and its partnerships with Theses Canada and the Networked Digital Library of Theses and Dissertations. The
researcher found that Author-created metadata forms the UW E-theses searchable database of records link to theses in full text.

Lowry, C (2006) reflected on intellectual property issues about open access of electronic theses and dissertations (ETD) in the Digital Repository at the University of Maryland. The author believes that tackling disciplinary differences entailed from repository posting or archiving is the right thing to do.

Russell, J (2006) assessed the impact of the new Electronic Theses Online Service (EThOS) on the availability of British doctoral theses. At least 100 British Higher Education Institutions (HEI) were participating in EThOS. All digitised or harvested theses are included in the digital preservation programme of the British Library (BL).

Tonta, Y. & Al, U (2006) analyzed the bibliometric features (the number of pages, completion years, the fields of subject, the number of citations, and their distribution by types of sources and years) of 100 theses and dissertations completed at the Department of Librarianship of Hacettepe University, Turkey between 1974 and 2002. They found that Journal articles get cited more often than monographs and the percentage of citations to electronic publications is on the rise. Findings suggested that there exist a correlation between the number of citations a journal receives and its availability through the university library at the time the dissertation was completed.

Caldwell, T (2007) provided information on the EThOSnet project. The project is intended at digitizing doctoral theses in order to prepare them for the Electronic Theses Online Service in 2009. The prototype of the project was created by the Joint Information Systems Committee and the Consortium of Research Libraries in the British Isles.

Galimberti, P & Vignocchi, M (2007) presented the status of e-theses collections in Italy, focusing on the major drivers for change that contributed to create the basis of a national e-theses provision service able to collaborate with
other international services. Finally, it illustrates the AMS Tesi di Dottorato Bologna University project for open access doctoral e-theses as a case study of a viable integrated system offering added value services.

Paillasard, P., Schopfel, J. & Stock, C. (2007)\textsuperscript{35} presented the former French database for print theses ‘Téléthèses’ that merged with the national academic union catalogue ‘Sudoc’ (Système Universitaire de DOCUMENTation), and gives an overview on initiatives for open archives and repositories for electronic theses and dissertations as well as the national program for these documents.

Park, E., Qing, Z. & McKnight, D (2007)\textsuperscript{36} explained the set-up of a protocol for electronic thesis and dissertation (ETD) submission for the electronic thesis initiative pilot project at McGill University in Montreal, Canada. It was found that all theses experienced some degree of information loss during the conversion. They found that the software used for ETD submission is DigiTool, which was still being tested for storage, cataloguing, and dissemination capability. For full implementation, three major issues need to be addressed further: conversion; metadata; and file formats.

Park, E., Nam, Y. & Oh, S. (2007)\textsuperscript{37} focused on a survey by the National Assembly Library of Korea on management of electronic theses at several university libraries in Korea. The survey found that 91 percent of the libraries are digitizing theses and dissertations, 73 percent had a copyright policy for electronic dissertations, while 46 percent libraries provided access to full-text via the Internet. The researchers recommend standardization of metadata scheme for exchanging information between the member libraries and the implementation of an Integrated Electronic Thesis Dissertation (IETD) system model.

Al Salmi, J (2008)\textsuperscript{38} tried to establish the framework for understanding the positive and negative factors affecting the adoption and development of electronic theses and dissertations (ETD) programs with particular reference to the situation in the Arab Gulf States. The author found that technological factors, legal issues and other administrative issues discourage the adoption of ETD
programs. It was found that most issues influencing the adoption and
development of ETD programs can be resolved by undertaking appropriate
promotional and advocacy activities.

Asner, H & Polani, T (2008)\(^{39}\) focused on the electronic thesis and dissertation
project at the Ben Gurion University of the Negev, Be'erSheva in Israel. They
survey the status of the electronic theses and dissertation (ETD) movement in the
country as part of the worldwide spread of ETDs outside the U.S., particularly in
Europe, Latin America, Australasia, and Asia. The authors also explore the
percentages of academic publishers who consider ETD's existence as prior
publication of the book or article derived from that thesis.

Fyffe, R & Welburn, W (2008)\(^{40}\) discussed opportunities for academic libraries
concerning the development of repository programs for Electronic Theses and
Dissertations (ETDs). They explored benefits for students and universities,
including the expressive qualities of ETDs, increased visibility, operational
efficiency, and knowledge-sharing, issues for administrative discussion are
examined, with particular focus given to copyright management. The article also
provides a list of university ETD Web sites.

McCutcheon, S and others (2008)\(^{41}\) aimed to describe work at Kent State
University Libraries and Media Services to promote and devise electronic thesis
and dissertation (ETD) storage at OhioLINK's ETD Center, to find efficient
methods to represent these unique scholarly materials within the library's catalog,
and to foster the establishment of state-wide library catalog standards for ETDs.
The researchers devised a semi-automated process that extracts student-supplied
metadata already available in the OhioLINK ETD Center to provide almost
instantaneous access to unique resources through the library catalog.

Moyle, M (2008)\(^{42}\) gave an overview of DART-Europe (Digital Access to
Research Theses - Europe), its progress and its future plans, with particular
reference to the DART-Europe E-theses Portal.
Richardson, W., Srinivasan, V & Fox, E (2008) proposed the design for a scalable, Web Services based tool KDWebS (Knowledge Discovery System based on Web Services), to facilitate automated knowledge discovery in NDLTD. Suber, P (2008) argues for mandating open access (OA) to electronic theses and dissertations (ETDs) since they are the most invisible form of useful literature and the most useful form of invisible literature.

Stock, C (2008) described some tendencies concerning electronic theses and dissertations in Europe as observed during explorations of institutional and other repositories, with specific regard to the full text. In the first part the author examined the changing landscape in repositories where access to the complete full text of a thesis is no longer a unique offer, but partial access, temporary embargoes and bibliographic citations is also found. In the second part, we take a closer look at the language issue of ETDs.

Thomas, K (2008) described several web-based resources that aim to preserve grey literature, which refers to booklets, research reports and PDF documents published in-house by organisations. These include the Electronic Theses Online Service (EThOS) where electronic theses and dissertations held by British institutions can be accessed by users, OpenDOAR which offers a directory of academic open access repositories and OA1ster which catalogues digital resources from 900 contributors.

Yiotis, K (2008) introduced the electronic theses and dissertation (ETD) repository as a subset of local institutional digital repositories. The paper discusses the originating institutions and organizations including Virginia Tech Initiative, the Networked Digital Library of Theses and Dissertations, the United Nations Educational, Scientific, and Cultural Organization and the United States Department of Education.

Averkamp, S. & Lee, J. (2009) described the workflow used by the University of Iowa Libraries to populate their institutional repository and their catalogue with the data collected by ProQuest UMI Dissertation Publishing during the
submission of students’ theses and dissertations. Re-purposing the metadata from ProQuest allowed the University of Iowa Libraries to streamline the process for ingesting theses and dissertations into their institutional repository. The article includes a discussion of the benefits and limitations of the workflow described.

Boock, M. & Kunda, S (2009) compared past processes and workflows for print theses and dissertations of 2005 with the present workflow for electronic form in Oregon State University Libraries followed in 2007. The authors provide the rationale for changes and review the cost- and time-savings produced. They also describe the changing roles of students, technicians, and librarians in the metadata process as well as the value of students describing their own work.

Carbery, A (2009) discussed the electronic dissertations (ETDs) policy implementation on the libraries of Waterford Institute of Technology (WIT) in Ireland. The paper cites that the benefits of having ETDs include better accessibility, faster availability of present research, and searchability. It also discussed the e-thesis mandatory submission, required ETD formats, and access policies. The workflow in the integration of ETD to the collection of library is also outlined.

Deng, S. & Reese, T. (2009) presented methods for customized mapping and metadata transfer from DSpace to Online Computer Library Center (OCLC), which aims to improve Electronic Theses and Dissertations (ETD) work flow at libraries using DSpace to store theses and dissertations by automating the process of generating MARC records from Dublin Core (DC) metadata in DSpace and exporting them to OCLC. The paper discusses how the Shocker Open Access Repository (SOAR) at Wichita State University (WSU) Libraries and ScholarsArchive at Oregon State University (OSU) Libraries harvest theses data from the DSpace platform using the Metadata Harvester in MarcEdit developed by Terry Reese at OSU Libraries. It analyses certain challenges in transformation of harvested data including handling of authorized data, dealing with data ambiguity and string processing.
Fox, E., MacMillan, G. & Srinivasan, V (2009)\textsuperscript{52} presented a technique for identifying science, technology, engineering, and mathematics from a large electronic theses and dissertations collection. The article introduces the highly successful Networked Digital Library of Theses and Dissertations (NDLTD) project and demonstrates a semiautomatic approach to topic categorization using the NDLTD's Union Catalog metadata.

Lubas, R (2009)\textsuperscript{53} reviewed practices for thesis and dissertation metadata creation with a focus on DSpace instances, best practice recommendations for author-submitted metadata, recommendations for subject analysis, and training for metadata practitioners. The article recommends processes for author submission, metadata quality control and enhancement, and cross walking of the metadata to the library's catalog to maximize discovery.

O'Leary, K (2009)\textsuperscript{54} provided information on the Electronic Theses Online Service (EThOS) funded by the Joint Information Systems Committee (JISC), Research Libraries UK (RLUK) and project partners, which aims to make Great Britain lead the international electronic theses provision. The article explores the benefit of EThOS to library staff, institutions and researchers, which are generally about managing and accessing theses at a decreased period of time.

Ribaric, T (2009)\textsuperscript{55} presented information on digitization services at the Internet Archive and informs about the method to use software utilities developed by him to automate scanned dissertations and associated Dublin Core XML files to create an Electronic Theses and Dissertations (ETD) Portal using the DSpace platform. The author created an institutional repository at the library of Brock University. DSpace has been used as software platform to create an ETD portal to ingest a collection of dissertations created by the University. The digitization service offered by the Internet Archive provides digital representations of theses.

Russell, J (2009)\textsuperscript{56} assessed the impact of the new Electronic Theses Online Service (EThOS) on the availability of British doctoral theses. At least 100 British higher education institutions (HEI) are said to be participating in EThOS.
It notes that the cost of digitising the thesis when it is ordered is shouldered by the HEI that holds it.

Wong, I & Yiu-On, L (2009) discussed and analyzed the efforts of Hong Kong Baptist University Library to create a virtual union catalogue for dissertations and theses collections as a single search platform to retrieve the bibliographic records, abstracts and full-texts of Hong Kong postgraduate students' theses and dissertations from seven university library online public access catalogues (OPACs).

Joint, N. (2009) presented an overview of ETD (electronic thesis and dissertation) collection development trends to date, with an emphasis on the comparative merits of different national models of digital thesis provision. The paper finds that the case for the superior benefits of digital thesis services as opposed to print-only thesis provision has undoubtedly been made.

Lippincott, J & Lynch, C (2010) discussed the electronic thesis and dissertation (ETD) programs for graduate education in the U.S. A brief overview of the history of the development and deployment of ETD programs in U.S. universities and colleges is given, along with their important role in managing paper dissertations.

Ramirez, M. & McMillan, G. (2010) shared several campus approaches to Family Educational Rights and Privacy Act (FERPA) and electronic student work. The Family Educational Rights and Privacy Act (FERPA) and its relevance to student work should be a consideration when widely distributing scholarship like e-portfolios, ETDs, and senior capstone projects. They were surprised to find that very little has been published about FERPA and online student works such as ETDs.

Ratanya, F. (2010) discussed a project that focuses on digitization of theses and dissertations by the Kenya Information Preservation Society (KIPS) and found that KIPS has been compiling the database titled "The Union List of Theses and
Dissertations Held in Universities and Research Institutions in Kenya" since 1999, and as of May 2010, KIPS has already produced three union lists.

Ardalan, R & Feyzbaksh, O (2011)\(^2\) examined the extent of Electronic Theses and Dissertations (ETDs) in Iran. The paper notes that many theses and dissertations submitted in the libraries remain without being referred even once. Electronic publication can make these works accessible to students, researchers, and others who perhaps lack time, search capabilities, or finances. The paper looks at what universities are doing about the problem, and summarizes the current position in Iran university libraries.

Park, E & Richard, M (2011)\(^3\) assessed the metadata element sets of electronic theses and dissertations that are currently used at Canadian academic institutional repositories, and discuss issues related to variations and inconsistencies in Dublin Core data used by participating repositories. The formats and usage patterns of metadata elements at ten participating institutional repositories are identified and analyzed.

Wolverton, R., Hoover, L & Fowler, R (2011)\(^4\) conducted a survey on subject analysis of theses/dissertations in print and electronic formats. Questionnaire was sent to 280 academic libraries classified as Doctorate-granting Universities under the 2007 Carnegie Classification. The survey results indicated that subject analysis was done by a large majority of respondents, with a number of comments expressed about challenges facing current subject-analysis practices.

McCutcheon, S. (2011)\(^5\) mentioned that thousands of theses and dissertations (TDs) that produced each year, it is well worth disseminating them as widely as possible. ETD are used considerably more than print TDs. ETD records created automatically contain errors, omissions, and special characters. Name authority control provides disambiguation of authors with the same name. ETDs with Subject Headings (LCSH) are 30% more retrievable than with keywords alone.
Howard, R.I., & Goldberg, T. (2011) described several stages in a university library’s approach to providing access to theses and dissertations, culminating in a decision to use CONTENTdm and its Dublin Core-based metadata along with our ability to provide even wider access in the future through OCLC. The researchers found that electronic open access to theses and dissertations increases their usage; a digital management software package streamlines their management and presentation.

Ivanovic, L., Ivanovic, D., & Surla, D. (2012) discussed the extension of the Current Research Information System (CRIS) at the University of Novi Sad, Republic of Serbia, to incorporate electronic theses and dissertations (ETDs). The ETDs repository can exchange data with CRIS institutional repositories and Networked Digital Library of Theses and Dissertations members. In this way, the international visibility of theses and dissertations created at the University of Novi Sad is enhanced without duplicating data entry in various systems.

MacDonald, J.R.W., & Yule, D. (2012) created a tool named Jarrow for collecting and disseminating theses and dissertations electronically. After reviewing available open-source software for theses submission and open-source institutional repository software, they discussed why and how Jarrow was created and how it works.

Ashman, A.B. (2013) conducted an informal survey on the use of Resource Description and Access (RDA) as a cataloguing method for new electronic theses and dissertations (ETDs) in which the University of Louisville in Kentucky recently adopted. Many academic libraries continue to modify their cataloguing method due to the continuous changes in ETD cataloguing. It also presents several studies in which the 2013 survey was referenced, including the one conducted by Patterson, White, and Whittaker in 1977.

Clobridge, A (2013) presented an overview of the Open Access Theses and Dissertations (OATD) project, an open access discovery tool led by Thomas Dowling of for the Z. Smith Reynolds Library at Wake Forest University, which
assists researchers in gaining access to open access electronic theses and dissertations. A discussion of the mechanism by which OATD works, and of the challenges which researchers often face when attempting to access electronic open access theses and dissertations, is presented.

Ezema, I.J., & Ugwu, C.I. (2013) investigated the current status of electronic theses and dissertation (ETD) projects in Nigerian university libraries. Only three out of the eight universities surveyed have started ETD projects in their libraries. The study also revealed that university libraries in Nigeria stand to benefit immensely from ETD projects. The results of the study also revealed some challenges of ETD in Nigeria. The findings identified strategies to mitigate these challenges.

Hakimjavadi, H., & Masrek, M.N. (2013) evaluated the status of eight interoperability protocols within repositories of electronic theses and dissertations (ETDs) as an introduction to further studies on feasibility of deploying these protocols in upcoming areas of interoperability. This study revealed that, despite its drawbacks, Protocol for Metadata Harvesting (PMH) is still the most utilized interoperability protocol within ETD providers, ETD software developers, and implementers, followed by ATOM and Object Reuse and Exchange (ORE) protocols.

Hawkins, A.R., Kimball, M. & Ives, M. (2013) argued against policies that require students to submit theses and dissertations to electronic institutional repositories. The article counters a variety of arguments often used to justify this practice. It also reports on the results of an examination of electronic thesis and dissertation policies at more than 150 university libraries and graduate schools, offering a system of criteria and scoring for ranking these policies according to their respect for student copyright and intellectual property.

Kravjar, J, & Duskova, M. (2013) analysed the creation and two years' operation of the national corpus of bachelor, master, diploma, dissertation and habilitation theses of Slovak higher education institutions and the follow-up
plagiarism detection system. The national corpus is called The Central Repository of Theses and Dissertations (CRTD). Each thesis has to be entered in CRTD before defence and it is then checked for plagiarism.

Peponakis, M (2013)\textsuperscript{75} argued that metadata of library catalogues can stand autonomously, providing valuable information detached from the resources they point to and, therefore, could be used as data in the context of the Semantic Web. Peponakis presented an analysis of this perception followed by an implementation proposal for a Master's thesis and PhD dissertation repository. The analysis builds on the flexibility of the Resource Description Framework (RDF) and takes into account the Functional Requirements for Bibliographic Records (FRBR) and Functional Requirements for Authority Data (FRAD) in order to reveal the latent academic network by linking its entities to a meaningful and computationally processable set.

Ramirez, M.L., Dalton, J.T., McMillan, G, Read, M & Seamans, N.H.(2013)\textsuperscript{76} investigated social sciences, arts, and humanities journal editors' and university press directors' attitudes toward ETDs. The findings indicate that manuscripts that are revisions of openly accessible ETDs are always welcome for submission or are considered on a case-by-case basis by 82.8\% of journal editors and 53.7\% of university press directors.

Schopfel, J (2013)\textsuperscript{77} described the ANRT, its purpose and activity in the French national network for the dissemination and preservation of PhD theses. The paper includes a historical study and an evaluation of current activities and future perspectives. The ANRT has played a significant role in the back-office of the French network for the dissemination and preservation of PhD theses for over 40 years. Its online catalogue contains more than 200,000 PhD theses that academic or other research institutions can order in print format or on microfiche.

Schopfel, J. & Soukouya, M. (2013)\textsuperscript{78} presented a project for the digitizing of Ph.D theses of two universities in Togo, and then discussed questions and problems related to the specific conditions of the project, in order to contribute to
the understanding of the dynamics and rich diversity of the open access movement. Many librarians perceive ProQuest’s Dissertations and Theses as the key resource for searching dissertations and theses. However, the Online Computer Library Center’s (OCLC’s) WorldCat also provides a means for locating electronic dissertations and theses.

Procious, A (2014)\textsuperscript{79} compared ProQuest and WorldCat and found two key observations. First, both databases provided access to a similar number of citations. Second, WorldCat consistently had twice as many citations for which ProQuest had no records. WorldCat provides an important means of locating electronic theses and dissertations.

2.2.2 Institutional Repositories

Crow, R (2002)\textsuperscript{80} presented the SPARC (The Scholarly Publishing & Academic Resources Coalition) Position Paper which examines the Institutional Repositories (IRs) from complementary perspectives of being a central component in reforming scholarly communication by stimulating innovation in a disaggregated publishing structure and by serving as a tangible indicator of an institution’s quality, thus increasing its visibility, prestige, and public value. The paper also describes the potential role of IR and explores their impact on major stakeholders in the scholarly communication process.

Lynch, C (2003)\textsuperscript{81} described the development of institutional repositories in 2002 that emerged as a new strategy allowing universities to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication, both moving beyond their historic relatively passive role of supporting established publishers in modernizing scholarly publishing through the licensing of digital content, and also scaling up beyond ad-hoc alliances, partnerships, and support arrangements with a few select faculty pioneers exploring more transformative new uses of the digital medium. The author mentioned cautions to be taken and the future developments to take place for the development of IR.
Warner, S (2003) presented a brief survey of Open Access Initiative e-print repositories and of services using metadata harvested from e-print repositories using the OAI-PMH. The paper also discusses several situations where metadata harvesting may be used to further improve the utility of e-print archives as a component of the scholarly communication infrastructure.

Mackie, M (2004) described some strategies that can be used to help populate an institutional repository. DAEDALUS is a three-year project based at the University of Glasgow funded under the JISC Focus on Access to Institutional Resources (FAIR) Programme. The main focus of the project has been developing institutional repositories to hold content ranging from peer-reviewed published papers to theses and working papers. Separate repositories have been developed for published material and other material.

Thomas, A & Rothery, A (2005) explored how online repositories are being used to store and share e-learning content, and show how taking the user perspective might challenge the emerging approaches to repository development. They found that there is an increase in use of repositories to use and to share online learning and teaching content within and between institutions.

Bayram, O., Atilgan, D. & Arslantekin, S (2006) discussed the issues concerning metadata in Ankara University Open Access Program (AUO). The paper outlines a method for creating a format using Dublin Core (DC) elements of an institutional repository at Ankara University. The researchers discussed how essential elements of metadata repository can be created to simplify the process of submission and repository management of the program.

Herb, U (2006) described PsyDok repository of The Saarland University and State Library, Germany. PsyDok acts as a supraregional, subject specific repository for digital scientific documents and is the central point for free of charge psychological full-text publishing. PsyDok gives scientists an infrastructure for self-archiving and facilitates their walk on the green road to Open Access.


Groenewegen, D & Treloar, A (2007) described the work of the ARROW Project to meet the requirements of the Research Quality Framework (RQF) to be introduced in 2008. They proposed RQF Model which they aim would provide easy online access to research outputs, as well as promoting an expanding use of repositories within Australian institutions.

Kennan, M (2007) summarised the response to the exploratory survey that was conducted to analyse the rapidly changing research evaluation and funding landscape in Australian universities, specifically in relation to open access and institutional repositories. Results of the survey proved that respondents highly valued peer review.

Koulouris, A and others (2007, 2008) described the challenge, development and pilot implementation of the Institutional Repository (IR) at the National Technical University of Athens (NTUA). They evaluated the IR service pilot period, focusing on the ETD submission process; to refine and improve the above mentioned process and, finally, to promote the concept of self-archiving and open access. Data collection was done by implementing a web-based survey, targeting on the users who submit ETD. A positive user attitude towards the procedure was noted.

Abrizah, A (2009) reported the findings of web-based survey carried out on academics of a research intensive university in Malaysia, investigating their use of
open access repositories, advocacy undertaken, and reasons for contribution or non-contribution to Institutional Repositories (IRs). The findings indicated that faculty who planned to contribute to the IR in the future agreed with of the concept of open access and had a greater altruism in making their work publicly accessible.

Brownlee, R (2009) discussed metadata management and repository service levels and sustainability in University of Sydney Library’s Repository.

Melero, R and others (2009) analysed the current state of Spanish open-access institutional repositories and to describe their characteristics. This is the first detailed study of Spanish institutional repositories. The main inhibitors identified were the absence of policies, the lack of integration with other national and international systems and the lack of awareness efforts among academia.

Mondoux, J & Shiri, A (2009) tried to find out whether institutional repositories where implemented in Canadian post-secondary institutions and if they were, then what type of Knowledge Organization Systems (KOS) were incorporated in them. 28 IR in post-secondary institutions using DSpace platform were identified for the research work. The findings suggested that very few IRs had incorporated complex KOS. Also, browsing and searching options were available but user interfaces were not modified to enhance information retrieval.

Koulouris, A. & Anagnostopoulos, A (2010) described theses e-submission tool of National Technical University of Athens. It was found that the tool improved the IR service, which can be certified by the continuing evaluation process.

Koumoutsos, K., Mitrelis, A. & Tsakonas, G (2010) evaluated University of Patras’ institutional repository, namely ‘Nemertes’ which is operating on a DSpace installation and theses and dissertations’ collection and is placed at the center of evaluation as the most important collection accommodated in the service. The findings show that users found ‘Nemertes’ a valuable service despite of all deficiencies found.
Kurtz, M (2010)\textsuperscript{99} provided an overview of Dublin Core (DC) and DSpace together with an examination of the institutional repositories of three public research universities. She examined the quality of records with reference to the methods of educating repository users. The findings show that one repository used librarians to oversee the archiving process, while the other two employed two different strategies as part of the self-archiving process.

Mallery, M (2010)\textsuperscript{100} briefly summarised the construction and contents of The Association for Library Collections and Technical Services (ALCTS) Institutional Repository of the American Libraries Association.

Puplett, D (2010)\textsuperscript{101,102} summarized the proceedings of the Conference on the ‘Subject Repositories: European Collaboration in the International Context’ held at the British Library, London on 28-29 January 2010. The conference launched Economists Online (EO), an innovative economics subject repository. The author overviewed the existing subject repositories, along with an analysis of the scholarly communications landscape in economics and how the new EO subject repository fits into this environment.

Shoeb, Z (2010)\textsuperscript{103} discussed the current practices and issues of access management for digital repositories including user authentications, user authorization, authentication, and the technology of secured digital communication of digital materials. The paper also gives a basic idea about access management practices in Bangladesh by the digital content providers.

Ezema, I.J. (2011)\textsuperscript{104} explored the potential of open access institutional repositories (IR) in enhancing the global visibility and impact of Nigerian scholarly publication. While the paper acknowledges several problems that impede the building of open access IR, it equally highlights some necessary requirements for the building of IR with a road map for the development of functional IR in Nigeria.
Fralinger, J. & Bull, J. (2013) identified factors that might affect the international usage of US institutional repositories as part of assessment efforts to determine an IR's return-on-investment. While many IRs reported various rates of international usage, the largest group of respondents did not report an international usage rate for both page hits and downloads, despite overwhelmingly expressing an importance of international traffic to their IR and parent institution.

Armstrong, M (2014) explored management models that institutional repositories can use for research dissemination. The article challenges the existing ideology surrounding institutional repositories and helps frame these services as a core component for fulfilling an important university mission.

Bonilla-Calero, A.W. (2014) analysed the advantages of using an Institutional Repository as a complementary source to evaluate the research output produced by a University. The paper is aimed at researchers and experts that use Web of Knowledge and Scopus services to evaluate research output. It recommends that they consider using Institutional Repositories as an additional, practical and complementary tool to traditional databases.

2.2.3 Open Access

Budapest Open Access Initiative (2002) defined Open Access for the first time and mentioned that removing access barriers to the scholarly literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.

European Culture Heritage Online (ECHO) Charter (2002) aimed of an electronic representation of the European cultural heritage on the web which will make it more widely available than ever before in its history and thus strengthen its function as a bond of the European community. The basic idea was to establish
an open-source culture of the public and scholarly exploitation of cultural heritage on the Internet.

Bethesda Statement on Open Access Publishing (2003)\(^{10}\) stimulated discussion within the biomedical research community on how to proceed, as rapidly as possible, to the widely held goal of providing open access to the primary scientific literature.

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003)\(^{11}\) was drafted to promote the Internet as a functional instrument for a global scientific knowledge base and human reflection and to specify measures which research policy makers, research institutions, funding agencies, libraries, archives and museums need to consider.

Antelman, K (2004)\(^{12}\) conducted a research to find out whether open access articles have a greater research impact. The research was conducted on mathematics, electrical and electronic engineering, political science, and philosophy which were chosen with the expectation that they would represent different points on the continuum of open-access adoption. The researcher found that, across all four disciplines, freely available articles had great research impact.

Suber, P (2004)\(^{13}\) provided detailed introduction to open access (OA) for those who are new to the concept. He explains that, Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions. He further explains two primary vehicles for delivering OA to research articles - OA journals and OA archives or repositories.

De Robbio, A & Coll, I (2005)\(^{14}\) described technical and organisational characteristics of E-LIS, the International open archive, its configuration and customization, and discusses its policies, aims and mission. The paper also emphasises that the promotion of E-LIS further enhances the OA movement in general, so E-LIS can be regarded as a tool for the dissemination of the OA philosophy.
Bailey, C (2006) studied open access movement from its various aspects like the importance of open access in today's world, initiatives taken for their development, copyright practices and types of open access journal publishers.

Liu, Z. & Wan, G (2007) analyzed the publication trends of scholarly journal articles on open access in the library and information science literature from 2000 to 2005. The authors used the method of content analysis to systematically analyze the selected scholarly articles. A total of 227 articles were selected from the relevant databases and a comprehensive bibliography on open access. It was found that general works, library science journals, viewpoint articles, library professionals, and U.S. authors predominated in the categories under investigation.

Wang, X & Su, C (2007) explained the concept of open access, various Open Access (OA) operational models, and key stakeholders. They interviewed six prominent Chinese scholars and analyzed their perspectives of OA development in China and also evaluated the similarities and differences of OA development by using the developed counties as best practice benchmark. The paper concludes with suggestions and recommendation of improved research methods and questions for future studies.

Bjork, B., Roos, A & Lauri, M (2009) conducted a research to find out the total yearly volume of peer-reviewed scientific journal articles published world-wide as well as the share of these articles available openly on the Web either directly or as copies in e-print repositories.

Canada, D (2009) overviewed open access and its benefits to developing countries for research and educational goals. Canada also discussed specific examples of how the open access movement is making inroads toward greater information access in India, Latin America, and Africa. Findings showed that open access movement is making creating possibilities to provide equal access to knowledge to all countries, regardless of economic status. Canada mentioned that there should be a combined commitment by governments, education and research
institutions, as well as private organizations to provide funding and increase awareness of the open access movement and open access resources.

Stevenson, A (2009) presented a report on the four day Annual Open Repositories Conference held at Georgia Tech in Atlanta over 18-21 May 2009 that addressed developments surrounding the Fedora, DSpace and EPrints systems that occurred over 2008. The author also presented his work on the SWORD (Simple Web-service Offering Repository Deposit) Project which is concerned with lowering the barriers to deposit contributions.

Westra, B., Ramirez, M., Parham, S. & Scaramozzino, J (2010) presented a webliography of materials primarily or solely devoted to medical informatics and social sciences. The webliography covered documents from associations and organizations, directories of data repositories, metadata standards, software and middleware, assessment tools, open access journals and e-mail lists.

Zuccala, A (2010) examined how residents and citizens of The Netherlands perceive open access to acquire preliminary insight into the role it might play in cultivating civic scientific literacy. Open access refers to scientific or scholarly research literature available on the Web to scholars and the general public in free online journals and institutional repositories.

Swan, A (2012) presented the ‘Policy Guidelines for the Development and Promotion of Open Access’ issued by UNESCO, to demystify the concept of Open Access (OA) and to provide concrete steps on putting relevant policies in place. The overall objective of the Policy Guidelines is to promote Open Access in Member States by facilitating understanding of all relevant issues related to Open Access.

Mavodza, J. (2013) highlighted the open access (OA) initiatives initiated in 2013 in the United Arab Emirates (UAE). The paper finds that the UAE open access initiatives may be the beginning of advances towards encouraging contributing to OA peer-reviewed article publication for enabling knowledge
creation. This paper reinforces many of the concepts being discussed regarding OA initiatives both in the UAE and globally.

2.3 Review of Literature at National Level:

2.3.1 Electronic Theses and Dissertations

Urs, S & Raghavan, K (2001)\textsuperscript{125} focused on the Vidyanidhi project started at the University of Mysore in India and sponsored by the National Information System for Science and Technology (NISSAT), which is emerging as a national effort to create, maintain and provide network access to digital library of Indian theses.

Vijayakumar, J & Murthy, T (2001)\textsuperscript{126} emphasized the importance of ETDs over their traditional format as they can be easily located, readily accessible and delivered over the web. They discussed the contributions of INFLIBNET towards creating digital library of ETDs and also urged that UGC as the apex body dealing with Indian Universities should release funds for launching ETD project.

Padmavathi, T., Lal, K & Mahakuteshwar, H (2005)\textsuperscript{127} discussed an initiative of CFTRI to develop a digital library of theses and dissertations using open source software — Greenstone Digital Library (GSDL). The article also mentions few Digital Library of Electronic Theses and Dissertations (ETDs) projects in USA and India and provides a brief background to the Central Food Technological Research Institute (CFTRI), the objectives of digitization, and some statistics of the digital resources available at the Institute.

Vijayakumar, J., Hosamani, H, & Murthy, T (2005)\textsuperscript{128} found that the nation lacks proper implementation of integrated system to locate and access Ph.D theses. ‘University News’ is the only available current printed listing of Ph.D theses. Still, not all university libraries have collaborated with University News or INFLIBNET to electronically deposit their Ph.D theses.
Vijayakumar, J., Murthy, T., & Khan, M (2004 & 2005) analyzed the opinions of selected Ph.D researchers and guides from selected Indian Universities funded under UGC, connected or getting connected to UGC INFONET program on Copyright and IPR issues related to ETDs. On the basis of the output, the papers suggest that Universities can start collecting e-format of theses, creating a digital archive for easy access.

Vijayakumar, J., Murthy, T. & Khan, M (2006) proposed a model digital library using DSpace for Indian universities in order to create their ETDs and provide access either on their Intranet or the Internet.

Das, A., Sen, B & Dutta, C (2007) discussed the policy frameworks, strategic dimensions and analyze SWOT of existing ETD initiatives in India. The researchers explain valuable contribution of UGC Regulations 2005 and National Knowledge Commission’s Recommendations 2005 towards open access and ETDs. The study indicates that national ETD initiatives are still in developmental phase where more action plans are needed.

Vijayakumar, J., Murthy, T. & Khan, M (2007) conducted a study to examine the opinion of librarians and research scholars regarding the use of electronic information services to support the accessibility of doctoral theses in India. It was detected through the study that majority of librarians were aware of the concept of electronic theses and dissertations (ETD), but less than half of them supported the concept of making electronic theses available online.

Francis, A., Devi, C & Razzak, C (2007) evaluated development and digitization work of ETD in Kerala Agricultural University & Indian Institute of Spices Research (IISR). The findings suggested that use of ETDs is popular among scientists and researchers.

Ghosh, M (2007) presented a report of the ETD 2007 symposium based on the main theme “Added values to e-theses” and highlight major events of the symposium held at Uppsala library, Sweden, during 13-16 June 2007. It provided
unique opportunity to all the stakeholders of ETDs to explore the collaborative agenda emerged due to the changes in scholarly communication, long-term digital preservation, ETD repository development and open access movement.

Suber, P., Nair, R & Hussain, K (2009) discussed the importance of doctoral dissertations, public fund utilized for their production and need for their open access. They describe the development of Mahatma Gandhi University (MGU) Open Access Digital Archive and how the MGU archives reveal the increasing number of production of doctorates in science and technology.

University Grants Commission, India (2009) provided guidelines for submission of electronic version of theses and dissertations by the researchers in universities with an aim to facilitate open access to Indian theses and dissertation to the academic community world-wide. As per the Regulation, the responsibility of hosting, maintaining and making the digital repository of Indian Electronic Theses and Dissertation (called 'Shodhganga'), accessible to all institutions and universities, is assigned to the INFLIBNET Centre by UGC. Till date there are 4200+ theses submitted to the database.


Swain, D (2010) explored the issue of Electronic Thesis & Dissertation (ETD) initiatives, adoption and subsequent implications from studies carried out in different parts of the world. The researcher found that in spite of production of some doctoral thesis electronically, there is no government initiative for storage and dissemination of ETD, national policies are also lacking. He also mentions that Librarians must take initiative to make progress in this crucial area.
INFLIBNET (2012)\textsuperscript{142} introduced “ShodhGangotri” wherein research scholars / research supervisors in universities are requested to deposit electronic version of approved synopsis submitted by research scholars to the universities for registering themselves for the Ph.D programme. The repository reveals the trends and directions of research being conducted in Indian universities; on the other hand it would avoid duplication of research. Synopsis in “ShodhGangotri” would later be mapped to full-text theses in "ShodhGanga". As such, once the full-text thesis is submitted for a synopsis, a link to the full-text theses would be provided from ShodhGangotri to "ShodhGanga".

Lihitkar, S.R. & Lihitkar. R.S. (2014)\textsuperscript{143} attempted to find out the institutions that are developing electronic theses and dissertations (ETDs) in India, and to compare the ETDs in India based on a predetermined parameter. In analysis and findings, a detailed report of the analysis of data collection and its subsequent interpretations are given.

\subsection{2.3.2 Institutional Repositories}

Anuradha, K (2005)\textsuperscript{144} presented the results of an effort to develop an Institutional Repository of publications of Indian Institute of Science (IISc), Bangalore. The researchers stated that the IR named ‘PRABHAVI’ helps in preserving and archiving IISc researchers locally and also provide wide accessibility and visibility to the IISc research work. The paper reports only the preliminary work which provides access to IISc research work as reported in external sources. The IR creators plan to expand its scope to include internal sources of information.

Alexander, M & Gautam, J (2006)\textsuperscript{145} highlighted the Indian initiatives in the field of institutional repositories. Out of 273 universities and institutions of higher learning in India, there are only 15 registered archives. All these archives are registered in the Institutional Archives Registry. The authors conclude that IRs are still in a formative stage in India and the government and funding agencies in
India should insist that publicly funded research be available through institutional repositories that are open to all.

Fernandez, L (2006)\textsuperscript{146} evaluated the growth and development of online research repositories in India within the broader framework of open access. Based on participant feedback a list of best practices is presented. The author expects that the study will have definite implications for the role of Canadian librarians in the promotion of Canadian research.

Patel, Y., Vijayakumar, J. & Murthy, T (2006)\textsuperscript{147} narrated the practical experiences and provide an overview of INFLIBNET’s institutional repository and dArchive-India developed for Indian academic and research community to archive their intellectual work.

Sahu, D. & Parmar, R (2006)\textsuperscript{148} discussed the status of open access in India through open access journal publishing, open access archives, open access repositories developed and open access projects going on in India.

Sutradhar, B (2006)\textsuperscript{149} described how an institutional repository (IR) was set up, using open source software, at the Indian Institute of Technology (IIT) in Kharagpur. It provided evidence on how to set up an IR and how to create different communities and, under each community, many collections, using the DSpace software. It was found that setting up an IR is very simple but its maintenance is very difficult.

Katariya, S (2007)\textsuperscript{150} discussed the concept of Intellectual Repository (IR), its need, importance, benefits, critical issues, major problems in establishment and maintenance of IR, role of librarians, intellectual society, academic and government institutions. The researcher also gives an overview of IR initiative taken in the institutions of higher learning in Indian Scenario.

Doctor, G & Ramachandran, S (2008)\textsuperscript{151} explored the creation of a pilot institutional repository at the ICFAI Business School, Ahmedabad and discussed
the results of a survey conducted to ascertain different considerations for implementing an institutional repository and the future scope. The results indicated a positive trend in usage of e-resources and Business Schools in India need promotion about usage of Institutional Repositories which will help them in digitizing research papers, conference papers for knowledge sharing and future use.

Dhiman, A & Sharma, H (2008)\textsuperscript{152} described the concept of Institutional Repositories by explaining definition and benefits of IR, most commonly used open source software for IR and they also list 21 important Institutional Repositories in India.

Mittal, R & Mahesh, G (2008)\textsuperscript{153} identified and evaluated collections within digital libraries and repositories in India available in public domain. The researchers found that DSpace is the most favorably used open source software for creation of digital repositories. It was found that due to lack of awareness and funds for creation of institutional repositories, their present situation in India is still lagging behind.

Singh, S., Pandita, N. & Dash, S (2008)\textsuperscript{154} discussed key issues in establishing and maintaining an open access repository by taking OpenMED@NIC as a case. The researchers suggest that once the repository is established, it requires spreading awareness among academic and scientific community about various benefits of open access self-archiving.

Ghosh, M (2009)\textsuperscript{155} examined the developments in ETD repositories, in particular PhD thesis repositories, in India. The purpose is to perform a preliminary study and explore the possibilities for creating a national repository for the deposit, discovery, use and long-term care of research theses in an open access environment. The survey revealed that digital preservation of theses and dissertations is already in progress, though some of them are still in a preliminary stage.
Lihitkar, S., Lihitkar, R & Agashe, A (2009) studied the Indian scenario in developing the institutional repositories. Total 33 institutional repositories were identified which were analyzed on criteria like software used, size of the items, contents included, languages, description and country. Findings suggested that DSpace and EPrints are commonly used open source software for institutional repositories. IGNOU posted the maximum number of items and Science and Technology items are maximum in India.

Sawant, S (2009) studied the Indian efforts towards open access movement with special reference to institutional repositories. She examined institutional repositories developed in India from two perspectives: IR Development and Management and Users of institutions having IR.

Wani, Z., Gul, S & Rah, J (2009) overviewed the development of open access repositories registered with OpenDOAR database. The researchers study the OARs in terms of country, subjects archived, language diversity, operational status, software used and various types of OARs. The study also emphasizes into the Asian contribution and brings into light detailed profile of Asia.

Gopakumar, V and Baradol, A (2010) discussed the changes that open access and institutional repositories have brought in the scholarly publishing scenario at the international level and their impact on libraries and librarianship.

Gutam, S., Mishra, A., Pandey, P. & Hariharan, C (2010) discussed the growth of open access repositories in the country. The data collected from the Registry of Open Access Repositories (ROAR) and Internet suggests that there is a remarkable growth of open access repositories since 2004 after taking call from Budapest Open Access Initiative and Berlin declaration. They identified 68 open access repositories from India, out of which 11, were listed in the top 800 repositories of the web of world repositories. The researchers concluded that even in the absence of any national open access policy, the institutions, academies and scholars have contributed to the open access movement in India.
Kumar, V and Chitra, S (2010) discussed Open Content Licences (OCL) in the digital content distribution. Some popular OCL are also mentioned. The paper concludes mentioning that more business models should be introduced for open content distribution to attract more content development.

Thaker, U & Oza, N (2010) described Institutional Repository as an indispensable tool for knowledge management process. The researchers re-established Dr.S.R.Ranganathan’s philosophy of knowledge generation, evaluation and utilization especially of nascent micro thoughts and its mechanisms in contemporary digital arena.

Beena, C & Archana, N (2011) described the real time experience of managing and sharing of intellectual wealth of academia of Cochin University of Science & Technology (CUSAT) by using open source platforms. The researchers explore different intellectual information resources in the current era and also aim to suggest cost effective strategy of implementing new open access tools and technology for effective managing of intellectual informatics.

Mukherjee, B and Nazim, M (2011) analyzed the present trend of institutional archives worldwide. The factual data of each individual repository was collected from various Directories of Institutional Repositories using survey method. Data was analyzed in terms of quantity of institutional archives increased during 2006 to 2010, country-wise contents of institutional archives, host domains, and policy of institutional archives. The results of the study suggest health growth in terms of quantity of institutional archives’ increase worldwide. The researcher also found that the development is more prevalent in developed countries than in developing countries.

Krishnamurthy, M & Kemparaju, T (2011) studied the Institutional Repositories (IRs) in use in Indian Universities and research institutes. The twenty repositories studied covered collections of diverse types. The researchers found that in spite of presence of various elite institutions in India, the growth of
institutional repositories in Indian Universities has not been of the desired level, the institutions lack expertise and resources required to set up IRs.

Kumar, S, Singh, S & Karisiddappa, C.R. (2011) identified two major roles of institutional repositories. The first role is of 'a catalyst' since it helps in reforming scholarly communication and second one is 'enhancing visibility of research and prestige of the organization by preserving the intellectual resources of the institutes.' The authors have an attempt to explore institutional repositories from these two major perspectives and to study the various roles played by the stakeholders in reforming scholarly communication process.

Sawant, S (2011) studied various issues concerning the institutional repository software involved in development of IRs in India. The research findings showed that 79% of IRs used DSpace Software. End-user interface was found to be the top ranking IR system feature. She also found that in India many institutions conduct workshops to train library professionals and non-professionals to develop IR using DSpace.

Bhat, M.H. (2014) explored various types of research materials in Indian institutional repositories. The study revealed that barring a few repositories the collections of most of the repositories are very low. The percentage of archived materials is high for journal papers, and moderate for conference papers/thesis. However findings also show that percentage of archiving is very low for preprints/working papers, teaching resources and patents.

2.3.3 Open Access

Koganuramath, M & Angadi, M (2003) presented the functional components of the Tata Institute of Social Sciences (TISS) Digital Library have been presented as a model for the information services of the library. The digitisation activities and procedures are also discussed.
Rajashekhar, T (2004) discussed two components of open access publishing in Indian context. The first focuses on the relevance of open access publishing in developing countries, the potential for open access publishing in India and a few current open access initiatives in India. The second component proposes a possible technical model to organise open access publishing in India.

Chandra, H (2005) discussed the importance, objectives and major developments in open access initiative. He further examined the specific use of digital information services including the digital reference service mentioning that there is a strong need in our country to understand and implement the Open Access Initiative. The researcher also highlights various steps taken regarding developing open access system at the Central Library of IIT Madras.

Das, A., Sen, B & Dutta, C (2005) explored the digital libraries projects and initiatives in India that can be helpful to the distant and open learners.

Kumari, L (2005) outlined international efforts of strong research and development base in both the governmental and private sectors in all areas of science and technology with a special focus on Indian Universities. The researcher found that in India there is a wide gap in urban and rural attitude. Also, efforts of open archives and open access initiatives have to be consolidated and have a long way to go.

Ghosh, S & Das, A (2006) provided information about the present state of open access literature by various Indian institutions. The study is conducted by bifurcating the open access initiative according to Institutional Repositories, Open access journals, Metadata Harvesting Services and Open Courseware. The results indicated that providing global access to local research is a challenge in India. Also, the usage statistics of some repositories show that the researchers of developed nations are accessing the Indian literature available in the open access journals and archives.
Hirwade, M & Hirwade, A (2006)\textsuperscript{175} described metadata. Open Access Initiative Protocol for Metadata Harvesting (OAI-PMH) and major Metadata Harvesting services in India.

Hirwade, M & Mahajan, K (2006)\textsuperscript{176} studied creation and maintenance of E-LIS, a famous international disciplinary archive in Library & Information Science, was studied. The study also included content analysis of E-LIS. Majority of information is created in digital form. Using metadata to record data about information sources allows an initial assessment of compatibility and provides an avenue for exchanging information between systems.

Hirwade, M & Rajyalakshmi, D (2006)\textsuperscript{177} outlined the features of open access, open access journals and open access archives. Few open access initiatives are described in detail. The researchers found that national level efforts are essential to promote and co-ordinate open access publishing systems. Research councils like CSIR & UGC should take initiatives towards self-archiving of results of all research.

Workshop on Open Access and Electronic Publishing, Bangalore (2006)\textsuperscript{178} brought together policy makers and research scientists from major developing countries to frame National Open Access Policy for Developing Countries on the lines of BOAI and other world conventions on open access.

Arunachalam, S (2008)\textsuperscript{179} discussed two ways of achieving open access (OA) and argues that sharing knowledge and building partnerships have been recognized as the best and most optimal means of creating and benefiting from knowledge. It focuses on various fronts where OA is making good progress, and also deliberates on issues like OA endeavors in India, OA and sustainable development and what needs to be done in India to promote OA activities.

Lone, F., Rather, R and Shah, G (2008)\textsuperscript{180} evaluated the initiatives taken by India to make the intellectual output accessible for all by publishing them in Open Access resources and by archiving them in open access archives or repositories.
The results revealed that India is continuously contributing in Open Access literature as some of the premier institutions, particularly in the science and technology area, are providing Open Access to their research publications. The position of India in terms of number of journals in the Directory of Open Access Journals (DOAJ) is 7th, well ahead of countries such as China, Australia, and Japan and is sharing 10th position with the Sweden and Spain in Directory of Open Access Repositories (OpenDOAR) in terms of number of repositories in the world.

Sathyanarayana, N (2008) highlighted Open Access Initiative (OAI), its formal origin at the Budapest meeting which was organized by the Open Society Institute, and its aims to make published scholarly content freely available on the Web with an intent that the Web would make it easy to access. It also discusses the J-Gate and Open J-Gate open access databases and their salient features.

Swan, A (2008) focused on how open access can help resolve the problems of maximizing the visibility, and thus the uptake and use, of Indian research outputs. The mechanisms to provide open access to scholarly communications, impediments to Open Access in India, and how self-archiving can provide a boost to open access movement has been highlighted in this document. The author argues that it is important to emphasize that only mandatory policies work well.

Sawant, S (2009) gathered data related to open access journal initiatives in India with respect to its type, funding agency/host organization, full text availability, article charges etc. Results show that all 178 open access journals were peer reviewed, indexed and abstracted in various indexing and abstracting services, listed with DOAR and Open J-Gate.

Senthilkumar, R & Krishnamoorthy, E (2009) mentioned open access system as one of the best practices to be implemented in library and information centre especially in college and university libraries. The authors believe that implementation of open access system enables users to use the library without any hesitation and with full liberty.
Bhat, M (2010) discussed open access repositories from aspects like Open Access advocacy, apprehensions about Open Access policies, case studies throughout the world regarding implementation and development of IRs, copyright and preservation issues about open access.

Chakraborty, S (2010) stated various advantages of open access by listing major open access publishers in India and at international level. She also analyzed Directory of Open Access Journals (DOAJ).

Ghosh, M (2011) reviewed some of the current literature and discusses some ways to advocate for open access (OA) programs adopted by libraries in various institutions. This overview provides a list of relevant literature in the area of library advocacy, with regard to the on-going needs of OA repositories. The article also includes a note on Open Access Initiatives in India.

Singh, D & Ramesh (2011) identified Open Access Scholarly resources worldwide and also delineates their services. The paper is useful to both scientific community and LIS professionals to reap benefits from the vast open access resources.

Mishra, S (2012) described the scholarly communication process and the history and developments of scholarly publishing with special reference to journal publishing. The author recommends adoption of open access to scientific information and research, open peer review, open educational resources and social media in the scholarly communication process which will help not only increase access to scholarly information, but also increase communication amongst scholars and students.

Hemantha Kumar, G (2012) and others evaluated the initiatives taken by India to make intellectual output accessible for all by publishing them in open access resources like open access journals and repositories. The results revealed that India is continuously contributing in open access literature as some of the premier institutions, particularly in the agriculture sciences. The position of India in terms
of number of journals in the Directory of Open Access Journals (DOAJ) is 5th and in Directory of Open Access Repositories (OpenDOAR) India has 11th place in the world repository.

Sahu, S.K. & Arya, S.K. (2013) analyzed the awareness of open access publishing among researchers and faculty members of Indian institutions, and to evaluate the development of open access initiatives in India. The results showed that India's contribution has increased in the last few years. It was found that the awareness about such open access information sources and initiatives among the research community is increasing.

Sawant, S. (2013) compiled open access resources in library and information science (LIS) and their usefulness in the LIS teaching and learning process. The paper is the first study to report various forms of open access literature in library science subject area.

2.4 Summary

The present chapter discusses the literature available in various forms on electronic theses and dissertations, open access, institutional repositories and its related concepts. Variety of print and non-print sources of information, databases, journals, conference proceedings etc are accessed in order to get clear idea of concepts embedded in the ETD Program and the major initiatives in the field of ETD which led to their growth and development in worldwide manner.

The major trend observed in the international literature emphasized on importance of ETDs in academic libraries, world wide open access initiatives, overview of country specific ETD Projects, copyright and preservation issues related to ETDs, selection of software and Policy Guidelines framed by international organizations.

Trend observed in ETD literature published in India highlight on contribution of UGC, NKC and INFLIBNET towards Open Access and ETDs, selection of
software, copyright and IPR issues, developments in open access initiative in India and development of ETD projects in various institutions across India.

Literature Search is a continuous process, since almost every day new information is being published or put on the Internet giving nascent piece of information on ETD/Open Access/Institutional Repositories.

The next chapter overviews Open Access Repositories by presenting its historical background, benefits, types, national and international policy guidelines framed, open source software packages and copyright issues.
References:


