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Open resources for higher education: the Indian scenario

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OPEN RESOURCES FOR HIGHER EDUCATION: THE INDIAN SCENARIO

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Abstract

The paper introduces the **merits of Open Access resources** especially in a developing country scenario. It delineates the different **problems** of the Indian LIS professionals in the provision of higher education resources. It describes the key players in the creation of open scholarly archives. Some important providers of open study materials included are **eGyankosh** by Indira Gandhi National Open University, a premier Distance Learning provider; **eGurukul**, a repository at Indian Institute of Technology Kanpur, etc. The paper also discusses the open archiving resources of **premier higher learning and research institutes** of India, namely Indian Institute of Astrophysics, Indian Institute of Information Technology- Allahabad, G.B. Pant University of Agriculture & Technology, Indian Institute of Technology, Delhi , Indian National Science Academy, Indian Statistical Institute- Bangalore, National Aerospace Laboratories, National Centre for Radio Astrophysics, National Chemical Laboratory, National Institute of Oceanography, National Institute of Technology- Rourkela, Raman Research institute, etc. It explores the dictum of the **University Grants Commission** of India to submit electronic version of theses and dissertation which led to the creation and access of **Electronic Thesis and Dissertations bibliographic and/or full-text database** at the University level. The major **Indian government initiative (in collaboration** with **Education and Research Network, Indian Institute of Science, Bangalore and some other prestigious bodies)** called 'Digital Library of India' has been explored. With the ultimate goal of digitizing all Indian books and the immediate goal of **capturing 1 million pages**, it is also a useful resource for higher learners. Other notable attempts include biomedical resources by **medIND (called the 'Indian Medlars')** by National Informatics Centre covers full text of **IndMED** journals that covers peer reviewed Indian biomedical literature. **OpenMED@NIC** provides free service to academics, researchers, and students working in the area of Medical and Allied Sciences. One important resource in Library & Information Science Studies namely, Librarian's Digital Library (LDL) at Documentation Research & Training Centre (DRTC) has also been covered.

Keywords: Open Access, Open Resources, Higher Education, India, OER (Open Educational Resources)

1. The Idea of 'Openness':

Henry Ford, the great industrialist, has said 'Coming together is a Beginning, Keeping together is Progress, Working together is Success' [Ford], and 'Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young' [Ford].

The Open Learning Scenario upheld many of the properties implied in the above two quotations, namely:

- Collaboration between the scholars, scientists, educationists
- Opening up the education system for everyone regardless the age and other barriers
- Putting emphasis on quality education that freshens the mind rather than cramming some facts for scoring grades only

What Ford has envisioned may later blossomed in the idea behind the Great Wikipedia Movement with its vision of a *world in which every single person is given free access to the sum of all human knowledge.*

In this respect, the ideal of education may be summed up in the words of the great Indian Litterateur and Nobel Laureate Rabindranath Tagore [Tagore] who depicted it in his poem

'Where the mind is without fear,

And the Head is held high,

Where Knowledge is free'

2. Open Access Defined:

Berlin Declaration (Coles et al.) on Open Access to Knowledge in the Sciences and Humanities defines Open Access "as a comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community" and stimulates the signatory institutions "to promote the Internet as a functional instrument for a global scientific knowledge base and human reflection".

Budapest Open Access Initiative (BOAI, 2002) defines OA as the "free availability on the public internet, permitting any users to read, download, copy, 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. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited".

3. Higher Education Scenario in India [Govt. of India, Dept. of Higher Education; UGC]:

Education in India starts with the primary and secondary schools that ends with 10 + 2 years of schooling. After completion of this part, the Indian students enter the higher education arena which is composed of Colleges and Universities. Colleges are affiliated under different universities and confer Bachelor's Degrees whereas universities are for higher studies like Masters Degree and research like attaining M. Phil and PhD degrees. The various types of universities are described in the following table:

	Type of University	Number
1	Central Universities	42
2	State universities	265
3	Deemed Universities	130
4	Private Universities	79
5	Open Universities	10
6	Distance Institutes	54

Apart from this School-College-University trio, there are some premier higher learning and research institutes of India, namely Indian Institute of Astrophysics, Indian Institute of Information Technology- Allahabad, G.B. Pant University of Agriculture & Technology, Indian Institute of

Technology, Delhi , Indian National Science Academy, Indian Statistical Institute- Bangalore, National Aerospace Laboratories, National Centre for Radio Astrophysics, National Chemical Laboratory, National Institute of Oceanography, National Institute of Technology- Rourkela, Raman Research institute, etc

To run this gigantic scenario in a well organized way there are some professional councils. **These** Professional Councils responsible for the smooth running of the higher education system are

- All India Council of Technical Education (AICTE)
- Medical Council of India (MCI)
- Indian Council for Agricultural Research (ICAR)
- National Council for Teacher Education (NCTE)
- Dental Council of India (DCI)
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Bar Council of India (BCI)
- Central Council of Homeopathy (CCH)
- Central Council for Indian Medicine (CCIM)
- Council of Architecture
- Distance Education Council
- Rehabilitation Council
- National Council for Rural Institutes
- State Councils of Higher Education

University Grants Commission, Department of Higher Education of Government of India, etc. are the top-level bodies for monitoring the total set-up.

The total expenditure on the Revenue Account at the all India level during 2008-09 formed 27.73% of the total Gross Domestic Product (GDP) and only 3.13% of the GDP was provided in the budgets of the education departments. When the provision for education for all departments including education department is taken into account this percentage works out to be 3.78%.

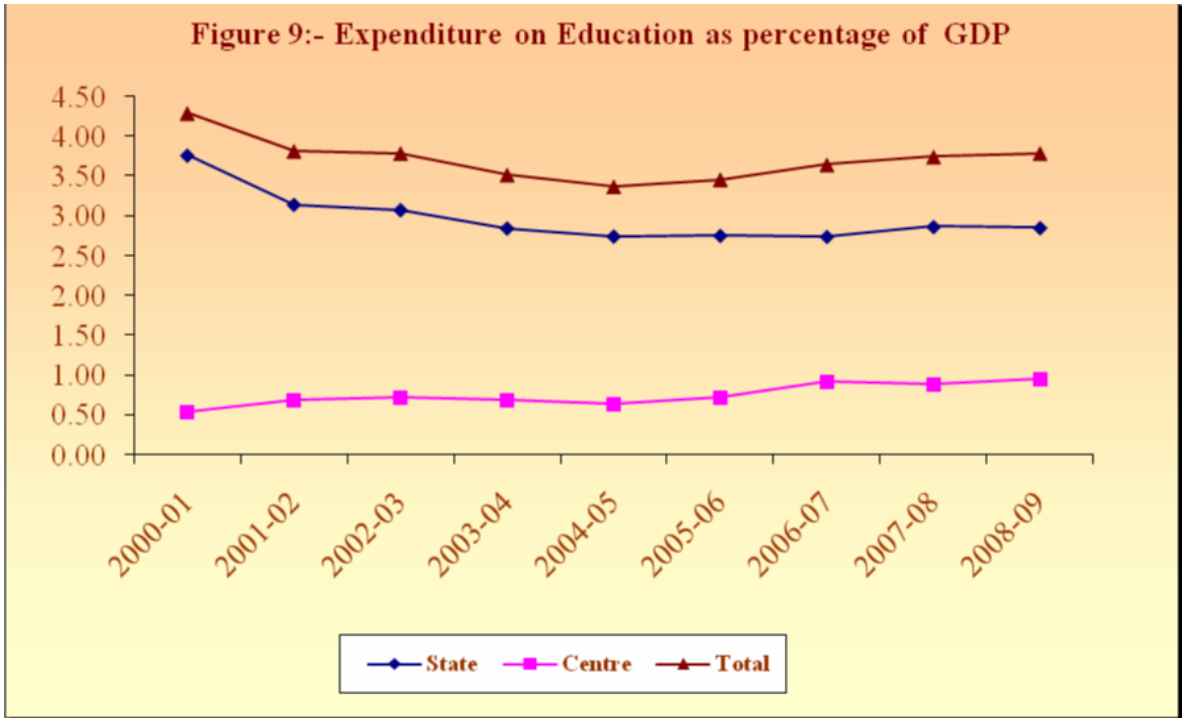
Figure 9:- Expenditure on Education as percentage of GDP
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
State
Centre
Total

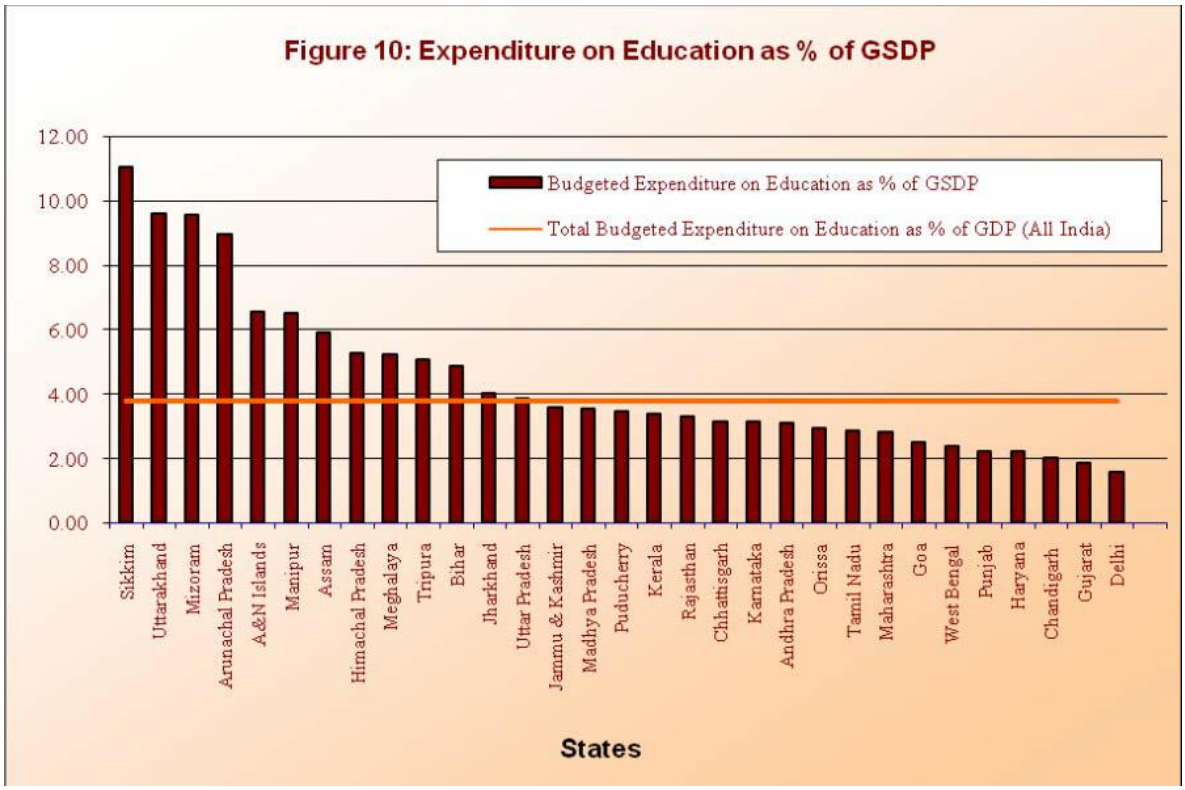
Figure 10: Expenditure on Education as % of GSDP
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Budgeted Expenditure on Education as % of GSDP
Total Budgeted Expenditure on Education as % of GDP (All India)
Sikkim
Uttarakhand
Mizoram
Arunachal Pradesh
A&N Islands
Manipur
Assam
Himachal Pradesh
Meghalaya
Tripura
Bihar
Jharkhand
Uttar Pradesh
Jammu & Kashmir
Madhya Pradesh
Puducherry
Kerala
Rajasthan
Chhattisgarh
Karnataka
Andhra Pradesh
Orissa
Tamil Nadu
Maharashtra
Goa
West Bengal
Punjab
Haryana
Chandigarh
Gujarat
Delhi
States

4. Importance of Open Educational Resources (OER):

Given this vastness & variety of the scene and the budget crunch and other infrastructural problems, it is quite obvious that traditional resources are inadequate to support the demands of Indian higher education. OER may be a worthy candidate for consideration for a huge subcontinent like India.

- Easy location
- Ready accessibility
- Easy deliverability through the web

5. Scope & Coverage of OER:

As per Hylén (2005), Open Educational Resources may be divided into the following categories:

1. Open courseware and content
2. Open software tools (e.g. learning management systems)
3. Open material for e-learning capacity building of faculty staff
4. Repositories of learning objects
5. Free educational courses

6. The Indian Open Educational Resources:

6.1 National Library and Information Services infrastructure for Scholarly Content (N-LIST) Program [Arora and Chandrakar]:

This is an effort jointly shared between UGC-Infonet Digital Library Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium, IIT Delhi. Funding comes from the Ministry of Human Resources Development, Govt. of India. Under this project, a National Library and Information Services Infrastructure is to be developed around the premier higher educational institutes- the Central Universities, Indian Institute of Technologies, and Indian Institute of Science. Gradually the e-resources of INDEST-AICTE and UGC-Infonet Digital Library Consortia will expand and envelope more than 6000 government colleges and R & D institutions. This initiative has shown considerable success already and has earned the 'Manthan Award' for e-Learning category as you can see from the proud display of the following symbol in their websites:

6.2 Free E-Journals for Higher Education through UGC-Infonet Digital Library Consortium [Arora and Chandrakar]:

The UGC-Infonet Digital Library Consortium (2003) developed by the UGC and INFLIBNET provides current as well as archival access to more than 5000+ core and peer-reviewed journals and nine bibliographic databases from 23 different publishers comprising of commercial publishers, scholarly societies, university presses, and aggregators of different disciplines to more than 157 universities. Some private universities and other institutions have joined the consortium under Associate Membership status.

6.3 Open Courseware and Content:

"Open Courseware" refers to modular courseware that is inherently flexible, and has the capability of being used as part of an integrated courseware environment. Open courseware can be re-configured and re-used as required.

6.3.1 eGyankosh Digital Repository

eGyankosh by Indira Gandhi National Open University, a premier Distance Learning provider; provides open & free resources to students not confined to its own students.
URL: www.egyankosh.ac.in

6.3.2 UNESCO-SALIS e-Learning Portal (URL: http://salisonline.org)

Aided by UNESCO, this portal has been developed for generating and distributing content for electronic learning.

6.4 Digital Library for Scholarly Content:

Digital Library of India:

One major Indian government initiative (in collaboration with Education and Research Network, Indian Institute of Science, Bangalore and some other prestigious bodies) in this field is called 'Digital Library of India'. With the ultimate goal of digitizing all Indian books and the immediate goal of capturing 1 million pages, it is a useful resource for higher learners.

6.5 Other Scholarly e-Content:

6.5.1 Indian biomedical literature:

Biomedical resources by **medIND (called the 'Indian Medlars')** by National Informatics Centre covers full text of **IndMED** journals that covers peer reviewed Indian biomedical literature. **OpenMED@NIC** provides free service to academics, researchers, and students working in the area of Medical and Allied Sciences.

6.5.2 The Indian Scholarly Content in the Directory of Open Access Journals or DOAJ [Chakraborty]**:**

DOAJ is a clearinghouse for free, full-text, quality-controlled scientific and scholarly journals since 2003. It aims to cover all subjects and languages. As of 5th November 2009, **India** is in 7th position with 132 Total numbers of journals in DOAJ. Awareness about Open Access is in the rise and it is gradually increasingly being used by learners and scholars.

6.5.3 Library & Information Science:

Librarian's Digital Library (LDL) holds the LIS contents for the students and researchers in the field of Library & Information Science. This is originated and monitored by Dr. A R D Prasad on behalf of Documentation Research & Training Centre (DRTC).

6.5.4 Open software tools (e.g. learning management systems):

Moodle is such software which is used globally as an open learning management tool, even in India. '**Brihaspati**' is indigenous software developed by Indian Institute of Technology-Kanpur for managing its open educational resources. Indira Gandhi National Open University has

developed 'Vedyanidhi' software for creation and use of its knowledge treasure house by all and sundry. **SOUL Software** is developed by INFLIBNET for Sharing Bibliographic Content between Indian Higher Education Institutes.

6.5.5 Open Archiving Resources:

Premier higher learning and research institutes of India have built their own Open Archiving Resources to be shared among all learners. Some of these institutes are Indian Institute of Astrophysics, Indian Institute of Information Technology- Allahabad, G.B. Pant University of Agriculture & Technology, Indian Institute of Technology, Delhi, Indian National Science Academy, Indian Statistical Institute- Bangalore, National Aerospace Laboratories, National Centre for Radio Astrophysics, National Chemical Laboratory, National Institute of Oceanography, National Institute of Technology- Rourkela, Raman Research institute.

6.5.6 Electronic Thesis & Dissertations [Chakraborty]:

Number of PhDs in a year in India is in the range of 8000-10000 [Vijaykumar].One of the prime resources for higher education is the result of the scholarly researches in the form of thesis or dissertations that are submitted to the Indian universities. ETD database in India mostly is in the form of bibliographic details. Still such resources can work as a pointer towards fulltext retrieval if the concerned university is into Open Access.

Merits of these ETD endeavour are [UNESCO]:

- Minimize duplication of effort
- Improve visibility
- Accelerate workflow
- Make ETDs available faster to outside audience
- Costs and benefits
- Enhancing access to university research
- Helping universities develop digital library services & infrastructure
- Increasing sharing and collaboration among universities and students

Problems faced with the Indian thesis literature are [Urs]:

- Lack of Systematic acquisition
- Lack of Access
- Uncertain publication
- Non-Uniformity of the Indian Universities in the ETD policy framework
- Enormous Growth in the number of theses

6.5.6.1 Vidyanidhi: Vidyanidhi is one very comprehensive ETD project in India. Situated in the University of Mysore, the leading figure behind it is Prof. Shalini Urs. It provides a platform to access thesis database from different Indian universities.

6.5.6.2 ETD@IISC: Indian Institute of Science is the most prestigious institute of India. **Electronic Thesis and Dissertations** of IISC Bangalore is a treasure trove for

URL: http://etd.ncsi.iisc.ernet.in

6.5.6.3 Union Catalogue of the Thesis and Dissertations Submitted to Indian Universities:

This endeavour includes the bibliographic records of the Thesis and Dissertations submitted to the Indian Universities. Information & Library Network (INFLIBNET established by University Grants Commission monitors this effort. It has made possible copy cataloguing of bibliographic records from the INFLIBNET web site. Formats adhered to are ISO 2709 format with compatibility lent to MARC21, ASCII and CCF.

6.5.6.4 Institutional Repositories in India:

The table that follows will show a brief glimpse of the Institutional Repositories that have been created in the premier academic institutions of India and are in use by the scholars, faculties and students of the Indian academic milieu.

Name	Host Institution	URL	No. of Items	Types of Documents	Software Used
Librarian's Digital Library (LDL)	Documentation Research & Training Centre (DRTC)	https://drtc.isibang.ac.in/	236	Research Papers, Articles, Reports, etc.	DSpace
DSpace at GBPUAT University	G.B. Pant University of Agriculture & Technology	http://202.141.116.205/dspac e/	82	Research Papers, Articles, Reports, Thesis, etc.	DSpace
IIA Repository	Indian Institute of Astrophysics	http://prints.iiap.res.in/	725	Research Papers, Articles, Reports, Thesis, etc.	DSpace
EPrints@IIITA	Indian Institute of Information Technology, Allahabad	http://eprints.iiita.ac.in/	22	Research Papers, Articles, Reports, etc.	EPrints
DSpace@IIMK	Indian Institute of Management, Kozhikode (IIMK)	http://dspace.iimk.ac.in/	133	Research Papers, Articles, Reports, etc.	DSpace
EPrints@IIMK Kozhikode (IIMK)	Indian Institute of Management,	http://eprints.iimk.ac.in/	25	Research Papers, Articles, Reports, etc.	EPrints
EPrints@IISC	Indian Institute of Science (IISC)	http://eprints.iisc.ernet.in/	3645	Research Papers, Articles, Reports, etc.	EPrints
ETD@IISc	Indian Institute of Science (IISC)	http://etd.ncsi.iisc.ernet.in/	153	Theses & Dissertations	DSpace
EPrints@IITD	Indian Institute of Technology, Delhi (IITD)	http://eprint.iitd.ac.in/dspace/	1296	Research Papers, Articles, Reports, etc.	DSpace
DSpace at INSA (Metadata only)	Indian National Science Academy (INSA)	http://61.16.154.195/dspace/	818	Conference Papers, Articles, Reports, etc.	DSpace
ISI Library, Bangalore	Indian Statistical Institute, Bangalore	http://library.isibang.ac.in:80 80/dspace/	10	Research Papers, Articles, Reports, etc.	DSpace
DSpace at INFLIBNET	INFLIBNET	http://dspace.inflibnet.ac.in	428	Research Papers, Articles, Reports, etc.	DSpace
NAL Institutional Repository	National Aerospace Laboratories (NAL)	http://nal-ir.nal.res.in/	418	Research Papers, Articles, Reports, etc.	EPrints
DSpace at NCRA	National Centre for Radio Astrophysics	http://ncralib.ncra.tifr.res.in/ dspace/	22	Research Papers, Articles, Reports, Thesis, etc.	DSpace
EPrints at NCL	National Chemical Laboratory (NCL)	http://dspace.ncl.res.in/	290	Theses, Research Papers, Articles, Reports, etc.	DSpace
OpenMED@NIC	National Informatics Centre (NIC)	http://openmed.nic.in/	1035	Research Papers, Articles, Reports,	EPrints

				etc.	
Digital Repository Service of NIO	National Institute of Oceanography	http://drs.nio.org/drs/	55	Journal articles, conference proceeding articles, Technical reports, thesis, dissertations, etc	DSpace
Dspace@NITR	National Institute of Technology, Rourkela	http://dspace.nitrkl.ac.in/dsp ace/	223	Theses, Research Papers, Articles, Reports, etc.	DSpace
Digital Repository of RRI	Raman Research Institute	http://dspace.rri.res.in/	1064	Research Papers, Articles, Reports, Thesis, etc.	DSpace
Vidyanidhi	University of Mysore	http://www.vidyanidhi.org.in /	1835	Theses & Dissertations	DSpace

Table: Institutional Repositories in India

7. Conclusion:

In conclusion, we can say positively that India has started in the OER way. Contributions made by Distance Learning Universities (Open Universities) are major creator in the field of Open Resources. Government initiatives in the form of the contributions provided by INFLIBNET and NIC (National Informatics Centre) have helped the stakeholders of the Higher education community. Premier academic institutes have also created repositories of learning objects like **eGurukul,** a repository built at the Indian Institute of Technology Kanpur. The open source software like Dspace, Greenstone, Newgenlib (of Indian origin), Joomla, Koha, etc are increasingly being used to provide contents to the academic community. As these are now part of the curricula, young LIS professionals are now born and bred in this culture of sharing the wealth of knowledge. We have to nurture them to become tomorrow's stalwarts in the field of OER.

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