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Open Educational Resources: Global Scenario

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ABSTRACT

Purpose *– The purpose of this paper is to highlight the importance of Open Educational Resources(OERs) in present times with an emphasis on the changing paradigms and global trends in OER Initiatives.*

Methodology *–An extensive literature survey was carried out to explore the works related to OERs in terms of changing terminology, importance, global trends and prominent initiatives.*

Findings *– The study reveals that the field of OERs is fast developing and dynamic in nature as more novel facets are being incorporated in the domain of OERs with the advancements in technology. Higher education community at global level is more serious towards adoption of OERs for supporting live long and Open Education at all levels.*

Practical Implications *–The study is helpful to develop a better understanding about OERs in the light of some basic terminologies specifically used for defining OERs by some major Organizations and Initiatives. The paper further highlights the importance of OERs and traces some serious initiatives towards developing, managing and distributing OERs.*

Keywords *– Open Educational Resources, OERs, Openness, Open Education. Open Access. Open Access Resources.*

INTRODUCTION

Open education incorporates resources, tools and practices that employ a framework of open sharing to improve educational access and effectiveness worldwide. It combines the traditions of knowledge sharing and creation with 21st century technology to create a vast pool of openly shared educational resources, while embracing today's collaborative spirit to develop educational approaches that are more responsive to learner's needs. It enables people around the world to access knowledge, connect and collaborate. The concept of Openness is the key and plays a pivotal role not only in access but the freedom with which the content can be used, modified and person-

alized to individual user or woven together in new ways for large and diverse audiences **(Open Education Consortium, 2018).**Open education is gaining increasing traction most noticeably through global initiatives like open educational resources (OER) movement and massive open online courses (MOOCs) and other such efforts attempting to widen access to education or challenge the perceived dominance of established institutional provision **(Bayne, Knox & Ross, 2015)**.Many organisations, institutions, individuals are actively involved in promoting Open Education through varied provisions for exchange of ideas among educators, stakeholders and policy makers for developing deeper understanding of the concept and its role in developing and framing the modern societal setup based on the concept of Openness where open Education plays a pivotal role in the overall development of the society cutting across edges and boundaries. Thus advancements in open approaches to modern learning particularly Open Educational Resources is reflected in the core areas of in international organisations, national initiatives and individual institutions **(Kozinska,etal, 2010)**. The term Open Educational Resources (OER) was adopted at a UNESCO meeting in 2002 to refer to the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes (**D'antoni, 2008**). The term has received many definitions and has been differently described along with the incorporating terminology by the prominent stake holders in the area. Few prominent definitions are:

UNESCO (2002) defines Open Educational Resources as "Teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution". While as the **William and Flora Hewlett Foundation (2016) and Digital commons, (2016)** define OERs as "Teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and repurposing by others. OER include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge". A further extended definition of OERs by **(Oercommons, 2016)** is "Teaching and learning materials that you may freely use and reuse at no cost, and without needing to ask permission. OER often have a Creative Commons license or other permission to let you know how the material may be used, reused, adapted, and shared". The most widely used definition of OERs by **(Organization for Economic Co-operation and Development [OECD], 2007)** states that OERs are "Digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research. OER includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licences." It further suggests that "open educational resources" refers to accumulated digital assets that can be adjusted and which provide benefits without restricting the possibilities for others to enjoy them. While **Kawachi, (2014)** defines OER "as a self-contained unit of self-accessible teaching with an explicit measurable learning objective, having an open licence clearly attached to allow adapting and generally being free-of-cost to reuse".

The above definitions clearly depict that OERs are facilitating open provisions for supporting teaching and learning experiences by way of blending tools, technologies and resources for successful implementation. These mainly incorporate Learning Content like full courses, courseware, content modules, learning objects, etc. and tools that mainly include software for the development, use, reuse and delivery of learning content, Content Management Systems and content development tools. Besides, the implementation resources like Intellectual property licences to promote open publishing of materials, design principles of best practice and localise content (**OECD, 2007).**

The usefulness of OERs can be well understood in the light of Four R's of Openness described by Wiley (2009) in which each R represents an increasing level of openness **(Wiley & Green, 2012).** The four R's include:

I Reuse- (Copy Verbatim). The most basic level of openness in which people are allowed to use all or part of the work for their own purposes.

II Redistribute- (Share with Others).

III Revise- (Adapt and Improve). Allows adaption, modification, translation, etc.

IV Remix- (Combine with others). Allows to combine existing resources to create a new resource (**Hilton & Wiley,2010**).

The following is a diagrammatic representation of how 4Rs contribute to the increased openness.

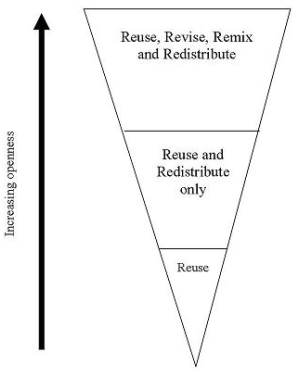


Image source Hilton & Wiley, (2010).

REVIEW OF LITERATURE

Schlagwein, Conboy, Feller, Leimeister & Morgan, (2017) reveal that openness has been of increasing interest for researchers and of increasing relevance to practitioners over the past two decades and reveal that Openness is often deeply embedded

in information technology (IT) and can be both a driver for and a result of innovative IT. **Oliver (2015)** reveals that the concept of 'open education' has grown in importance and visibility, but the concept of openness is, arguably, under-developed within the field of learning technology. Open access enabling courses have provided opportunity for many disadvantaged students to access university education who could not afford regular courses due to many reasons **(Atherton et al.,2017)**. **Stracke, (2017)** while analyzing changing strategies for Education reveals that Open Education and in particular MOOCs have the potential to change and improve future learning experience. The results further identify three dimensions of Open Education (potential, processes and results) to meet the learners' requirements and intentions. **Littlejohn and Hood**, (**2017**) explored how educators can engage in meaningful learning opportunities that can facilitate the creation of expertise and knowledge through the use of open education resources (OER). **Schaffert and Geser, (2008)** reveal that Open Educational Resources (OER) can be an important element of policies that want to leverage education and lifelong learning for the knowledge society and economy. **de los Arcos, Faems, Comas-Quinn and Pulker(2017)** reveal teachers perspective regarding OER repositories as libraries of resources, and are likely to share if rewarded by intrinsic rather than extrinsic factors**. McKerlich, Ives and McGreal, (2013)** while presenting a case of Athabasca University revealed that OER are being both used and created and the motivation for both seems largely intrinsic. They further state that due to this intrinsic nature of using and creating OER the institutional policy on OER should clearly focus on encouragement, engagement and support throughout the OER process **(Pawslowski, 2012).** Therefore, implementing a pro-OER policy making use of available OER whenever possible, conducting searches for OER before considering commercial resources, and supporting a pro-OER environment within the institution (**McKerlich et al., 2013). Castano Munoz, Redecker, Vuorikari, and Punie, (2013)** reveal that the future education system in Europe will be shaped on the basis of broader trends including globalisation, demographics, labour market, technological developments and open education movement. In 2030, technology is expected to adapt learning activities to personal needs, making the 'ongoing' redesign of the learning process possible and facilitating self-directed learning through technological resources. **Atherton, Shah, Vazquez, Griffiths, Jackson and Burgess, (2017)** shows that students who are regularly using online learning portals to access learning have better assessment and exam results and also shows that student online access is an indicator of student engagement with online technologies. Open educational resources (OER) are as such fast becoming accepted sources of knowledge for teachers and learners around the globe and this fact is especially true in the case of open learning institutions where the teaching and learning philosophy is based on open access to education **(Abeywardena, Raviraja & Tham, 2012). McGreal, (2013)** reveals that Interoperability of the resources in different contexts is a pre- condition for useful OER.On the same lines **Aguilar and Montoya (2013)** make certain recommendations for assisting decision makers in fostering new learning environments to prepare educators in a knowledge-based society including provisions for promotion of a new culture and educational practice to acquire the skills required to fully exploit the use of OER.

They also recommend to establish, monitor and recognize mechanisms that support educational practice, to share experiences on the use of OER through intellectual and scientific evidence. **McAndrew and Cropper**, (**2010**) highlights the efforts towards partnership between the Open University UK and Carnegie Mellon University on the OLnet (Open Learning Network) project funded by The William and Flora Hewlett Foundation with the aims to search out the evidence for use and reuse of OER and to establish a network for information sharing about research in the field. **Atenas and Havemann, (2013)** highlight the need for addressing considerations of quality assurance in repository design that form part of a potential virtuous circle in OER and thus, actively promote quality in the resources themselves.

Thus, the canvass of Open Education is greatly influenced by the availability of quality OERs and the user-friendly provisions associated with such efforts like use, adaptability, modification provisions and redistribution etc.

PROMINENT INITIATIVES

Many initiatives have been taken at global level towards managing and distributing OERs by some prominent agencies and some of them are discussed herein:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY OPENCOURSEWARE (MITOCW)

MIT OpenCourseWare (MIT OCW) is an initiative of the Massachusetts Institute of Technology (MIT) that hosts free and open educational materials from its graduate and undergraduate level courses online available to all. Therefore MIT OpenCourseWare (OCW) can be better understood as a web-based publication of virtually all MIT course content which is open and available to the world and is a permanent MIT activity. According to MITOCW report the growing use of OpenCourseWare is evident from the fact that in 2012 over 2150 courses in 37 disciplines were published with 125 million visits and an average of 1 million visits each month **(http://ocw.mit.edu/about/).** MIT OpenCourseWare receives over 2 million visits each month. These visits come from all over the world, with over half coming from outside of North America. Through OCW, educators improve courses and curricula, making their schools more effective; students find additional resources to help them succeed; and independent learners enrich their lives and use the content to tackle some of our world's most difficult challenges, including sustainable development, climate change, and cancer eradication. This scenario is growing with 2400 courses and more the 300 million visitors**(https://ocw.mit.edu/about/).**

OPEN EDUCATION CONSORTIUM (OEC)

OEC is a global network of educational institutions, individuals and organizations that support Open education based on collaboration, innovation and collective development and use of open educational materials. The OEC in collaboration with MERLOT offers a search engine on OERs. The general search yields result from

the integrated database of the Open Education Consortium and MERLOT. It further provides provisions for retrieving "OEC member Courses and resources only". The consortium provides access to 30 000+ Modules from 280+ Organizations across 40 Countries in 29 Languages **(http://www.oeconsortium.org).**

OER COMMONS

Institute for the Study of Knowledge Management in Education (ISKME's) OER initiatives aim to grow a sustainable culture of sharing and continuous improvement among educators at all levels. In this regard in 2007, ISKME launched OER Commons, its digital public library and collaboration platform.OER Commons offers a comprehensive infrastructure for curriculum experts and instructors at all levels to identify high-quality OER and collaborate around their adaptation, evaluation, and use to address the needs of teachers and learners. Diving into OER Commons is an exciting opportunity to collaborate with other educators and learners, at the forefront of a new educational era.OER Commons provide a single point access for browsing, searching and evaluating over 50,000 high-quality resources that includes full university courses, Interactive mini-lessons and simulations, adaptations of existing open work, open textbooks, K-12 Lesson Plans, worksheets, and activities.OER Commons and ISKME in addition to content partnerships build strategic relationships with organizations, consortia, and others in order to develop innovation and new research focused on OER, to advance the field of open education, and to build models for its sustainability(**http://www.oercommons.org/)**

OpenStax CNX

OpenStax formerly Connexions was founded by Dr. Richard Baraniuk at Rice University in 1999 to provide authors and learners with an open space where they can share and freely adapt educational materials such as courses, books, and reports.It is a dynamic non-profit digital ecosystem serving millions of users per month in the delivery of educational content to improve learning outcomes. It incorporates tens of thousands of learning objects organized into a host of disciplines, easily accessible and downloadable to almost any device, anywhere, anytime. OpenStax CNX is designed to encourage the sharing and reuse of educational content **(https://cnx.org/).**

e-Gyankosh

eGyanKosh is a National Digital Repository of educational resources in India managed by Indira Gandhi National Open University(INGOU) to store, index, preserve, distribute and share the digital learning resources developed by the Open and Distance Learning Institutions in the country. It has emerged as one of the world's largest educational resource repositories and offers free and open access to thousands of OERs across the world in order to facilitate self-learners and empower educators **(Kanjilal,2013; www.egyankosh.ac.in).**

CONSORTIUM FOR EDUCATIONAL COMMUNICATION (CEC)

Consortium for Educational Communication CEC is a nodal agency, at national level, to address the educational needs of the country through the use of various modes of communication. CEC and its Media Centres have been working since past 28 years for development of Educational Communication in Higher Education. The CEC is actively involved in repurposing and delivery of the entire e-contents into MOOCs format on the SWYAM platform. This includes repurposing and delivery of all 87 subjects developed/in-development by CEC consisting of about 25,000 Modules/Lectures. CEC manages and monitors course materials for regular upgradation and Innovation**(http://cec.nic.in/Pages/Home.aspx).**

NATIONAL PROGRAMME ON TECHNOLOGY ENHANCED LEARNING (NPTEL)

National Programming on Technology Enhanced Learning (NPTEL) is an initiative of the seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science Bangalore (IISc) for creating video and web course contents in engineering and science. There are more then 900+ web and video courses across 23 disciplines available for download and viewing on the NPTEL web site distributed under the CC-BY-SA licence (www.nptel.ac.in).NPTEL Open Online courses were initiated so that students anywhere can directly learn from faculty in top colleges. While enrollment and learning is free, students can also obtain a certificate from the IITs, based on successful completion of an exam, for which there is a nominal examination fee. Online learning offers a new way to explore subjects that one is passionate about **(http://nptel.ac.in/).**

TUFTS UNIVERSITY OER

Tufts University is a leader in the Open Educational Resources (OER) movement, bringing access to educational content, tools, and infrastructure to educators, students, and self-learners. It provides free access to high quality information to support the learning efforts of individuals around the world. Open dissemination of information, particularly to improve global health with partners in the developing world, is an important part of Tufts' mission **(http://ocw.tufts.edu/TuftsOER)**.The Tufts University has worked to leverage open, digital resources to support medical education since 1994 with the creation of the Tufts University Sciences Knowledgebase (TUSK). Tufts university provide vital lessons for other institutions interested in OCWs including motivating faculty for participation; managing various complexities associated with open publishing of health sciences content due to its rapidly evolving nature and reliance on copyrighted materials; generating support through internal and external communication throughout the process; and creating institutional systems that ensure the long-term sustainability of OCW initiatives **(Lee, Albright, O'Leary, Terkla & Wilson,2008).**

CONCLUSION

Open Educational Resources are being adopted at global level for promotion of open education for all and provide strategic opportunity to improve the quality of education, knowledge sharing and enhancing teaching and learning capabilities. These OERs provide real classroom experiences by incorporating a range of resources that include online courses, modules, syllabi, lectures, assignments, quizzes, lab and classroom activities, etc. The changing paradigms and landscapes of Open Educational Resources associated with serious efforts at global level towards adoption of OERs in different settings are very effective in establishing best provisions for open and distance learning. The well defined OER policies at institutional level will greatly curtail the hindrances in setting, adopting and distributing OER for building lifelong learning experiences.

REFERENCES

Abeywardena, I. S., Raviraja, S., & Tham, C. Y. (2012). Conceptual framework for parametrically measuring the desirability of open educational resources using D-index. *The International Review of Research in Open and Distributed Learning*, 13(2), 59-76.Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/3009/4226

Aguilar, J. V. B., & Montoya, M. S. R.(2013). Academic Knowledge Mobilisation to Promote Cultural Change Towards Openness in Education(pp 17-32). In McGreal,R.,Kinuthia ,W & Marshall,S.(Eds). Open Educational Resources: Innovation, Research and Practice .Commonwealth of Learning.

Atenas, J., & Havemann, L. (2013). Quality assurance in the open: an evaluation of OER repositories. *INNOQUAL-International Journal for Innovation and Quality in Learning*, 1(2), 22-34.DOI:10.1111/j.1365-2729.2011.00450.x

Atherton, M., Shah, M., Vazquez, J., Griffiths, Z., Jackson, B., & Burgess, C. (2017). Using learning analytics to assess student engagement and academic outcomes in open access enabling programmes. *Open Learning: The Journal of Open, Distance and e-Learning,* 32(2), 119-136. 10.1080/02680513.2017.1309646

Castano Munoz, J., Redecker, C., Vuorikari, R., & Punie, Y. (2013). Open Education 2030: planning the future of adult learning in Europe. *Open Learning: The Journal of Open, Distance and e-Learning*, 28(3), 171-186.DOI: 10.1080/02680513.2013.871199

D'antoni, S. (2008). Open educational resources: The way forward. Retrieved from http://unesdoc.unesco.org/images/0015/001579/157987e.pdf

de los Arcos, B., Faems, B., Comas-Quinn, A., & Pulker, H. (2017). Teachers' Use and Acceptance of Gamification and Social Networking Features of an Open Repository. *European Journal of Open, Distance and E-learning,* 20(1). Retrieved from http://www.eurodl.org/index.php?p=current&sp=full&article=748

Hilton, J., Wiley, D. (2010). The creation and use of Open Educational Resources

in Christian higher education. Christian Higher Education, 9(1), 49-59.Retrieved from http://hdl.lib.byu.edu/1877/2120

Kanjilal, U. (2013). Digital repository to Open Educational Resource repository: IGNOU's eGyanKosh. Open Educational Resources: An Asian Perspective, 221-229.Retrieved from https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/Chapter_15.pdf

Littlejohn, A., & Hood, N. (2017). How educators build knowledge and expand their practice: The case of open education resources. British Journal of Educational Technology, 48(2), 499-510.doi:10.1111/bjet.12438

McAndrew, P., & Cropper, K. (2010). Open Learning Network: the evidence of OER impact. Retrieved from http://oro.open.ac.uk/23824/1/OpenEd-mcandrew-cropper-sent-final.pdf

McGreal,R.(2013).The Need for Open Educational Resources In McGreal,R.,Kinuthia ,W & Marshall,S.(Eds). Open Educational Resources: Innovation, Research and Practice. Commonwealth of Learning.Retrieved from http://oasis.col.org/handle/11599/486

McKerlich, R. C., Ives, C., & McGreal, R. (2013). Measuring use and creation of open educational resources in higher education. *The International Review of Research in Open and Distributed Learning,* 14(4).Retrieved from http://www.eurodl.org/index.php?p=current&sp=full&article=748

Oliver. (2015). From openness to permeability: reframing open education in terms of positive liberty in the enactment of academic practices. *M. Learning, Media and Technology*, *40*(3), 365–384. https://doi.org/10.1080/17439884.2015.1029940

Open Education Consortium.(2018).About The Open Education Consortium.Retrieved from http://www.oeconsortium.org/about-oec/

Pawlowski, J. M. (2012). Emotional ownership as the key to OER adoption: From sharing products and resources to sharing ideas and commitment across borders. In EFQUEL Innovation Forum.

Schlagwein, D., Conboy, K., Feller, J., Leimeister, J. M., & Morgan, L. (2017). "Openness" with and without Information Technology: a framework and a brief history. *Journal of Information Technology*. 32,4.pp 297–305. https://doi.org/10.1057/s41265-017-0049-3doi:10.1057/s41265-017-0049-3

Schaffert, S., & Geser, G. (2008). Open educational resources and practices. *eLearning Papers*, 7.pp1-10.Retrieved from http://elearningeuropa.info/sites/default/files/old/media14907.pdf

Stracke, C. M. (2017). Open education and learning quality: The need for changing strategies and learning experiences. In Global Engineering Education Conference (EDUCON), 2017 IEEE (pp. 1049-1053). IEEE. Retrieved from http://dspace.ou.nl/bitstream/1820/8702/1/2017_EDUCON_Quality_Open_Education_Stracke_Proceedings_1368.pdf

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