Open Educational Resources (OER): Policy Perspectives and National Initiatives[1]

Anup Kumar Das

This article highlights the OER initiatives receiving National Mission on Education through ICT (NME-ICT) support during the Eleventh and Twelfth Five Year Plan period. The MHRD has established the NME through ICT in 2008 for creating learning contents for students and teachers pertaining to different segments of higher education, including the technical and vocational education and training (TVET) sector.

Open Educational Resources

OER is a mix of open contents and educational materials freely available for anyone to use and under some licenses to re-mix, improve and redistribute. Recently, India's National Knowledge Commission (NKC) has called for a 'national e-content and curriculum initiative' to stimulate the creation, adaptation and utilization of OER by Indian Institutions. As a result, a *National Mission on Education* through *ICT* was been in 2008 that is now providing necessary impetus for OER development across the country. Apart from the NKC, UGC, National Association of Software and Services Companies (NASSCOM) and many other advocacy, advisory and policymaking bodies in India are supporting the cause of OER in enhancing the access and reach of higher education and lifelong learning, and bridging knowledge and skill gaps. This will help learners, who are located in remote places or working in different industries, to participate in an online lifelong learning environment to enhance their knowledge levels.

The present decade has been experiencing the incremental growth of OER, where many national institutions have established OER portals for providing nationwide access to educational resources. Indian OER can be broadly categorized as audiovisual OER and textual OER.

International Policy Instruments

To achieve its Education for All (EFA) objective and United Nations' Millennium Development Goals (UN-MDGs), UNESCO's International Institute of Educational Planning (IIEP) and UNESCO/COL Chairs in OER have organized a number of online discussion forums for raising awareness about and mapping global OER initiatives. An interactive forum in 2005 resulted in a publication *Open Educational Resources: Conversations in Cyberspace* in 2009. Recently UNESCO and Commonwealth of Learning (COL) published *Guidelines for Open Educational Resources (OER) in Higher Education* in 2011, which gives directions in integrating OER into higher education. Earlier, UNESCO-COL carried out a *Survey on Governments' Open Educational Resources (OER) Policies*, and launched its report in 2012 in the World OER Congress. Global OER actors, support groups and practitioners came together in 2012 World OER Congress in Paris (June 2012). The *2012 Paris OER Declaration* laid down a set of responsibilities and a plan of actions for UNESCO's member states and their functionaries in education. Box 01.04.01 provides key highlights of the Declaration.

Table 01.04.01 provides a list of global OER communities, aggregators, and directory services for global OER initiatives.

---

[1] Das, Anup Kumar (2014). Open Educational Resources (OER): Policy Perspectives and National Initiatives. In: CSIR-NISTADS (ed): *India - Science and Technology, volume 3*. Delhi: Cambridge University Press India, ISBN 9789384463045, pp.16-21.

Box 01.04.01: 2012 Paris OER Declaration – key highlights

2012 Paris OER Declaration

The Declaration recommends UNESCO member States, within their capacities and authority:

a) Foster awareness and use of OER.
b) Facilitate enabling environments for use of Information and Communications Technologies (ICT).
c) Reinforce the development of strategies and policies on OER.
d) Promote the understanding and use of open licensing frameworks.
e) Support capacity building for the sustainable development of quality learning materials.
f) Foster strategic alliances for OER.
g) Encourage the development and adaptation of OER in a variety of languages and cultural contexts.
h) Encourage research on OER.
i) Facilitate finding, retrieving and sharing of OER.
j) Encourage the open licensing of educational materials produced with public funds.

Table 01.04.01: Global OER Communities and Aggregators

Name of OER Platform	Brief Description	Online Resources	Website
Open Training Platform (OTP)	OTP, supported by UNESCO, facilitates a collaborative access to existing free training courses and promotes open licensed resources to specialized groups and local communities for development.	3,501	http://otp.unesco-ci.org/
Curriki	Curriki offers free learning resources to the world. This is an open community of educators, parents, and students who share curriculum.	46,431	http://www.curriki.org/
MERLOT	Multimedia Educational Resource for Learning and Online Teaching (MERLOT) is a free and open online community of resources designed primarily for faculty, staff and students of higher education from around the world to share their learning materials and pedagogy.	40,133	http://www.merlot.org/
OER Commons	The network brings together many educational resources, tools for sharing curriculum with the world, and news and training on the brave new world of open education	43,364	www.oercommons.org/
OpenCourseWare Consortium	This is a collaboration of higher education institutions and associated organizations from around the world creating a broad and deep body of open educational content using a shared model. It also provides a list of OCW	250+ OCWs	http://www.ocwconsortium.org/

	websites.		
Community College Consortium for OER	Its mission is to expand access to education by promoting awareness and adoption of Open Educational Resources (OER). Over 100 colleges are members of this consortium and many more participate in their activities and use the resources posted here.	100+ member colleges	http://oerconsortium.org/
OPAL – Open Educational Quality Initiative	This develops a framework of OER practices that improves quality and innovation in education. It brings greater effectiveness of teaching and learning by enhancing the quantity and quality of OER.	180+ OEPs	http://www.oer-quality.org/
Connexions	This is a place to view and share educational materials made of small knowledge chunks called modules that can be organized as courses, books, reports, etc.	21,526	http://cnx.org/

National OER Initiatives

The NME-ICT is a national level mission of MHRD to integrate ICT in tertiary education. It focuses on strengthening ICT infrastructure in the higher educational institutions and development of e-contents for all disciplines of tertiary education. The Mission initiated in 2008 (Eleventh Five Year Plan period that ran from 2007-12) and it received a significant funding from the national government, which increased during the Twelfth Five Year Plan period (2012-17).

Table 01.04.02 provides a list of major OER initiatives in India. As indicated in the Box 01.04.01, OER requires distribution with open licensing frameworks, so that online learners can share and reuse learning objects without any copyright restrictions. Table 01.04.02 indicates that majority of these OER initiatives are supported by the NME-ICT. Most of them have adopted open licensing frameworks, mainly the Creative Commons licenses. Most of them have adopted open licensing frameworks, mainly the Creative Commons licenses. Some of them are providing free access to educational contents, while retaining copyright with the hosting institution or publisher of contents. Gradually open licensing is becoming norms, particularly for NME-ICT supported projects.

It can be mentioned that majority of these initiatives are meant of students in vocational education, tertiary education and lifelong learners. However, initiatives such as Project OSCAR, NCERT Online Textbooks, and Teachers of India Portal provide learning objects suitable for school students, school teachers and teacher educators.

Table 01.04.02 also indicates that all these OER initiatives are products of public institutions. Content creation and production by the subject matter experts are usually coordinated by the host institutions. The designing team develops content management system and visual interfaces for easy navigation by the user communities. Users' interaction with the learning objects can be judged when the learners revisit the OER portals and they again interact with new sets of learning objects. Representative initiatives are briefly discussed in the sections after Table 01.04.02.

Box 01.04.02: Excerpt from the Economic Survey (2012–13)

The National Mission on Education through ICT (NME-ICT) which aims at providing high speed broadband connectivity to universities and colleges and development of e-content in various disciplines is under implementation. Nearly 404 universities have been provided 1gbps connectivity or have been configured under the scheme and 19,851 colleges have also been provided VPN (virtual private network) connectivity. Over 250 courses have been completed and made available in National Programme on Technology Enhanced Learning (NPTEL) Phase-I and another 996 courses in various disciplines in engineering and science are being generated in Phase-II of NPTEL by IIT Madras. The low cost access-cum-computing device Aakash 2 was launched on 11 November 2012. Using the A-View software developed under the NMEICT, several programmes for teachers' empowerment have been conducted for batches of 1,000 teachers at a time by IIT Mumbai.

Source: Economic Survey 2012–13, Chapter 13: Human Development, pages 283-284. http://indiabudget.nic.in/es2012-13/echap-13.pdf

Table 01.04.02: OER Initiatives in India

Name of the Initiative	Host Institution	Web Address	NME-ICT	Open Licensing
CEC E-Content	Consortium for Educational Communication, New Delhi	http://cec.nic.in/E-Content/Pages/Search.aspx	Yes	No
CEC Learning Object Repository	Consortium for Educational Communication, New Delhi	http://cec.nic.in/LOR/Pages/Search.aspx	Yes	No
e-Contents on Fermentation Technology	Christ College, Rajkot	http://www.elearnmicrobiology.com/	Yes	No
e-Gyankosh	IGNOU, New Delhi	http://www.egyankosh.ac.in	No	No
e-Learning @ VTU	Visveswaraya Technological University (VTU), Belgaum	http://elearning.vtu.ac.in	Yes	No
e-PG Pathshala	INFLIBNET Centre	http://epgp.inflibnet.ac.in/	Yes	No
e-Yantra: teaching robotics in engineering education	IIT Bombay	www.e-yantra.org	Yes	Yes
Myklassroom.com, a social learning platform	VTU E-Learning Centre	http://vtu.myklassroom.com/	Yes	No
National Repository of Open Educational Resources (NROER)	NCERT and MHRD	http://nroer.in	No	Yes
National Science Digital Library (NSDL)	NISCAIR, New Delhi	http://nsdl.niscair.res.in/	No	No
NCERT Online	NCERT, New Delhi	http://ncert.nic.in/ncerts/t	No	No

Textbooks		extbook/textbook.htm		
NPTEL (National Programme on Technology Enhanced Learning)	IIT Madras	http://nptel.iitm.ac.in/	Yes	Yes
Project OSCAR (Open Source Courseware Animations Repository)	IIT Mumbai	http://oscar.iitb.ac.in/	Yes	Yes
Sakshat Portal	IGNOU, New Delhi	http://www.sakshat.ac.in	Yes	No
Tamil Nadu Textbooks Online	Tamil Nadu Textbook Corporation, Chennai	http://www.textbooksonline.tn.nic.in/	No	No
Teachers of India Portal	Azim Premji Foundation	http://teachersofindia.org/	No	Yes
VASAT – Virtual Academy for the Semi-Arid Tropics	ICRISAT, Hyderabad	http://vasat.icrisat.org	No	Yes
Vigyan Prasar Digital Library	Vigyan Prasar, DST	www.vigyanprasar.gov.in/digilib/	No	No
Virtual Labs	IIT Delhi and other institutes	http://www.vlab.co.in/	Yes	Yes
Virtual Learning Environment at DU-VLE	Institute of Lifelong Learning (ILLL), University of Delhi	http://vle.du.ac.in/	Yes	Yes

NPTEL

NPTEL is India's first attempt to create open courseware and open educational resources for the benefit of undergraduate students in engineering and technology disciplines in engineering, science and humanities streams. The mission of NPTEL is to enhance the quality of engineering education in the country by providing free online courseware. Seven Indian Institutes of Technology (IITs) and Indian Institute of Science, Bangalore joined together and have produced contents for online courses. NPTEL follows model curriculum of the All India Council for Technical Education (AICTE) for producing contents of the courses. The first phase of this project was carried out during June 2003-June 2007 in order to enhance the reach and quality of technical education in the country. Since 2009, NPTEL is funded by the National Mission on Education through Information and Technology (NME-ICT) of Ministry of Human Resource Development. In the first phase, NPTEL produced 260 courses and in the second phase NPTEL is expecting production of more than 1000 courses.

NPTEL courses are also made available in many start-up web portals such as Btechguru (www.btechguru.com), My Open Courses (www.myopencourses.com), VideoPulp.In (http://videopulp.in), Classel: Learning is social (www.classle.net), and DesiCrew.In (www.desicrew.in). These portals are efficient in better visualization, collaborative learning, and contents discovery on mobile devices such as tablet PCs, iPad, iPhone, etc. As NPTEL contents are presently distributed under Creative Commons licence (Creative Commons Attribution-NonCommercial-ShareAlike – CC BY-NC-SA), hosting in these start-up portals help in re-purposing NPTEL contents and reaching out new audiences.

NPTEL web-base courses have different modules and each module also has a kind of exercise in the form of questions for the web learners. Answers to those questions obviously found in the respective module.

- Science as Culture Social Context of the Production of Scientific Knowledge
- Organisation of Production of Scientific Knowledge and Professionalisation of Science
- Society and Culture: Resources and Legitimation of Knowledge
- Perspectives on Science-Technology Relationship
- Science in Colonial and Post-colonial India
- Emerging Technologies
- New Ethical Codes for New Technologies: Responses of the Civil Society Discussion and Forum
- Science: From Public Resource to Intellectual Property

Table 01.04.03 provides a list of YouTube video channels of Indian content providers, namely, the NPTEL, CEC and IGNOU. Many of the video lectures are broadcasted in the direct-to-home (DTH) television channels such as UGC-CEC Vyas higher education channel and Gyan Darshan of IGNOU. Both Vyas and Gyan Darshan channels also maintain online live broadcasting facilities for accessing video lectures from the site http://webcast.gov.in/vyaslive/ and www.ignouonline.ac.in/broadcast/ respectively.

Table 01.04.03: Video Lecture Repositories

Channel Name	Web Address	Organization of Courses	No. of Video Lectures	Date of Joining
NPTEL – YouTube Channel	http://www.youtube.com/iit http://www.youtube.com/nptelhrd	Subject> Course> Video Lectures	11,750	27/11/2007
IGNOU – YouTube Channel	http://www.youtube.com/ignou	School> Programme> Video Lectures	1,419	22/02/2008
CEC-Edusat YouTube Channel	http://www.youtube.com/cecedusat	Episodes in UGC-CEC Vyas Channel	486	16/04/2012
e-yantra of IIT Bombay	http://www.youtube.com/eyantra	Playlist of Video Lectures	126	6/11/2009

Project OSCAR (Open Source Courseware Animations Repository)

Project OSCAR, hosted by Indian Institute of Technology Bombay and funded by the NME-ICT, is a repository of web-based interactive animations and simulations. These animations and simulations refer to as learning objects (LOs). These learning objects span topics in science and engineering at the college level, and maths and science at the school level. Students and teachers can view, run and download these learning objects.

Virtual Academy for the Semi-Arid Tropics (VASAT)

VASAT, an initiative of ICRISAT (International Crops Research Institute for the Semi-Arid Tropics) Hyderabad, brings a virtual coalition for foster drought preparedness. VASAT online courses are meant for the farming community, agricultural extension workers, agricultural academia and others interested in practical agriculture. VASAT hosts eight interactive online courses. VASAT follow open licensing distribution policy.

NCERT e-Textbooks

This online service offers easy access to the NCERT textbooks. The service covers textbooks of all subjects published by NCERT for classes I to XII in Hindi, English and Urdu. The Entire book or individual chapters can be downloaded although further distribution or re-use is restricted as mentioned in the copyright notice.

e-Gyankosh

e-Gyankosh is an OER initiative of Indira Gandhi National Open University (IGNOU). This portal provides free access to self-learning study modules mainly prepared for the distance education students in different disciplines and courses. It is presently hosting 26,578 learning modules as on 15th March 2013. Its associated open course portal FlexiLearn (www.ignouflexilearn.ac.in) facilitates informed learning wherein, anyone can register and explore courses free of cost to gain knowledge and skill in a particular area of interest. Certification for courses will be based on payment of the requisite fees. e-Gyankosh project team also maintains Sakshat Portal of NME-ICT and IGNOU's YouTube video channel. Sakshat Portal has very limited options for users in navigating and interacting with learning contents. Sakshat Portal only provides links to external educational resources.

The Way Forward

The open educational resources are best used in evolving learning societies and learning organizations. NME-ICT not only provides necessary push in e-contents creation, but also engages in infrastructure development for the educators and learners in all segments of society. Handheld mobile devices are very useful for accessing interactive learning objects. Aakash 2, a low cost access-cum-computing device, adopted by NME-ICT will be subsidised and distributed to school, college and vocational students in the country. Then OER initiatives in India will have more users across the country. Indian OER initiatives have already received worldwide audience, due to their richness in creating contents in English language. Now they require another push for creating contents in Indian languages for the Indian learners, comfortable with vernacular languages.

How to Cite

Das, Anup Kumar (2014). Open Educational Resources (OER): Policy Perspectives and National Initiatives. In: CSIR-NISTADS (ed): *India - Science and Technology, volume 3*. Delhi: Cambridge University Press India, ISBN 9789384463045, pp.16-21.