

**DESIGN AND DEVELOPMENT OF AN INSTITUTIONAL  
REPOSITORY ON EDUCATIONAL RESEARCH AND  
TRAINING WITH REFERENCE TO NIE (NCERT), NEW  
DELHI: A CONCEPTUAL MODEL**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY**

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**MZU REGISTRATION NO. : 4971 of 2011**

**Ph.D. REGISTRATION NO.:**

**MZU/Ph.D./1430 OF 24.07.2019**



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**JUNE 2023**

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DELHI: A CONCEPTUAL MODEL**

**BY**

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**Submitted**

**In partial fulfilment of the requirement of the degree of Doctor  
of Philosophy in Library and Information Science of Mizoram  
University, Aizawl**

## **CERTIFICATE**

This is to certify that the thesis entitled “**DESIGN AND DEVELOPMENT OF AN INSTITUTIONAL REPOSITORY ON EDUCATIONAL RESEARCH AND TRAINING WITH REFERENCE TO NIE (NCERT), NEW DELHI: A CONCEPTUAL MODEL**” submitted by **Deepak Kumar Kapoor** for the award of the Degree of Doctor of Philosophy in Library and Information Science in carried out under my supervision and incorporates the students bona-fide research and this has not been submitted for award of any degree in this or any other university or institute of learning.

Place: Aizawl, Mizoram

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**Month: June**

**Year: 2023**

**DECLARATION**

I, **Deepak Kumar Kapoor**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Mizoram University for the degree of Doctor of Philosophy in Library and Information Science.

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## ACKNOWLEDGEMENT

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I could not have completed this thesis without the support of a number of people who deserve special recognition for their assistance. First, I would like to express my sincere gratitude and deep sense of gratefulness to my supervisor Prof. Pravakar Rath, Head and Senior Professor, Department of Library and Information Science, Mizoram University for his sincere guidance and encouragement he had offered to me for the successful completion of my research work.

I would like to express my deepest appreciation to all the faculties and staffs of the department for their support, aspiration and useful suggestions for this work. Also , I am thankful to my fellow research scholars for their support, cooperation and friendship which helped a lot in my research work.

I would like to acknowledge the cooperation of my fellow Library Professionals who are working in various Colleges/Institutes, faculty of NCERT, New Delhi who provided the required data for this research. I extend my gratefulness to the Dr. (Mrs.) Moorttimee Samantrai, Dy. Librarian, LDD, NCERT, New Delhi, and to all my colleagues for their support and understanding.

Very special thanks to my daughter Miss Deveshi Kapoor for their understanding, patience and unwavering belief in me. I deeply appreciate the relentless support, encouragement, love and patience of my family who are always there for me and who always encourage me. They have always been a source of love and aspiration for me.

Lastly, I express my heartfelt thanks, deep appreciation and sincere gratitude to my beloved wife, Dr. Mamta Kapoor for her tolerance, patience, support, and assistance, and who always put her trust on me, supported my educational endeavours and encourage me to focus on my research. Without his support, it would have been impossible to complete my research.

Above all, I am thankful to the Almighty God who blessed me with a good health and strength, and gave me all the people who love me and support me in successfully carrying out my research work.

(DEEPAK KUMAR KAPOOR)

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## ABBREVIATIONS AND ACRONYMS

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Abbreviation	Description
ACRL	Association of College and Research Libraries
AICTE	All India Council of Technical Education
DOAR	Directory of Open Access Repository
ICT	Information and Communication Technology
IR	Institutional Repository
MHRD	Ministry of Human Resource and Development
NAAC	National Initiative for School Heads' and Teachers' Holistic Advancement
NCERT	National Council of Educational Research and Training
NE-RIE	North-East Regional Institute of Education
NIE	National Institute of Education
NISHTA	National Initiative for School Heads' and Teachers' Holistic Advancement
NPE	National Policy on Education
NPEP	National Population Education Project
OPAC	On-line Public Access Catalogue
POA	Plan of Action
PSSCIVE	Pandit Sunderlal Sharma Central Institute of Vocational Education
RIE	Regional Institute of Education
SSA	Serve Shiksha Abhiyan
UGC	University Grants Commission
UNDP	United Nations Development Programme
Unesco	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Funds

# Chapter 1

## Introduction

## **1.1 Introduction**

Advent of ICTs applications in libraries have brought immense changes having a great impact on library and information services. There is an increase in the volume of intellectual output which are available peer-reviewed journals. But increase in the cost of these journals is limiting the access to scholarly publication. Due to the limited funds, institutions are not able to access all available research work. As institutions adopt the policy to preserve the intellectual output, then library need to be preserved and communicate the output to be visible globally, the need to make them available and usable to all the users have led to the concept of institutional repositories. The need of IR is required to reform of scholarly communication process. Institutional repositories have an option to preserve collection in digitised format and provide access to the intellectual output of an institution visible globally. Important key factor for the growth of IR, is the application of technology and the availability of OSS for implementation of IR. Now a days an IR have become a global tool in promoting intellectual output and visibility of its parent institutions to all its fraternity and contributes to open access initiative.

## **1.2 Concept of Institutional Repository (IR)**

“An institutional repository is an organisation based set of services which the organisation offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members.” By Lynch (2003)

According to the UNESCO’s Charter (2003) states that “the purpose of preserving the digital heritage is to ensure that it remains accessible to the public. Accordingly, access to digital heritage materials, especially those in the public domain, should be free of unreasonable restrictions. At the same time, sensitive and personal information should be protected from any form of intrusion”.

(<http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/images/GOAP/215863e.pdf>)

## **1.3 About NCERT**

The National Council of Educational Research and Training (NCERT) was formed

under the Societies Registration Act (Act XXI of 1860) in 1961. The registered office of the Council is situated at the Headquarters in New Delhi. It is an apex resource organisation set up by the Ministry of Education (Formerly known as Ministry of HUMAN RESOURCE DEVELOPMENT), Government of India, to assist and advise the Central and State Governments on academic matters such as formulation and implementation of their policies and major programmes in the field of school education. The council is fully financed by the Govt. of India.

In realising its objectives, the NCERT and its constituent units to-

- a) Conduct research on school education.
- b) Organise pre-service and in-service training of teachers.
- c) Organize extension services to educational institutions.
- d) Improve educational practices and innovations.
- e) Collaborate, advise and assist educational institutions.
- f) Act as a clearing-house for ideas and information in all matters relating to school education.
- g) Prepare and publish literature to achieve objectives.
- h) Universalization of elementary education achieved through collective action.
- i) Conduct National level surveys for planning and monitoring purposes.

In addition to the above, NCERT works to promote cultural exchange programmes and international collaboration, providing training to educational personnel from developing countries.

The constituent units of the NCERT are:

- 1) National Institute of Education (NIE), New Delhi.
- 2) Central Institute of Educational Technology (CIET), New Delhi.
- 3) Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal.
- 4) Regional Institute of Education (RIE), Ajmer.
- 5) Regional Institute of Education (RIE), Bhopal.

- 6) Regional Institute of Education (RIE), Bhubaneswar.
- 7) Regional Institute of Education (RIE), Mysore.
- 8) North-East Regional Institute of Education (NE-RIE), Shillong.

#### **1.4 National Institute of Education (NIE)**

The NIE in New Delhi carries out research and development activities related to

- pedagogical aspects of curriculum;
- prepares prototype curricular and supplementary materials;
- develops school education related database; and
- Developing learners holistically through experimentation.

IT also provides in-service training for key resource persons and teacher educators to implement centrally sponsored school improvement schemes.

Following is the list of departments of NIE, which function in their respective fields as is evident from their names.

- Department of Elementary Education (DEE)
- Department of Education of Groups with Special Needs (DEGSN)
- Department of Gender Studies (DGS) (formerly known as DWS)
- Department of Education in Science & Mathematics (DESM)
- Division of Educational Kit (DEK)
- Department of Teacher Education (DTE)
- Department of Social Sciences (DESS)
- Department of Education in Arts and Aesthetics (DEAA)
- Department of Education in Language (DEL)
- RMSA Project Cell
- Department of Educational Psychology & Foundations of Education (DEPFE)
- Educational Survey Division (ESD)
- Department of Educational Research (DER)
- Publication Department (PD)
- Department of Curriculum Studies (DCS)
- Planning, Monitoring Division (PMD)



- International Relations Division (IRD)
- Library, and Documentation Division (LDD)

### 1.5 Scope and Significance of the Study

The present research problem on design and developing of an institutional repository for National Institute of Education, New Delhi is limited to research publications of the total number of 89 faculty members. These research publications includes journal articles, conference paper, research and reference books, chapters in the books, major and minor research project etc. besides there are good number of reports relating to development training and extension programmes covering school education. Designing an IRs for National Institute of education shall allow the faculty members, research scholars and teachers educators to develop their academic and research competencies in accessing large number of scholarly publications.

#### **Faculty publications and Research of NIE during last three years (2018-19, 2019-20, 2020-21)**

Sl.No.	Department	Professor	Associate Professor	Assistant Professor	Total
1	DEE	31		23	54
2	DTE	24	-	21	45
3	DESS	38	6	7	51
4	DEL	6	1	-	7
5	DGS	11	-	-	11
6	DESM	14	-	-	14
7	DER	-	-	-	-
8	PMD	-	12	-	12
9	IRD	6	-	2	8
10	DEPFE	3	-	-	3
11	ESD	5	-	17	22
12	LDD	-	10	2	12
13	DEGSN	21	6	3	30
14	RMSA	6	-	1	7
15	DCS	6	10	-	16
16	Curriculum Group	5	2	-	7

				Total	249
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(Above data updated as per year 2022)

Note: Above table 1.1 describes the scholarly publications of 108 faculty members (Professor, Associate Professor, Deputy Librarian, Assistant Professor and Assistant Librarian) attached to National Institute of Education, New Delhi. Besides there are 296 major and minor research project's dealing with to development training and extension programmes which comes broadly under school education for the last three years.

## 1.6 Statement of the Problem

Institutional repositories in many research and development, educational institutions have assumed great importance in developing repository of scholarly publications in different discipline. Since NIE is specialised in school education at national level there is no such repository is available at present. This is the reason which has prompted and motivated the research scholar to take up this research problem.

## 1.7 Review of Literature

Husna Jabeen & N.S. Harinarayan (2023) attempted to investigate evidence that calf-path exists in file naming among the institutional repositories in India. In this study showed that no standard followed to assign the file naming, except by the NDLI and the CSIR-NISCPR. In this study suggested that digital repository managers have to give more attention to name files in the institutional repository in the interest of uniformity and consistency.

Mercy Ama Asafu-Adjaye & Esther White (2023), explores the serviced provided by the Librarian to the faculty members with the support of ICT available within the Colleges at the University of Ghana, only the Online Public Access Catalogue (OPAC) was access to utilised for research whereas Selective Dissemination of Information (SDI) by academic librarians to faculty, news alerts, and lists of new arrivals were the least utilized services. Through interviews with academic librarians in this study, the following research support services were revealed: article request

services.

A.C. Butterfield, Q. Galbraith, & M.K. Martin (2022), stated in this article that in the Institutional Repository contain higher percentage of the contributors material is highly successful. Creation of method enables to upload materials with minimum efforts and maximum level to upload, with the help of students' worker and the resources of the administrator of the institutional repository to upload the material with the help of the students paid the remuneration from the project. A successful IR makes faculty publications significantly more available to readers; scholars are able to move directly to the faculty to request copies of their works.

Pearl Joan Korkuvi, Stephen, Budu & Samuel Owusu-Ansah (2022), in this article researcher focuses on the awareness of institutional repository, and visibility output of the higher education institutions in Ghana. Researcher conduct the research on one hundred and fifty librarians. By the use of questionnaire data were collected and results were generated using descriptive statistics. A model 'mediated archiving' is most relied by the universities of Ghana during uploads of research output than self-archiving approach. Strategies to promote IR for its intended benefits include mandating academics and students to deposit intellectual content, linking publication metrics to academic promotions and aggressively enhancing awareness of the IR.

B. S. Padval1 & Yogesh B. Thakare (2022) it is clear in this article that the idea of the institutional repository is a very powerful that make changes for institutions, and more broadly for the scholarly enterprises that they support. Institutional repository make available the scholarly material to the users for better communication among them. It helped to perseverating intellectual output to disseminating the digital resources of the intellectual output of an institution and influenced on the users and satisfying scholarly communication needs. In this article authors gave the basic information of the top three institutional repositories available for open access in the world.

Manish Kumar & Bheem Kumar (2022), conduct a study of IIT, Ropar and Mandi regarding institutional repository. In this study researcher found out that institutional

repositories are essential for academic and research purposes, researcher emphasise that most students of the institutions only know about the library's documents and paid databases. Suggestion given by the researcher is to improve the use of institutional repository resources, library should conduct orientation program to aware their users about Institutional Repository time to time for widely use.

Hustor Jamei... [et.al] (2022). in this study researcher mentioned that open educational resources improve the student learning outcomes, OER support the multiple modalities of instruction. The role of the institutional repositories created collaboratively between faculty, researcher, and student. This study seeks to provide a framework of a model for institutions to adopt in using their open-institutional repositories to support broader OER adoption and use across institutions. Study Provide a framework to raising awareness among the faculty and the scholars after getting the data of the survey, for the benefits for students, and in supporting programs via library services.

Talea Anderson, Chelsea Leachman (2020), The study explores the use of institutional repositories providing access to researchers and scholars. Researcher developed policies and practices for the use of repository managers. Developed five suggestion for the librarian to developed institutional repository effectively creation of policies and allocation of library resources.

Tripathi, D.P., Gunjal, Bhojaraju, and Pradhan, D.K. (2017) studied the every software fulfil the requirement of IR and ETD, But DSpace, Greenstone and EPrints are more popular and has flexibility and easy to use.

Kuriakose, Joshy (2016) described in his research topic mentioned the role of the institutional repository in library and information centre, especially in research institutions. Emphasise the selection of software of IRs are DSpace and EPrints are very accepted among the open source institutional repository.

Thorat, S.V. (2015) developed the model for university libraries in the topic, in this research topic researcher developed the conceptual model of IR and selection of software is DSpace for uploading the data.

Yasmeen Shorish (2015) stated as the answered against the question “Which software would you advise for an Institutional Repository” raised by Chiedza Munikwa that Greenstone is better than DSpace in terms of programming knowledge and fast installation.

Sk. Mamun Mostofa, Bilkis Begum, Muhammad Mezbah-ul-Islam (2015) mentions in the article, that the first online repository was established in 1999 on theoretical physics, and known as arXiv (pronounced archive). Since the establishment of arXiv the concept has been expanded to the other areas also which eventually led to Open Archive Initiative in 1999. In 2001 the first Open source software named EPrints came into existence and since then the other types of software have emerged.

Jean Gabriel Bankier and Kenneth Gleason (2014) in UNESCO’s report on OSS software for repository, a comparison among the widely used Open Access Institutional Repository Softwares intending to help LIS Professional to maintain IR at their organisations.

M. G. Sreekumar (2012) in his article has expressed his concern about the digital repository technology as one of the popular e-resource management technologies. He recommended a number of Open access IR software e.g. DSpace, Eprints, Fedora, Greenstone etc. for building a digital repository.

Bijan Kr Roy, Parthasarathi Mukhopadhyay, and Subal Chandra Biswas (2012) pointed out the importance in the article that various reasons are given to popularity of IR in India due to lack of budget of the library; subscription price is getting high day by day for scholarly publication, restricted access. IR is widely accepted by the researcher and the faculty for institutional visibility globally, also having accessibility in the world of web very easy.

Cassella Maria & Morando Maddalena (2012) describes the article written by the new role of Librarian as repository manager with special reference to Italy. The survey findings show that the repository managers are to be competent enough to perform this new role.

Miriam A. Drake (2012) mentioned that in his article can be considered as the most innovative and creative representation of Library and Information Centre of any research, or academic institute shares its digital output of the faculty. This is a reason new dimension, and policy empowered the institute to developed repository.

N. Ashok Kumar (2012) in the research “Institutional Repositories in India” focused on the movements and future prospect of IRs in India. He clearly explained why IR is a platform to enhance higher education in the institutes.

Manjunatha, K and K. Thandavamoorthy (2011) equally carried out a study on researchers’ attitude towards depositing in institutional repositories of universities in Karnataka by found out in the study that most of the researchers does not wants to contribute his work to upload in the IR, due to lack of knowledge about the IR, they said other researchers will copy their work.

Bijan Kumar Roy, Parthasarathi Mukhopadhyay and Subal Chandra Biswas (2011) in the article “An Analytical Study of Institutional Digital Repositories in India” stated findings of surveyed 60 repositories from DOAR and ROAR. The survey represented the yearly growth rate of Indian repositories. The study highlights the statistics of objects, contents, type of objects, software and many other factors related to the Digital Institutional repository. The authors pointed out some of the recent initiatives taken by government in implementing the University level Institutional repositories.

Kevin Smith & David R. Hansen (2010) stated in the article that due to lack of knowledge researchers wants to check the agreements whether or not he is permitted to use his contents in future or not. The scholarly works may become imperative for someone to reuse for academic purposes without asking permission from the publishers. Regardless of the types of the usage authors should therefore be careful before signing for contract that the ability to create derivative works is not hindered.

Fang Wang (2010) describes his own experience in building institutional repository in a small Law library. He very thoroughly explained step by step process of establishing an IR. He mentioned about Open source and proprietary IR softwares.

The article can be considered as a guide book for building an IR in small funded libraries.

Mike Beazley (2010) in the article “Eprints Institutional Repository Software: A Review” discussed about setting up an IR using EPrints software. He thoroughly discussed about the installation and configuration of the software.

Chris Armbruster and Laurent Romary (2009) in their research paper have emphasized on various types of repositories. In conclusion the authors suggest that a path breaking change is needed in collaboration, usage and the access of institutional repositories.

Stuart Basefsky (2009) studied pointed out that institution does not have knowledge of copyright act, most of the institute share their e-prints into an institutional repository to enhance and stimulate study. The details of this process were much more complex than this description reveals. Copyright issues, institutional branding, peer review, faculty compliance and other challenges made the implementation difficult and costly.

P. Jain, G. Bentley & M.T Oladiran (2009) viewed that “The Role of Institutional Repository in Digital Scholarly Communications” that the Institutional repositories are the benchmark of digital scholarship. The IRs have increasingly become the essential part of an university’s scholarly dissemination in the age of digital publishing.

Lisa Spiro (2009) in the article “Selection Criteria: Criteria for Choosing Archival Software” explained various criteria for selecting archival software while managing an archive.

S. Shashi Nath, Sridhara B., C.M. Joshi and Puneet Kumar (2008) pointed out the implications of copyright in the context of populating IR in their paper. On the way of IR the biggest hurdle is copyright issues, publishers may not be allow the author for self-archiving.

Sanjeev Kumar Jain (2008) mentioned in the article to motivate the researcher to

self-archive their work and upload in the web. Researcher can access their publications via repositories. In this he describes the conceptual development of institutional repositories in India.

Aaron Lercher (2008) equally carried out a study, is describes various methodologies adopted to study attitudes of the faculties and users towards the use, submission and searching patterns in the IR of LSU. In the survey they used questionnaire asking questions about the repository, ask the questions to the respondents to submit work in repository, and respondent attitude on different ways of searching for other' work in their fields.

Nicole Carpenter (2008) notes in her article “Tune It Up; Creating and Maintaining the Institutional Repository Revolution” that creators should to be informed on concerning repositories including supporting entities, software information, peer-review advocacy, awareness and maintenance costs. The author suggests there is a prevalent need for additional literature on mature repositories and how these repositories interact with scholarly communication.

Pietro Gozetti (2006) pointed out the importance of a wide knowledge about the IR system in his article “Institutional Repositories in scholarly communication: A literature review on models, issues and current trends”. He very methodically explored the theoretical and practical aspects of IRs and how they are supposed to change the current publishing models with the challenges to publishers.

Richard Jones (2006) attempted to investigate the origin and several aspect of IR in his article Institutional repository” to expose the scope of institutional repository in digital library landscape, how and when the concept came into existence among the scholars. Survey was conducted among the faculty, asking them about the repository and its usefulness for their needs of scholarly communication system and its extension to digital repositories.

Charles Bailey (2005) stated in the article “The Role of Reference Librarians in Institutional Repositories” that reference librarian can play a significant role over all in managing an IR starting from planning to implementation and therefore, suggested



some responsibilities for reference librarians.

Richard. K. Johnson (2002) in his article “Institutional Repositories” highlights the benefits for authors delivered by IRs. Emphasis that IRs can provide a platform to publish scholarly contents worldwide openly.

Gupta, Sangita...[et.al] pointed out the importance of IR in his article “E-Theses in institutional repositories: an overview of Asian countries” reveals that the e-Theses IRs are becoming popular in the academic sector for its potential of sharing knowledge. An institutional repository can acts as a powerful platform for collecting, organising, sharing and long term preservation of research output of universities.

Kamila, Kanchan discussed about the concept of IR and its relevance in “Institutional repository projects in India” in her article stated that the knowledge of open source software and its installation procedure, use of software, uploading the database with the help of digital camera, scanner, internet, web hosting etc., help you to carry out the Digital Library Project help out the internal and external user community.

Patel, Dimple stated in her article “Data repositories in India: a study” pointed out the areas in which improvements need to be brought about in order to make the repositories more effective, efficient and user-friendly. Creation and generation of research datasets involve a huge amount of human effort, time, infrastructure and finance.

Dabholkar, Rekha, Prabakaran, R. And Kurahatti, B.T. mentioned the initiative of TIFR in “Building an institutional repository: a TIFR initiative” pointed out that IR has twin objectives, first it server as a digital archive of the total research output created by the academic community of an institute, second it makes freely accessible over the internet this intellectual output to all those who are interested in it, thereby promoting the knowledge development.

## **1.8 Objectives**

The research problem aims to achieve specific goals.

1. Understand the necessity and importance of Institutional Repository in academic and research institutions.
2. Identify research publications and scholarly content available in NIE.
3. Design and develop a model of IR for NIE for its global access and visibility of the institutions.
4. Address technological and legal issues associated with for the greater interest of NIE faculty members.

## **1.9 Research Design**

While conducting the research the following methodologies adopted to collect necessary data pertaining to the topic.

### **1.10 Data Collection Technique**

The scholar has designed a structured questionnaire in Google form, circulated to the 89 academia of NIE. But due to extremely poor response, the scholar decided to include Programme Advisory Committee (PAC) and Programme Advisory Board (PAB) programmes which are considered as research activities of NIE are explained below:

1. Capacity Building Programme;
2. Development Activities;
3. Extension Activities;
4. Major Publications
5. Major Schemes of Ministry of Education- co-ordinated by NCERT;
6. Research Studies;
7. Faculty Publications: Articles, Books, Chapters in Book, Paper Presentation, Miscellaneous;

to design and develop an appropriate IR model.

### **1.11 Case Study Method**

**IR of different university's Software, & Features,**

This study used comparative case study analysed to investigate the development of the Institutional Repository. Comparative case study analysed and highlighted the similarities and differences between cases. The Scholar has studied the websites having institutional repositories namely Delhi University, Jawaharlal Nehru University, IGNOU, IIT, Delhi.

#### **1.12 Interview Method**

Personal interview method has been adopted by the researcher to know the real life situation prevailing in the institutional repositories developed by other institutions. The personal interaction of the scholar with the library staff, project coordinator and academia of both inside and outside NIE has experienced various academic, management, technological and legal issues related to the development and maintenance of the institutional repositories, which was helpful for the scholar to design and develop appropriate Institutional Repository for NIE, New Delhi.

#### **1.13 Data Analysis and Interpretation**

After evaluation of digital library software having the facility of Institutional Repository, the scholar has selected the most popular software i.e. D-Space and created an institutional repository of the selected scholarly content of NIE. As stated before different activities of faculty members as mandated in NIE were taken into consideration. The data pertaining to their activities were taken from Annual Reports of NCERT.

#### **1.14 Research Gap**

After reviewing the relevant literature, it is observed that many studies have been undertaken on Institutional Repository and being operational in universities and other research institutions, no research publication is available on design and development of institutional repository on school and teacher education. The present study and research output in the form of publication comes out of this study shall fill up the gap.

#### **1.15 Chapterisation**

Chapter 1      Introduction: Discussed about the concept of IR, scope and

	significance of this study, objectives research design and review of literature
Chapter 2	NCERT and NIE: Describe an overview of NCERT and its various constituents including NIE.
Chapter 3	Research Publications and Scholarly Content in National Institute of Education (NIE): Explained various publications of NIE which are research oriented in nature.
Chapter 4	Digital Library and Institutional Repository Software: Explained the importance of digital library and IR keeping in view the users access and variety of content.
Chapter 5	Design and Development of an IR model for National Institute of Education (NIE): Presented a conceptual model of IR based on DSpace to create an IR in School Education in which NIE is known for various research publications
Chapter 6	Suggestions and Conclusion: Presented various constructive suggestions so as to improve the technological infrastructure capacity building and support from authority to develop an IR for NIE. The present work also concluded with utmost importance to IR which has global visibility and perception of NIE.

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## Chapter 2

### NCERT and NIE: An Overview

## **2.1 National Council of Educational Research and Training (NCERT): An Overview**

In accordance with the Societies Registration Act (Act XXI of 1860), the National Council of Educational Research and Training (NCERT) was established in September 1<sup>st</sup> 1961. The Council's headquarters in New Delhi serve as its registered office. The Ministry of Education (Formerly known as Human Resource Development of the Government of India established this top-tier resource agency to help and advise the Central and State Governments on academic topics, such as the formation and execution of their policies and significant programmes in the area of school education. The Council is fully funded by Government of India.

The NCERT and its component units to:

- a) conduct, support, promote, and coordinate research on topics relating to school education in order to achieve its objectives.
- b) plan teacher pre-service and in-service training.
- c) arrange for extension services to be provided to organisations that do educational research, train teachers, or offer extension services to educational institutions.
- d) create and spread improved educational strategies, innovations, and practises.
- e) work together, offer advice, and support to universities, other educational institutions, and state departments of education.
- f) serve as a clearinghouse for concepts and data regarding all aspects of school education.

To further its goals,

- g) prepare and/or publish books, materials, magazines, and other works of literature.
- h) serve as a nodal organisation for attaining the goals of making elementary education universal.

In addition to the aforementioned tasks, the NCERT serves as a significant organisation for carrying out the bilateral cultural exchange programmes with other nations in the area of education. Additionally, it engages and collaborates with

international organisations, hosts delegations and specialists from outside, and provides various training facilities to academic staff from underdeveloped nations.

The following are the NCERT's primary constituent units:

- 1) New Delhi's National Institute of Education (NIE).
- 2) New Delhi's Central Institute of Educational Technology (CIET).
- 3) Bhopal's Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE).
- 4) Ajmer's Regional Institute of Education (RIE, Ajmer).
- 5) Bhopal's Regional Institute of Education (RIE, Bhopal).
- 6) Bhubaneswar's Regional Institute of Education (RIE, Bhubaneswar).
- 7) Mysore's Regional Institute of Education (RIE, Mysore).
- 8) Shillong's North-East Regional Institute of Education (NE-RIE, Shillong).

## **2.2 National Institute of Education (NIE)**

The NIE in New Delhi conducts pedagogical curriculum research and development to;

- creates prototype curricula and supplementary materials;
- creates databases pertaining to school education and
- carries out experiments at the pre-school, elementary, secondary, and higher secondary levels to enhance the learner's overall development.

In addition, NIE conducts in-service training for key resource people and teacher educators involved in putting centrally supported school improvement plans into action. The constituent of NIE has 10 departments 7 division and 1 cell of the NIE's educational concerns are listed below:

### **2.2.1 Department of Elementary Education (DEE)**

School education is a major concern for both in-school and out-of-school students. To address this, initiatives are being implemented to develop prototype curricula and instructional materials for formal and alternative education. It is serving as the nodal

department for academic and professional support to the Sarva Shiksha Abhiyan (SSA) through capacity building of state and district teams and research and development efforts to attain quality education at different stages of elementary education.

#### **2.2.2 Department of Education of Groups with Special Needs (DEGSN)**

There are issues related to the education of schedule castes/tribes, minorities, disabled, and other groups with special needs, as well as related research, development, training, and networking with organisations interested in similar activities. Analysis and encouragement of excellent inclusive practises at the grass roots level, as well as capacity building for organisations and functionaries happen at groups with special needs.

#### **2.2.3 Department of Gender Studies (DGS)**

There are issues and challenges concerning the education of girls and women, as well as the promotion of women's equality and empowerment. The department conducts relevant research, development, training, and advocacy for gender.

#### **2.2.4 Department of Education in Science & Mathematics (DESM)**

There are obstacles and issues in science and mathematics education, as well as research and development of prototype curricula. In addition, the department designs and develops scientific equipment too.

#### **2.2.5 Department of Teacher Education (DTE)**

Involvement in the development of state-district-level teacher education institutions' capacity and academic support for teacher education programmes. Through working with the National Council for Teacher Education (NCTE) and the Indira Gandhi National Open University (IGNOU), support materials for teacher educators are being created, and the curriculum for teacher education is being revised.

#### **2.2.6 Department of Education in Social Sciences (DESS)**

There are education problems and challenges in the social sciences, research and creation of prototype curriculum, population education activities, and so on.

### **2.2.7 Department of Educational Psychology & Foundations of Education (DEPFE)**

The department research on the psychological, sociological, and philosophical underpinnings of education and how they affect classroom education, enhance value education, guidance, and counselling.

### **2.2.8 Educational Survey Division (ESD)**

This department works on the measurement and evaluation issues in education, changes in examinations, grading, on-going, thorough evaluation, and associated R&D activities. India Educational Surveys, the creation of databases, the statistical analysis of data from NCERT surveys and studies, the creation of software, and its use.

### **2.2.9 Department of Educational Research (DER)**

The Department encourages the study of educational policy, acts as a "think tank," and serves as the secretary for the Educational Research and Innovation Committee (ERIC).

### **2.2.10 Department of Education in Languages (DEL)**

DEL has been involved in the development of syllabi on the basis of NCF and teaching-learning materials in school languages for the all stages of the school education. The Department of Languages was established on July 1<sup>st</sup>, 2005, aim of the department to promote language education, and involve in the development and evaluation of instructional materials, professional development programmes, for teachers. The department providing supports the teachers to empowered through its continuous orientation in language education.

### **2.2.11 Department of Education in Aesthetics and Arts (DEAA)**

The department comes into existence in the year 2005 to promote all form of arts in schools as a school subject and develop the aesthetic potentialities of the students. The roles and functions of the department are to prepare:

- Teaching Learning Materials such as textbooks, teachers' handbooks, supplementary materials, anthology, audio-visual materials, multi-media programs etc. for all stages of school in visual arts, theatre, music and dance.
- Syllabus on the basis of curriculum of arts and culture education, and heritage crafts,
- And conduct teachers' training programmes and designing courses of study for pre-service arts education teachers'.
- And developed Capacity building in the areas of arts education in developing supplementary materials, teacher training modules, textbooks, etc.
- Organised training, and orientation programs for in-service art education teachers for different stages
- the pre-service teachers' training courses.
- Developing and testing modules for teacher educators
- and Conduct research studies in areas of arts education in schools

#### **2.2.12 Publication Department (PD)**

The department publishes journals, researches monographs, supplemental materials, and classroom texts.

#### **2.2.13 Planning, Monitoring Division (PMD)**

The department involves budgeting, prepares annual reports, periodic reports, and returns to the Ministry of Education (formerly known as Ministry of Human Resource Development. It also involves the coordination of programme creation, monitoring, evaluation, and execution.

#### **2.2.14 International Relations Division (IRD)**

The Department coordinates the initiatives to promote international partnerships with institutions of higher learning abroad and acts as the National Development Group's (NDG) academic secretariat.

### **2.2.15 Library, and Documentation Division (LDD)**

The Department preserves educational data, the provides library services, establishes a national clearinghouse for educational data, and does networking with domestic and foreign educational institutions.

### **2.2.16 Department of Curriculum Studies and Development (DCSD)**

DCSD comes into existence from 13th December, 2021 by merging the Department of Curriculum Studies (DCS) and Curriculum Group (CG). Role of the department is to prepare National Curriculum Frameworks on the recommendation of National Education Policy. On the basis of NCF to develop the all aspects of the development, curriculum and research in school education.

### **2.2.17 Division of Educational Kits (DEK)**

Division of Educational Kits (DEK), previously known as NIE-Workshop was conceived in 1964. The role of the division is to give assistance to the department in promoting and designing and development of science equipment.

### **2.2.18 Hindi Cell**

The Government of India was entrusted with the responsibility of promoting the level of use of Hindi. After that the Official Languages Act 1963 came into existence. After the enactment of the Official Languages Act, the Official Languages Rules 1976 were implemented. The Department of Official Language, Ministry of Home Affairs issues orders for continued use of Hindi as the official language. Hindi Cell ensures compliance of orders, instructions related to Official Language Rules issued by Government of India from time to time and use of Hindi in administrative works of the Council. Hindi Cell plays an important role in providing translation related administrative assistance, training and other facilities to all the departments/sections of the Council.

NCERT For the purpose of promoting Hindi language, the Ministry of Home Affairs is making all efforts to fulfill the orders, rules and resolutions issued by the



Department of Official Language. To fulfill this purpose, NCERT A Hindi cell was established in 1976 to ensure maximum use of Hindi in official work.

The Hindi Cell of the Council ensures the compliance of the orders, instructions related to the Official Language Rules issued by the Government of India from time to time and the use of Hindi in the administrative work of the Council. Hindi Cell plays an important role in providing translation related administrative assistance, training and other facilities to all the departments of the Council.

### **2.3 Central Institute of Educational Technology (CIET)**

In order to increase educational possibilities and the calibre of educational processes, practises, and outcomes, the CIET is concerned with the development of educational technology, particularly mass communication media.

The CIET's activities include:

- Radio and television programmes are examples of media software that is designed and produced.
- Run training sessions to improve the skills of media workers from State Institutes of Educational Technology in the creation and use of such software.
- Make its software available in both broadcast and non-broadcast formats.
- In order to facilitate the exchange of curricular and co-curricular resources, research and evaluation activities are carried out to assess needs, identify audience profile, and examine efficacy of materials and programmes generated by CIET.

### **2.4 Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE)**

The PSSCIVE in Bhopal coordinates operations for formal and informal vocational education, including research, development, training, and extension. It participates in the UNESCO project on technical and vocational education, E-forum of UNEVOC.

Along with these activities, it offers:

- a) guidelines and instructional materials.

- b) research/action research.
- c) training/orientation of key functionaries.
- d) preparation of database.
- e) clearing house functions.
- f) promotion/popularisation and implementation of work and vocational education programmes"

## **2.5 Regional Institute of Education (RIEs)**

Teachers in the various States and Union Territories can receive the educational support they require at the RIEs in Ajmer, Bhopal, Bhubaneswar, and Mysore. Pre-service professional development is provided here for teachers of science and mathematics, and elementary teacher educators are also provided. They provide the necessary assistance in putting State and Union Territory policy into practise and help with the implementation, oversight, and assessment of Centrally Sponsored Schemes.

The teacher training and other educational needs of Northern India are handled by the RIE in Ajmer. The northern states of Delhi, Rajasthan, Jammu and Kashmir, Punjab, Haryana, etc.

The RIE at Bhopal looks after Madhya Pradesh, Gujarat, Maharastra, Goa, etc.

The RIE, Bhubaneswar is now in charge of all eastern states Orissa, West Bengal, Bihar, etc.

The NE-RIE in Shillong will serve the need of the north-eastern states, including Meghalaya, Mizoram, Nagaland, Arunachal Pradesh, etc.

The southern states of Andhra Pradesh, Tamilnadu, Karnataka, Kerala, Pondicherry and Lakshadweep are covered by RIE, Mysore.

## **2.6 Organisational Structure**

The Union Minister of Education serves as the ex-officio President of the NCERT General Body. The group includes several members, including the Secretary to the Government of India, the Ministry of Education, the Chairperson of the University

Grants Commission, four Vice-Chancellors of Universities, the Chairman of the Central Board of Secondary Education, the Commissioner of the Kendriya Vidyalaya Sangathan, the Director of the Central Health Education Bureau, the Director of Training, and the Director General of Training and Employment from the United States. The Union Minister of Education (formerly known as Ministry of Human Resource Development serves as the Chief Executive Officer, and the Union Minister of State for the Ministry of Human Resource Development serves as Vice President. The Executive Committee is convened by the Secretary of NCERT

The following standing Committees support the Executive Committee:

- a) The Finance Committee
- b) The Establishment Committee
- c) The Building and Works Committee
- d) The Managing Committees of RIEs
- e) The Advisory board of CIET
- f) The Advisory Board of PSSCIVE
- g) The Academic Committee of NIE
- h) The Advisory Boards of Departments of NIE
- i) The Programme Advisory Committee
- j) The Educational Research & Innovations Committee.

The NCERT's main office is comprised of

- 1. The Council Secretariat
- 2. The Accounts Branch

The Director,

Joint Director (Council),

Joint Director (CIET),

Joint Director (PSSCIVE), and

The Secretary

The Director, and five senior NCERT officials selected by the Indian government.

In academic affairs, three Deans support the Director.

The Dean (Academic) oversees the work of the NIE Departments;

The Dean (Research) oversees the work of the Educational Research & Innovations Committee (ERIC); and

the Dean (Coordination) oversees the work of the Departments of Service/Production and RIEs.

NOERT  
(ORGANISATIONAL STRUCTURE OF NOERT)

Source: Annual Report, NCERT

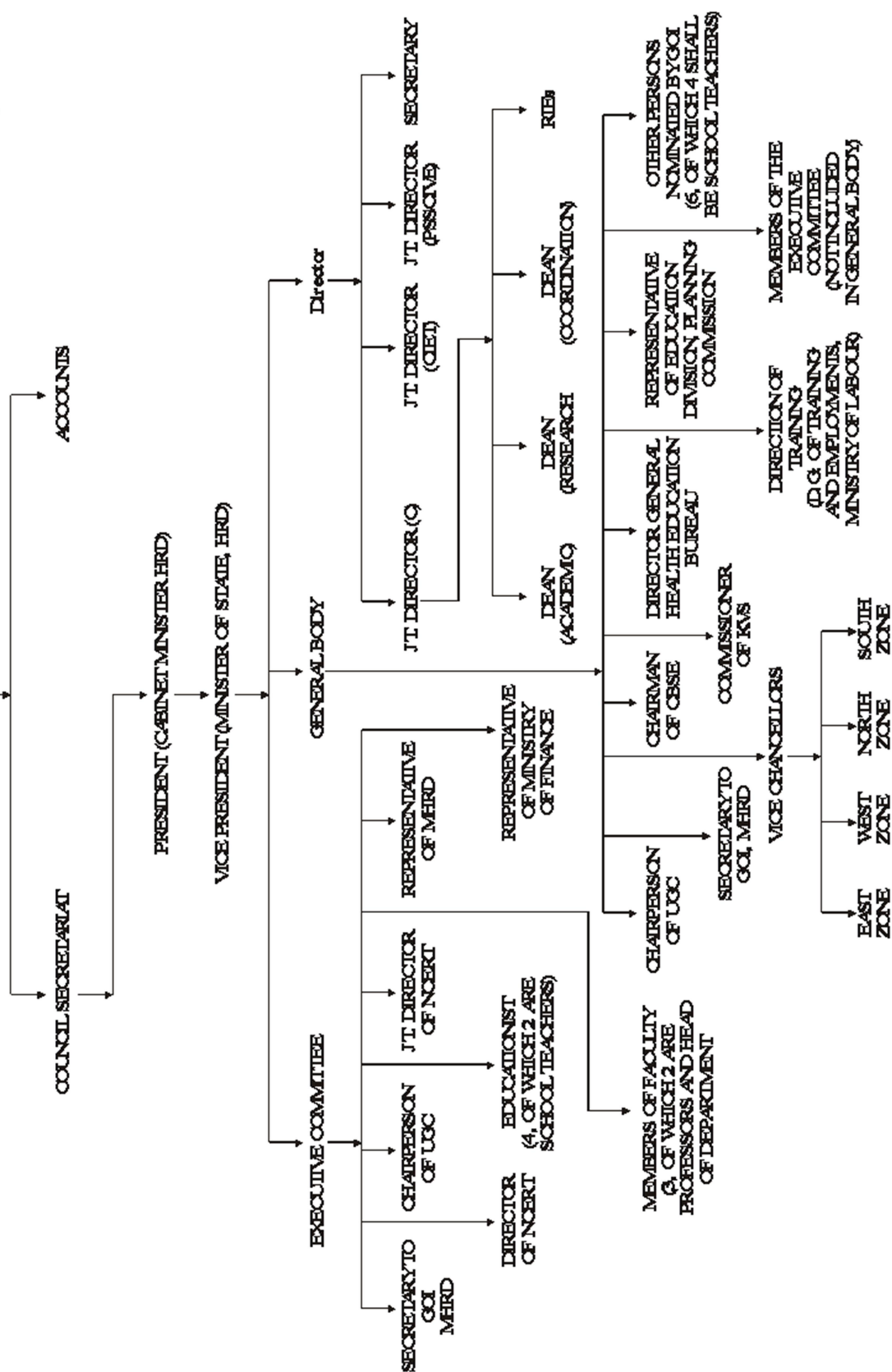


Figure 2.1

## **2.7 Programmes, Activities and Achievements**

NCERT has been engaged in research, development, training, and extension operations since its founding. Numerous science and social studies textbooks have been created in association with renowned writers and institutions. Additionally, it has created science experimentation tools and encouraged teachers to test out and experiment with different teaching techniques. Other activities for the first ten years included evaluation of students' learning outcome and curriculum development for educating teachers.

The NCERT's significant activities include:

- a) The creation of children's textbooks and instructional materials.
- b) Cutting-edge programmes for pre-service teacher education.
- c) NTS (National Talent Search) programme.
- d) The national and state-level Jawahar Lal Nehru National Science Exhibition for Children (JNNSEC).
- e) The National Prize for Children's Literature competition.
- f) National Awards for Teacher Education Innovations.
- g) National Recognition for Vocational Education Promotion.
- h) P.G. Diploma Course in Guidance and Counseling.
- i) Community Singing Programme.
- l) Implementation of the 10 + 2 + 3 national education system with National Curriculum Framework inputs.
- m) Contributing to the preparation of the "National Curriculum for Elementary and Secondary Education: A Framework 1988" and the National Policy of Education, Programme of Action (NPE/POA).
- n) Establishing State Council Educational Research and Trainings (SCERT), District Institutes of Educational Trainings (DIET), State Institutes of Educational Trainings (SIET), etc., as well as promoting and enhancing

science, population, environmental, non-formal education, and education for underprivileged groups, etc.

- o) Non-formal Education Programmes for children below 14 years.
- p) Engaging in significant initiatives supported by international organisations for the formulation of educational policies and plans, such as the National Population Education Project (NPEP), Comprehensive Access to Primary Education (CAPE), Primary Education Curriculum Renewal (PECR), International Association for the Evaluation of Educational Achievement (IEA), etc.

The National Policy of Education (NPE) and the educational requirements of the states are taken into consideration while developing NCERT programmes. The State Coordination Committees (SSCs), which offer a forum for dialogue between the NCERT faculty and top officials of the State Education Departments, are primarily used to identify educational needs.

- q) Prepares periodic reports and returns about its programmes and activities for various purposes.

The NCERT stresses more on programmes like development, training, extension, publication and dissemination, evaluation of instructional materials and exchange programmes. These are discussed briefly below:

### **2.7.1 Development**

One of the Council's key responsibilities is the development of educational programmes. The creation and updating of institutional resources and curriculum for various levels of schooling, as well as making them relevant to changing societal and child requirements, are among the key development efforts.

### **2.7.2 Training**

Pre-service teacher training at various levels, including Pre-Primary, Elementary, Secondary, and Higher Secondary, as well as in fields of vocational education, guidance and counselling, and special education, is a crucial component of NCERT's efforts.

### **2.7.3 Extension**

The RIEs, the CIET, the PSSCIVE, and the offices of the Field Advisers in the States are all involved in various ways in the extensive extension initiatives run by the NCERT.

### **2.7.4 Publication and Dissemination**

For Classes I through XII, the NCERT published textbooks for different school subjects in social sciences, languages, science and mathematics. In addition, it developed workbooks, teacher's guides, supplementary readers, general books etc. provides educational products for use by teacher educators, teacher trainees, and in-service teachers. These materials include workbooks, teacher's guides, supplementary readers, reports, etc.

### **2.7.5 Evaluation of Instructional Materials**

Textbooks and other instructional materials are evaluated on continuing basis, especially from the point of view of national integration.

### **2.7.6 Exchange Programme**

The NCERT works with international organisations like the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the United Nations Children's Fund (UNICEF), the United Nations Children's Fund (UNDP), and the United Nations Fund for Population Activities (UNFPA) to study particular educational issues and organise training programmes for staff from developing nations.

## **2.8 Library, and Documentation Division (LDD)**

The Library and Documentation Division (LDD) was started in 1967 at the headquarters of the NCERT as a result of amalgamation of various independent departmental libraries. It was shifted to the Pandit Gobind Ballabh Pant building in 1980. It is the Resource Centre and Service Division of NCERT for learning.



Fig. 2.2 Library, and Documentation Division website-Home Page

**पुस्तकालय और प्रलेखन प्रभाग**  
**Library And Documentation Division**

**Library and Documentation Division (LDD)**

**"Some books are to be tasted, others to be swallowed and some few are to be chewed and digested." --- Francis Bacon (1561-1626)**

Library at Glance	<p><b>The vision of LDD is to create a network of knowledge system that facilitate scientific communication and collaboration for innovative information professionals and their strategic partners</b></p> <p><b>The mission of LDD is to strengthen its members through learning, advocacy and networking initiatives.</b></p> <p><b>Our goal is to:</b></p> <p><b>Strengthen our role as information leaders in the organization and the communities.</b></p> <p><b>Responding to the readers needs, adding qualitative and quantitative value to information services and products.</b></p> <p><b>Deliver measurable results in the information economy through collaboration and partnership.</b></p>	Library Collection
Library Timings		Library Services
Library Staff		Library Rules
Library Committees		Membership
Bibliography		DELNET - Networked Library Resource
AERC		Institutional Repository
RFD		Web-OPAC
Activities/News		J-STOR
E-Resources		Useful Links
		Application Forms

**Visitor No.**  
**073866768**  
(Since February 2012)

Google  Go Site Search  Go


NCERT Library, NCERT, Sri Aurobindo Marg, New Delhi 110016 (India)

[National Council Of Educational Research And Training :: Home \(ncert.nic.in\)](http://ncert.nic.in)

LDD's goal is to offer current, thorough information and resources about education in general and school education in particular. Other constituents of NCERT also maintain libraries at their campuses. The LDD has a rich collection of books and journals pertaining to the field of education and allied disciplines.

Fig.2.3 Library, and Documentation Division Library Collections

Ensuring quality school education for all!




विद्यया ऽ मृतमश्नुते  
एन सी ई आर टी  
NCERT

## National Council of Educational Research & Training

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्

Broaden Your HORIZONS



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[Collection](#)
[Services](#)
[Application Forms](#)
[Favourites](#)

### Library Collections

The books of the library is divided into General Books and Reference Books.

The Reference collection of LDD includes the following :

- Maps
- Bibliographies
- Directories
- Dictionaries
- Encyclopedias
- Handbooks
- Theses
- ERIC Publications
- Govt. of India Publications
- NCERT Publications
- NIE/RIE Reports
- Census

**Year- Wise Growth of the Library Collection(Statistics for the last five years)**

Books					Periodicals	
Years	English	Hindi	Sanskrit	Urdu	Indian	Foreign
2016-17	577	106	05	05	39	110
2017-18	262	59	16	Nil	37	146
2018-19	260	75	Nil	Nil	31	121
2019-20	128	58	Nil	Nil	43	110
2020-21	250	121	Nil	Nil	46	111


[Ncert Home](#) | [Virtual Visit](#) | [F A Q](#) | [FeedBack](#) | [Ask The Librarian](#) | [Site Map](#) | [Contact Us](#)

Google  
 Google

Source: <http://ncert.nic.in/ncertltd/collection/index.html>

The publications on the subject psychology, literature, languages, environmental education, value education, population education, and education for special needs groups. The care contents of the NCERT library include texts and supplemental reading resources related to school curriculum reports from various commissions, educational surveys, and policy documents.

Figure.2.4 Library, Documentation Division Library Hours

Ensuring quality school education for all!	
 विद्यया ऽ मृतमश्नुते एन सी ई आर टी NCERT	<b>National Council of Educational Research &amp; Training</b> राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद् Broaden Your HORIZONS
Home	About Us Collection Services Application Forms Favourites
<b>Library Hours</b>	
Monday To Friday	: 8:00 AM To 5:30 PM
Saturday & Sunday	: Closed
Gazetted Holidays (List)	: Closed
<b>Library Resources(As on 31<sup>st</sup> March 2021)</b>	
<b>Books</b>	
• Purchased	: 132823
• Gifted	: F32946
<b>Current Journals</b>	
• Foreign	: 111
• Indian	: 46
• NCERT	: 07
• E-journals	: 46
• Online Database(J-STOR & DELNET)	: 02
Magazines	: 16(Hindi-08,English-08)
Newspapers	: 17(Hindi-6, English-10, Urdu-1)
Bound Volumes Journals	: J-21340

Source: <http://ncert.nic.in/ncertltd/collection/index.html>

### 2.8.1 Role of LDD in fulfilling the objectives of NCERT

LDD provides a number of in-house services to help in meeting the demands of the local, national and international readers.

LDD provides the following services to the users:

- Book Alert
- Current Contents
- Newspaper Clippings
- Reprographic Service
- Resource – Sharing

- Continuing education for teachers and librarians
- Seminars for Educational Planners and Administrators of State and Union Territories
- Current Abstracts
- Bibliographies
- Advisory Service for Readers
- Reviews of books
- Internet browsing
- Using DELNET to access library materials online

By computerising internal resources and networking for the dissemination of knowledge and other reading resources, LDD is transforming into a National Resource Centre of Education (NRCE). The readers will soon have access to electronic journals, CD-ROM databases, and connectivity to external databases because it is also developing the digital collections in education and its related subjects. This networking will ensure resource – sharing, exchange of information and meaningful cooperation among libraries in Delhi. It will also provide access to databases of important libraries through networking.

The impact of technology on libraries has completely changed the role of libraries. Hence there is need for modernisation of the Division of Library, Documentation and Information. A proposal for the National Resource Centre of Education was approved for the LDD and its constituents libraries of NCERT.

### **2.8.2 Membership**

#### **Membership Category**

The following are eligible to enrol themselves as members:

- Regular staff of NIE/CIET
- Students studying in NIE
- Participants in council-sponsored seminars and programmes

- Computer assistants, research fellows, and junior project fellows
- Advisors and consultants (recommended by the director or joint director)
- Retired NCERT personnel
- Educators, researchers, and administrators educators and other related field planners and policy makers.
- Members of NGOs and education students at legitimate institutions.

### **2.8.3 There are various membership types:**

- A Casual membership
- A Special and External membership
- An External membership
- An Institutional membership

#### **a. Casual Membership**

According to library policies, members in this category are eligible to utilise the library's resources and photocopying equipment on a fee basis. They must provide identification, such as a voter identification card, driver's licence, passport, ration card, or a letter from their employer, in order to register as casual library users. Books cannot be borrowed by non-members.

#### **b. Special membership**

After submitting the required application form, retired NCERT employees (with pension benefits) may be granted special membership with the ability to borrow only two books.

#### **c. External membership**

External members who wish to join must properly complete the required application form and submit a security deposit, which gets refunded interest-free when the member's term expires. The form must be accompanied by a letter of recommendation from an NCERT faculty member or a letter from the organisation

where they now work. The membership is good for a calendar year. A member may check out two books.

**d. Institutional membership**

This is made available to companies and academic/research institutes in exchange for an annual enrolment processing fee in the form of a security deposit (refundable without interest) and three-book borrowing privileges.

The present chapter discussed in detail different units of NCERT and NIE, thrust areas and disciplines covered so as to know their academic and research activities to promote school education. The next chapter entitled “Research Publications and Scholarly Content in NIE” shall deal with the scholarly content of NIE faculty members so as to understand the kind of research publications which form the part of Institutional Repository.

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## Chapter 3

### Research Publications and Scholarly Content in NIE



## **Research Publications and Scholarly Content in National Institute of Education (NIE)**

### **3.1 Research Publications and Scholarly Content**

Academic institutions are known for its contribution to research in terms of research guidance, research publications and research projects. These are the scholarly contents which bring visibility of an institution world-wide. Research publications which are having scholarly content are original in nature and contribute to societal development in general and academic development in particular. Therefore institutions of research importance are constantly engaged in bringing out research publications and scholarly content to maintain the credibility of the institutions

### **3.2 Scholarly Communication**

Communication used to be the medium to fulfil the necessities of life and it serves as a building block for the evolution of society, whereas today a new facet of "scholarship" has been added to the simple concept of communication.

Scholarly communication is something of an umbrella term that refers to the many different ways in which authors and creators of scholarly and scientific work share information with the rest of the world about the work they are doing. A list of the most common manifestations of scholarly communication includes the following (Anderson, 2018).

- i. Articles in scholarly and scientific journals;
- ii. Monographs;
- iii. Research reports;
- iv. Preliminary versions of articles are usually shared with colleagues electronically;
- v. White papers;
- vi. Position Papers;
- vii. Conference papers and presentations;
- viii. Posters;
- ix. Conference proceedings;

- x. Theses and Dissertations;
- xi. Data sets;
- xii. Multimedia works; and
- xiii. Blog postings.

The Association of College and Research Libraries (ACRL) has defined scholarly communication as the "system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic listservs.

### **3.3 Scholarly Communication Defined**

Scholarly communication is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication, such as publication in peer-reviewed journals, and informal channels, such as electronic mailing lists. This document addresses issues related primarily to the formal system of scholarly communication.

One of the fundamental characteristics of scholarly research is that it is created as a public good to facilitate inquiry and knowledge. A substantial portion of such research is publicly supported, either directly through federally-funded research projects or indirectly through state support of researchers at state higher-education institutions. In addition, the vast majority of scholars develop and disseminate their research with no expectation of direct financial reward.

### **3.4 Scholarly Communication in Crisis**

The formal system of scholarly communication is showing numerous signs of stress and crisis. Throughout the second half of the 20th century commercial firms have assumed increasing control over the scholarly journals market, particularly in scientific, technical, and medical fields. The journal publishing industry has also become increasingly consolidated and is now dominated by a few international conglomerates. Prices for scholarly journals have risen at rates well above general

inflation in the economy and also above the rate of increase in library budgets. Libraries have coped with price increases through a variety of strategies, including subscription cuts and reductions in monographic purchases. In addition, escalating prices have occurred at the same time that the quantity of scholarly information, including the number of scholarly journals, has increased substantially. The net effect of these changes has been a significant reduction in access to scholarship.

The economic challenges facing scholarly monograph publishers, particularly university presses, are another aspect of the growing crisis, one that illustrates its systemic nature. Faced with declining library markets and other economic pressures, university presses have substantially decreased the extent to which they produce specialized scholarly monographs. Such publications have been an important component of scholarly output, particularly in humanistic disciplines.

The recent transition to electronic publishing, though promising in many respects, presents numerous new challenges and threats to access. As journals move from print to electronic form, the legal framework for their use changes from copyright law to contract law. The latter framework governs publisher licensing agreements, which often include undesirable limits on use, eliminating forms of access that would have been permitted in the print environment under principles of fair use. Individual libraries tend to have limited bargaining power in negotiating publisher licensing agreements that provide desired levels of access for users as well as rights for such services as interlibrary loans. Libraries also face loss of content in licensed aggregated journal databases when agreements between publishers and aggregators change.

The electronic environment also poses significant challenges to the long-term preservation of, and access to, information. Since most libraries do not own and store the content of the journals they license in electronic form, new models for preservation must be developed. Changes in technology platforms pose other serious preservation challenges.

Access to scholarships is further threatened by various issues at the national policy level. Powerful commercial interests have successfully supported - and are

continuing to advocate - changes in copyright law that limit the public domain and significantly reduce principles of fair use, particularly for information in digital form. The public policy establishes the legal environment in which publishers and aggregators negotiate licenses with libraries; it can seriously compromise the ability of libraries and library consortia to negotiate licensing terms on an equal footing. National policy has also failed to address consolidation in the journal publishing industry and the price rises that result from publisher mergers.

These issues and trends have reduced access to scholarship. While the severity of problems experienced has varied by both the type of institution involved and its particular circumstances, these issues touch all types of universities and colleges and their libraries. They will continue to adversely affect the system of scholarly communication unless they are successfully addressed by the higher education community.

### **3.5 ACRL Scholarly Communications Initiative**

The purpose of the Association of College and Research Libraries' scholarly communications initiative is to work in partnership with other library and higher education organizations to encourage reform in the system of scholarly communication and to broaden the engagement of academic libraries in scholarly communications issues. The goals of the initiative are to create a system of scholarly communication that is more responsive to the needs of the academy, reflecting the nature of scholarship and research as a public good. (ACRL Scholarship Communication Committee, 2003)

ACRL supports the following principles for reform in the system of scholarly communication:

- i. The broadest possible access to published research and other scholarly writings
- ii. Increased control by scholars and the academy over the system of scholarly publishing fair and reasonable prices for scholarly information
- iii. Competitive markets for scholarly information
- iv. Diversified publishing industry

- v. Open access to scholarship innovations in publishing that reduce distribution costs, speed delivery, and extend access to scholarly research quality assurance in publishing through peer review
- vi. Fair use of copyrighted information for educational and research purposes extension of public domain information
- vii. Preservation of scholarly information for long-term future use
- viii. Right to privacy in the use of scholarly information.

### **3.6 Strategies Supported by ACRL**

ACRL supports the following strategies for reform in the system of scholarly communication: (ACRL Scholarship Communication Committee, 2003)

- a) The development of competitive journals, including the creation of low-cost and open-access journals that provide direct alternatives to high-priced commercial titles,
- b) Increased control by editorial boards over the business practices of their journals, which may include negotiating reductions in subscription prices,
- c) Converting to open-access business models, or moving journals to non-profit publishers, such as university presses, in instances where continued commercial publication does not serve the needs of their scholarly communities
- d) Challenges to journal publisher mergers to prevent increased industry consolidation, especially among publishers of journals in scientific, technical and medical fields, where mergers have resulted in documented opportunistic prices,
- e) Increases the development of peer-reviewed open-access journals, which follow business models that obviate the need for subscriptions or other economic restrictions on access to federal and private funding of authors' fees for publishing in open-access journals,
- f) Incorporated as an integral part of the process through which research is funded,
- g) Federal legislation that will require that federally funded research published in subscription-based journals be made openly accessible within a specific

period (e.g. six months) after publication

- h) Development of institutional repositories, an embodiment of the research output of the institution that is created either by single institutions or by groups of institutions working under a cooperative framework,
- i) Development of disciplinary repositories according to principles of open access allowing self-archiving by scholars of their research and writings in open access repositories,
- j) Publishing and copyright agreements that allow authors to retain the right to self-archive their peer-reviewed publications in open-access repositories
- k) Maintenance of interoperability standards that facilitate efficient access to content in open repositories
- l) Development of new models and practices that will preserve scholarly information in electronic form for future use,
- m) Implementation of public policies that ensure fair use of scholarly information in electronic form,
- n) Implementation of public policies that protect the rights and capacities of libraries to provide acceptable terms of user access and reach reasonable economic terms in licensing electronic information,
- o) Licensing agreements by library consortia and other groups of libraries that maximize their collective buying and negotiating power,
- p) Use of innovative and cost-effective electronic information technologies in publishing, including publication of journals in electronic form,
- q) Creation of scholarly electronic communities that serve the needs of scholars in a discipline in flexible ways
- r) Campus advocacy by librarians, faculty, and administrators to create greater awareness of the need for change in the system of scholarly communication,
- s) Vigorous national advocacy, in cooperation with other groups, in support of the public policy principles enumerated in this document.

The research libraries act as scholarly dissemination engines, and promote wide-reaching to the unreached scholars including sustainable publication of research and scholarship” (Neal 2014, 614)

On scholarly publishing and on teaching information research skills three intersections between scholarly communications and information literacy have developed in the digital age, (ACRL Scholarship Communication Committee, 2003)

1. Economics of the distribution of scholarship (It includes access to scholarship with changing nature of scholarly publishing, and the education of students to be knowledgeable content creators and content consumers);
2. Digital literacies (This includes teaching new technologies and rights issues, and the inception of multiple types of non-textual content), and
3. Changing roles (It includes the imperative to come up with the building of new infrastructures for scholarship, and deep inclusion with creative approaches to teaching).

These intersections served the purpose as the guidepost directing librarians to core strategic responses to the intense impacts of the digital revolution on both information literacy and scholarly communication. However, elemental responses such as a. Information fluency, b. Evolutions in pedagogy, and c. Opportunities for association and changes in structure of organization are necessary for the changing digital information environment reflected by these intersections (ACRL, 2013).

There was a tremendous change in the digital information environment globally in higher education and libraries due to the intersections of information literacy and scholarly communication. The changes that could be visualised concern to (<https://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/Intersections.pdf>).

- a. Constrains in scholarly publishing;
- b. Creating an inclination among faculty towards scholarly publishing infrastructure that meets their needs for greater access and broader impact,
- c. Encouraging the students to publish their work online,
- d. Retrieval of need-based digital information in different formats,
- e. Use of information using various tools and sharing including reusing the information.

### **3.7 Open Access Publishing**

The serial crisis precipitated the commencement of open access and this being the demand of the day, many researchers and educationalists supported the cause of open publishing. This gained momentum and recognition by the Government, Universities and societies, and this gained recognition by international bodies like the Budapest Open Access Initiative (2002), the Bethesda Statement (2003), and the Berlin Declaration(2003), and later on open access policies were adopted by many governments, research and educational institutions, and universities across the globe (Allhar, 2017).

### **3.8 Budapest Open Access Initiative**

According to Budapest open access initiative, 2002, open access implies free availability in the public domain, allowing access to the user to read, copy, download, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Hence it can be said that open-access publishing is most concisely defined as content that presents no barrier to the reader (financial or otherwise) other than access to the internet itself (Majhi, Baral& Maharana, 2018).

### **3.9 The Bethesda Statement on Open-Access Publishing**

The Bethesda Statement on Open Access Publishing, drafted during a one-day meeting held on April 11, 2003, was released on June 20, 2003. One of the highlights of the statement was the constitution of the three working groups namely, the Institutions and Funding Agencies Working Group, The Libraries & Publishers Working Group and The Scientists and Scientific Societies Working Group. The Institutions and Funding Agencies Working Group motivates the faculty/grant recipients to publish their work according to the principles of the open-access model and agreed to fund the necessary payment of publication under the open-access model of individual papers in peer-reviewed journals. This group certifies that the quality of the work, and not the title of the journal in which a candidate's work is



published, will be considered in appointments, merit, promotion, grants or awards. The working group committed that they will regard a record of open-access publication as evidence of service to the community, in the evaluation of applications for faculty appointments, promotions and grants.

The Libraries & Publishers Working Group recommended that libraries give high priority to open-access journals by highlighting them in their catalogues and other relevant databases. The journal publishers were asked to provide an open access option for any research article published, declare a specific timetable for the transition of journals' open access models, and make sure that open access models requiring author fees lower barriers to researchers, especially those from developing countries. The Scientific Societies Working Group and Scientists was of the view that the scientists, as well as the professional societies, have a keen interest in confirming that research results are disseminated as immediately, effectively and broadly as possible by judiciously publishing in, reviewing for and editing for open access journals and journals that are effectively making the transition to open access. The group recommended that scientists and societies should educate their colleagues, members and the public about the importance of open access.

### **3.10 The Features of Scholarly Literature Specify that it should be,**

- a) Written by subject experts and scholars,
- b) Written for other scholars, policymakers and professionals including the students and researchers,
- c) It must consider a specific subject or interdisciplinary field, such as sociology, history, gender studies, etc.
- d) Scholarly articles should be based on empirical studies, Literature reviews, such as give an overview of the body of research on a specific topic, and Theory-based articles represent analysis.

Research studies are based on transparency. They outline the purpose of the study, a review of literature showing the research gap, the methodology followed, data analysis and findings, and conclusions including its implications on society. One of

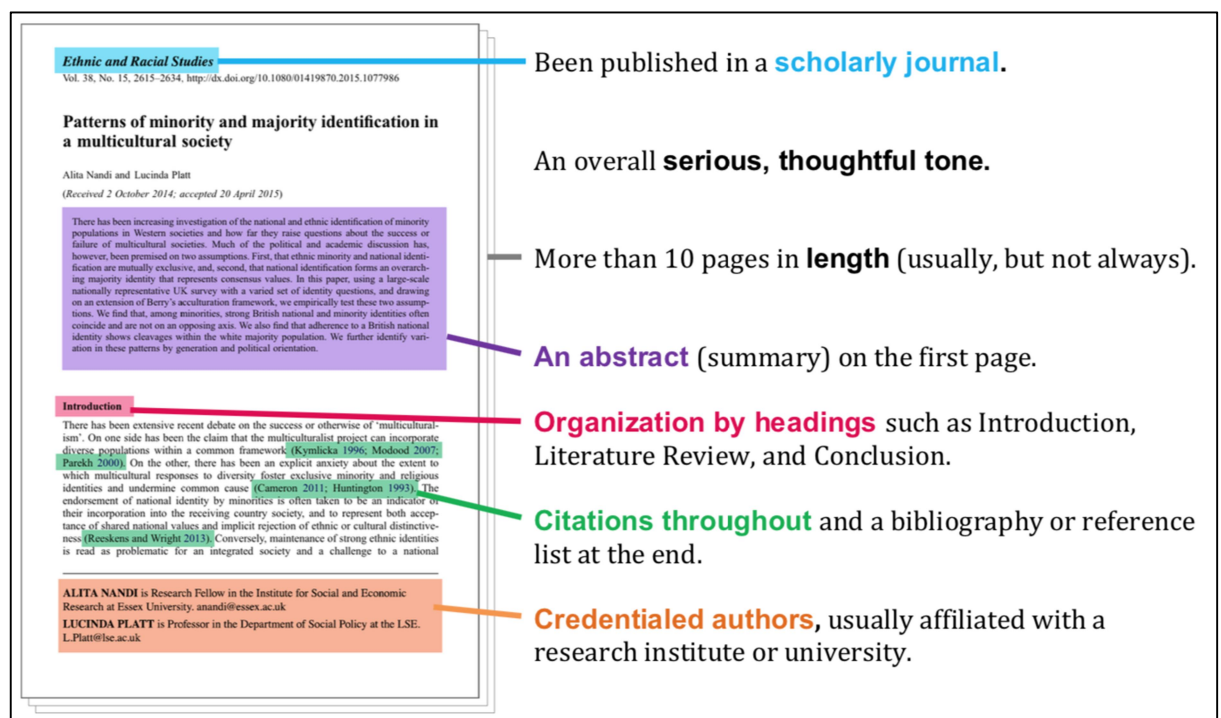
the objective of a research study is that it be reproducible so that its conclusions may be verified.

### 3.11 Type of Scholarly Publication

#### 3.11.1 Scholarship

Scholarship typically delves into topics more extensively than magazine articles, although there can be exceptions. In the realm of social sciences, scholarly works are characterized by a comprehensive collection of references at the end, along with thorough in-text citations throughout to support all assertions made within the text. According to Manca and Ranieri (2017), scholarship encompasses various aspects such as exploration, synthesis, instruction, and practical implementation..

Scholarship is typically disseminated through scholarly journals and books, often published by university presses. The primary objective of scholarly works on a particular subject is to progress our knowledge and comprehension within that specific field. The arrangement of the scholarly literature is discussed in Figure 3.1.



**Fig. 3.1 : Arrangement of the scholarly literature**

(<https://libguides.greenriver.edu/engl127/what-is-it>. Accessed on 7th March 2023)

### **3.11.2 Various Categories of Scholarly Literature Exist.**

The academic literature can be divided into a) Academic Articles, b) Peer-review, c) Professional articles, d) Review articles etc.

### **3.11.3 Academic Articles**

An academic article is rooted in research, aiming to present novel discoveries or offer valuable perspectives on scholarly research inquiries. It is authored by one or more researchers and undergoes a peer review process by other experts in the respective field before being published in an academic journal.

Academic articles are intended for an audience consisting of fellow researchers and professionals within the academic community. This is evident in the use of discipline-specific language and terminology (commonly referred to as jargon). A well-crafted academic article should exhibit an argumentative structure, providing comprehensive documentation and referencing other relevant research. The methodology employed to arrive at conclusions must be explicitly presented within the text, and authors should strive for objectivity in their writing. It is crucial to clearly indicate the author's institutional affiliation, as well as the publication details such as the date and venue of the article.

### **3.11.4 Peer Review**

Peer review refers to the evaluation process conducted by subject experts to assess the quality of an article before its publication. The review is conducted anonymously, focusing on the theory, methodology, and results presented in the article. It is common for an article to undergo multiple rounds of peer review before being accepted for publication. Peer review is widely recognized as the primary quality standard for academic articles.

It is important to note that not all articles published in scholarly journals have necessarily undergone peer review, so it is advisable to independently verify the peer review status. In databases like Oria, you can use the left-hand menu to filter and display only peer-reviewed journals. Furthermore, some journals provide peer review

information directly on the front page of each article.

### **3.11.5 Professional Articles**

Professional articles, sometimes referred to as trade articles, exhibit a distinct nature compared to academic articles. Instead of being evaluated by academic scholars or experts, professional articles undergo scrutiny by editors. These articles primarily aim to offer valuable perspectives on existing knowledge and are specifically targeted towards professionals working within a particular field, rather than scholarly researchers.

### **3.11.6 Review Articles**

A review article analyses and evaluates the knowledge accumulated from previous studies, presenting a concise summary of the findings while offering a comprehensive introduction to the subject matter. This category encompasses both peer-reviewed literature reviews and systematic reviews.

### **3.11.7 IMRaD**

IMRaD stands for Introduction, Method, Results, and Discussion, which is a common structural framework employed in academic articles across various disciplines.

Additionally, an academic article typically includes an abstract, conclusion, properly formatted reference list, and any relevant appendices. However, it is important to note that this framework may vary across different subjects.

### **3.11.8 Academic Journals**

Academic journals are published by various publishers or organizations and undergo a rigorous peer review process. They primarily cater to researchers and are written in a language that includes subject-specific terminology. These articles typically reference earlier research, aim to present novel perspectives, and include publication dates.

In the NPI (Norwegian Publication Indicator), academic journals are categorized into two levels: level 1 and level 2, with level 2 representing the highest tier.

Numerous academic journals are accessible online, and VUC has subscriptions to multiple scholarly databases that enable users to search for research articles across various academic journals.

### **3.11.9 Scholarly Publishers and Books**

Scholarly publishers produce books that undergo a peer-review process. These publishers are categorized into two levels, with category 2 representing the highest academic level.

### **3.11.10 Evaluating Publishers and Books**

It is essential for authors to exercise critical judgment when utilizing sources and independently evaluate their credibility. It is worth noting that new research builds upon earlier studies. One should examine the other publications released by the same publisher and determine the ownership of the publishing company. Is the publisher affiliated with an institution, such as a college or university? It is important to consider whether the publisher is driven primarily by commercial interests or if their primary goal is to contribute to the advancement of knowledge.

When assessing the quality of a book, authors should explore how it has been received and discussed by other scholars in the relevant field. The presence of a reference list and references to other sources within the text instills confidence and trust. A reliable book presents a well-rounded, comprehensive, and factually accurate depiction of the subject matter. It is crucial to also consider whose perspectives are being represented or omitted. Is the discussion one-sided, or does it encompass a broader range of viewpoints?

Researchers should also verify information about the author, such as their educational qualifications and institutional affiliations. It is advisable to seek information about the author within the book itself or conduct further research online to explore additional sources of information.

Academic libraries play a key role in the scholarly communication process for the past 150 years. In the past decade, they have been persuaded by the Open Access movement that this process does not adequately disseminate and promote the work of their scholarly research communities, and have developed individual institutional

repositories, and electronic archives of the research output of staff employed at their institutions. However, the evidence shows that despite a considerable investment on the part of academic libraries in these repositories the scholars and researchers whose work it is intended to support have not shown the same commitment to Open Access.

### **3.12 Scholarly Publication of NIE**

After the amalgamation of seven institutions of education in India, National Council of Educational Research and Training came into existence under the Societies Registration Act in September 1<sup>st</sup> 1961. The seven institutions were;

- i. The Central Institution of Education (1947);
- ii. The Central Bureau of Textbook Research (1954);
- iii. The Central Bureau of Educational and Vocational Guidance (1954);
- iv. Directorate of Extension Programme for Secondary Education (1958) [initially established as the All India Council for Secondary Education in 1955];
- v. The National Institute of Basic Education (1956);
- vi. The National Fundamental at Education Central (1956)
- vii. The National Institute of Audio-Visual Education (1959)

After the amalgamation of the aforesaid seven institutions, Council developed a vision of the Education in the Country. NCERT established in different part of the region of the country viz., NIE at New Delhi.

#### **3.12.1 Scholarly Contents in NIE**

National Institute of Education is one of the constituents of NCERT, located in New Delhi. NIE consisting of 18 different departments, divisions and cell:

- i. Department of Education in Arts and Aesthetics (DEAA);
- ii. Department of Elementary Education (DEE);
- iii. Department of Education of Groups with Special Needs (DEGSN);
- iv. Department of Educational Psychology and Foundation of Education (DEPFE);
- v. Department of Education in Science and Mathematics (DESM);
- vi. Department of Education in Social Science (DESS);

- vii. Department of Education in Languages (DEL);
- viii. Department of Gender Studies (DGS);
- ix. Department of Teacher Education (DTE);
- x. Department of Curriculum Studies and Development (DCSD);
- xi. Division of Educational Kit (DEK);
- xii. Division of Educational Research (DER);
- xiii. Educational Survey Division (ESD);
- xiv. International Relation Division (IRD);
- xv. Library, and Documentation Division (LDD);
- xvi. Planning and Monitoring Division (PMD);
- xvii. Publication Division (PD);
- xviii. Hindi Cell

NCERT is synonymous with the publication of 'Textbook', has produced textbooks for the school education in all subject i.e. Social Sciences, Languages, Science and Mathematics. Roles of the NCERT in education in addition of development of school textbooks, developed workbooks, supplementary readers, teacher guides, laboratory manuals, sourcebooks on assessment, exemplar problems in mathematics etc., research reports or monographs and educational journals on the basis of National Curriculum Framework.

NCERT is actively engaged in conducting surveys, research, and development activities through its involvement in formulating the National Policy of Education (NPE) and devising the corresponding Plan of Action (POA). Following the recommendations of the NPE and POA, NCERT published the National Curriculum for Elementary and Secondary Education: A Framework in 1988.

NCERT is dedicated to developed difference programmes in Teacher Education in the country:

a Pre-service teacher education courses such as 4 year B.Sc. B.Ed.; B.A. B.Ed.; and two year course in its RIE;

b Run a one year PG Diploma in Guidance and Counselling at NIE ;

- c Training programme (short term) for teachers organised by NIE;
- d To encourage excellence among teachers, National Award for Teacher Education;
- e Work of popularisation of Science education, social science education, population education, environmental education;
- f To provide scholarship for 1000 meritorious student every to pursuing science and social science upto the doctoral level;
- g To developed science equipment and kits for experiments in science and mathematics in school level.

The NCERT stresses more on programmes like; development, training, extension, publication and dissemination, evaluation of institution materials and exchange programme. These programmes were categorised by the NCERT as given:

1. Research Studies;
2. Development Activities;
3. Capacity Building Programmes;
4. Extension Activities;
5. Major Publications;
6. Major Schemes of MoE co-ordinated by the NCERT;
7. Publication and presentation by the faculty of NCERT.

### **3.12.2 Research Studies**

As one of its primary responsibilities, the NCERT actively engages in conducting, promoting, and coordinating educational research pertaining to various facets of school education and teacher education. By leveraging the insights gained from research studies and innovative practices, the NCERT plays a crucial role in influencing policies and programs aimed at bringing about positive transformations in the education system. The Council conducts studies in diverse areas of school education and teacher education, including but not limited to:

- i. Difficulties encountered by educators when incorporating Pedagogical



Content Knowledge into science instruction...

- ii. Challenges faced by primary schools implementing Art Integrated Learning in the learning environment.
- iii. Ensuring inclusivity in elementary schools and addressing the educational needs of children with disabilities caused by chronic health impairments.
- iv. Pedagogical processes involved in teaching the Urdu language at the elementary level in Madrasas.
- v. Implementation of the three-language formula in English language classrooms.
- vi. Investigating the correlation between the perception of school climate and students' academic outcomes.
- vii. Effectiveness of intervention strategies in enhancing learning outcomes in science at the upper primary stage.
- viii. Participation and performance of girls in the National Talent Search Scheme (NTSS).
- ix. Developing research policies on education and skill development from a gender equality perspective in India and Korea.
- x. Assessment of the girls' hostel scheme's status.
- xi. Students' internship programs at the secondary teacher education level.
- xii. Interventions to improve the quality of science education in schools located in Scheduled Tribe (ST)-dominated districts of Nagaland.
- xiii. Enhancing the capabilities of Teacher Education Institutions (DIETs) to promote sustainable development.
- xiv. Introduction of pre-primary teacher education programs in India.
- xv. Implementation of vocational education (Classes IX to XII) in schools.
- xvi. Development of learning resources to aid in understanding stereochemistry and reaction mechanisms in organic chemistry at the senior secondary level.
- xvii. Evaluating the effectiveness of virtual laboratories in improving science achievement at the secondary school level.
- xviii. Assessing the implementation of social science pedagogical training programs in classroom processes in Maharashtra and Porta Cabin School in the Bastar Region of Chhattisgarh State.

- xix. Reorganization and merger of elementary schools in Jharkhand in the context of the Right to Education (RTE) Act, 2009.
- xx. Evaluation of in-service teacher training programs on mathematics classroom practices at the senior secondary stage in Andaman and Nicobar Islands.
- xxi. Exploring the impact of Art Integrated Learning at the elementary level. xxii. Evaluation of the effective implementation of the D.El.Ed. (Diploma in Elementary Education) program in Andhra Pradesh, and so on.

The NCERT has undertaken research projects at the block level in various regions across the country, focusing on adopting specific blocks and implementing interventions to enhance the teaching and learning process. The selected blocks for this study include Ichhawar in the West, Chilika in the East, Rigvovi in the North-East, Hurda in the North, Hunsuiin in the South, and one block in Tripura funded by the state government.

Furthermore, the Council promotes educational research through the Educational Research and Innovations Committee (ERIC). During the year, nine research projects received financial support from ERIC and were successfully completed. The NCERT also offers "NCERT Doctoral Fellowships" to support young researchers in pursuing doctoral research directly related to education. In the 2019-20 period, ten candidates were awarded Doctoral Fellowships by the NCERT.

### **3.12.3 Development Activities**

The NCERT engages in the implementation of developmental programs aimed at enhancing the teaching and learning process across all areas of school and teacher education. These initiatives involve the creation of diverse educational resources such as audio-visual materials, textbooks, handbooks, training packages, manuals, supplementary readers, kits, and more. The developmental works carried out by the Council encompass:

- i. Creating course material for the certificate course on curriculum design and implementation.
- ii. Introducing online courses on arts education and local heritage mapping.

- iii. Placing emphasis on the teaching of Urdu and Hindi.
- iv. Enhancing the skills of teachers in value education.
- v. Developing reading materials for teacher counsellors to address behavioral issues among school adolescents.
- vi. Preparing handbooks for teachers on art-integrated learning.
- vii. Developing textbooks in music, visual arts, computer science, and informatics practices.
- viii. Creating a Hindi version of a book that includes children with autism in primary schools.
- ix. Designing tactile books for mathematics.
- x. Creating e-content in music.
- xi. Formulating guidelines for nurturing gifted and talented children.
- xii. Developing an identification tool for disability conditions recognized in the RPWD Act, 2016.
- xiii. Providing supplementary reading materials in Hindi, English, Urdu, and Sanskrit.
- xiv. Compiling an anthology of BalKathayen in Hindi written in Indian languages.
- xv. Offering e-content in Hindi, English, and Urdu languages.
- xvi. Preparing textual material on inclusive education in Urdu for D.El.Ed. and B.Ed. students.
- xvii. Developing a glossary of terms used in the teaching-learning process.
- xviii. Creating teaching-learning material in Urdu on 'assessment as learning' for B.Ed. students.
- xix. Compiling a handbook in English on exemplars based on learning outcomes.
- xx. Designing a workbook in English for Class X and an aptitude test for school students called "Tamanna."
- xxi. Initiating activities in Chemistry at the Higher Secondary Stage.

- xxii. Developing audio/video resources on experiments/activities in biology and chemistry, as well as resource material on water management/conservation.
- xxiii. Creating transformative material for generating awareness and promoting attitudinal change concerning gender.
- xxiv. Preparing a handbook on multilingual education for the aspirational districts of Narmada and Dahod.
- xxv. Designing a mathematics practical manual for B.Sc. and B.Ed. students.
- xxvi. Creating a handbook on field engagement in pre-service teacher education in Odisha.
- xxvii. Developing e-resources for schools and teacher education curriculum, among others

These initiatives reflect the NCERT's commitment to providing comprehensive and diverse resources to support effective teaching and learning practices. These initiatives reflect the NCERT's commitment to providing comprehensive and diverse resources to support effective teaching and learning practices.

Aligned with the Learning Outcomes at the Elementary Stage, the NCERT, in collaboration with all its units, has formulated Learning Outcomes for the Secondary Stage (Classes IX and X) in various subjects, including Hindi, English, Sanskrit, Urdu, Science, Social Science, Mathematics, Health and Physical Education, and Art Education. These Learning Outcomes were officially released by the Ministry of Education (Formerly known as Ministry of Human Resource Development) and are now available for access on the NCERT website.

### **3.12.4 Capacity Building Programmes**

With the aim of bridging the disparities between curriculum guidelines and actual implementation, the NCERT conducts capacity-building initiatives for education stakeholders. These programs are designed to enhance the skills and knowledge of individuals involved in the education system.

- i. The Council conducted a comprehensive capacity-building program called 'NISHTHA' to enhance the skills of teachers and school leaders at the Elementary Level. The program focused on learner-centered pedagogies with

the aim of improving students' learning outcomes. It was implemented in 30 States/UTs, and training for Key Resource Persons (KRPs) and State Resource Persons - Level L (SRPs-L) has been completed in 22 States/UTs. A total of 2,501 SRPs-L, 12,570 KRPs, 408,933 teachers, and 42,782 heads and principals have been successfully trained under this program..

- ii. The Council organizes programs to enhance the skills and knowledge of master trainers through capacity building, orientation, and training initiatives or Key Resource Persons in different areas of school and teacher education for ensuring quality education at all levels of school and teacher education. During the year, training programmes were conducted in the areas viz., Indian sign language, guidance and counselling, gender issues in education, vocational pedagogy, implementation of vocational education, paddy farmer in the agriculture sector, automobile technology, store operations assistant and sales associate, apparel made-ups and home furnishing sector job role, action research, research methodology, inclusive education, science, mathematics, social science, educational kits, etc.

### **3.12.5 Extension Activities**

The NCERT expands its activities by arranging international, national, and regional gatherings or seminars, competitions at the national and regional levels, conferences, workshops for regional review, camps, and workshops for sensitization. Additionally, it conducts extension lectures, book exhibitions, melas, and other similar events to connect with stakeholders throughout the country. The Council carries out a comprehensive outreach program where the departments of the NIE, RIEs, CIET, and PSSCIVE actively engage in activities aimed at reaching out to officials and providing academic support to States/UTs. The extension programs of the Council encompass the following:

- a) Jawaharlal Nehru National Science, Mathematics and Environment Exhibition (JNNMSEE) for Children,
- b) State Level Science, Mathematics and Environment Exhibitions (SLSMEE) for Children,
- c) National Consultation Meet on *Madrasa* Functionaries under Minority Cell

Activities,

- d) Celebration of International Mother Language Day,
- e) National Library of Educational and Psychological Tests (NLEPT),
- f) Centre for Popularisation of Science,
- g) National Awards for Innovative Practices and Experiments in Education for Schools and Teacher Education Institutions,
- h) National Conference on School Leadership Practices,
- i) Information Literacy Programme for the Users of NCERT,
- j) National Conference on Re-imagining Technical and Vocational Education and Training for the Changing World: Perspectives and Practices,
- k) In-country Programme on Leadership and Change Management for TVET,
- l) Extension Lectures of Eminent Educationists,
- m) Expression Series on Eminent Personalities,
- n) Workshop for Heads and Coordinating Teachers of Co-operating Schools for Internship,
- o) National Conference on Implications of ‘Gandhians Thought’ for School Curriculum,
- p) Working with the Community programme of student teachers of RIEs,
- q) The organisation of the School Exposure and Multicultural Placement Programme of B.Ed. Students,
- r) International Conference on Education in the Twenty-First Century,
- s) Activities of Minority Cell;
- t) Screening-cum-Progress Monitoring Committee (SPMC) of Educational Research and Innovations Committee (ERIC);
- u) Yoga Olympiad, *Kala Utsav*, National Role Play and Folk Dance Competition, etc.

### **3.12.6 Major Publications**

The major publications of NCERT apart from the curricular materials include,

- i. School textbooks,
- ii. Workbooks,
- iii. Supplementary readers,

- iv. Teacher guides,
- v. Laboratory manuals,
- vi. Sourcebooks on assessment,
- vii. Exemplar problems in science and mathematics,
- viii. Research reports or monographs and
- ix. Educational journals such as
  - Bhartiya Adhunik Shiksha;
  - Indian Educational Review;
  - Indian Journal of Educational Technology;
  - Journal of Indian Education; Prathmik Shikshak;
  - School Science;
  - The Primary Teacher;
  - Voices of Teachers & Teacher Education (online only)

In addition to materials that are not in textual format, Council re-print textbooks for different Classes from I to XII as per the requirement raised by the States every year.

### **3.12.7 Major Schemes of MHRD Co-ordinated by the NCERT**

The NCERT initiates multiple programs focused on research, development, training, and extension to enhance the quality of school and teacher education. The highest academic committee responsible for approving these programs is known as the Programme Advisory Committee (PAC). Additionally, the Ministry of Human Resource Development (MHRD) delegates the implementation of its various school and teacher education schemes or projects, approved by the Programme Approval Boards (PABs) of MHRD, to the NCERT. Different entities within the NCERT are assigned specific responsibilities to effectively execute these schemes..

- National Repository of Open Educational Resources (NROER) and Chetana;
- e-Pathshala;
- National ICT Award for School Teachers
- Sarva Shiksha Abhiyan (SSA);
- National Talent Search Scheme;
- Adolescence Education Programme (AEP);;

- Jawaharlal Nehru National Science, Mathematics and Environment Exhibition (JNNSMEE) for Children
- DIKSHA (Digital Infrastructure for Knowledge Sharing)
- National Folk Dance Competition
- Yoga Olympiad;
- PM eVidya: One Class, One Channel;
- National Population Education Project (NPEP);

### 3.12.8 Publications and Presentations by the NCERT Faculty

Publications represent the intellectual products that add value to the council. The scholarly literature is written by researchers who are experts in their field. Faculties of colleges, universities, or other educational institutions or research contribute intellectual products through publications in academic journals. They submit articles to the editors of the journals, who decide whether or not to publish the article. The most prestigious academic journals rigorously follow the peer-review process while publishing the articles. This means that, before an article is accepted for publication, it is reviewed by several experts in the field, who suggest possible changes, and recommend the status of the article to the editor of the journal whether or not to publish the article.

Table-3.1 Publications of Faculty

Year	Chapter in book	Article	Book	Presentation	Total
2018-19	9	24	2	22	57
2019-20	6	11	0	15	32
Total	15	35	2	37	89



Scholarly publishing has become imminent to expand the knowledge horizon in various subjects and it not only adds value to the growth of the subjects but also acts as a way to recognition to the subjects and the authors. This being the need of the hour, many international organisations emphasize the same to encourage research for making a well-informed society. Sporadic attempts are being made by the publishing industry, universities, and institutions to make it more viable to make more use of the literature by the researchers. The efforts of NIE are commendable which not only facilitate textbooks for expanding the education but also equally focus on scholarly publishing.

The present chapter discussed in details about ‘what is scholarly activities’, type of scholarly articles, publications of scholarly articles. Scholarly publications are the intellectual output of the academic activity of the faculty members of every educational institutions. Faculties of NIE are involved in to complete different activities organised by the NIE such as 1) Research Studies, 2, Development Activities, 3. Capacity Building Programmes, 4. Extension Activities, 5. Major Publications, 6. Major Schemes of MoE co-ordinated by the NCERT, in addition to faculty staff of NIE are engaged to published chapter in books, articles in journals, present articles in seminar/conference, writing book etc in own subject or the area of specialisation. The next chapter entitled “Digital Library and Institutional Repository: an overview” deal with the concept of the digital in the library, and need of the IR of educational institute, for the output of the academic activities of the institution.

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## Chapter 4

### Digital Library and Institutional Repository: An Overview

## **Digital Library and Institutional Repository: An overview**

### **4.1 Digital Library**

The advancement and progress of digital libraries and institutional repositories worldwide have revolutionized access to electronic resources and scholarly publications for the academic and research community. According to the definition provided by Wikipedia, a digital library, also known as an online library, internet library, digital repository, or digital collection, refers to an online database that contains various digital objects such as text, images, audio, video, documents, or other forms of digital media. These objects can encompass digitized content like printed materials or photographs, as well as originally created digital content like word processor files or social media posts. Apart from content storage, digital libraries offer features for organizing, searching, and retrieving the materials within their collections. They can vary significantly in size and scope and are managed by individuals or organizations. The digital content may be stored locally or accessed remotely through computer networks. These information retrieval systems possess interoperability and sustainability, enabling seamless exchange of information among them.

### **4.2 Development of Digital Library:**

The concept of digital libraries originated before the advent of digital storage technologies and widespread availability of computers. In an article published in July 1945 by Bush, titled "As We May Think," he proposed the idea of a mechanized file and library that would provide access to records, communications, and books for individuals. In the early 1960s, Licklider further expanded on this vision in a monograph, envisioning a future library that would replace books with a device capable of transmitting and processing information according to user-defined procedures. By the late 1980s, digital libraries were still relatively nascent in the fields of librarianship, information science, and computer science. However, by the end of the 1990s, there was a significant surge in research, development, and global interest in digital libraries, driven by advancements in technology. In 1994, the Library of Congress announced plans to create the National Digital Library (NDL)

by applying emerging technologies to its collection. The Digital Libraries Initiative (DLI), a joint effort by the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), and the Defense Advanced Research Projects Agency (DARPA), provided substantial funding to support digital library research at six universities between 1994 and 1999. Since then, numerous digital library projects and initiatives have continued to grow and evolve. In Europe, for example, Dalbelo conducted a study analyzing the modalities of digital library development from 1998 to 2002. The Digital Public Library of America (DPLA) has played a significant role in digitizing special collections from various libraries and museums across the United States. San Antonio Public Library also embraced the digital trend by opening two digital library branch kiosks in early 2014 at the San Antonio International Airport, offering a wide range of digital resources. Efforts have also been made to ensure accessibility for print-impaired individuals, with talking book libraries and mainstream libraries collaborating to provide innovative services and technologies. Institutions like Kala Nidhi, a part of the Indira Gandhi National Centre for the Arts, focus on supporting researchers and scholars through their extensive collections and multimedia resources related to various disciplines and regions. These examples highlight the diverse and expanding landscape of digital libraries and their aim to enhance access to information for academic and cultural purposes.

#### **4.3 Institutional Repository Software: An Evaluation**

Numerous organizations are actively developing digital library technologies to enable global access to knowledge through computers and communication technology. The emergence of the World Wide Web (WWW) has played a significant role in facilitating online advertising, e-commerce, and information dissemination to a vast number of internet users worldwide.

The concept of digital libraries can be traced back to Vannevar Bush's Memex machine, which he envisioned in 1945. As President Roosevelt's science advisor and a key figure in the establishment of the National Science Foundation (NSF), Bush emphasized the need for tools to manage and utilize the vast body of human

knowledge. While Bush's Memex concept had limited practical utility, it inspired scholars in the fields of information retrieval, information science, and hypertext.

J.C.R. Licklider further envisioned digital libraries as repositories of digital reproductions of worldwide literature accessible via networked computers. Licklider's pioneering work in the 1960s led to the first comprehensive study on automated digital libraries at MIT. The development of automatic indexing and search systems during that era laid the foundation for modern digital libraries, which have benefited from over three decades of information retrieval research.

The terms "digital library," "virtual library," "electronic library," and "library without walls" have been used interchangeably to describe the general concept of digital libraries. The NSF's launch of the "Digital Libraries Federation I Project" in 1994 marked a significant milestone, fostering notable advancements in the field. The project involved collaboration among six major US universities from 1994 to 1998. Subsequently, the DLF-II project (1999-2004) further contributed to the development and widely accepted definition of a "digital library" during a period of remarkable progress in the sector worldwide.

The primary function of digital libraries is to enable remote access to digitized collections. They encompass various forms of data, including text, numbers, graphics, photos, sound, video, films, slides, and even three-dimensional objects that users can manipulate and view in their browser windows. Digital libraries have evolved into multidisciplinary platforms serving as a nexus for disciplines such as data management, information retrieval, document management, information systems, the web, image processing, artificial intelligence, human-computer interaction, and digital creativity.

Within digital libraries, information undergoes activities such as abstraction, collection, creation, sharing, evaluation, modeling, organization, personalization, preservation, request, and selection. Each piece of knowledge, information, data, relationship, log, annotation, user profile, and document within digital libraries can be considered a distinct type of digital object, characterized by its unique structure, metadata, and streams.

It's important to note that unlike libraries, which focus on organized publications and information retrieval, the World Wide Web itself was not originally designed for these purposes. The WWW has developed as an expansive repository of digital documents produced worldwide, often in a disorderly manner. Digital libraries have been implemented alongside traditional libraries, utilizing open source software or commercial solutions. Libraries, businesses, publishers, and other entities have undertaken numerous projects to provide services based on digital information.

(Lynch, C., The tulip project: context, history, and perspective, 1995)

#### **4.4 Institutional Repository: Concepts and Definitions**

Among the numerous open access platforms, including open access journals, open access discussion forums, and self-archiving, institutional repositories are an important one.

1. In line with Crow 2002, “an IR is a digital collection for capturing and preserving the intellectual output of a single or multi-university community” (Crow, 2002).
2. “An Institutional Repository is an organisation based set of services which the organisation 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 organisational commitment to the stewardship of these digital materials, including long-term preservation, where appropriate, as well as organisation and access or distribution” (Lynch C. A., 2003).
3. "An Institutional Repository is a digital collection of a university's scholarly or creative output. IRs are collects, preserve, and make accessible the knowledge generated by academic institutions. Institutional Repository's also forms part of a larger global system of repositories which are indexed in standardized way and searchable using one interface, providing the foundation for a new model of scholarly publishing." (Drake, 2004).
4. "An institutional repository is a web based database of scholarly material which is institutionally defined (as opposed to a subject based repository), cumulative and



perpetual (a collection of record), open and interoperable (i.e. Using OAI compliant software) and thus collects, stores and disseminates (is a part of the process of the scholarly communication)." (Ware, 2004).

5. "Institutional repositories are managed as a storage system with content deposited on a personal, departmental, institutional, national, regional or consortia basis, providing services to designated community with content drawn from the range of digital resources that support learning, teaching and also research." (Heery& Anderson, 2005).

6. "Institutional repositories are an electronic system that captures, preserves and provides access to the digital work products of a community." (Foster & Gibbons, 2005).

7. "An institutional repository includes a wide variety of materials produced by scholars from many units such as e prints, technical reports, theses, dissertations, data sets and also teaching materials. Some institutional repositories are also being used as electronic presses, publishing e books and e journals." (Bailey, 2005).

8. An institutional repository is an online locus for collecting, preserving, and disseminating, in the digital form, which is the intellectual output of an institution, specifically a research institution.

"For a university, this would include materials for example research journal articles, before (pre prints) and after (post prints) undergoing peer review and digital versions of theses and dissertations, though it might include other digital assets generated by normal academic life, for example administrative documents, course notes, learning objects." (Wikipedia).

The researcher summarized the definition/meaning of Institutional Repository as “A suitable platform for the users and contributors under an institutional umbrella for the sharing of information and dissemination of information to right user at the right time and in e-format.” From the perspective of the librarian, IR also serves as a research tool at the lead level.

#### **4.5 Need of Institutional Repository (IR)**

The significance of the current study lies in several factors: the overall increase in research activity, the growing demand for access to knowledge objects anytime and anywhere, the need to archive unpublished information-bearing objects, and the uncertainty surrounding the responsibility of preserving and archiving digital scholarly research materials. The importance of institutional repositories (IRs) can be summarized as follows:

**Evaluation of Institutions:** IRs play a crucial role in highlighting major publications and research outcomes, which is beneficial for evaluating institutions by organizations like NAAC, UGC, AICTE, and others.

**National Research Repository Infrastructure:** By establishing, populating, and interlinking individual repositories, IRs contribute to the development of a national research repository infrastructure.

**Research Data Accessibility:** IRs encourage the creation of services that utilize research data made accessible through the repository infrastructure, promoting data sharing and reuse.

**Profile and Stature:** IRs provide an open access gateway that enhances the visibility and reputation of the sponsoring institution.

**Support for Open Access:** Institutional repositories support the open-access publishing paradigm by providing a platform for disseminating research outputs freely.

**The features of institutional repositories can be categorized as follows:**

**Administration:** This feature allows the setup and customization of document types, formats, metadata, as well as the management of communities, collections, and users. It includes defining workflows, licenses, and customization of submission forms and homepage.

**Donor and User Management:** This feature facilitates the management of user authorization, user profiles, document submission, and other privileged user activities.

Authentication: IRs support various authentication mechanisms for metadata, document uploading, and granting permissions.

Workflow Approval/Moderation: IRs enable tasks such as peer review and content validation, ensuring the quality and accuracy of submissions.

Archiving: IRs provide functionalities for assigning unique identifiers to documents, supporting preservation (checksum), indexing, and storing submissions.

Publication: IRs enable visitors to search and browse content based on criteria such as title and author. They also facilitate OAI registration, compliance with metadata exposure standards, rights management, and notification services for new submissions.

The study focused on research institutions in India and found that the majority of them use open-source software for their repositories, while only a few academic institutions use commercial software. Table 4.1 in the study provides a list of institutional repository software, including both open-source and commercial options, along with details of their developers.

Table 4.1: List of Institutional repository softwares and its developer

Sl.No	Software	Developer	Open source	Commercial
1.	Aigaion	Aigaion developers	√	-
2.	Archimede	Laval University Library	√	-
3.	Bepress	Core	√	-
4.	Biblioscape	CG Information	-	√
5.	BibSonomy	University ofKassel	√	-
6.	Bibus	Bibus developers	√	-
7.	Bookends	Sonny Software	-	√
8.	Caliber	KovidGoyal	√	-

9.	CDS Ware	CERN, Document Server	√	-
10.	Connotea	Nature Publishing Group	√	-
11.	CONTENTdm	University of Utah Marriott Library	√	-
12.	DARE	SFOR & the NATO	√	-
13.	Digital Commons	ProQuest	-	√
14.	Digital Media Archive Technology	Sirsi	-	√
15.	Digitool	Ex Libris	-	√
16.	Drupal	Drupal community	-	-
17.	DSpace	MIL Libraries & HP Labs	√	-
18.	End Note	Thomson Corporation	-	√
19.	EPrints	University of Southampton	√	-
20.	ePub	International Digital Publishing Forum	√	-
21.	ETD-db	Virginia Tech.	√	-
22.	Fedora	Cornell University	√	-
23.	Greenstone	University of Waikato	√	-
24.	JabRef	JabRef developers	√	-
25.	Kaleidoscope	Kaleidoscope network	√	-
26.	l-Tor	NIWI-KNAW	√	-

27.	Nitya	Beehive DC group	-	√
28.	OAJCat	OCLC	√	-
29.	OAlCat	National Library of Australia	√	-
30.	OJS	Public Knowledge Project	√	-
31.	OPUS	Space Telescope Science Institute	-	√
32.	Papers	Mekentosj	-	√
33.	Plone	Plone Team	√	-
34.	ProCite	Thomson Corporation	-	√
35.	Rebase	rebase developers	√	-
36.	RefDB	refDB developers	√	-
37.	Reference Manager	Thomson Corporation	-	√
38.	Refworks	Refworks	-	√
39.	Sente	Third Street Software, Inc.	-	√
40.	Symposia	Innovative Interfaces	-	√
41.	VITAL	Australian ARROW Project	√	-
42.	Wikindx	Mark Grimshaw	√	-
43.	Zotero	Center for History and New Media	√	-

The list comprises 13 commercial software options and 30 open-source software options. Many institutions possess a diverse range of institutional publications, including journals, periodicals, projects, and conference reports. To ensure efficient

indexing of these documents, it is crucial to select the appropriate institutional repository software.

The selection of repository software is a significant task that falls within the responsibilities of library staff. Ideally, the chosen system should seamlessly integrate with the existing digital information system and be capable of meeting future requirements. Conducting a thorough analysis is an effective approach for selecting the most suitable repository software. This chapter provides valuable insights and guidance for conducting a proper analysis.

Based on the literature review chapter, it is evident that various institutional repository software options, both open source and commercial, are available in the market. Commercial software is designed primarily for commercial purposes, while open-source software is freely available to end users. Here are some of the prominent open-source institutional repository software options:

DSpace (<https://dspace.lyrasis.org>)

EPrints (<https://www.eprints.org/uk>)

Fedora (<https://fedora.lyrasis.org/>)

Greenstone (<https://www.greenstone.org/>)

Caliber etc. (<https://github.com/kovidgoyal/calibre>)

### **Comparison of the softwares of DSpace, EPrints, Greenstone and Calibre**

	<b>Features</b>	<b>DSpace</b>	<b>Eprints</b>	<b>Greenstone</b>	<b>Calibre</b>
Content Acquisition	Collection upload	Upload the collection through web user interface	Upload the collection through web user interface	Upload the collection through librarian interface	Upload the collection through librarian interface
	Duplicate checking	No	Yes	Yes	No
	URL support	No	Yes	Yes	No
	Community support	Yes	Yes	No	No
Content management	Workflow management	Yes	Yes	No	No
	Mobile- retrieval	No	No	No	Yes

	Design				
Metadata		Support UTF- 8	Support UTF- 8	Support UTF- 8	Not support
	Format	DC	DC	DC	fetch-ebook- metadata
	Metadata cross walk	Supports	Not support	Supports	Not support
Searching	Thesaurus	Yes	No	No	No
	Usability	Easy to use	Easy to use	Easy to use	Easy to use
Classification	Class number entering	No	No	Yes	Yes
	Grouping	es,as per key words	Yes,as per key words	Yes	Yes
	All fields	Yes	Yes	Yes	Yes
Retrieval	Relevance	No	No	Yes	No
	Embargo	Yes for version 1.6 and above	No	No	No
	Authorizati on	Very good	Partial	No support	No support
Installation	Documentat ion	Yes	Yes	Yes	No
	Web server	Apache	Apache	Apache	Apache
Security	Data encryption	Yes	No	No	No
	Digital Signatures	No	Yes	No	No
	Server Security	Yes	Yes	No	No
	License	BSD Distribution License	GPL License	GNU License	GNU ,GPL
Interoperabili ty		PKP Harvestingsoft ware	PKP harvesting software	Software uses its own OAI software known as oaiserver.	---
	installation	Not Easy	Not Easy	Easy installation	Easy installation
	Operating System	Debian,	Linux, Solaris,	Greenstone can be	Linux/Windows
		Ubuntu, Red Hat,	BSD, OSX as	installed on all	

		Windows	well as Windows	32-bit windows (95/ 98/ 2000/ XP/), all POSIX(Linux / BSD/UNIX-like OSES), OSX	
	Programming languages	JAVA and server side JAVA technologies including JAVA servlets, JSP	PERL	C++ , JAVA and Perl	C++, JAVA,etc. (all are embedded in the software.No separate installation required)
	Database support at back-end	PostGreSQLand Oracle	MySQL	GDBMdatabase i.e.GnuDatabase Manager	-
	Web server used	Apache web server	Apache web server	Apache web server	Apache web server
	Transaction log	All actions recording in dspace.log	All actions recording in Apache	Keeping usage log only	-----
		(log directory)	Server		
Syndication	RSS/Atom	Yes	Yes	-	Yes
	Resource Identifier	CNRI Handle	No	OAI Identifier	No
	Supported items	Can store and manage all types of content	Can store and manage all types of content	Can store and manage all types of content	Can store and manage E book format only

Table 4.2: Comparison table of selected softwares

With the use of the most recent information and communication technologies, institutional repositories (IR) are now establishing themselves as a critical part of the world's information infrastructure. It is also considered as networked collections of digital texts, documents, images, sounds, data, etc. The term "institutional



repositories" is now employed very loosely or even confused by various information systems in the vast majority of cases.

So that there is no confusion as we move forward with the task of designing or developing an institutional repository, which is completely justified in the technical sense of the word, it is essential that the concept be understood. This chapter includes the installation and customization of selected institutional repository softwares and its cross sectional analysis using some well-defined evaluation criteria so the administrators of the institutional repository can easily understand the features supported by each software. The chapter concluded with a detailed comparative table analysed from the practical study and literature review of these selected institutional repository softwares. The repositories which selected for the study are as follows with a detailed description about the software and its working model with necessary screenshots.

#### **4.6 OpenDOAR**

The University of Nottingham and Lund University, Launched the service in the year 2005 funded by OSI, Jisc, SPARC Europe and CURL as the product of a collaborative project between, is the quality-assured, global Directory of Open Access Repositories. They host repositories and provide free, open access to academic outputs and resources, offer a trusted service for the community. Figure 4.1 shows the list of repositories by country, Figure 4.2 shows that the DSpace software used for the repositories. Figure 4.3 shows that the growth of the OpenDOAR since the launch of the service, Figure 4.4 shows that the content type overview, Figure 5 shows that the content subject type overview.

## Repositories by Country

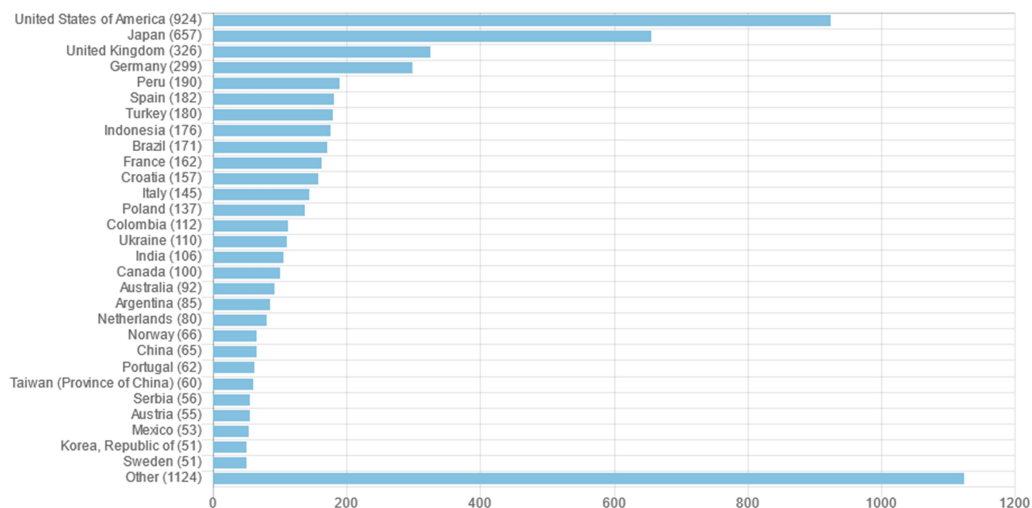


Figure 4.1 (source [https://v2.sherpa.ac.uk/view/repository\\_visualisations/1.html](https://v2.sherpa.ac.uk/view/repository_visualisations/1.html) retrieved on 29-05-2023)

## Software Platforms Overview

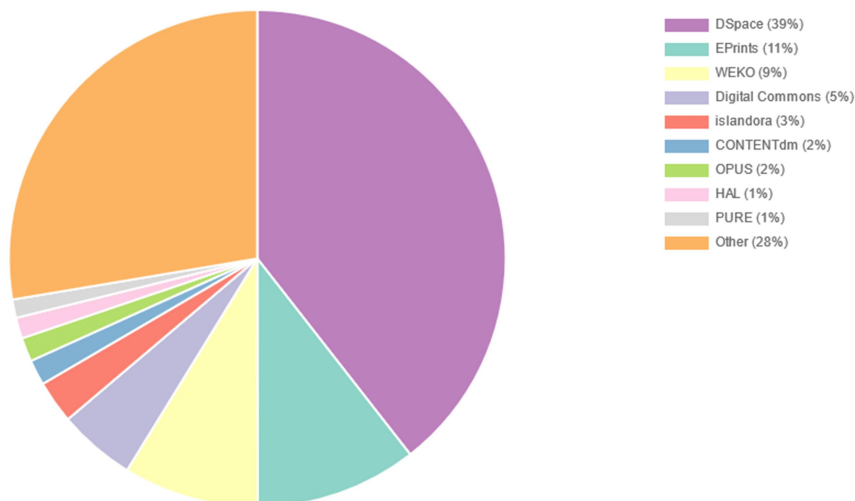


Figure 4.2 (source [https://v2.sherpa.ac.uk/view/repository\\_visualisations/1.html](https://v2.sherpa.ac.uk/view/repository_visualisations/1.html) retrieved on 29-05-2023)

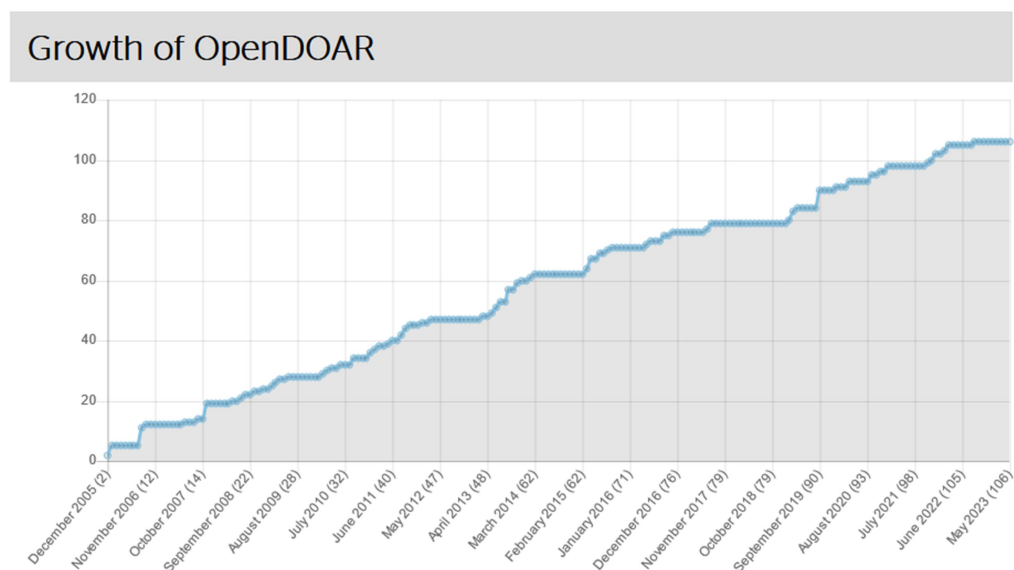


Figure 4.3 (source [https://v2.sherpa.ac.uk/view/repository\\_visualisations/1.html](https://v2.sherpa.ac.uk/view/repository_visualisations/1.html) retrieved on 29-05-2023)

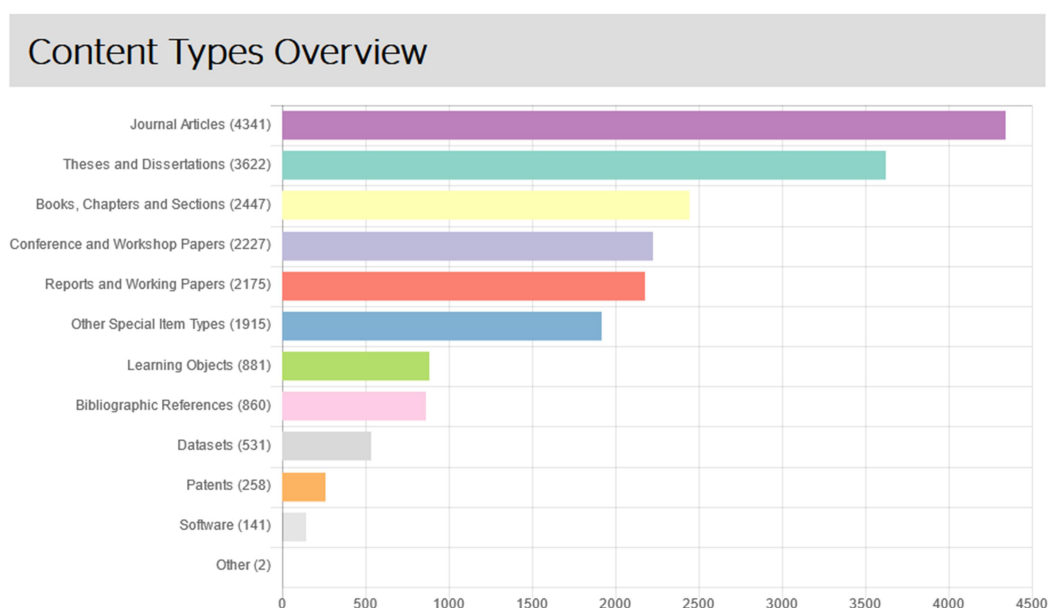


Figure 4.4 (source [https://v2.sherpa.ac.uk/view/repository\\_visualisations/1.html](https://v2.sherpa.ac.uk/view/repository_visualisations/1.html) retrieved on 29-05-2023)

Directory of Open Access Repositories is maintained by University of Nottingham and Lund University. This is a collaborative project funded by OSI, Jisc, SPARC Europe and CURL, The service of the project is maintained by the University of Nottingham and Lund University. Under this project they host repositories after

carefully reviewed each repository record and processed by the editorial team. This is the quality-assured, global Directory of Open Access Repositories ie OpenDOAR is one of the trusted service for the community. Total number of 6034 repositories stored from all over the world. US is the top of the list who deposited 924, followed by the Japan deposited 657, India is in the 16<sup>th</sup> position in the world deposited 106 repositories in Open DOAR. Statistical graphs are displayed repositories by Subject, Content, Countries, Software used. DSpace is one of the most popular open source software using 39% worldwide, followed by Eprints using by 11% in the world.

Statistically shown a Table 4.3 of the repositories by subject:

<b>Name of the Subject</b>	<b>Number of Repositories</b>
Social Science	4594
Science	4288
Humanities	4128
Health and Medicine	4111
Arts	4016
Engineering	3746
Mathematics	3661
Other	16

Table 4.3 Repositories by Subject

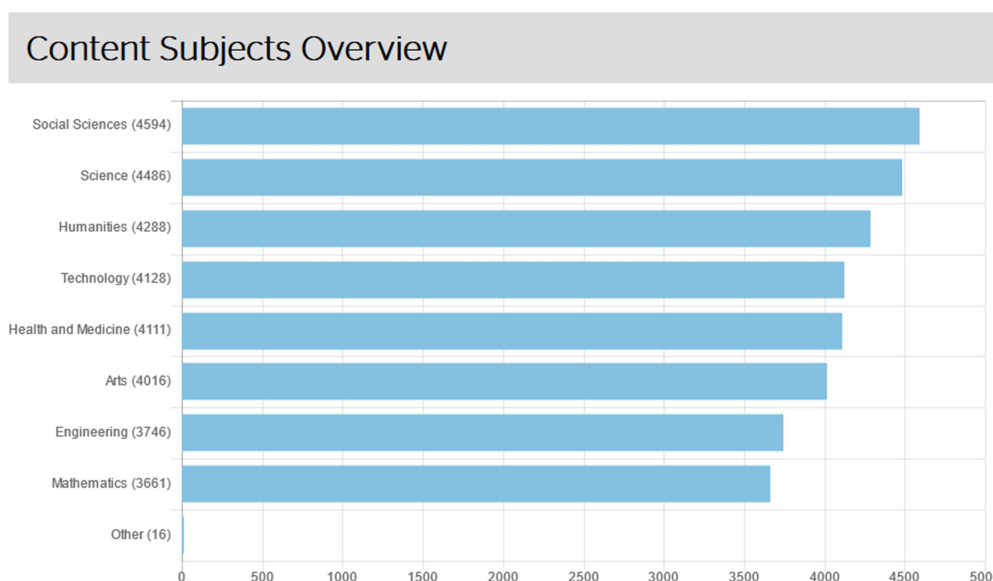


Figure 4.5 (source [https://v2.sherpa.ac.uk/view/repository\\_visualisations/1.html](https://v2.sherpa.ac.uk/view/repository_visualisations/1.html) retrieved on 29-05-2023)

In OpenDOAR total number of 106 repository are registered from India comes under the 16<sup>th</sup> position in the list, US is in the top of the list having 924 number of repositories are registered (Fig. 4.1). Total numbers of repository are registered in OpenDOAR is 6079 (as on 2<sup>nd</sup> June, 2023)

List of the Indian repository out of 106 using 'DSpace' registered in OpenDOAR

Figure: 4-4: List of Institutional repository softwares and its developer

Sl. No.	Name of the Repository	Type	Software	City
1	<a href="#">ARIES, Digital Repository</a>	Disciplinary	DSpace	Nainital, UK
2	<a href="#">BBAU Institutional Repository</a>	Institutional	DSpace	Lucknow, UP
3	<a href="#">Bhagirathi</a>	Institutional	DSpace	Roorkee, UK
4	<a href="#">Bhogwati Mahavidyalaya Institutional Repository</a>	Institutional	DSpace	Kolhapur, Maharashtra

5	<a href="#"><u>CSIR-NCL Digital Repository</u></a>	Institutional	DSpace	New Delhi
6	<a href="#"><u>DRS@National Institute of Oceanography</u></a>	Institutional	DSpace	Dona Paola, Goa
7	<a href="#"><u>DSpace@GGSIPU</u></a>	Institutional	DSpace	New Delhi
8	<a href="#"><u>DSpace@PESociety's Modern College of Arts, Science, and Commerce</u></a>	Institutional	DSpace	Pune, Maharashtra
9	<a href="#"><u>DSpace@IUCAA</u></a>	Institutional	DSpace	Pune, Maharashtra
10	<a href="#"><u>DSpace@Indian Institute of Geomagnetism</u></a>	Institutional	DSpace	Navi Mumbai, Maharashtra
11	<a href="#"><u>DSpace@Indian Institute of Management Kozhikode</u></a>	Institutional	DSpace	Kozhikode, Kerala
12	<a href="#"><u>DSpace@MS University</u></a>	Institutional	DSpace	Baroda, Gujarat
13	<a href="#"><u>DSpace@Vidyanidhi</u></a>	Institutional	DSpace	Mysore, Karnataka
14	<a href="#"><u>DSpace@GIPE</u></a>	Institutional	DSpace	Pune, Maharashtra
15	<a href="#"><u>DSpace@IMSC</u></a>	Institutional	DSpace	Chennai, Tamil Nadu
16	<a href="#"><u>DSpace@IFLIBNET</u></a>	Institutional	DSpace	Gandhi Nagar, Gujarat
17	<a href="#"><u>DSpace@SFIT</u></a>	Institutional	DSpace	Mumbai, Maharashtra
18	<a href="#"><u>DSpace@TU</u></a>	Institutional	DSpace	Patiala, Punjab
19	<a href="#"><u>Digital Knowledge Repository of Central Drug Research Institute</u></a>	Institutional	DSpace	Lucknow, Uttar Pradesh

20	<a href="#">Digital Repository@Indira Gandhi National Tribal University</a>	Institutional	DSpace	Amarkantak, Madhya Pradesh
21	<a href="#">Digital repository of West Bengal Public Library Network</a>	Institutional	DSpace	Kolkata, West Bengal
22	<a href="#">DigitalLibrary@CUSAT</a>	Institutional	DSpace	Ernakulam, Kerala
23	<a href="#">DSpace@IIT Bombay</a>	Institutional	DSpace	Mumbai, Maharashtra
24	<a href="#">DSpace@NITR</a>	Institutional	DSpace	Rourkela, Odisha
25	<a href="#">Dyuthi</a>	Institutional	DSpace	Ernakulam, Kerala
26	<a href="#">E-Repository@IIHR</a>	Institutional	DSpace	Bengaluru, Karnataka
27	<a href="#">EPrints@IIT Delhi</a>	Institutional	DSpace	New Delhi
28	<a href="#">Electronic Theses and Dissertations@Indian Institute of Science</a>	Institutional	DSpace	Bengaluru, Karnataka
29	<a href="#">Gyan Pravah</a>	Institutional	DSpace	Mahendergarh, Haryana
30	<a href="#">IACS Institutional Repository</a>	Institutional	DSpace	Kolkata, West Bengal
31	<a href="#">IIT Gandhinagar Digital Repository</a>	Institutional	DSpace	Gandhi Nagar, Gujarat
32	<a href="#">INFLIBNET's Institutional Repository</a>	Institutional	DSpace	Gandhi Nagar, Gujarat
33	<a href="#">IR@Goa University</a>	Institutional	DSpace	Teleigao Plateau, Goa

34	<a href="#">IR@NITK</a>	Institutional	DSpace	Mangalore, Karnataka
35	<a href="#">Indian Institute of Astrophysics Repository</a>	Institutional	DSpace	Bengaluru, Karnataka
36	<a href="#">Indian Institute of Petroleum Institutional Repository</a>	Institutional	DSpace	Dehradun, Uttrakhand
37	<a href="#">Institutional Repository – University of North Bengal</a>	Institutional	DSpace	Darjeeling, West Bengal

Table 4.4 List of few Repositories Using DSpace registered in OpenDOAR

#### 4.7 DSpace

DSpace is the commonly used institutional repository software, developed by joint project of Manchester Institute of Technology and HP labs. The first version of DSpace was released on 2002 under the license of BSD. Within in a short period of time, DSpace created a wide user community and this community helped to improve the workflow and customization of the software. Comparing to the other institutional repository softwares, DSpace has some special features to satisfy the repository nature. Due to these special features, DSpace get wide acceptance as a repository. Some of the special features of DSpace software are as follows:

- DSpace creates communities and sub communities to sort the contents.
- DSpace has wide community of users and developers in globally.
- DSpace will preserve all types of digital content (irrespective of the format).
- DSpace supports JSP and XMLInterface.
- DSpace has another feature of 'My DSpace'; due to this feature users will get an e- mail alert, when a new item added to the repository. The 'MyDSpace' function of DSpace enables the creation of e-persons for software users who registered themselves through a web browser.



- "DSpace creating transaction log to record the transaction details on datewise."
- DSpace also permits some roles for different aspects they are,
- Administrator role
- Contributor role
- General user role
- Submitter role
- Metadata Reviewer role

The features like OAI protocol and OAI-PMH interface helps hierarchy to manage contents (i.e. Communities, Collections, and Items). DSpace software has two interfaces:

- **JSP user interface**
- **XML user interface**

In JSP interface, we can change the inside structure and for the better customisation XML interface being used than JSP. The other repositories have only one user interface. DSpace uses the Jakarta engine called lucene, for searching and browsing of documents; Lucene is a straight forward yet effective search engine that offers fielded searching, stop word elimination, stemming, and other features.

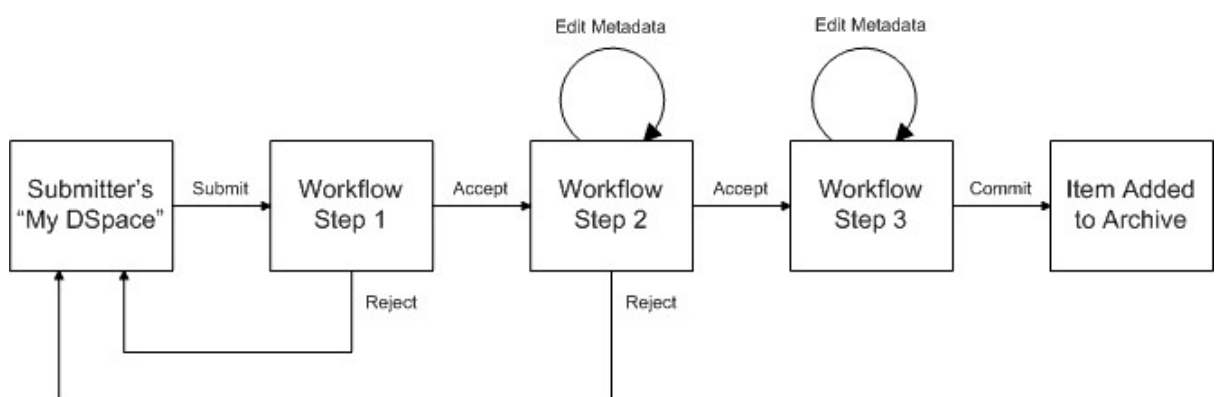


Figure 4.6: Work flow of DSpace software

The figure 4.1 shows the simple workflow of DSpace software. Sometimes DSpace rejects the user submission file during the workflow process, mentioning with a reason statement and this document mailed to the submitter, the file returned to the

user 'My DSpace' page. After making the necessary modifications, the user resubmits the document and the process restart again. The accepted paper transferred to the next step of the DSpace workflow. This is the workflow of DSpace repository software and mentioned in the figure 4.1.

DSpace 6.3 version onwards, a special feature of 'embargo' was introduced in DSpace. In DSpace version 3 onwards, this function has been extended for the XML user Interface as well. DSpace version 3 is considered as the latest stable version. So for the practical study and installation this version was selected. DSpace 6.3 was officially released on June 27, 2018.

- **Installation of DSpace**

Technical requirements for DSpace installation

Version: DSpace 6.3

- **Recommended Environment**

- Operating System : Windows / Linux/Unix
- Drive Partition : NTFS

- **Requirements**

- Java 8
- Apache Maven 3.3.9
- Tomcat 9.0
- Apache Ant 1.9.7
- PostgreSQL 9.4
- DSpace 6.3

- **Download** : <https://dspace.lyrasis.org/download>

The software can be downloaded from the above link.

#### **4.8 Conclusion**

The present chapter discussed in detail digital library and institutional repository, softwares, and its working model. Since digital library and Institutional Repository assume great importance in academic and R&D institutions to have access to vast amount of e-resources and scholarly publications, the next chapter entitled “Design and Development of an IR model for NIE” shall focus on appropriate IR model best suited to faculty members of NIE.

## Bibliotraphy

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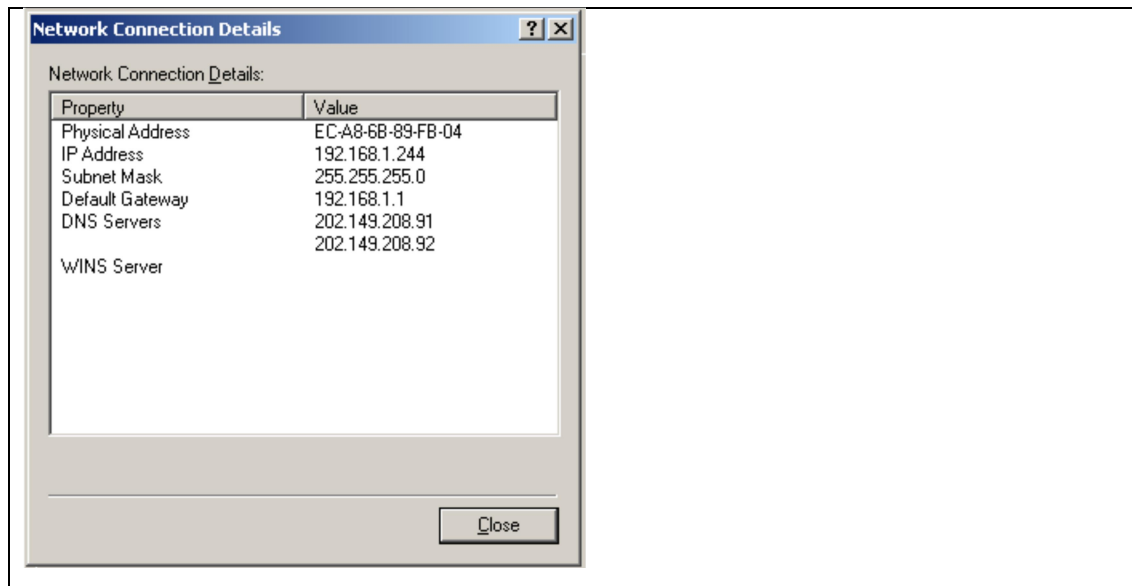
## Chapter 5

### Design and Development of an IR Model for National Institute of Education (NIE)

## **Design and Development of an Institutional Repository Model for National Institute of Education (NIE)**

### **5.1 Introduction**

An institutional repository is a database with a set of services to capture, store, index and preserve a university's scholarly research in a digital format. It is an organization-based set of services which the organization 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 an organizational commitment to the stewardship of these digital materials, including long term preservation, organization and access or distribution. Institutional repositories can be created by any of the common open source software, such as DSpace, Eprints, and Greenstone. DSpace was chosen as the repository software for NIE due to its largest community of users and developers, with 940 organisations currently using it. The DSpace open source platform is available free to anyone and can be downloaded from the repository. The code is licensed under the BSD open source license, which allows any organisation or individual to use, modify and integrate it into their commercial application without paying license fees. It is widely used by higher education institutions in India, Japan and USA, and is compatible with standards. Windows 2003 Server Enterprise Edition DSpace is compatible with platforms like Windows, Linux, UNIX and Mac, and has a minimum system requirement of 256 MB RAM, 550 MHz processor and 500 GB Hard-disk.



**Figure 5.1 Installation of DSpace Software: Pre-requisites**

Some of guidelines are available for installation of DSpace.

There are many guidelines are available for installing DSpace on Linux platform, but very few documents are available to guide installation of DSpace on Windows OS.

### Step – 1

The following open source softwares are required for the installation of DSpace.

- Apache-ant-1.9.7-bin (C:\ANT)
- Apache-maven-3.3.9-bin (C:\MAVEN)
- Apache-tomcat-9.0.0.M13.exe
- Jdk-8u202-windows-x64.exe (C:\Program Files\Java\jdk1.8.0\_111\)
- Postgresql-9.4.26-1-windows-x64.exe

### Step – 2

The following path was set for the information of the system.

```
%SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;%SYSTEMROOT%\System32\WindowsPowerShell\v1.0%;%SYSTEMROOT%\System32\OpenSSH;C:\apache-ant-1.9.7\bin;C:\apache-maven-3.3.9\bin;C:\Program Files;
```

Followings to PATH variable

```
C:\Program Files\Java\jdk1.8.0_111\bin;C:\apache-ant-1.9.7\bin;C:\apache-maven-3.3.9\bin
```

Setting JAVA\_HOME as

*C:\Program Files\Java\jdk1.8.0\_111*  
Setting ANT\_HOME as  
*C: \apache-ant-1.9.7*

### Step – 3

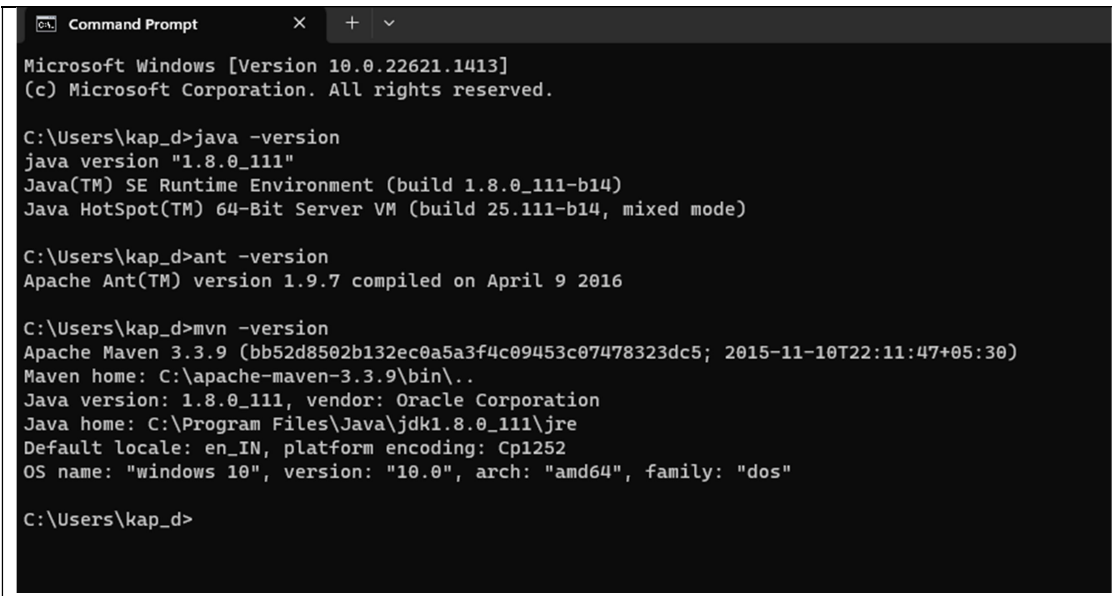
Following commands were executed to know about the installed version of the software.

*>java -version*

*>ant -version*

*>mvn -version*

Screen is shown below for the output of above command.



```
Microsoft Windows [Version 10.0.22621.1413]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kap_d>java -version
java version "1.8.0_111"
Java(TM) SE Runtime Environment (build 1.8.0_111-b14)
Java HotSpot(TM) 64-Bit Server VM (build 25.111-b14, mixed mode)

C:\Users\kap_d>ant -version
Apache Ant(TM) version 1.9.7 compiled on April 9 2016

C:\Users\kap_d>mvn -version
Apache Maven 3.3.9 (bb52d8502b132ec0a5a3f4c09453c07478323dc5; 2015-11-10T22:11:47+05:30)
Maven home: C:\apache-maven-3.3.9\bin\..
Java version: 1.8.0_111, vendor: Oracle Corporation
Java home: C:\Program Files\Java\jdk1.8.0_111\jre
Default locale: en_IN, platform encoding: Cp1252
OS name: "windows 10", version: "10.0", arch: "amd64", family: "dos"

C:\Users\kap_d>
```

**Figure 5.2 Installation of DSpace Software: Pre-requisites**

### Step – 4

Database of the repository entered in DSpace was created in PostgreSQL. The installation steps of PostgreSQL are guides itself, page is shown below:

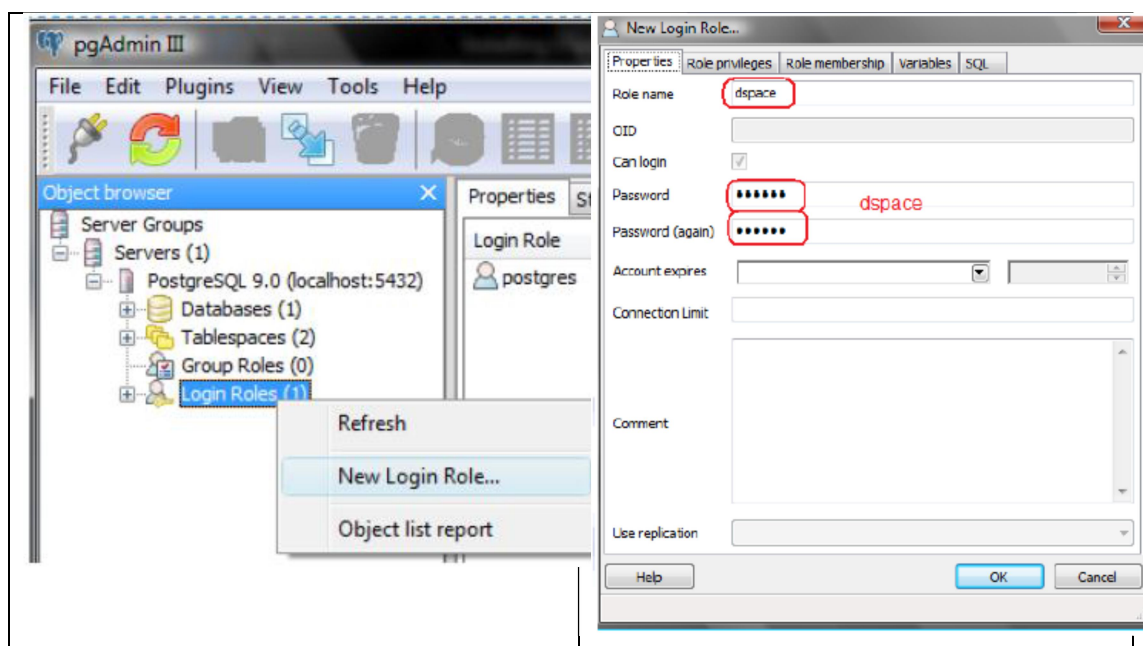




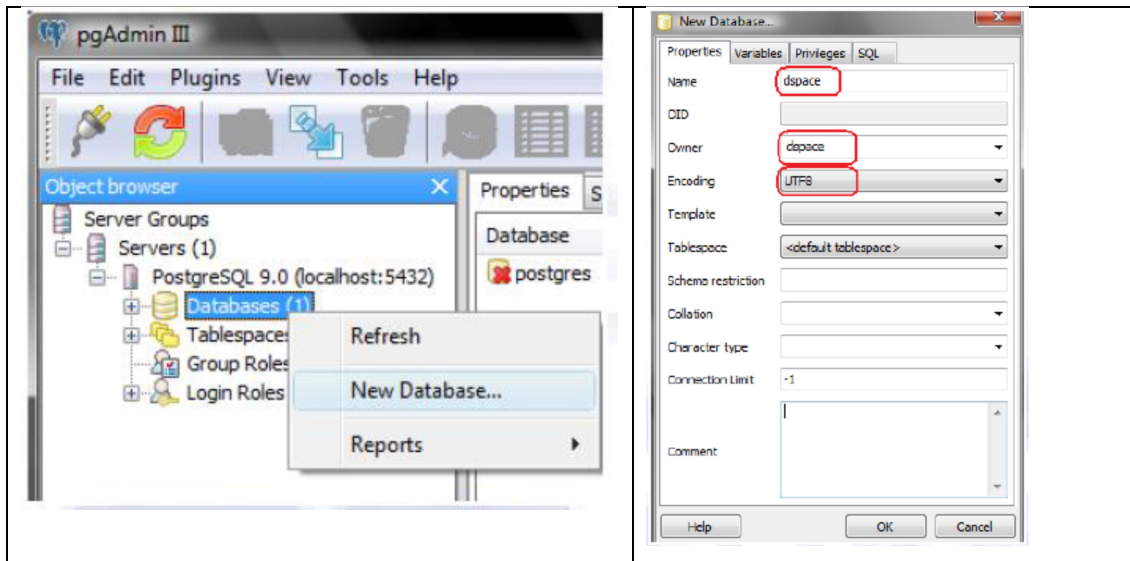
**Figure 5.3 Installation of DSpace Software: Pre-requisites**

### Step – 5

In the next steps blank database named DSpace for DSpace software and database Login roles created:



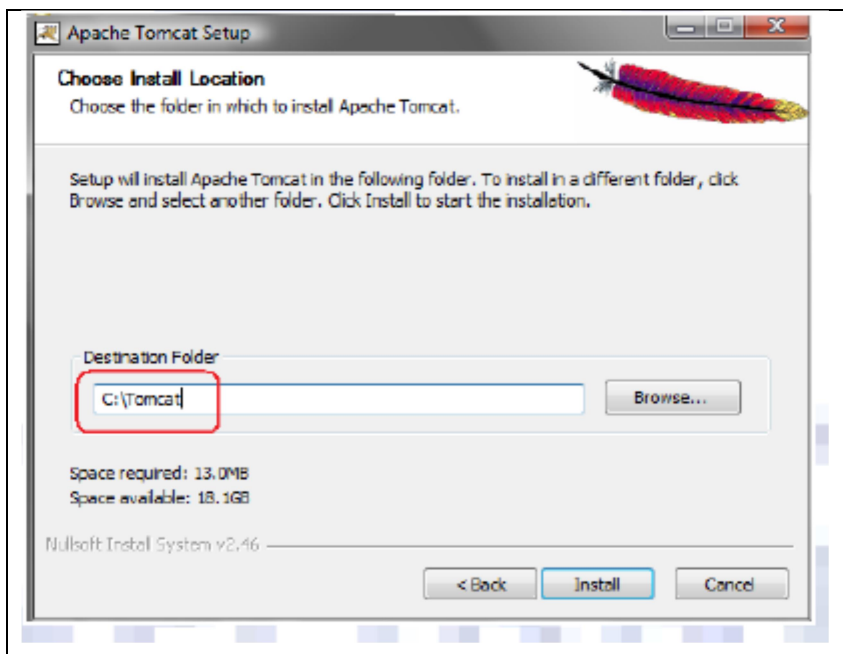
**Figure 5.4 Installation of DSpace Software: Pre-requisites**



**Figure 5.5 Installation of DSpace Software: Pre-requisites**

### Step – 6

The software Apache-Tomcat-9.0.0.M13.exe installed after double clicking, and on-screen instruction form was installer.



**Figure 5.6 Installation of DSpace Software: Pre-requisites**

### Step – 7

Final installation of DSpace:

The DSpace version 6.3 was installed DSpace for creating my institutional repository for National Institute of Education (NIE), NCERT. Following two commands were executed from the command prompt for installation of DSpace. An internet connection was required for the installation.

```
mvn package  
antfresh_installed
```

For keeping configuration, data files and programmes of DSpace a folder “DSpace” was made on C drive. Files were extracted from downloaded release of DSpace software namely “dspace-6.3-src-release” to the location. The configuration was updated in the \dspace\config file of the software as per following:

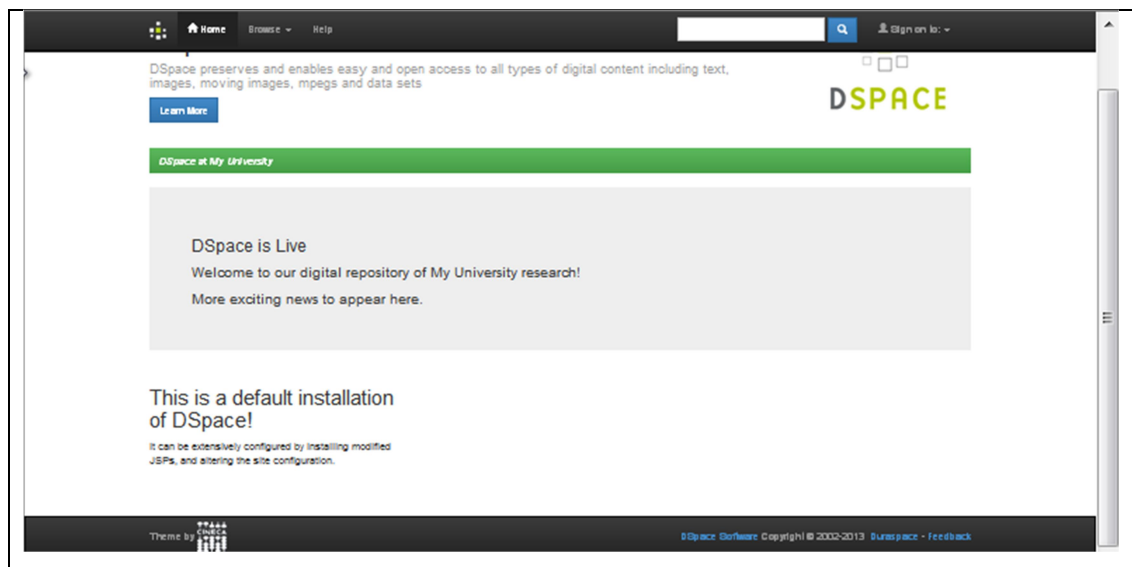
```
dspace.dir = C:/Dspace.  
dspace.name = " IDR - National Institute of Education "  
mail.server = smtp.gmail.com  
mail.from.address = dkcancer23@gmail.com  
feedback.recipient = dkcancer23@gmail.com  
mail.admin = dkcancer23@gmail.com
```

After creating an Administrator account. Following folder  
“C:\Dspace\webapps\jspui” was copied to “C:\Tomcat\webapps”.

Restart the Tomcat after complete the installation. The URL to access the repository is “[IDR - National Institute of Education: Home](http://localhost:8080/jspui)”.

<http://localhost:8080/jspui>

The default home page of DSpace is shown below:



**Figure 5.7 Default Home Page of DSpace**

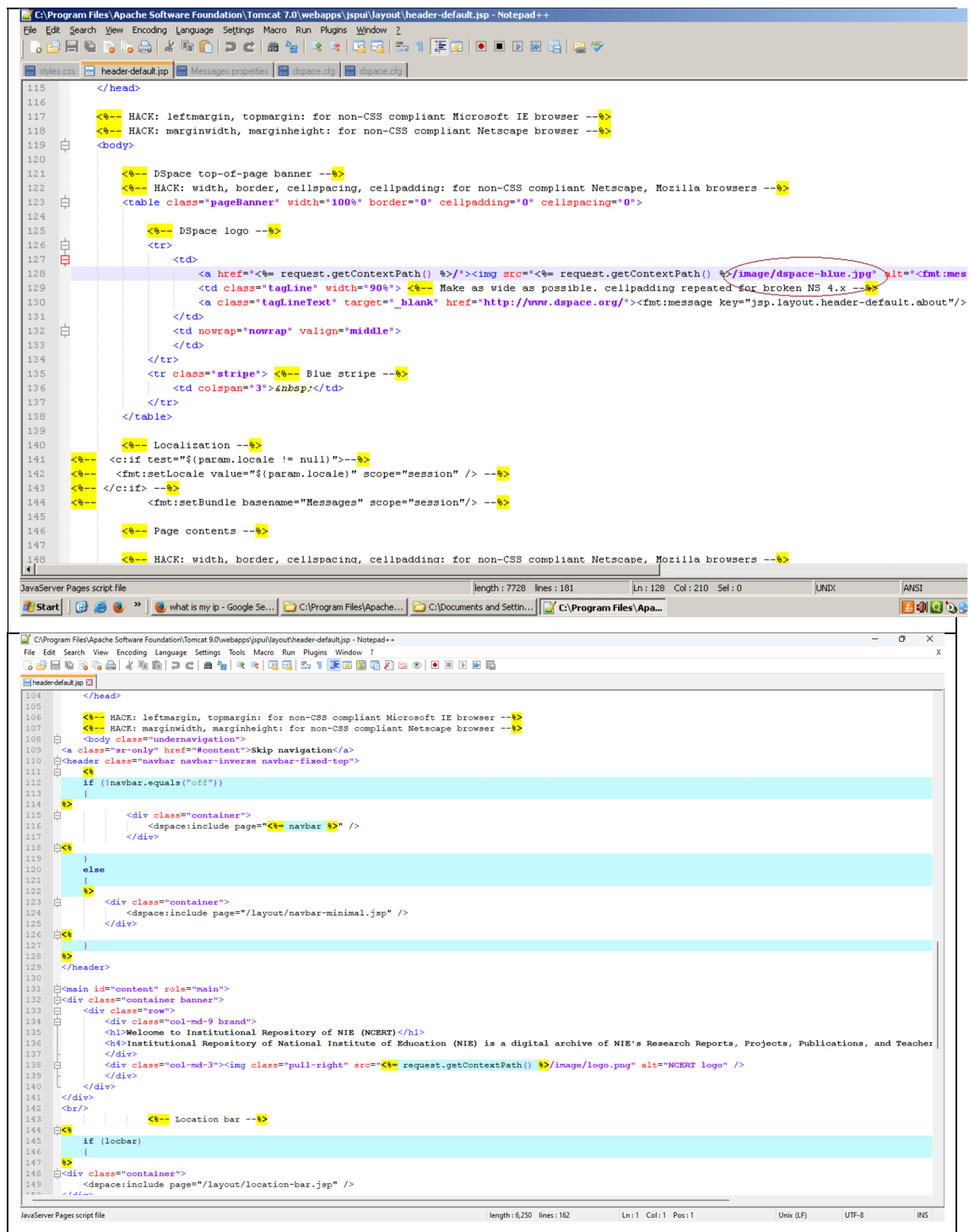
## **5.2 Customisation of DSpace**

Some of the following customisations of the DSpace were carried out. Other major required changes were left for incorporation at the stage of final development.

- DSpace logo
- Top News
- Side Bar
- Fonts
- Page design

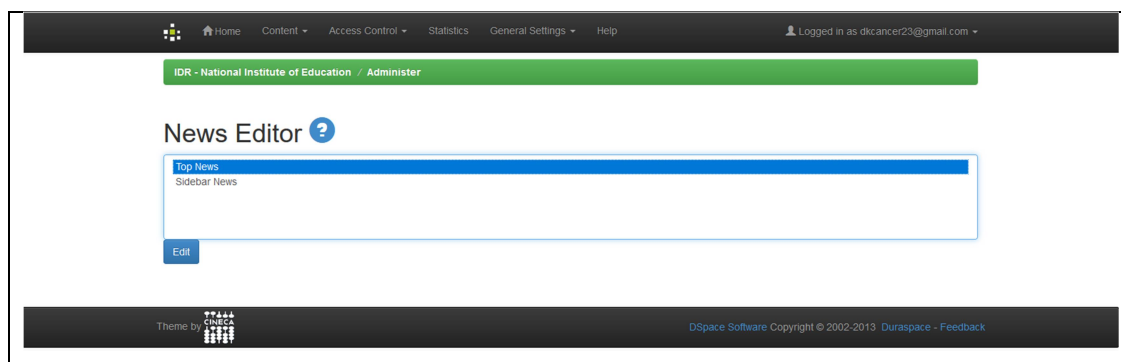
The customisations were effected in following files:

- i) “C:\Program Files\Apache SoftwareFoundation\Tomcat 9.0\webapps\jspui\layout\header-default.jsp”
- ii) <dspaceblue.jpg> was replaced with the logo to created for “[IDR - National Institute of Education: Home](#)”.
- iii) “C:\Program Files\Apache Software Foundation\Tomcat 9.0\webapps\jspui\styles.css”



**Figure 5.8 Customizing the header in DSpace**

Similarly changes were made to the “Top News”, after logging in as the administrator from National Institute of Education >Administer>News Editor.



**Figure 5.9 News Editor**

### **5.3 Digitisation Process**

During the process of installation and customization of DSpace, Enter the meta-data of National Institute of Education in the form of documents. In process of the digitisation of documents was either “born digital” or “digitised” format. Softwares are available in the website to digitise the documents. Some of the software are available in open source and are free to use, but these were not provided their special features and characteristics, So that selection of software for digitisation were challenge for the users. Softwares having special features are available under commercial or priced. In the process of digitisation of the documents available in the NIE using Canon image CLASAS MF244DR scanner and software provided with the scanner.

#### **Method 1:** (To create Digitised Documents)

In this method Capture perfect software scan B&W textual pages and 600 dpi for generated Portable Document Format (PDF).

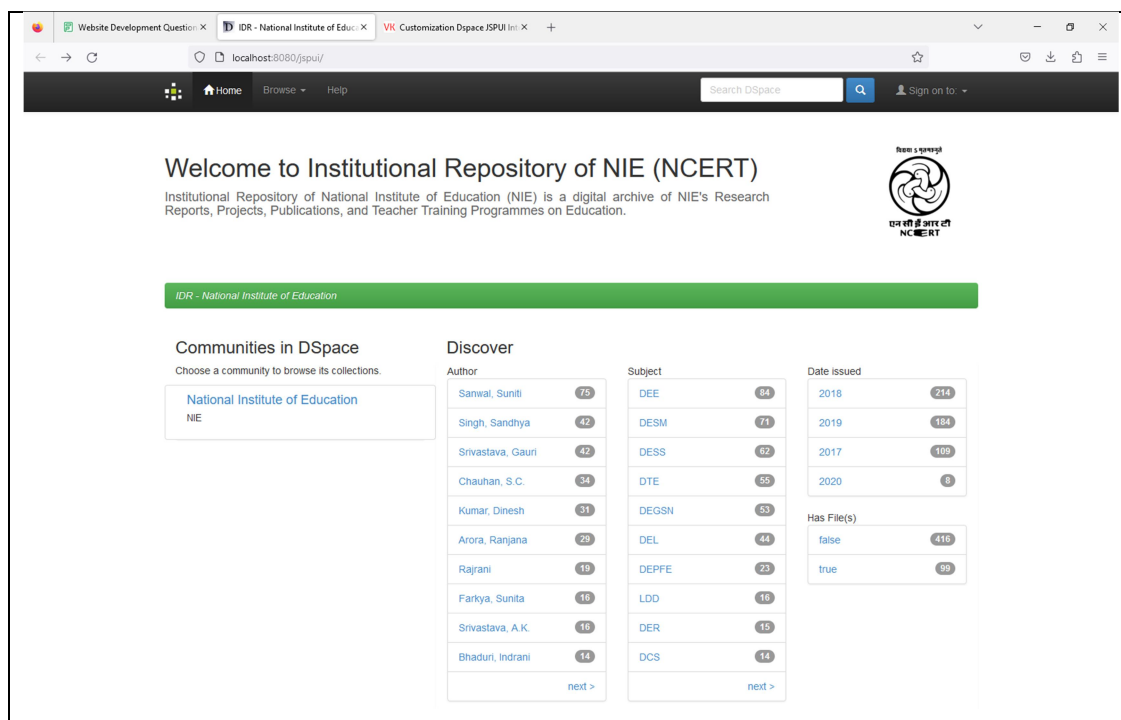
#### **Method 2:** (To create Born Digital Documents)

In this process data were available in the digital format by the use of Adobe Acrobat software to convert MS Office files into PDF, it can perform OCR. Using these aforesaid methods total 99 documents in the form of PDF has been uploaded to IR in their concern collections.

#### **5.4 National Institute of Education (NIE): IR Model**

Many programmes under project are organised by the NIE such as i) Research Studies, ii) Development Activities, iii) Capacity Building Programmes, iv) Extension Activities, v) Major Publications, vi) Major Schemes of MHRD Co-ordinated by the NCERT, Publications and Presentations by the NIE Faculty. The repository has the ability to archive such reports for submission and capture, to index, to store, to disseminate and to preserve publications submitted.

- Home page of NIE has different part of the sections such as Communities and Collections, Navigation Bar, Location Bar, Header, Footer, Top News, etc.
- Header: name of the repository of the institute and the image of the icon is display.
- Location Bar: community and collection is browsing
- Top News and Sidebar News: notification part, display information are shown.
- Search: advanced search option is available to search with a repository.
- Browsing in Communities and Collections: give facility to move desire option in community or collection.
- Navigation Bar: available on the left side of home page contains search, advance search, browsing by title, log on option to NIE



**Figure 5.10 Customized Home Page of DSpace for National Institute of Education**

#### 5.4.1 Need of the IR at NIE (NCERT)

NIE is the only Institute of its kind in the country in school education. NIE developed

1. Capacity Building programmes,
2. Development Activities;
3. Extension Activities;
4. Research Studies;
5. Major Publications;
6. Major Schemes of MoE: co-ordinated by NCERT

in the field of school education.

NIE has information and its publications in the subject of school education, such as books, journals, theses, and, research papers published by faculty, annual reports, syllabus and other general publications etc., the amount of work of this information are very difficult to organising, disseminating, preserving, and published is now very difficult, for this own IR is need by the NIE.



The reasons to develop an IR at NIE are:

- increase in the overall volume of research,
- need to access archival and unpublished information,
- demand to access information globally at 24x7,
- uncertainty to handle the archiving of scholarly research materials available digitally.

The importance of the IR:

- help to setup a national research repository infrastructure by setting up, populating and linking individual repositories,
- development of services that available through the repository on research information,
- It will provide a platform to gives an option to access visibility and status of the sponsoring institution's,
- open-access of the publication of institute can be visible.

#### **5.4.2 Publications uploaded in NIE**

<b>Type of Publication</b>	<b>Number</b>
Research Studies	88
Development Activities	156
Capacity Building Programmes	61
Extension Activities	41
Major Publications	57
Major Scheme of MHRD, Co-ordinated by the NCERT	23
Publications and Presentations by the NCERT Faculty	89
Total	515

There are 515 research and training programmes selected for uploading in the IR under Major Publications of books and journal, Capacity Building Programmes; Development Activities, Extension Activities, Major Scheme of MHRD, and Faculty Publications in “National Institute of Education”. The uploaded data are in the print mode.

### **5.4.3 Faculty and Researchers**

There are 89 faculty members of professors, associate professors, assistant professors, and librarians, engaged in teaching and research. Several research scholars are giving assistance to faculties to engage in research activities. Intellectual outputs such as training, project, and research report, is constantly going on in NIE.

In addition of aforesaid programmes initiated by the NIE also provided the facilities to promote academic activities to motivate faculty to undertake research in their area of specialisation, time to time.

### **5.4.4 Features of the NIE for the users**

The software has many modules for optimum uses, these modules/features are the part of the software. DSpace is an OSS widely used for the IR world-wide. It has many features, which are available for us to carry out routine activities for the users as well as the administrator. Some of the features are given below:

- **User Registration / Log-in**

Authorisation is required to access repository by the users, administrator assign or open an account to the user to log in. As a subscriber, user can register with some restricted function.

After access/click “My NIE” option user need to follow the instructions to log in first time. After that an e-mail addresses and password is requiring to log-in. User’s e-mail address should include username and domain name.

Website Development Question x IDR - National Institute of Education x dspace 6.3 default home page x

localhost:8080/jspui/password-login

Home Browse Help Search DSpace Sign on to

## Welcome to Institutional Repository of NIE (NCERT)

Institutional Repository of National Institute of Education (NIE) is a digital archive of NIE's Research Reports, Projects, Publications, and Teacher Training Programmes on Education.

from dspace  
NCERT

Log in to DSpace

New user? [Click here to register.](#)

Please enter your e-mail address and password into the form below.

E-mail Address:

Password:

[Log in](#)

[Have you forgotten your password?](#)

Theme by: DSpace Software Copyright © 2002-2013 Duraspace - Feedback

Figure 5.11 User Registration / Log-in

- **Edit Profile**

Profile can be edit by the users, first name, last name, etc. and password too.

Website Development Question x Edit Your Profile | IDR - National Institute of Education x dspace 6.3 default home page x

localhost:8080/jspui/profile

Home Browse Help Search DSpace Logged in as dkcancer23@gmail.com

IDR - National Institute of Education

## Edit Your Profile ?

Please enter or amend the following information. The fields marked with a \* are required.

First name\*:

Last name\*:

Contact telephone:

Language:

Optionally, you can choose a new password and enter it into the box below, and confirm it by typing it again into the second box for verification. It should be at least six characters long.

New Password:

Again to Confirm:

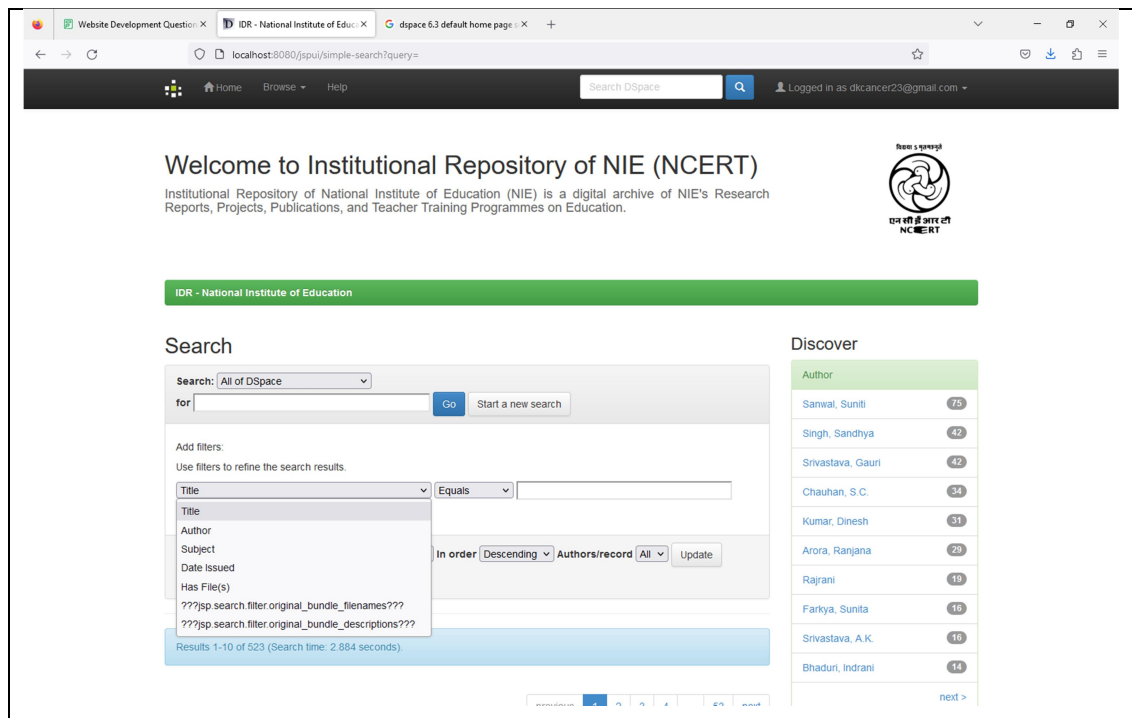
[Update Profile](#)

Theme by: DSpace Software Copyright © 2002-2013 Duraspace - Feedback

Figure 5.12 Edit Your Profile of DSpace

- **Search – Advanced Search:**

NIE, New Delhi has two options for searching to contents in it. Users can search all of NIE, for this user has to use the search box. Advanced search option, allow users to use Boolean search "and", "or" or "not".



**Figure 5.13 Search Page of DSpace**

- **Browse**

The browsing feature enables users to explore a designated list of items in a specified sequence. By selecting "Browse by Community/Collection," users can navigate through communities in alphabetical order and explore the sub-communities and collections within each community. "Browse by title" enables users to browse an alphabetical list of all item titles available in NIE. Similarly, "Browse by author" allows users to navigate an alphabetical list of all authors associated with items in NIE. Users can also utilize "Browse by subject" to explore an alphabetical list of subjects assigned to items in NIE. Lastly, "Browse by Date" provides users with the ability to navigate through a reverse chronological list of all items in NIE.

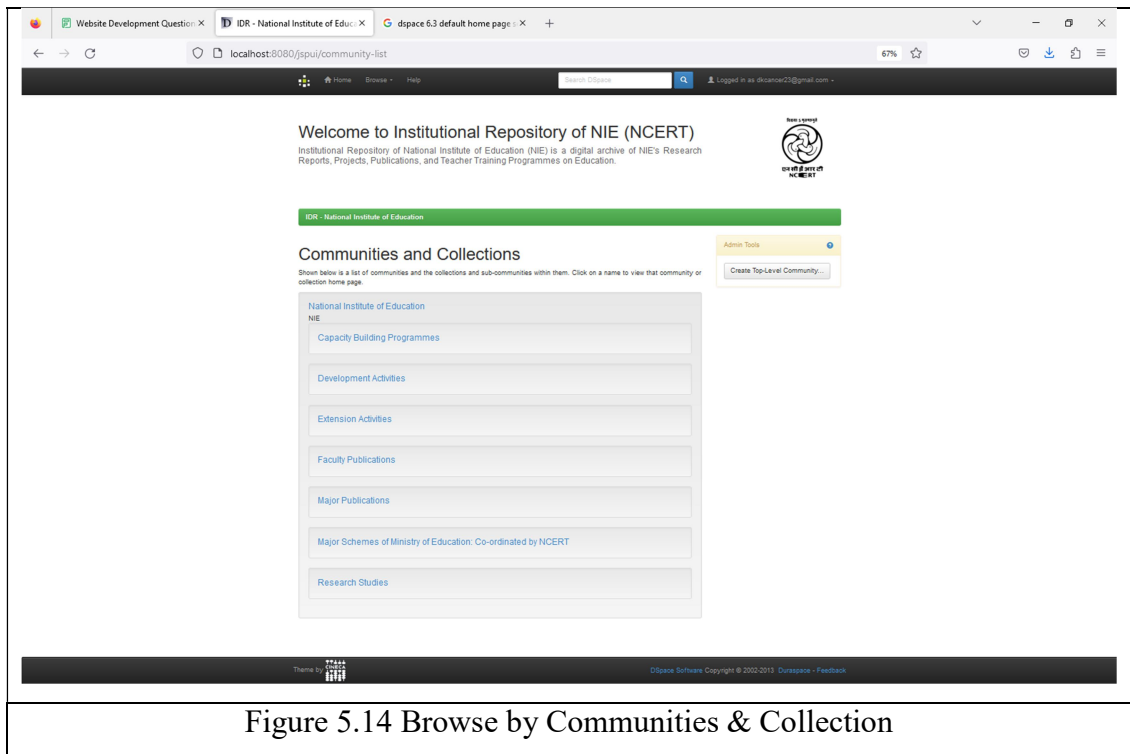


Figure 5.14 Browse by Communities & Collection

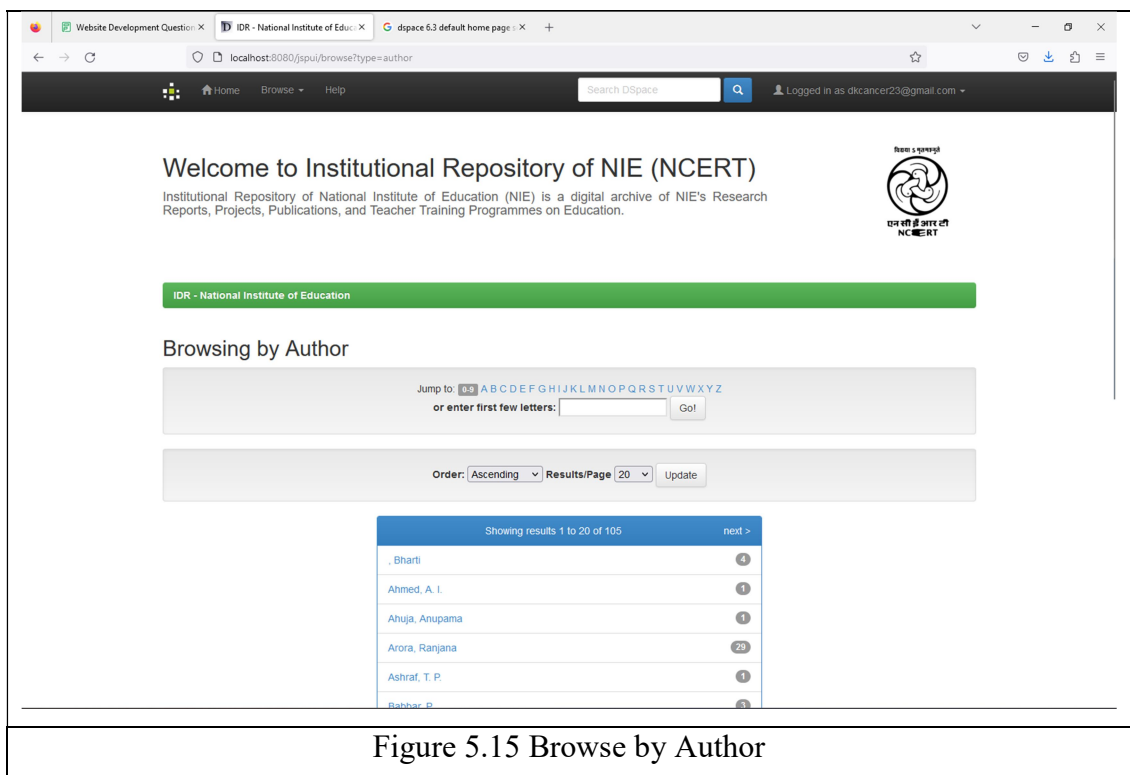


Figure 5.15 Browse by Author

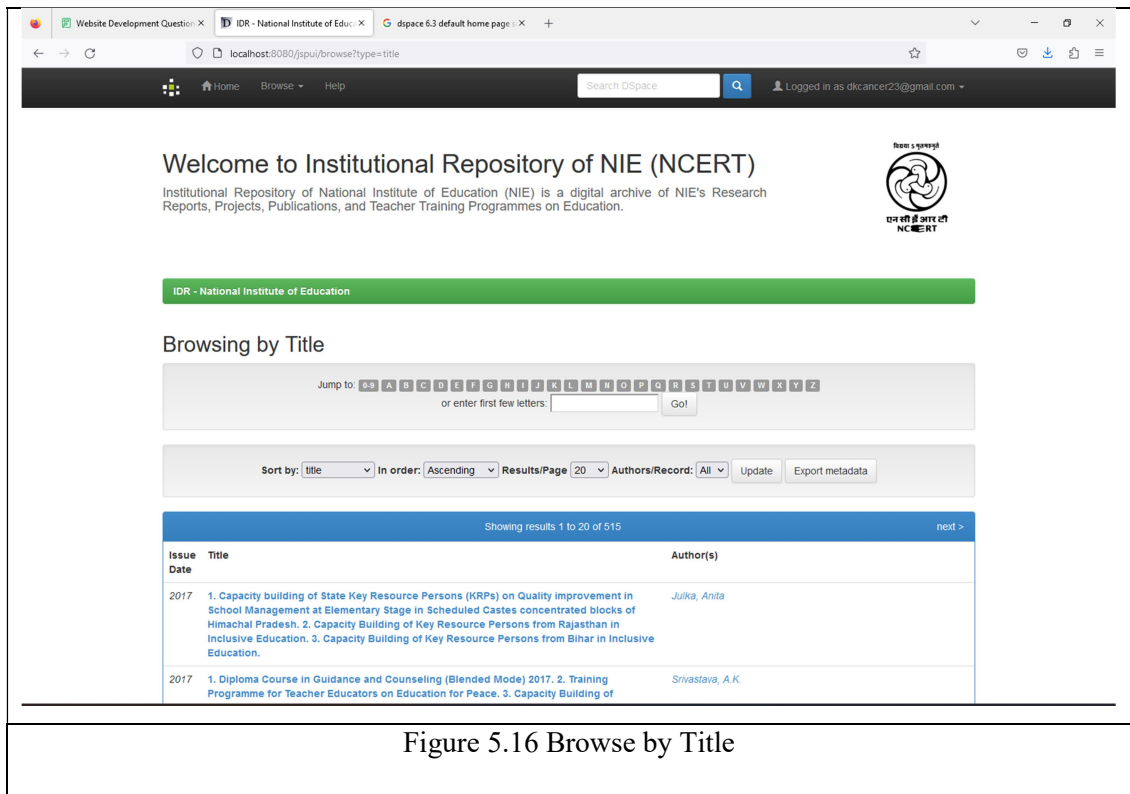


Figure 5.16 Browse by Title

- **Viewing Item Details**

Upon conducting a search or utilizing the browsing feature in NIE, users based in New Delhi have the option to click on a desired item to access detailed metadata information. This information includes the title, author, issue date, abstract, and more. Once users have viewed this information, they are able to proceed with downloading the item if desired.

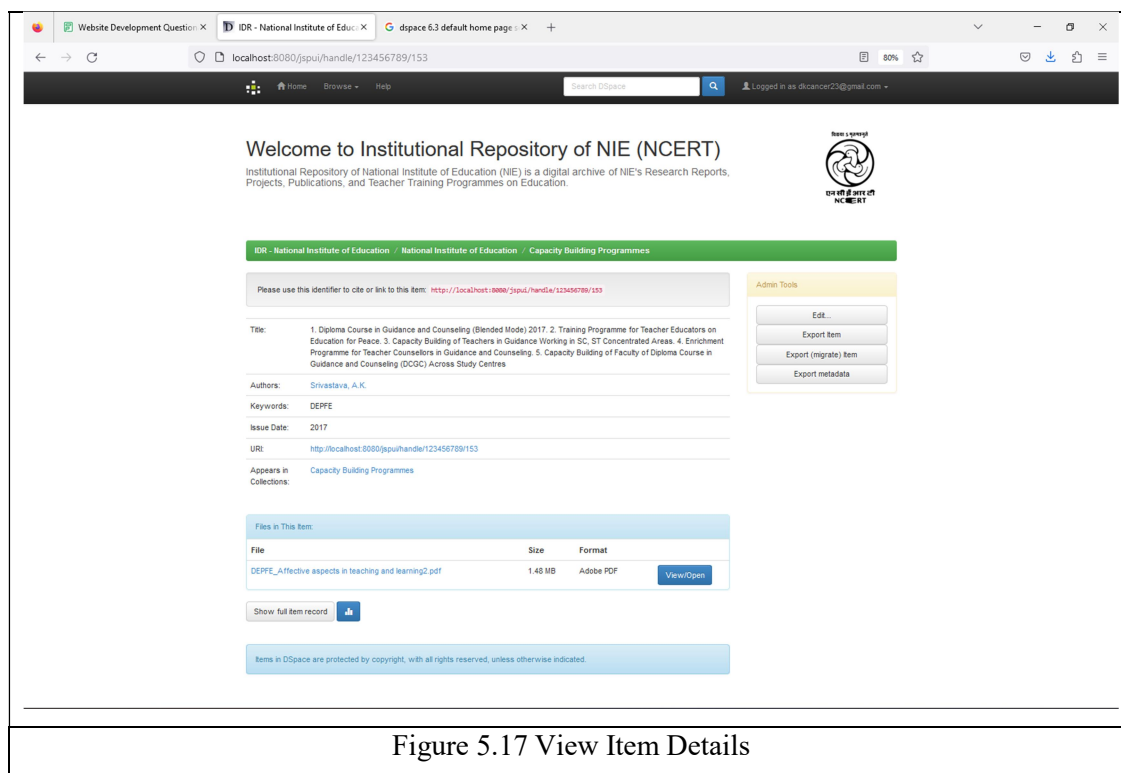


Figure 5.17 View Item Details

- **Submission to NIE, New Delhi**

Each member has a personal page called "My DSpace" that is maintained individually. This page serves as a platform for managing tasks related to item submissions. It can display a list of items currently in the submission process or a task list indicating items that require attention, such as submission, editing, reviewing, or checking. The page also provides information about personal services offered by NIE and sends email notifications whenever a new item is added to the collection.

When starting a submission from "My DSpace," users are presented with a dropdown list that allows them to select the desired collection to which they want to add a new item. Once the submission process begins, users can navigate back and forth within the process using designated buttons without losing any data.

The item metadata description consists of three initial steps. In the first step, users can provide information such as whether the item has multiple titles, previous publication status, or multiple files. The second step involves filling metadata fields

such as author, title, other title, issue date, publisher, citation, series report number, identifiers, work type, language, and more. In the third step, users can enter additional metadata fields such as subject keywords, abstract, sponsors, and other relevant details. After completing the desired information, users need to click the "Next" button to proceed to the next step of the submission process.

The fourth step of the submission process focuses on utilizing a controlled vocabulary. Controlled Vocabulary maintained by standards bodies in order to standardise the way that similar materials are categorised in archives. Accurately categorising material using a controlled vocabulary increases the likelihood that relevant results will be returned to users when searching individual or multiple archives.

To include a controlled vocabulary term in the form, simply choose "Subject Categories" located below the input field. This action will trigger the opening of a window that presents the available vocabularies. You have the option to filter the vocabulary lists, as described earlier, to identify the most relevant terms for your submission. Once you have located the desired term, click on it, and it will automatically populate the submission form while closing the popup window. You can add multiple subject category terms to the form, and if needed, use the "Add More" function on the right to generate additional input boxes.

Applying a filter to the category list will remove any terms that do not match the specified filter. The remaining terms are those categories or subcategories that contain the filter term within their hierarchy. By expanding each category, you can observe which terms or sub-terms matched the applied filter.

The fifth step of the submission process involves selecting and uploading the files for the item. There are two methods available for entering the file name you wish to upload

1. Enter the complete path and file name directly into the provided input box, and then click on the "next" button located in the lower right-hand corner of the screen.



2. Click on the "browse" button, and a file window will appear displaying your system's directories and folders. Navigate through the directories to locate the desired file for uploading. To select the file, simply double-click on its name.

Once the correct file name has been entered into the input box, click on the "next" button to proceed to the next step. In the sixth step, the submission process focuses on the file formats of the uploaded files. If the system fails to identify the file format automatically, the user is required to specify the format manually. Moving on to the seventh step of the submission, users are provided with an opportunity to review the information entered to describe the item.

To correct or edit any information, users can click on the corresponding button located on the right side or utilize the oval buttons in the progress bar at the top of the page to navigate between submission pages. Once the information is confirmed and deemed accurate, users can click on the "Next" button to proceed. After ensuring that all relevant information, including copyright details, has been appropriately inputted, users can submit the item in its entirety. It is important to note that users have the option to halt the submission process at any point and save it for later by clicking on the "cancel/save" button located at the bottom of the page. Already entered data will be stored until user come back to the submission and user will be reminded on your "My DSpace" page that he/ she have a submission in process. If somehow user accidentally exit from the submit process, user has to always resume from your "My DSpace" page. User can also cancel submission at any point.

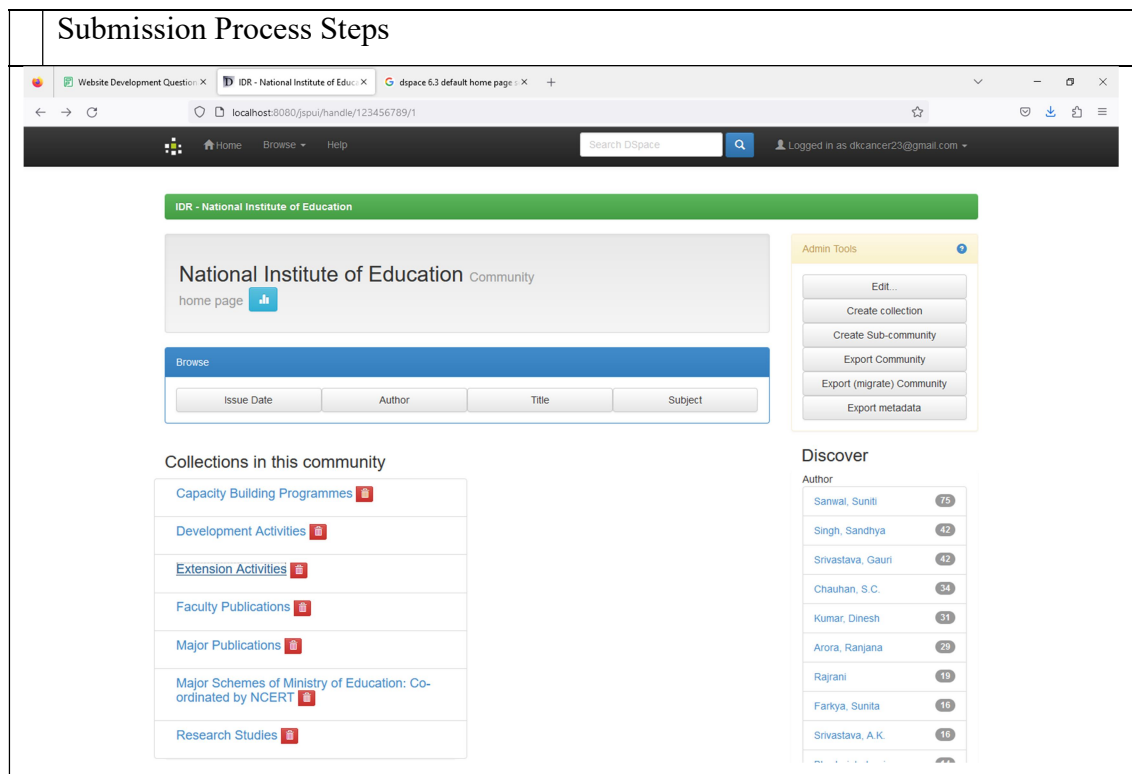


Figure 5.18 Selection of Collection for Submission

The screenshot shows the 'Submit: Describe this Item' form in DSpace. The form includes tabs for Describe, Upload, Verify, License, and Complete. The 'Describe' tab is active, showing a form with the following fields: Authors (Last name, e.g. Smith; First name(s) + "Jr", e.g. Donald Jr; + Add More), Title (main title), Other Titles (if the item has any alternative titles, please enter them here; + Add More), Date of Issue (Month: (No Month); Day; Year), Publisher (name of the publisher of the previously issued instance of this item), Citation (standard citation for the previously issued instance of this item), Series/Report No. (Series Name; Report or Paper No.; + Add More), and Identifiers (if the item has any identification numbers or codes associated with it, please enter the types and the actual numbers or codes).

Figure 5.19 Submission Process Steps

- **Subscribing to receive e-mail notifications regarding new submissions and view recently submitted items to communities and collections**

Users have the option to subscribe and receive daily email alerts for new items added to collections. They can choose to subscribe to multiple collections according to their preferences. Here's how the subscription process works:

1. Access the home page and locate the "Receive e-mail updates" option under the "Sign on" caption in the navigation bar.
2. Fill out the registration form to complete the subscription.
3. Navigate to a specific collection for which you want to receive email alerts and click on the "subscribe" button. Repeat this step for other desired collections.
4. To manage or modify your subscriptions, visit the "Subscribe" page.

Additionally, users can find the titles of recently submitted items on the respective community or collections' home pages.

Welcome to Institutional Repository of NIE (NCERT)

Institutional Repository of National Institute of Education (NIE) is a digital archive of NIE's Research Reports, Projects, Publications, and Teacher Training Programmes on Education.

Extension Activities Collection home page

Browse

Issue Date Author Title Subject

Submit to This Collection

Subscribe to this collection to receive daily e-mail notification of new additions

Collection's Items (Sorted by Submit Date in Descending order): 1 to 20 of 41

Issue Date	Title	Author(s)
2019	National Awards for Innovative Practices and Experiments in Education for Schools and Teacher Education Institutions	Arora, Ranjana
2019	NCERT Incentive Award for Demonstration Multipurpose School (DMS) Teachers	Arora, Ranjana
2019	National Conference on School Leadership Practices, 2019	Arora, Ranjana
2019	Educational Kits	Singh, V.K.
2017	Interventions for Implementation of Guidance and Counselling Programme Using Whole School Approach	Sibia, Anjum
2016	State Level Science, Mathematics and Environment Exhibitions	Farkya, Sunita

Discover

Author

- Sakshi, Meenu
- Arora, Ranjana
- Kumar, Dinesh
- Singh, Sandhya
- Pandey, Aparna
- Sanwal, Sunil
- Chauhan, S.C.
- Farkya, Sunita
- Singh, V.K.
- Dhawal, Sharda

**Figure 5.20 Recent Submissions at Communities and Collection Level**

- **RSS**

The utilization of Really Simple Syndication (RSS) enables users to conveniently stay informed by retrieving the most recent content from NIE. This technology

provides users with updated information as soon as it detects any updates in the source.

- **Uses statistics at community, collection and item level**

Statistics regarding the items in NIE are available at various levels, including the item, collection, community, and sub-community levels. These statistics encompass metrics such as total visits per month, overall visit count, total visits per month, top country views, top city views, and more. Authorized users have the privilege of accessing and downloading the files associated with these statistics..

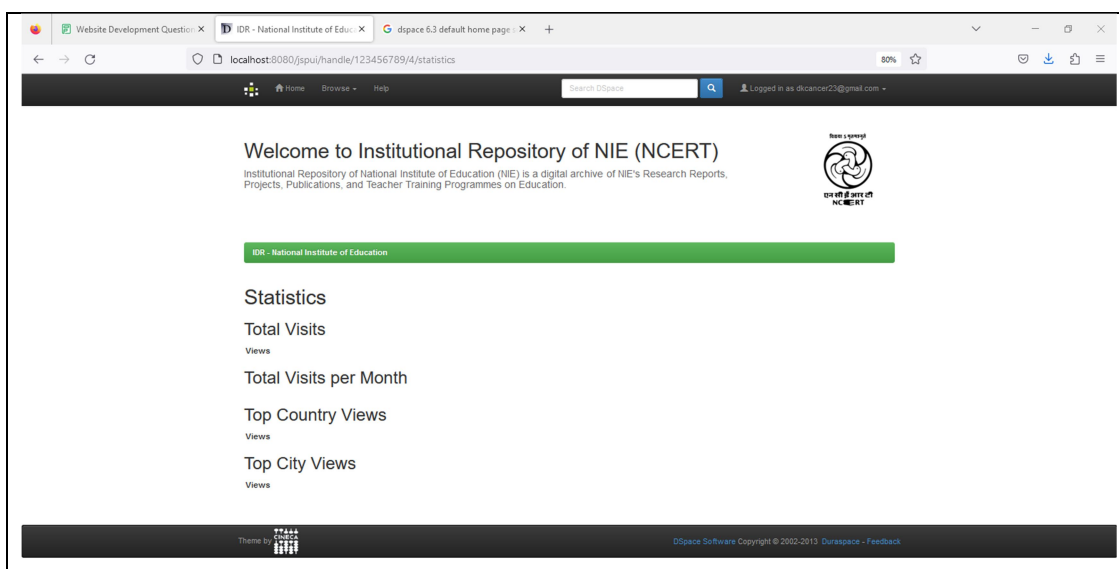


Figure 5.21 Uses Count / Statistics

#### 5.4.5 Administering NIE:

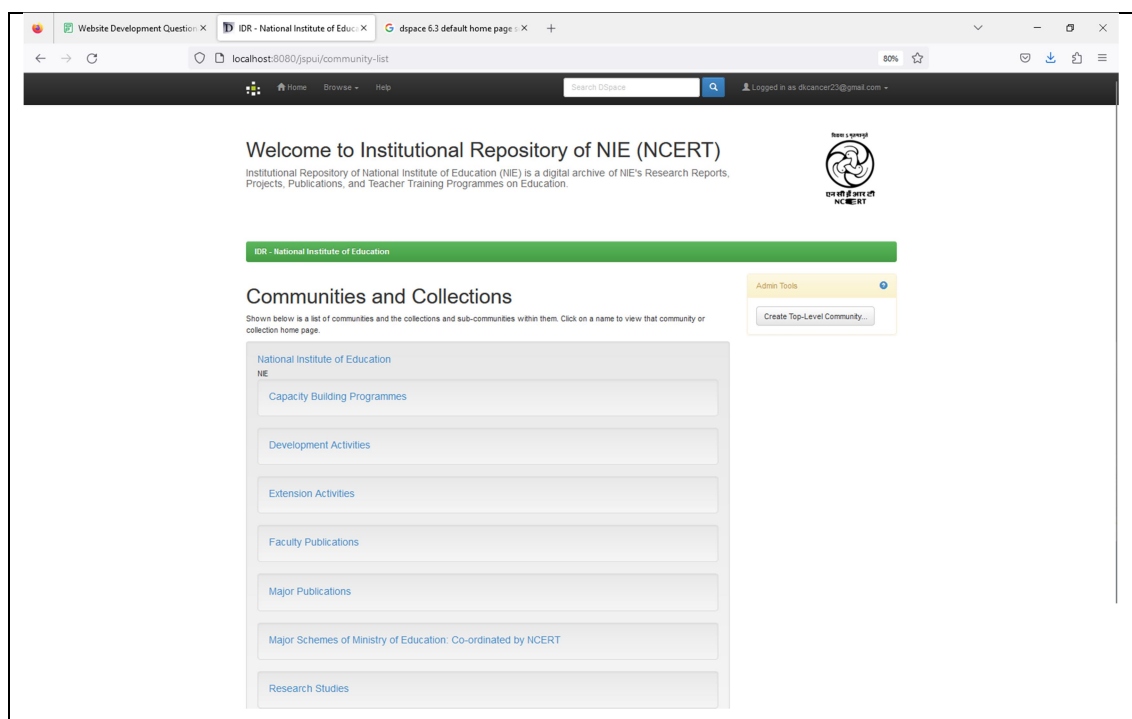
- **Creating top-level community and sub-community**

The administrator's rights have a option to create top-level community, after logged in as an administrator to using of community/collection listing page. By clicking on the option to "Create Top-Level Community," users can initiate the process of generating a new community at the top level. This action directs administrators to the "Edit Community" page, where they can configure and customize the newly created community.

After creating a ‘Create Top Level Community’ users have an option to create sub-community in the home page of the Community in the 'Admin Tools' box at the page. Administrator can edit and update details such as :

- name,
- logo,
- introductory text etc.,

using the 'Edit Community' page for that community.



**Figure 5.22 Communities and Collection**

- **Creating Collection (Describe the collection, Copyright text, License, Provenance, collection authorization)**

Creation of top-level community and sub-community the users have a facility to create collections come under the ‘Top-Level Community’ or ‘Sub-Community’ only. To create ‘Collection’, select the ‘Create Collection’ option in the Home page for the Community, To ‘Create Collection’ users need to click it to create collection. This will start the wizard, which will receive appropriate check marks for options such as ‘New items should be publicly readable’, ‘Some users will be able to submit to this collection’, ‘The submission work flow will include an accept/reject step’ etc.

The first page of ‘Collection Wizard’ allows filling in some basic information about the collection, the mandatory fields are -

- Name,
- Short Description,
- Introductory Text,

In the home page of collection wizard ‘Copy Rights’ field, License field in the form of plain text; any provenance information about the collection; that information is not shown on collection page or not visible to end-users.

‘Authorization’ field in this collection wizard page is for the user who has rights to submit new items to this ‘Collections’. This option can be change this later using the relevance section of the DSpace admin UI. This field is very important to the user concern, and submitters and contents in NIE.

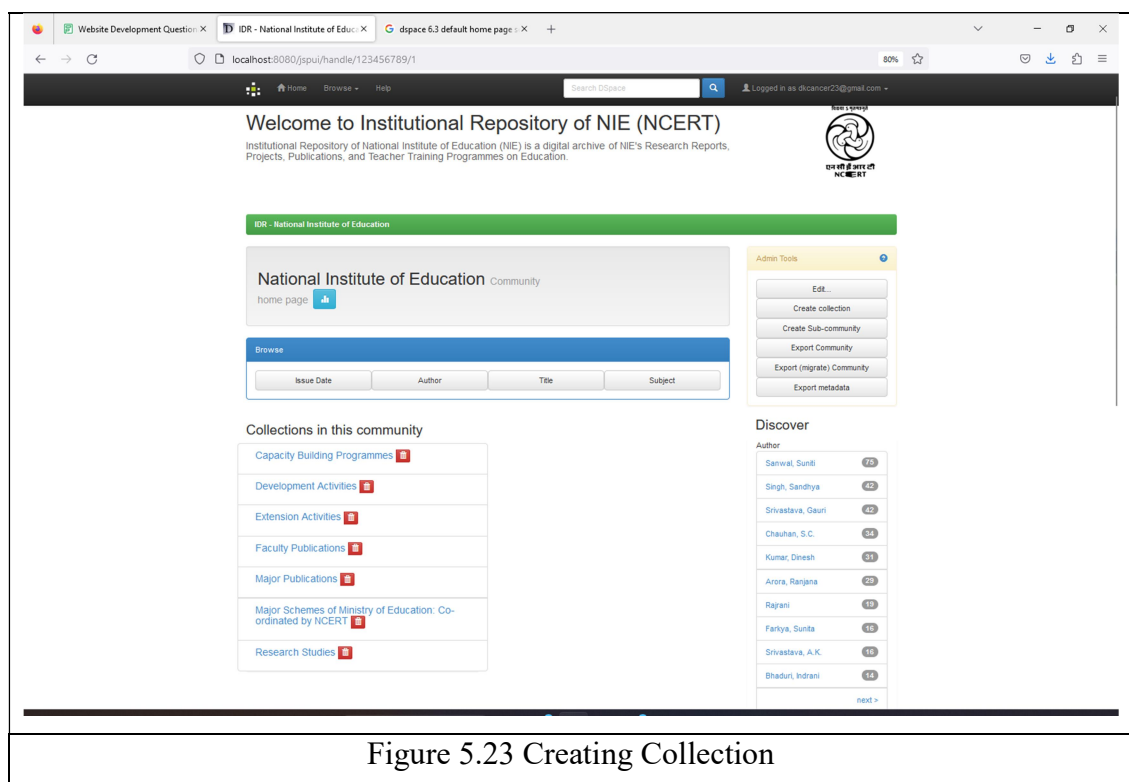


Figure 5.23 Creating Collection

Describe the Collection ?

Name:

Shown in list on community home page

Short Description:

HTML, shown in center of collection home page. Be sure to enclose in <P> </P> tags!

Introductory text:

Plain text, shown at bottom of collection home page

Copyright text:

HTML, shown on right-hand side of collection home page. Be sure to enclose in <P> </P> tags!

Side bar text:

License that submitters must grant. Leave this blank to use the default license.

License:

Figure 5.24 Describe the Collection

- **Editing a collection**

The user with ‘Administrator’ rights able to update the field of ‘Edit Collection’ such as to:

- delete Community;
- create Community’s Administration;
- create Community’s Curators
- **e-people registration [(Add, Delete)(Create and edit group of e-persons)]**

This tool facilitates the registration of email addresses and other relevant information for individuals seeking authorization to participate in the system. These individuals may serve various roles such as "submitters," "administrators," submission workflow participants, subscribers, or users with access to restricted content based on permissions. Users also have the option to self-register and join this list. The tool allows for the addition, editing, deletion, and grouping of registered individuals under specific titles or categories.

- **Item Edit, withdraw or delete**

Administrators have the capability to edit, withdraw, or delete items by entering the item's handle or internal ID (database primary key) into the designated field. Simply

navigate to the display page of the relevant item and, when logged in as an administrator, click on the Edit button provided on the page..

- **Supervision order (Management)- viewing, adding, removing, customising supervision orders**

This tool is very useful to add, edit, customise alternatively, users can access the system to view their current supervision orders, which may include options such as "none," "observer," or "editor."

- **Metadata registry**

Metadata refers to "Data about Data." NIE utilizes a customized version of the Dublin Core schema, which is based on the Dublin Core Libraries Working Group Application Profile (LAP), as its default metadata standard. However, the metadata registry allows for the use and configuration of other metadata schemas as well. Within the registry, there is a comprehensive list of elements and qualifiers, accompanied by relevant comments. Additionally, there is an option to update specific local fields as needed to accurately describe items in the desired manner.

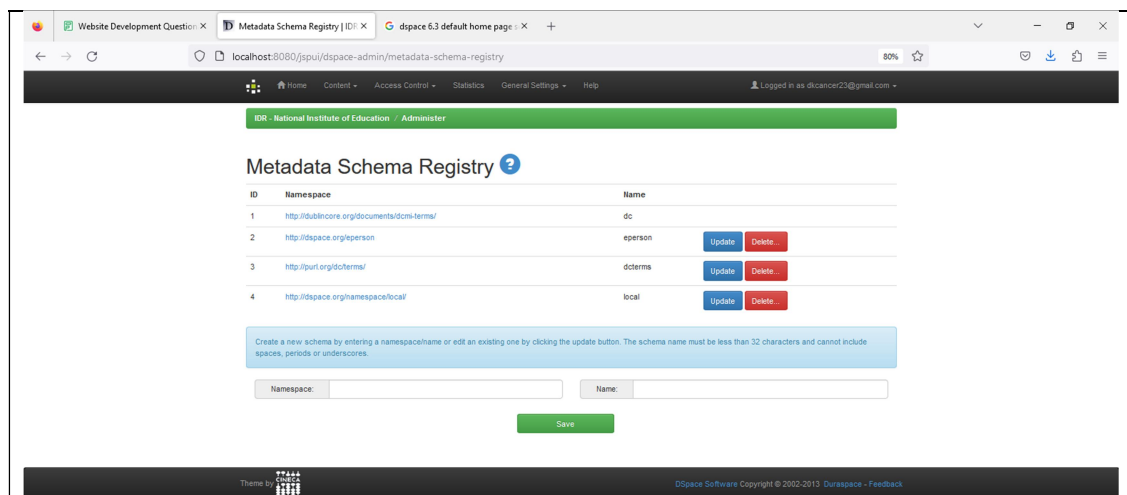


Figure 5.25 Metadata Registry



- **Authorisation – collection policy, item policy, community policy, advanced policy admin tool**

This section is dedicated to configuring precise authorization policies for communities, collections, and items. In order for users to carry out any action on an object, they must possess the necessary permissions. This functionality can be utilized to add, edit, and delete policies at the community, collection, or item level, thereby effectively managing the registered users associated with NIE.

- **Edit news**

The provided tool offers the capability to modify the text content ("news") featured on the NIE home page, specifically within the top box of the center frame.

To initiate the editing process, administrators can click on the "Edit News" button available in the admin menu. Subsequently, they can select the Edit button associated with the desired news item to be edited. A text box will appear, displaying the current news content, which can be directly updated by typing within the box. Users also have the flexibility to utilize HTML tags for text formatting purposes.

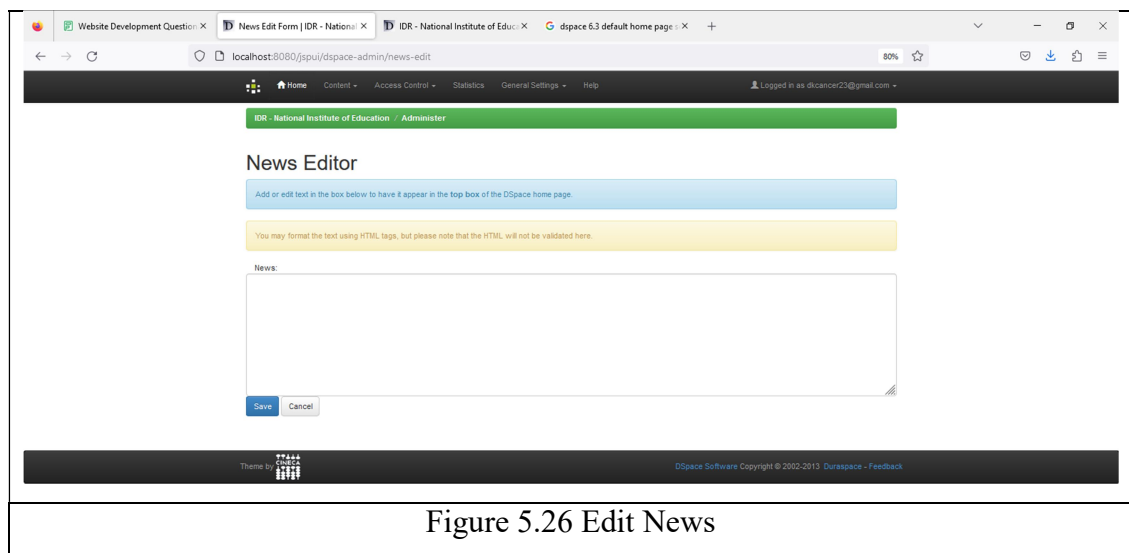


Figure 5.26 Edit News

## 5.5 Models of Authorisation and Submission to NIE.

### 5.5.1 Models of Submission to NIE

**Model 01:** Document Creator's Submission to NIE. In this model, document creators are granted the authority to submit their own documents to NIE. However, it is essential for them to receive training from experts regarding the submission workflow.

**Model 02:** Document Creator > Department Coordinator > NIE Submission In this model, document creators do not possess the rights to directly submit their work. Instead, a coordinator at the department level receives training to collect and submit documents on behalf of the creators to NIE.

**Model 03:** Document Creator > Department Coordinator > College Coordinator > NIE Submission This model involves a hierarchical workflow where documents move from the creators to the department level coordinator and then to the institute level coordinator, who ultimately submits the collected documents to NIE. The institute level coordinator requires training in this workflow.

### **5.5.2 E-person Management for the – Department Level**

- Access open to all (No Authorisation): Everyone will have rights to access the contents submitted to NIE with log-in or without log-in as decided as Institute or Department level.
- E-person management by Department coordinator: In this model, only department coordinator will do e-person management for the users of the concern department.
- In the e-person management process, the Institute level coordinator assumes the responsibility of overseeing user management across all departments. They possess the necessary rights to administer and monitor e-person management tasks.

## **5.6 General Considerations**

### **5.6.1 Copyright/Intellectual property right**

Copyright Act 1957 defines copyright as “copyright”, means the exclusive right subject to the provisions of this act, to do or authorise the doing of any of the

following acts in respect of a work or any substantial part thereof, namely:-(In the case of a literary, dramatic or musical work,)

- To reproduce the work in any material form including the storing of it in any medium by electronic means,
- To issue copies of the work to the public not being copies already in circulation,
- To perform the work in public, or communicate it to the public,
- To make any cinematograph film or sound recording in respect of the work,
- To make any translation of the work,
- To make any adaptation of the work,
- To do, in relation to a translation or an adaptation of the work, any of the acts specified in relation to the work in sub-clauses.

#### **5.6.2 Copyright Act / Intellectual Property Right Act in India**

Copyright Act, 1957 came into effect from January 1958 in India. This Act has been amended five times time to time since the inception i.e. in 1983, 1984, 1992, 1994, 1999 and 2012. The most powerful and significant copyright (Amendment) Act comes on 2012.

India is a prominent member of the Berne Convention of 1886 (as modified at Paris in 1971), the Universal Copyright Convention of 1951 and the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement of 1995. The Indian Copyright Act today is compliant with most international conventions and treaties in the field of copyrights.

In the year of 1996, two treaties on internet were negotiated under the auspices of the World Intellectual Property Organisation, these treaties are known as ‘WIPO Copyrights Treaty (WCT)’, and the ‘WIPO Performances and Phonograms Treaty (WPPT)’ Under these two treaties negotiated essentially to provide for protection of the rights of copyright holders, performers and producers of phonograms in the internet and digital era. Even India is not a member of these treaties, amendment are being suggested to make act in compliant with the above treaties in order to provide protection to copyright in this era.

The Copyright Act, 1957 is fully compliant with the Rome Convention provisions, even though India is not a member of the WCT and The WPPT. Copyright Act 1957 gives guidelines regarding in the case of:

Literary, Dramatic or Musical Work,

Computer Programme,

Artistic work,

Cinematograph Film,

Sound Recording,

Copyright means the exclusive right subject to the provisions of this act, to do or authorise the doing of any of the following acts in respect of a work or any substantial part thereof, namely to:

- reproduce the work in any material form including the storing of it in any medium by electronic means,
- issue copies of the work to the public not being copies already in circulation,
- perform the work in public, or communicate it to the public,
- make any cinematograph film or sound recording in respect of the work,
- make any translation of the work,
- make any adaptation of the work,
- do, in relation to a translation or an adaptation of the work, any of the acts specified in relation to the work in sub-clauses (i) to (vi) (Indian Copyright Act, 1957, 1957).

### **5.6.3 Functioning of Digital Rights Management Technologies**

Digital Rights Management Technologies are created for protecting the copyrights of information, data circulated through the medium of internet or other digital media. It's considering different Act of copyright and intellectual property right those are enacted in the world. It helps to enable the information for secure distribution and appropriate solutions to protect unauthorised or unwanted access to the information. Prevention of the information by DRMT to control, or secure information contents in e-environment with the use of different hardware and software available from unwanted ways is as given below:

- Reading the item
- Printing the item
- Altering the item
- Copying the item
- Control on downloading
- Screen printing / grabbing
- Forwarding / dissemination
- Watermark or logo insertion
- Insertion of download note
- Document security (password)
- Plagiarism to measure originality of work

#### **5.6.4 Role of Librarians or IR Administrator in DRM**

In the present era of electronic environment, librarians or IR managers has to play important role because of digital right management or copyright issues. Librarians and IR managers has to work in the following areas,

1. Generation of access and submission policy for institutional repository considering the copyright acts.
2. Use of DRM to control and authorise access to IR.
3. Monitoring user activities.
4. Keep up-to-date information about copyright acts.
5. Keep up-to-date knowledge and skills about new DRM technologies.

#### **5.7 Summary**

National Institute of Education (NIE), NCERT has various publications which are not digitised and some the reports and modules are digitised in different webpage of the NCERT are not easily accessible and scatter in the internet. NCERT works are very useful in the field of school education, and various programme for pre-service and in-service teachers. In this view an IR model for NIE (NCERT) design and developed for NIE and entitled as ‘National Institute of Education’

Based on the selection of software, customisation and configuration an IR model is developed in the present study. The next chapter entitled “Suggestions and

Conclusion” shall further improve the functionality of proposed IR model in the greater academic and research interest of NIE faculty members.

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## Chapter 6

### Suggestions and Conclusion



## **Suggestions and Conclusion**

### **6.1 Suggestions:**

While undertaking a detailed study on Institutional Repository and conceptual model for National institute of Education, the scholar has come across many institutional, technological and legal related suggestions which are listed below.

- National Institute of Education (NCERT) authority should promote Institutional Repository (IR) for global visibility and access to research materials provided by NIE.
- Necessary IT infrastructure need to be developed for design and development of NIE's IR.
- Capacity building of library staff need to be enhanced with regards to installation of DSpace, design of an appropriate model and its usability keeping in view easy access to IR by the faculty.
- NCERT being a premier research institution in the field of school education need to have an institutional repository at the earliest possible.
- Institutional Repository is a platform for all academic and R&D institutes to upload their research, and project work, intellectual activities for visibility at global level.
- Developments of Standards and Policy for development of IR are the need of the institution.
- While framing Standards and Policy for the IR, institution should contain different type of elements as suggested by the researcher at the time of development of IR.
- Accessibility of the IR should be available for the users, for the benefit of research, to avoid duplication of the research.

## **6.2 Avenues for the further research:**

The present research problem undertaken by the scholar has given rise to many other research areas which can be carried out and beneficial to planners and policy makers of academic and R&D institutes. Some of the potential thrust areas are listed below.

- Evaluation of IRs in improving quality and visibility of the institution;
- Cost benefit analysis of IR design and develop by academic and R&D institutions;
- IR Software, tools and techniques : A Comparative Study
- IR in Indian regional languages;
- IR softwares: an evaluation.

## **6.3 Conclusion:**

Academic and R&D institutions around the world are in the age of competition, quality, access to education and improving quality of research. Research and innovation, teaching learning, visibility and perception are giving utmost importance in accessing the quality of institution and its ranking. Universities in abroad are placed at high ranking universities/institutions based on academic and research outputs. This can only be achieved through multiple mechanisms, one of which is design and development of IR. This can be implemented in universities, colleges, and R&D institutions. Present study gained experience of significance and importance of IR in order to improve visibility of institution around the world. Therefore, every academic institutions and R&D institutes should have IR so as to provide access to scholarly communication, academic and research publication, which has direct impact on students, faculties, and researchers.

The present study discussed and described the selection and evaluation of IR software, installation of IR software (DSpace), research content to be included in IR and conceptual model provided for the purpose. NIE (NCERT) may adopt this IR model, so that the research publications are going to be accessible only within the institution rather it should have global visibility and academic standards. Authority of NIE should recognise the value and importance of IR in the best interest of faculty members and researchers.

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Examination	Year of Passing	Board/University
M.Phil	2008	Alagappa University, Tamil Nadu
M.L.I.S.	1997	Kurukshetra University, Haryana
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B.Com	1994	Delhi University
Class XII	1986	CBSE, New Delhi
Class X	1980	CBSE, New Delhi



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1. Growth of Institutional Repositories in India. *Journal of Advances in Library and Information Science*, 12(1), pp.61-66, 2023
2. Applicability of Almetrics as an alternative tool for the academicians of contemporary times: An Overview. *International Journal of Novel Research and Development (IJNRD)*, 8(6), pp.a523-a528, June 2023.

### Conference/Seminar Paper:

1. Attended and presented a paper entitled “**Design and Development of an Institutional Repository for Library and Documentation Division (LDD), NIE (NCERT)**” at National Conference on “**Innovative Librarianship: Accelerating of Open and Digital Convergence**” organised by Central Library, Central University of Tamil Nadu during 9<sup>th</sup>-10<sup>th</sup> June, 2022.
2. Attended and presented a paper entitled “**Design of Institutional Repository website of LDD, NIE by Using DSpace: A Model**” at National Seminar on “**Innovative Librarianship: A Foresight on Aamanirbhar Bharat (NSIL-2022)**” organised by Central Library, Central University of Tamil Nadu during 29<sup>th</sup>-30<sup>th</sup> July, 2022.
3. Attended and presented a paper entitled “**National Education Policy: Role of CIET in Development of ICT**” at National Seminar on “**National Education Policy 2020: A Forward-Looking Vision for LIS Education and Services**” organised by Department of Library and Information Science, Mizoram University, Aizawl 1<sup>st</sup>-3<sup>rd</sup> March, 2023

### Book Chapter:

1. Design and Development of an Institutional Repository for Library and Documentation Division (LDD), NIE (NCERT). (2022). In Dhanvandan, S. *Innovative Librarianship: Impetus to Digital Convergence*. (pp.95-106), New Delhi: Today & Tomorrow's Printers and Publishers. ISBN: 9789391734053.

2. Design of Institutional Repository website of LDD, NIE by Using DSpace: A Model. (2023). In Dhanvandan, S. *Ingenious Librarianship: Enriching Self-Reliance*. (pp.339-354), New Delhi: Today & Tomorrow's Printers and Publishers. ISBN: 9789391734121.



Azadi Ka  
Amrit Mahotsav

ஆதி கா  
அமிர்த மகோத்ஸவ



CENTRAL  
UNIVERSITY OF  
TAMIL NADU

தமிழ்நாடு  
விரிவாக்கப்  
பரிகாரக்  
பரிகாரக்



# CERTIFICATE

This is to Certify that DEEPAK KUMAR KAPOOR Institution NCERT has delivered Keynote Address/Special Address/  
Invited Talk/Chaired/Co-Chaired/ Valedictory Address /Participated/Contributed/ Presented Paper on

DESIGN AND DEVELOPMENT OF AN INSTITUTIONAL REPOSITORY FOR LIBRARY AND DOCUMENTATION DIVISION (LDD), NIE (NCERT).

in the *National Conference on Innovative Librarianship: Accelerating of Open and Digital Convergence* organised by Central Library, Central University of Tamil Nadu, Thiruvavur-610 005 sponsored by RRRLF, Kolkata held on 9<sup>th</sup> & 10<sup>th</sup> June, 2022.



Dr. S. Dhanavandan  
Convener, NCIL-2022 & Deputy Librarian



Dr. R. Parameswaran  
Librarian



Prof. Sulochana Shekhar  
Registrar (i/c)



Azadi Ka  
Amrit Mahotsav

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புத்தகங்களைப் பற்றி



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**NSIL 2022**

This is to certify that MR. DEEPAK KUMAR KAPOOR, Research Scholar,  
MIZORAM UNIVERSITY has delivered Keynote Address/

Special Address/Invited Talk/Chaired/Co-Chaired/Valedictory Address/Participated/Contributed/Presented paper on

DESIGN OF INSTITUTIONAL RESPONSIBILITY WEBSITE OF IOD, NIE BY  
USING DESIGN : A MODEL.

in the National Seminar on Innovative Librarianship : A Foresight on Aamarnirbhar Bharat (NSIL - 2022) organised by  
Central Library, Central University of Tamil Nadu, Thiruvavur- 610 005 sponsored by ICSSR, NEW Delhi held on 29<sup>th</sup> &  
30<sup>th</sup> July, 2022.

Dr. S. DHANAVANDAN  
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Dr. R. PARAMESWARAN  
Librarian

Prof. SULOCHANA SHEKHAR  
Registrar (I/c)



## Participation Certificate

*Deepak Kapoor*

Participated / Presented / Chaired / Co-chaired / Invited speaker in the National Seminar on "National Education Policy 2020: A Forward-Looking Vision for LIS Education and Services" organized by the Department of Library & Information Science, Mizoram University, Aizawl and sponsored by Indian Council of Social Science Research (ICSSR), New Delhi and Raja Rammohun Roy Library Foundation (Ministry of Culture), Kolkata held during 1<sup>st</sup> – 3<sup>rd</sup> March, 2023.

Presentation Topic: *National Education Policy : Role of CIET in*

*Development of ICT*

*Dr. Amit Kumar*  
Organizing Secretary

*Prof. R. K. Ngurtinkhuma*  
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DEGREE : Ph.D.

DEPARTMENT : LIBRARY AND INFORMATION  
SCIENCE

TITLE OF THESIS : DESIGN AND DEVELOPMENT OF  
AN INSTITUTIONAL REPOSITORY  
ON EDUCATIONAL RESEARCH  
AND TRAINING WITH REFERENCE  
TO NIE (NCERT), NEW DELHI: A  
CONCEPTUAL MODEL

DATE OF ADMISSION : 24.07.2019

APPROVAL OF THE RESEARCH PROPOSAL

1. DRC : 13.03.2020

2. BOS : 18.05.2020

3. SCHOOL BOARD : 29.05.2020

MZU REGISTRATION NO. : 4971 of 2011

Ph.D. REGISTRATION NO. : MZU/Ph.D./1430 OF 24.07.2019  
AND DATE

EXTENSION (IF ANY) : NIL

Head,

Department of Library and Information Science

## **ABSTRACT**

### **DESIGN AND DEVELOPMENT OF AN INSTITUTIONAL REPOSITORY ON EDUCATIONAL RESEARCH AND TRAINING WITH REFERENCE TO NIE (NCERT), NEW DELHI: A CONCEPTUAL MODEL**

**AN ABSTRACT SUBMITTED IN FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY**

**DEEPAK KUMAR KAPOOR**

**MZU REGISTRATION NO.: 4971 of 2011**

**Ph.D. REGISTRATION NO.: MZU/Ph.D./1430 OF 24.07.2019**



**DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE  
SCHOOL OF ECONOMICS, MANAGEMENT AND  
INFORMATION SCIENCE**

**JUNE 2023**



**DESIGN AND DEVELOPMENT OF AN INSTITUTIONAL  
REPOSITORY ON EDUCATIONAL RESEARCH AND TRAINING  
WITH REFERENCE TO NIE (NCERT), NEW DELHI: A CONCEPTUAL  
MODEL**

**BY**

**DEEPAK KUMAR KAPOOR**

**DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE**

**NAME OF SUPERVISOR: PROF. PRAVAKAR RATH**

**Submitted**

**In Fulfilment of the Requirement of the Degree of Doctor of  
Philosophy in Library and Information Science of Mizoram  
University, Aizawl**



## **1. Introduction**

Advances in Information and Communication Technologies (ICTs) and its application in libraries have brought immense changes having a great impact on library and information services. There is an increase in the overall volume of research publications and availability of the same in different peer-reviewed journals. But increase in the cost of these journals is limiting the access to scholarly publication. It is increasingly impractical for any institution to provide access to all of them, or even most of them because of limited funds. As library and information centres are supposed to preserve and communicate the scholarly output of an institution the need to make them available and usable to all the users have led to the concept of institutional repositories. Institutional repositories are fast emerging as a key factor of the current debate on open access and reform of scholarly communication process. Institutional repositories have a great influence in digital collections that preserve and provide access to the intellectual output of an institutional community. Another impetus for the recent growth of institutional repositories is the emergence of enabling technology and the availability of open-source software applications for setting up institutional repositories. Today institutional repository is global phenomenon that helps in promoting the research output and visibility of an institution to all its members and contributes to open access initiative.

### **1.1 Concept of Institutional Repository (IR)**

According to Clifford Lynch (2003) “An institutional repository is an organisation based set of services which the organisation offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members.”

According to the UNESCO’s Charter on the Preservation of the Digital Heritage (2003) states that “the purpose of preserving the digital heritage is to ensure that it remains accessible to the public. Accordingly, access to digital heritage materials, especially those in the public domain, should be free of unreasonable restrictions. At the same time, sensitive and personal information should be protected from any form of intrusion”.(Policy Guidelines for the development and promotion of Open Access

byAlma Swan).

(<http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/images/GOAP/215863e.pdf>)

## **1.2 About NCERT**

The National Council of Educational Research and Training (NCERT) was formed under the Societies Registration Act (Act XXI of 1860) in 1961. The registered office of the Council is situated at the Headquarters in New Delhi. It is an apex resource organisation set up by the Ministry of HUMAN RESOURCE DEVELOPMENT, Government of India, to assist and advise the Central and State Governments on academic matters such as formulation and implementation of their policies and major programmes in the field of school education. The council is fully financed by the Govt. of India.

In realising its objectives, the NCERT and its constituent units to-

- a) Conduct research on school education.
- b) Organise pre-service and in-service training of teachers.
- c) Organize extension services to educational institutions.
- d) Improve educational practices and innovations.
- e) Collaborate, advise and assist educational institutions.
- f) Act as a clearing-house for ideas and information in all matters relating to school education.
- g) Prepare and publish literature to achieve objectives.
- h) Universalization of elementary education achieved through collective action.
- i) Conduct National level surveys for planning and monitoring purposes.

In addition to the above, NCERT works to promote cultural exchange programmes, and international collaboration by providing training to educational personnel from developing countries.

The constituent units of the NCERT are:

- 1) National Institute of Education (NIE), New Delhi.
- 2) Central Institute of Educational Technology (CIET), New Delhi.
- 3) Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal.
- 4) Regional Institute of Education (RIE), Ajmer.
- 5) Regional Institute of Education (RIE), Bhopal.
- 6) Regional Institute of Education (RIE), Bhubaneswar.
- 7) Regional Institute of Education (RIE), Mysore.
- 8) North-East Regional Institute of Education (NE-RIE), Shillong.

### **1.3 National Institute of Education (NIE)**

The NIE in New Delhi carries out research and development activities related to

- pedagogical aspects of curriculum;
- prepares prototype curricular and supplementary materials;
- develops school education related database; and
- Developing learners holistically through experimentation.

IT also provides in-service training for key resource persons and teacher educators to implement centrally sponsored school improvement schemes.

Following is the list of departments of NIE, which function in their respective fields as is evident from their names.

- Department of Elementary Education (DEE)
- Department of Education of Groups with Special Needs (DEGSN)
- Department of Gender Studies (DGS) (formerly known as DWS)
- Department of Education in Science & Mathematics (DESM)
- Division of Educational Kit (DEK)
- Department of Teacher Education (DTE)

- Department of Social Sciences (DESS)
- Department of Education in Arts and Aesthetics (DEAA)
- Department of Education in Language (DEL)
- RMSA Project Cell
- Department of Educational Psychology & Foundations of Education (DEPFE)
- Educational Survey Division (ESD)
- Department of Educational Research (DER)
- Publication Department (PD)
- Department of Curriculum Studies (DCS)
- Planning, Monitoring Division (PMD)
- International Relations Division (IRD)
- Library, and Documentation Division (LDD)

## **2 Scope and Significance of the Study**

The present research problem on design and developing of an institutional repository for National Institute of Education, New Delhi is limited to research publications of the 89 faculty members. These research publications includes journal articles, conference paper, research and reference books, chapters in the books, major and minor research project etc. besides there are good number of reports relating to development training and extension programmes covering school education. Designing an IRs for National Institute of education shall allow the faculty members, research scholars and teachers educators to develop their academic and research competencies in accessing large number of scholarly publications.

## **3 Statement of the Problem**

Institutional repositories in many research and development, educational institutions have assumed great importance in developing repository of scholarly publications in different discipline. Since NIE is specialised in school education at national level there is no such repository is available at present. This is the reason which has prompted and motivated the research scholar to take up this research problem.

## **4 Review of Literature and Research Gap**

After reviewing around 40 relevant literature, it is observed that many studies have been undertaken on Institutional Repository and being operational in universities and other research institutions, no research publication is available on design and development of institutional repository on school and teacher education. The present study and research output in the form of publication comes out of this study shall fill up the gap.

## **5 Objectives**

The research problem aims to achieve specific goals.

1. Understand the necessity and importance of Institutional Repository in academic and research institutions.
2. Identify research publications and scholarly content available in NIE.
3. Design and develop a model of IR for NIE for its global access and visibility of the institutions.
4. Address technological and legal issues associated with for the greater interest of NIE faculty members.

## **6 Research Design**

While conducting the research the following methodologies adopted to collect necessary data pertaining to the topic.

### **6.1 Data Collection Technique**

The scholar has designed a structured questionnaire in Google form, circulated to the 89 academia of NIE. But due to extremely poor response, the scholar decided to include Programme Advisory Committee (PAC) and Programme Advisory Board (PAB) programmes which are considered as research activities of NIE are explained below:

1. Capacity Building Programme;
2. Development Activities;
3. Extension Activities;

4. Major Publications
5. Major Schemes of Ministry of Education- co-ordinated by NCERT;
6. Research Studies;
7. Faculty Publications: Articles, Books, Chapters in Book, Paper Presentation, Miscellaneous;

to design and develop an appropriate IR model.

## **6.2 Case Study Method**

### **IR of different university**

#### **Software, Features,**

This study used comparative case study analysed to investigate the development of the Institutional Repository. Comparative case study analysed and highlighted the similarities and differences between cases. The Scholar has studied the websites having institutional repositories namely Delhi University, Jawaharlal Nehru University, Indira Gandhi National Open University, Indian Institute of Technology, Delhi, etc..

## **6.3 Interview Method**

Personal interview method has been adopted by the researcher to know the real life situation prevailing in the institutional repositories developed by other institutions. The personal interaction of the scholar with the library staff, project coordinator and academia of both inside and outside NIE has experienced various academic, management, technological and legal issues related to the development and maintenance of the institutional repositories, which was helpful for the scholar to design and develop appropriate Institutional Repository for NIE, New Delhi.

## **6.4 Data Analysis and Interpretation**

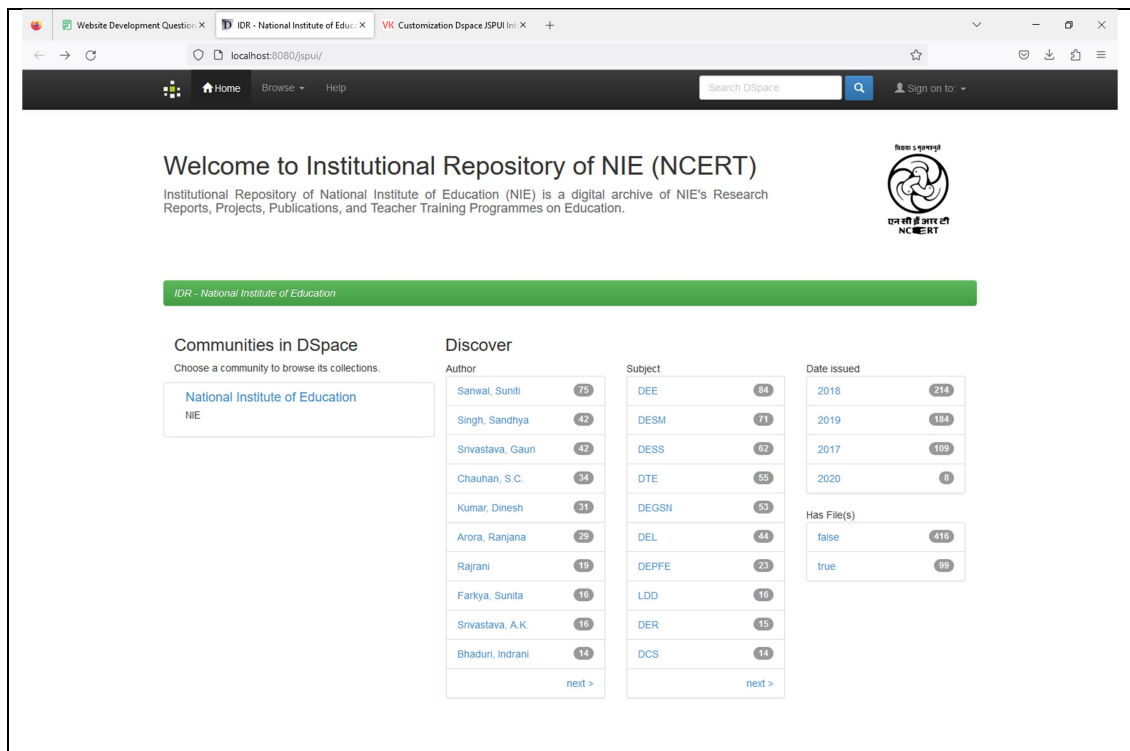
After evaluation of digital library software having the facility of Institutional Repository, the scholar has selected the most popular software i.e. D-Space and created an institutional repository of the selected scholarly content of NIE. As stated before different activities of faculty members as mandated in NIE were taken into consideration. The data pertaining to their activities were taken from Annual Reports

of NCERT

## **6.5 National Institute of Education (NIE): IR Model**

Many programmes under project are organised by the NIE such as i) Research Studies ,ii) Development Activities, iii) Capacity Building Programmes, iv) Extension Activities, v) Major Publications, vi) Major Schemes of MHRD Co-ordinated by the NCERT, Publications and Presentations by the NIE Faculty. The repository has the ability to archive such reports for submission and capture, to index, to store, to disseminate and to preserve publications submitted.

- Home page of NIE has different part of the sections such as Communities and Collections, Navigation Bar, Location Bar, Header, Footer, Top News, etc.
- Header: name of the repository of the institute and the image of the icon is display.
- Location Bar: community and collection is browsing
- Top News and Sidebar News: notification part, display information are shown.
- Search: advanced search option is available to search with a repository.
- Browsing in Communities and Collections: give facility to move desire option in community or collection.
- Navigation Bar: available on the left side of home page contains search, advance search, browsing by title, log on option to NIE



**Customized Home Page of DSpace for National Institute of Education**

## 7 Need of the IR at NIE (NCERT)

NIE is the only Institute of its kind in the country in school education. NIE developed

1. Capacity Building programmes,
2. Development Activities;
3. Extension Activities;
4. Research Studies;
5. Major Publications;
6. Major Schemes of MoE: co-ordinated by NCERT

in the field of school education.

NIE has information and its publications in the subject of school education, such as books, journals, thesis, and, research papers published by faculty, annual reports, syllabus and other general publications etc., the amount of work of this information are very difficult to organising, disseminating, preserving, and published is now very difficult, for this own IR is need by the NIE.

The reasons to develop an IR at NIE are:



- increase in the overall volume of research,
- need to access archival and unpublished information,
- demand to access information globally at 24x7,
- uncertainty to handle the archiving of scholarly research materials available digitally.

The importance of the IR:

- help to setup a national research repository infrastructure by setting up, populating and linking individual repositories,
- development of services that available through the repository on research information,
- It will provide a platform to gives an option to access visibility and status of the sponsoring institution's,
- open-access of the publication of institute can be visible.

### 7.1 Publications uploaded in IR of NIE

Type of Publication	Number
Research Studies	88
Development Activities	156
Capacity Building Programmes	61
Extension Activities	41
Major Publications	57
Major Scheme of MHRD, Co-ordinated by the NCERT	23
Publications and Presentations by the NCERT Faculty	89
Total	515

#### Number of publications uploaded

There are 515 research and training programmes selected for uploading in the IR under Major Publications of books and journal, Capacity Building Programmes; Development Activities, Extension Activities, Major Scheme of MHRD, and Faculty Publications in “National Institute of Education”. The uploaded data are in the print mode.

## 8 Suggestions and Conclusion

## **8.1 Suggestions:**

While undertaking a detailed study on Institutional Repository and conceptual model for National institute of Education, the scholar has come across many institutional, technological and legal related suggestions which are listed below.

- National Institute of Education (NCERT) authority should promote Institutional Repository (IR) for global visibility and access to research materials provided by NIE.
- Necessary IT infrastructure need to be developed for design and development of NIE's IR.
- Capacity building of library staff need to be enhanced with regards to installation of DSpace, design of an appropriate model and its usability keeping in view easy access to IR by the faculty.
- NCERT being a premier research institution in the field of school education need to have an institutional repository at the earliest possible.
- Institutional Repository is a platform for all academic and R&D institutes to upload their research, and project work, intellectual activities for visibility at global level.
- Developments of Standards and Policy for development of IR are the need of the institution.
- While framing Standards and Policy for the IR, institution should contain different type of elements as suggested by the researcher at the time of development of IR.
- Accessibility of the IR should be available for the users, for the benefit of research, to avoid duplication of the research.

## **8.2 Avenues for the further research:**

The present research problem undertake by the scholar has given rise to many other research areas which can be carried out and beneficial to planners and policy makers of academic and R&D institutes. Some of the potential thrust areas are listed below.

- Evaluation of IRs in improving quality and visibility of the institution;
- Cost benefit analysis of IR design and develop by academic and R&D institutions;
- IR Software, tools and techniques : A Comparative Study
- IR in Indian regional languages;
- IR softwares: an evaluation.

### **8.3 Conclusion**

Academic and R&D institutions around the world are in an age of competition, quality, access to education, and improving the quality of research. Research and innovation, teaching and learning, visibility, and perception are of utmost importance in accessing the quality of an institution and its ranking. Universities in abroad are placed at high ranking universities/institutions based on academic and research outputs. This can only be achieved through multiple mechanisms, one of which is design and development of IR. This can be implemented in universities, colleges, and R&D institutions. Present study gained experience of significance and importance of IR in order to improve visibility of institution around the world. Therefore, every academic institutions and R&D institutes should have IR so as to provide access to scholarly communication, academic and research publication, which has direct impact on students, faculties, and researchers.

The present study discussed and described the selection and evaluation of IR software, installation of IR software (DSpace), research content to be included in IR and conceptual model provided for the purpose. NIE (NCERT) may adopt this IR model, so that the research publications are going to be accessible only within the institution rather it should have global visibility and academic standards. Authority of NIE should recognise the value and importance of IR in the best interest of faculty members and researchers.

## **9 Chapterisation**

Chapter 1 Introduction: Discussed about the concept of IR, scope and significance of this study, objectives research design and review of literature

Chapter 2	NCERT and NIE: Describe an overview of NCERT and its various constituents including NIE.
Chapter 3	Research Publications and Scholarly Content in National Institute of Education (NIE): Explained various publications of NIE which are research oriented in nature.
Chapter 4	Digital Library and Institutional Repository Software: Explained the importance of digital library and IR keeping in view the users access and variety of content.
Chapter 5	Design and Development of an IR model for National Institute of Education (NIE): Presented a conceptual model of IR based on DSpace to create an IR in School Education in which NIE is known for various research publications
Chapter 6	Suggestions and Conclusion: Presented various constructive suggestions so as to improve the technological infrastructure capacity building and support from authority to develop an IR for NIE. The present work also concluded with utmost importance to IR which has global visibility and perception of NIE.