



OPENED EDUCATION RESOURCES IN HIGHER EDUCATION INSTITUTIONS IN INDIA

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Abstract:

With tremendous developments in ICTs, the education system of today has been enriched by various OERs. The optimal utilization of opportunities provided by the technological developments presents a profound challenge for education systems and has serious implications involving cost, access, equity, pedagogy and quality. The paper discusses various opportunities and challenges presented by the use of OERs in the education system of today. The various meaningful initiatives taken in India aiming at proper utilization of ICTs are also highlighted. The paper also discusses the role of libraries in promoting the use of OER's in educational institutions.

Keywords: HIGHER EDUCATION . LEARNING . OER . OPEN EDUCATIONAL RESOURCES.

Introduction

UNESCO defines OERs as Bany type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt, and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video, and animation[^] (Hoosen 2012). Creative Commons (CC) licensing is the most common OER copyright licensing, and allows authors to specify usage policies surrounding permission to copy, modify and redistribute, and whether or not users must acknowledge the original author in any versions (CreativeCommons.org 2017).

The purpose of the Open Educational Resources movement is to provide open access to high quality digital educational materials. There is broad participation by universities, private organizations, and others. Projects include the Internet Archive (see <http://internetarchive.org>), Project Gutenberg (see <http://gutenberg.org>), Wikipedia (see <http://wikipedia.com>), Creative Commons (see <http://creativecommons.org>), Sun Microsystems Global Education Learning Community (see <https://edu-gelc.dev.java.net/nonav/index.html>) and, as is the focus of this article, the OpenCourseWare Consortium (see <http://ocwconsortium.org>). The list of participating organizations grows every year as the principles of openness spread.

ICTs have provided powerful tools for dissemination of knowledge over a wide spectrum. This makes it very useful for improving access and equity in the entire education sector. ICTs can be leveraged to complement the formal education system as well as the distance education system at

all levels. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. The educators are creating and using digital content for teaching and learning. The access to quality content is possible only for those who attend higher education institutions or those who can afford to purchase the instructional material. The OER movement aims to make this content available for free use for enhancing educational opportunities for hitherto unreached sections of the society thus leading to equalizing of access . OERs can play a vital role in the existing scenario of distance learning by improving quality, access, reach and also providing competitive edge and recognition globally. There is a tremendous growth in the number of OER projects across the world. In India also a number of meaningful initiatives are being taken up to embed the OERs into the educational environments of today by Indian universities. The Indian Government has played a proactive role by providing impetus to the growth of OER movement in the country through various national policy initiatives

As the importance of OERs is increasingly recognized in international policies (Cape Town Open Education Declaration 2017, European Commission 2013, UNESCO 2012, Bologna Declaration 1999), individual countries have responded with national OER centers such as the Australian DEHub or OERAfrica (Falconer et al. 2016). Both national and private higher education institutes have established OERs and OER repositories (Wiley 2007). Falconer et al. report that as of 2016, there were over 1700 courses from seven university-based projects in the USA, 451 courses from 176 university members in China, 350 courses from ten universities in Japan, and 178 courses by 11 universities in France.

Increased utilization and dissemination of OERs have potential benefits, including increasing collective efficiency of educators (Hoosen 2012), increasing the average quality of teaching and breadth of course offerings (Hoosen 2012; Falconer et al. 2016), and reducing economic and geographic barriers to higher education (Butcher and Hoosen 2012). The most significant barriers to OER use are academic competition and branding (Dholakia et al. 2006; Ehlers 2011; Falconer et al. 2016; Sexias et al. 2014), low awareness and availability (Sexias et al. 2014), quality and trust concerns (Grodecka and Sliwowski 2014; Clements and Pawlowski 2012), and ease of technological integration (Atkins et al. 2007; Clements and Pawlowski 2012; Kortemeyer 2013; Sexias et al. 2014). Champions of OERs believe that OERs associated with

The goals of OERs The primary goal of making educational resources ‘open’ through the use of Web 2.0 technologies is to disseminate and share knowledge for free (Yuan, MacNeill, & Kraan, 2008). Thus, OERs provide users with freedom from financial commitments and freedom from restriction of access (following Stallman, 1999). One of the fundamental basic rights articulated in the United Nation Declaration on Human Rights is that education should be (or shall be) free for all individuals (United Nations, 1948). OER initiatives, therefore, have the potential to provide the medium through which such democratisation of education can be achieved by

providing 'a strategic opportunity to improve the quality of education as well as facilitate policy dialogue, knowledge sharing and capacity building' (UNESCO, 2011). Grosseck (2009, p. 482) points to the growing uptake of the use of Web 2.0 technologies to enhance teaching and learning activities. He argues that the benefits of Web 2.0 facilitated activities include reduction in the cost of education, increased flexibility, ease of access to information, and the promotion of innovation.

Indian initiatives of open educational resources Indian OER can be broadly categorised as audio-visual OER and textual OER. Few of the Indian OER initiatives are targeted at school students, whereas most others are targeted at students of technical and vocational education and training (TVET), tertiary education and lifelong learning.

Audio-visual OER . National Programme on Technology Enhanced Learning (NPTEL) (www.nptel.iitm.ac.in/). This is a collaborative initiative of the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc) with financial support from Ministry of Human Resources Development (MHRD) of Government of India. It provides access to recorded video lectures of different engineering disciplines.

The lectures are delivered by senior teachers of IITs and IISc. NPTEL also provides access to some web-based courses containing structured texts and graphics. . Learning Object Repository of the Consortium for Educational Communication (CEC) (www.cec-lor.edu.in/). CEC and its partner institutions produce video for Gyan Darshan educational channels and Edusat. Some of these contents are archived at the learning object repository.

Most of the videos are of short duration. Project Open Source Courseware Animations Repository (OSCAR) (<http://oscar.iitb.ac.in/>; <http://ekalavya.iitb.ac.in/oscarHome.do>). This is an initiative of the IIT, Bombay in collaboration with the National Mission for Education through Information and Communication Technology (NME-ICT). It aims at creating a repository of web-based, interactive animations for teaching various concepts and technologies. It has already achieved goal of developing some reusable animations for secondary and senior secondary level education. The current goal of Project OSCAR is to continue to develop animations for tertiary level education. . eGyanKosh of Indira Gandhi

National Open University (IGNOU) (<http://in.youtube.com/IGNOU/>;

www.ignouonline.ac.in/schools.htm). This is an initiative to provide open access to outstanding video lectures recorded at the IGNOU studio for Gyan Darshan educational channels. This YouTube channel maintains an IGNOU Broadcast Archive, where many interesting video lectures are preserved in streamed video format. Every School of IGNOU has a presence in this online Archive Indian audio-visual OER seek to collaborate with international online streaming video portals such as YouTube and Metacafe. These free content hosting platforms give the Indian OER initiatives freedom from maintaining their web servers with heavy load of video



content. Thus, quality contents are seamlessly available to the worldwide audience as well as national target groups.

Textual OER

. Online textbooks of the National Council of Educational Research and Training (NCERT) (www.ncert.nic.in/html/textbooks.htm). NCERT publishes school textbooks and reference books based on the National Curriculum Framework 2005 of the MHRD. NCERT textbooks are considered as basic sources for designing curricula in the state-level school boards. NCERT textbooks are now accessible online through its OER gateway. . eGyanKosh of IGNOU (www.egyan.kosh.ac.in/). This is an initiative of IGNOU to provide open access to self-learning study materials developed for different academic programmes. These self-learning study materials contain structured texts with graphical contents. IGNOU-produced self-learning materials are widely used by curricula designers and course writers of state open universities and other distance learning providers. These materials are also highly used by lifelong learner communities for various purposes such as preparation of competitive examinations, preparation of examinations. eGyanKosh is accessible to registered users only, however, registration is free of charge.

National Science Digital Library (NSDL) of the National Institute of Science Communication and Information Resources (<http://nsdl.niscair.res.in/>). NSDL contains popular science books and collegelevel reference textbooks produced under the mandate of attracting young minds in science and mathematics education. It covers basic science subjects, which are taught in degree level courses. These books are used by students, science teachers, teachers training institutes and activists of people's science movements.

Vidyanidhi – digital library and e-scholarship portal for theses and dissertations (www.vidyanidhi.org.in/). Vidyanidhi is a national digital library initiative of the University of Mysore, supported by the Department of Scientific and Industrial Research, Ford Foundation and Microsoft India.

Vidyanidhi aims at enhancing visibility of Indian doctoral research through archiving and disseminating full-text doctoral dissertations of researchers submitted in Indian universities to a global audience. This is a national level initiative, covering major Indian universities. . Rai Open Courseware (www.rocw.raifoundation.org/). This is an initiative of the private education provider Rai Foundation, which is involved in imparting professional and vocational education. Rai Open Courseware provides access to learning resources developed for their distance learning students. These portals provide access to online learning resources of Indian origin with a diverse range of contents to suit different segments of education, including lifelong learning. Many other resources are also evolving at a fast pace, so many such OER portals and gateways are expected during the next several years.

The NKC has recommended establishing national knowledge portals in key areas of social interests such as water, energy, environment, education, skills, etc. These portals are developed in PPP model where mostly civil societies are engaged in maintenance of portals and content aggregation tasks. These portals create validated contents with the help of subject matter experts. These open contents are supplemented by open educational contents for awareness raising and knowledge dissemination to the audience of practitioners, experts, researchers, students as well as others.

4. National Programme on Technology Enhanced Learning: The NPTEL is a pioneering OCW deployment programme in India that became an exemplary OER initiative with a status of “Indian version” of the MIT OCW project. Launched in 2003 with the support from MHRD, NPTEL is a collaborative venture of the IITs and the IISc, Bangalore. At the time of its inception, seven IITs (IIT, Bombay; IIT, Delhi; IIT, Guwahati; IIT, Kanpur; IIT, Kharagpur; IIT, Madras and IIT, Roorkee) and IISc, Bangalore joined together to use and deploy web and video courses for enriching engineering education. IITs and IISc are internationally known for high-quality engineering and technical education providers. Recorded in classroom lectures of IIT/IISc professors are made available through NPTEL web portals that create feelings of what IIT students learn from their teachers in direct teaching mode. IIT/IISc professors are also involved in the design of a national curriculum for engineering education. Thus, NPTEL resources such as video lectures of IIT/ IISc professors are of high value to the engineering students, researchers, technical teachers and lifelong learners across the country as well as other countries. Web courses in NPTEL are equally valuable to TVET students, technical teachers and lifelong learners.

NPTEL provides quality contents and engages in inclusive TVET education. It also shows that NPTEL supplements growth of TVET education across the country. NPTEL is involved in building inclusive knowledge societies through bridging knowledge divides for the benefits of emerging industrial and service sectors.

4.1 Facts and figures on NPTEL

Distribution of NPTEL contents, which reveal that mechanical engineering has maximum contents followed by civil engineering and electronics and communication engineering disciplines. Other subject disciplines covered in NPTEL are computer science, electrical engineering, basic courses for first and second semesters, ocean engineering, biotechnology, metallurgy and mining.

USE OF OERS IN DISTANCE EDUCATION

In distance education scenario of today, there is a paradigm shift towards more personalized and collaborative learning. The use of OERs holds great promise of improving the access to and the overall quality of education for the developed as well as the developing countries. By international standards, the GER in higher education in India (i.e. percentage of people of enrolled in higher education institutions) is quite dismal at 14% for post graduate level. Distance

education system in the country constitutes 12.5% of the total enrolment in higher education (MHRD, 2013). Distance education in India caters to a wide range of learners with varied learning styles, preferences, with heterogeneous cultural backgrounds, economical status and geographical locations. The ODL system (University Grants Commission, n.d.) aims at enhancing the gross enrolment ratio

- Democratization of higher education to large segments of the Indian population
- reaching out to the unreached
- providing opportunities for up-gradation of skills and qualifications meeting the demands of lifelong learning
- In India, at present there are 15 open universities - one national university and 14 state open universities. Besides, there are about 200 dual mode university providers of higher education and 12 open schools including one national institute of open schooling. The education scenario in India is facing many problems that need to be addressed. There is a paucity of high quality teachers, inadequate infrastructure, lack of well-equipped libraries and good quality learning resources. Certain recent trends in ICT and its use in education as well as distance education have a strong influence on the use of OERs (Butcher, 2011) in educational institutions:

OPPORTUNITIES AND CHALLENGES IN THE USE OF OERS

The OERs have provided opportunities for changing teaching-learning practices. New collaborative learning practices are emerging. The easy and free availability of quality materials facilitates the educators towards developing and learning new pedagogical models. Certain advantages of OERs in educational systems in developing countries as cited by Kanwar, Kodhandaraman, and Umar (2010) include:

helping developing countries save course content development time and money,

- facilitating the sharing of knowledge,
 - addressing the digital divide by providing capacity-building resources for educators,
 - helping to preserve and disseminate indigenous knowledge, and
 - improving educational quality at all levels.
- Despite the OER moment's rapid growth and its benefits to learners, educators and institutions, there remain a number of urgent issues that need to be resolved for OER to flourish (James & Bossu, 2014).

The development and use of OERs itself faces significant challenges . The OECD study (2007) exemplified certain impediments to the use of OER which are also true to the Indian scenario.

These are: Technical barriers such as lack of broadband access

- Economic barriers such as inadequate resources to invest in the required hardware and software. Social barriers such as a lack of the skills needed to use technology.
- Policy-oriented barriers such as the lack of clear policy in institutions regarding OER.
- Legal barriers such as the time and expense associated with gaining permission to use.

Library and Information Centres Role in OER's

OER Libraries are responding to the high costs of textbooks by becoming actively involved in the OER movement. As strong advocates for providing patrons with free or low-cost access to information, libraries are quickly seizing the OER opportunity. Programs such as Temple University's Alternate Textbook Project provides funding to faculty who opt to replace costly textbooks with library-licensed or open content and has saved students over \$300,000 since 2011 (Bell, 2015). Spearheaded from Temple's project, University of Massachusetts Amherst's Open Education Initiative, another faculty incentive program, has saved students over \$1,000,000 in potential textbook costs (Billings et al., 2012; Lederman, 2014). These libraries are extending their roles on campus by piloting textbook projects, often with administrative units such as the Provost's Office, to reduce textbooks costs for students.

Another major role libraries play in the OER movement is finding high quality open course materials along with library licensed content for both students and faculty members (Bell, 2015). Rebecca A. Martin (2010) argues that more libraries need to provide this —valueadded service for their faculty and students, saving both time and money. Finding quality OER can prove time-intensive and challenging, and, as many in the literature assert, more training for librarians may be needed (Martin, 2010; Mitchell & Chu, 2014; Okamoto, 2013). As Mitchell & Chu (2014) point out, librarians are well positioned to take on the role of mediating between faculty, as the creators of OER and course material, and students, as the users of course material. Libraries too, benefit from and provide expertise on OER, in particular through the libraries' institutional repositories (Martin, 2010; Mitchell & Chu, 2014; Okamoto, 2013).

Since librarians are already skilled at managing and promoting access to collections, encouraging faculty to submit their publications in the institutional repository is yet another way libraries can help students reduce costs by making supplemental materials freely available while also promoting their faculty's work. Some libraries are also involved in creating OER, working alongside students and professors as facilitators (Okamoto, 2013). At USU, the open textbook project included partners from across the institution—including the University Press and the Extended Campus—but the Valley Library spearheaded the effort (Sutton & Chadwell, 2014). UCLA's Special Collections department worked with a freshmen course, and, in the span of ten weeks, helped to curate the course's collaboratively authored textbook, mainly comprised of special collections documents and the students' writings (Miller & Montoya, 2013). Academic libraries, with their experience in intellectual property, preservation, teaching, and technology, are particularly well-positioned to fill a central role in the OER movement (Kazakoff-Lane, 2014). Librarians are continuing to explore pivotal ways in which to implement OER on U.S. college campuses and, in turn, provide cost saving and educational benefits for students.

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