

The Potential of Open Educational Resources (OERS) in Higher Education Curriculum and Course Materials Development

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Abstract: Open education resource (OER) is defined by UNESCO as “technology-enabled” open provision of educational resources for consultation, use and adaptation by a community of users for noncommercial purposes.’ These resources are freely available for use by educators and learners, without an accompanying need to pay royalties or license fees. With the explosion of knowledge and increasing sophistication of technology, higher education programmes need to be frequently reviewed and developed to keep pace with the needs of society and the learners. Taking into consideration the currently situation (increasing number of diverse learners) in higher education institutions, where the core activities are teaching, research, and consultancy; the curriculum development activity has become a more tedious work and require assistance from other existing source of materials and technology. OER has a big potential in assisting educators and curriculum developer to adapt and customize the resources to fit the institution needs and save more time in teaching, research and consultancy.

Key words: Open Educational Resources (OER), Higher Education Institutions (HEI), Open Courseware, Information Communication Technologies (ICT), Curriculum, National Research and Education Network (NREN).

INTRODUCTION

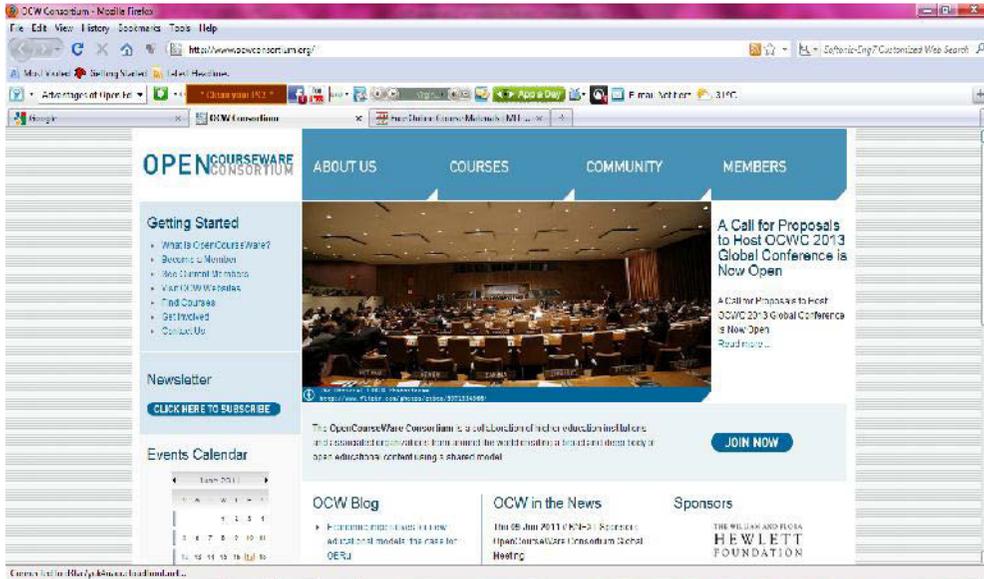
Open educational resources (OER) are teaching and learning materials that are offered freely and are openly available on-line for educators and learners, without an accompanying need to pay royalties or license fees (Butcher 2008). There is no authoritatively ascribed definition for the term, which was first introduced in 2002 at UNESCO’s Forum on the Impact of Open Courseware for Higher Education in Developing Countries. The William and Flora Hewlett Foundation, which has supported the development of a worldwide OER movement, provide the following definition for OER:

"OER are 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 or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge".

GLOBAL OER INITIATIVES

Much of global OER initiatives has been taking place in Europe but rapidly adapted in other continents including Africa. The worldwide known initiative is the Open Course Ware Consortium which is a worldwide community of hundreds of universities and associated organizations committed to advancing open course ware (OCW) and its impact on global education. The consortium serve as a resource for starting and sustaining OCW projects, as a

coordinating body for the movement on a global scale, and as a forum for exchange of ideas and future planning¹.

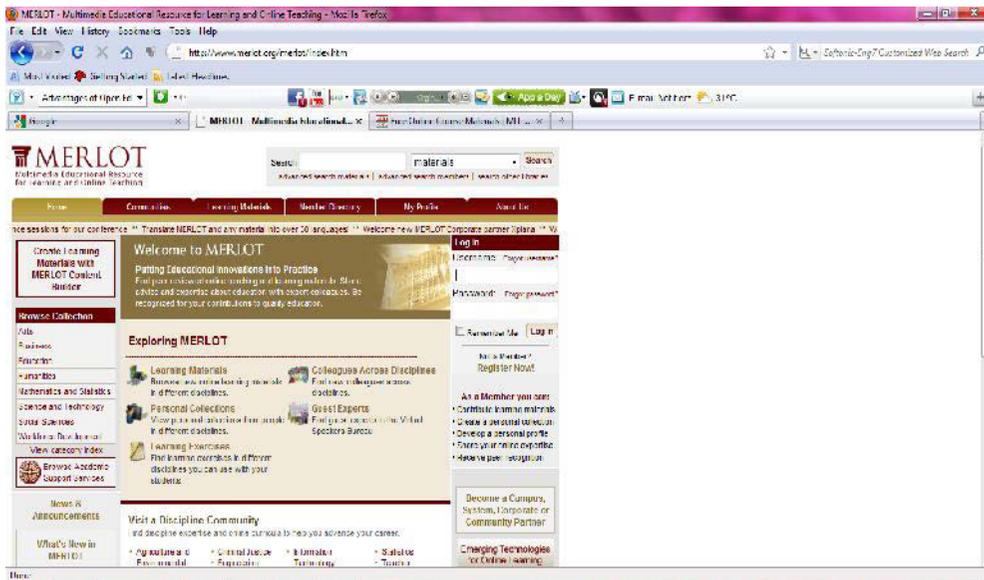


Another initiative is the MIT open courseware (OCW) project, which is a web-based publication of virtually all MIT course content. OCW is open and available to the world and is a permanent MIT activity. The courseware is a free publication of MIT course materials that reflects almost all the undergraduate and graduate subjects taught at MIT (<http://ocw.mit.edu>)



¹ <http://www.ocwconsortium.org/en/aboutus/abouttheocwc>

Similarly, the Multimedia Educational Resource for Learning and Teaching Online (MERLOT) provides free and open resources designed primarily for faculty and students of higher education (<http://www.merlot.org>). MERLOT allows users to find peer reviewed on-line teaching and learning materials, and share advice and expertise about education with expert colleagues. The site is organized by discipline and anyone can use it for free. As indicated by Butcher (2008), the MERLOT initiative had more than 22,500 resources by year 2008.



In Africa, OER Africa (<http://www.oerafrica.org>), an initiative of the South African Institute for Distance Education (SAIDE), is involved in promoting the use of OER in Africa and supporting individuals and organizations in creating OER.

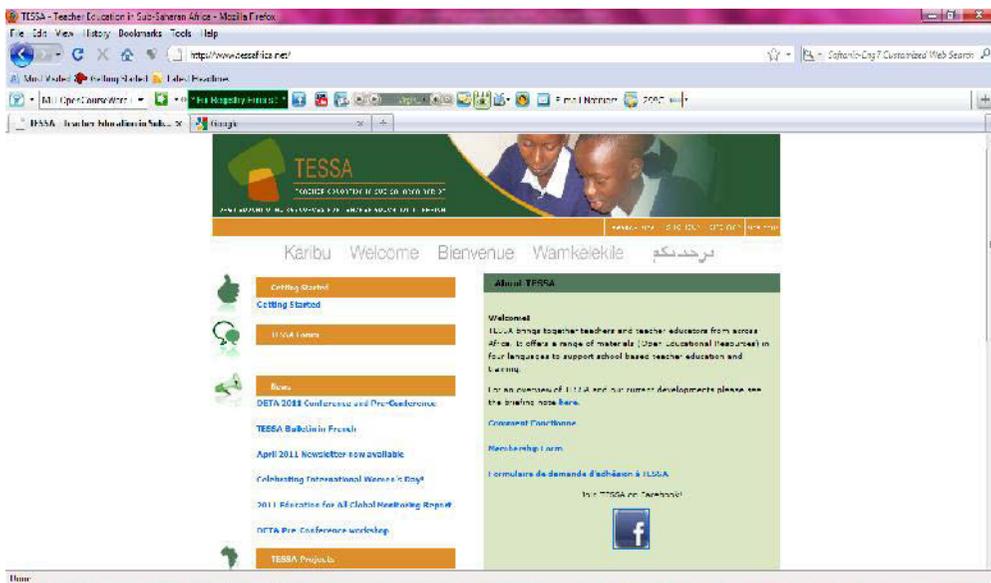
OER Africa's mission is to establish dynamic networks of African OEF practitioners by connecting like-minded educators – teachers, academician, and trainers – to develop, share, and adapt OER to meet the education needs of African societies. By creating and sustaining human networks of collaboration – face to face and on-line – OER Africa will enable African educators and students to harness the power of OER, develop their capacity, and become integrated into the emerging global OER networks as active participants rather than passive consumers.²

OER Africa is also involved in numerous projects supporting the adoption of OER in a number of higher education institutions (HEI) across Africa. The site not only allows access to African-developed resources, but also allows users to follow a documented process of how the materials were created. The website provides a space for various OER projects in Africa, for example, the SAIDE ACEMaths project, which piloted a collaborative process for the selection, adaptation and use of OER materials on the teaching and learning of mathematics for teacher education.

² <http://www.oerafrica.org/Default.aspx?alias=www.oerafrica.org/aboutoer>



Another African initiative is the Teacher Education in Sub-Saharan Africa (TESSA) initiative, (<http://www.tessafrica.net>) which brings together teachers and teacher educators from across Africa. It offers course design guidance for teachers and teacher educators working in Sub-Saharan African countries, and has produced a range of OER in four languages to support school-based teacher education and training. These materials focus on classroom practice in the key areas of literacy, numeracy, science, social studies and the arts and life skills. In addition, members of the TESSA community are encouraged to explore, share, adapt and add their own resources for teacher education.



The most recently OER initiative in Africa is the African Virtual University (AVU) which can be accessed through OER project (<http://oer.avu.org/>). The African Virtual University (AVU) is a Pan African Intergovernmental Organization established by charter with the mandate of significantly increasing access to quality higher education and training through the innovative use of Information Communication Technologies (ICT). The OER project is established to enhance the utilization of the 73 modules developed under the AVU Multinational Project, consequently increasing the impact of the project beyond its implementation life, and facilitate accessing, using, adapting, and sharing of AVU open education resources. The project is also looking forward to build synergies between the AVU open education resource portal and other OER bodies such as OCW, MIT-LINC and MERLOT



There are a lot of OER initiatives around the globe, and all of them cannot be explained here, but rather a more comprehensive list can be found at <http://onlineanddistancelearning.com/oer>.

Butcher (2008) also described various search facilities, allowing users to search for relevant HE OER. For example, the Commonwealth of Learning (COL), <http://www.col.org/resources/crsMaterials/Pages/OCW-OER.aspx>, provides a Google Custom search, which will initially return all OCW and OER results from the higher-education institutions and OER repositories that have been selected. Once on the results page, users can refine their search further by selecting only OCWs or only OER or only OCWs from certain regions. Another example of a search facility is Folksemantic: <http://www.folksemantic.com>. This facility allows users to browse and search over 110,000 OER (although this is not specific to HE resources). The system provides access to, among others, Johns Hopkins, MERLOT and MIT-OCW resources. The developers have also made the code available for others to use. Likewise, DiscoverEd (<http://discovered.creativecommons.org/search/>) is an experimental project from Creative Commons, particularly interested in improving search and discovery capabilities for OER. It is a prototype that aims to explore how structured data may be used to enhance the search experience, and provides a scalable search and discovery for educational resources on the web. It works like a search engine where users type keywords to find information. The result

set reveals metadata for a resource, including subject information and the license. The results come from other repositories such as OER Commons, Connexions and the Open Courseware Consortium (OCWC). Interested parties are allowed to incorporate DiscoverEd on their own sites.

OER POTENTIAL AND CHALLENGES IN CURRICULUM AND COURSE DEVELOPMENT

OER Potential in Curriculum and Course Development

Curriculum and course review/development in higher education institutions (HEI) in Tanzania has been a tedious, and resources consuming activity where institutions have invested a lot of money which results in very little impact. This is due to the fact that the whole process is re-invented from scratch instead of re-using the existing resources. Despite the challenges discussed above, OER have the potential to assist HEI in curriculum and course review/development process, where institutions can adapt curriculum and materials available in open resources. Some of the potentials are discussed hereunder, and if harnessed thoughtfully, they have a big potential in facilitating curriculum and course review/development in HEI.

Save Cost of Material Production and Access

Since course development is so resource intensive in terms of time and money, OER provides developing countries with the option to save both course-authoring time and money. Also, because OER removes restrictions around copying resources, it holds potential for reducing the cost of accessing educational materials. In many systems, royalty payments for text books and other educational materials constitute a significant proportion of the overall cost, while processes of procuring permission to use copyrighted material can also be very time consuming and expensive (Butcher, 2008).

Capacity Building

Kanwar and Kandadharaman (2010) also reported in the Global Learn Asia Pacific conference in Penang, Malaysia that, on-line collaborative OER development supports capacity building in the developing world thereby bridging the digital divide. This is very true taking into consideration that OER initiatives are becoming popular in the developing countries and capacity building of the academic staff is required. The main focus behind capacity building is to ensure availability of enough content and create a sustainability aspect in the whole movement.

On the other hand, Butcher (2008) claims that OER has the potential to build capacity by providing institutions and academicians with access, at low or no cost, to the means of production to develop their competence in producing educational materials and completing the necessary instructional design to integrate such materials into high quality programmes of learning. Many educational systems are foundering because their employees have become so overwhelmed by administrative tasks that they have lost the time and space to exercise this critical creative capacity and it will take time and investment to rebuild it. The concept of OER has potential to facilitate this if the process of developing educational materials is seen as being just as important as – maybe more important than – the final product (Kanwar, 2010).

Assure Quality and Consistence

The availability of high-quality OER can raise the quality of education at all levels. This is because the high-quality OER will be shared by many learners openly and therefore allows for consistence from one level to another and also assure quality at all levels.

Facilitating Collaboration among Institutions

Collaborative OER development encourages the preservation and dissemination of indigenous knowledge, and also fosters the exchange of global knowledge.

Challenges faced by OER Initiatives in Africa

Although the initiatives towards open education resources in Africa is blossoming at fast speed in many countries, it is important also to take note that there are some challenges that might prevent the further growth of the movement. In this paper, six challenges will be highlighted: the lack of awareness on the existence and potential of OER, resistance from content sellers, lack of awareness of copyright issues, quality assurance, sustainability of OER initiatives, and unreliable infrastructure.

Lack of Awareness on the Existence and Potential of OER

According to Muganda (2010), in her study conducted at The Open University of Tanzania, it was evident that staff, especially academicians are not aware of the existence of OER, or they hear the term but they do not understand exactly what it means, and therefore not using OER. Out of the 500 respondents targeted, only 14 seem to understand some concept of OER, and only 6 were using OER. It is not surprising that the same situation might be existing in other higher education institutions.

Lack of Awareness of Copyright Issues

While publication, consumption and distribution of texts were mediated through physical media, academics remained for the most part unaware of the licensing that underpinned the exploitation of copyright. Internet and other digital media have changed this as reported by McCracken (2006), cited by Jan (2006). By having access to publishing and production tools, and by licensing access to a digital, ephemeral product rather than a physical object such as a book or print, researchers as well as teachers now interrelate with licensing as never before. And for the most part they seem either unprepared or unwilling to engage with cumbersome licensing procedures. Although many academics are willing to share their work, they are often hesitant as how to do this without losing all their rights. Although some people release work under the public domain, it is not unusual that authors would like to retain some rights over their work (Jan, 2006).

Quality Assurance

The overview of the current state of OER showed that a growing number of initiatives and digital resources are available. Teachers, students and self-learners looking for resources should not have difficulties finding resources, but still might have problems of judging their quality and relevance. The issue of the quality of resources is fundamental and cannot be dealt with at depth in this paper. Instead a few different approaches to the issue of quality management will be listed. Some institution-based providers use the brand or reputation of the institution to persuade the user that the materials on the website are of good quality. If not, the prestige of the institution is at risk. Most probably they use internal quality checks before the release of the courses, but these processes are not open in the sense that the user of the resource can follow them (Jan, 2006).

Another approach is to have the resources reviewed by peers. Peer review schemes guarantee the quality of resources in a repository and are one of the most used quality assurance

processes in academia. Taylor (2002) argues that, the process can be used to come to terms with the lack of a reward system by giving recognition and reward to the creator of a learning resource, as well as a dissemination method. Furthermore, there is a need for making the review decisions credible, and for that purpose an open peer review according to agreed criteria is well suited, Taylor claims as cited by Jan (2006).

Sustainability of OER Initiatives

The fact that so many OER initiatives have started during the last years has created competition for funding. Although some projects have a strong institutional backing, it is most probably start up funding that will cease after a few years. Therefore it is important to seriously consider how the initiatives can be sustained in the long run. There are many different kinds of OER providers and no single sustainability model will fit them all. Instead there is a need to discover different approaches that might be useful in a local context (Kanwar, 2010)

Unreliable Infrastructure

Infrastructure to support OER initiatives in Africa is still a challenge to most countries in Africa. Issues like network connection, computers and associated facilities, electricity in some countries are not available to users easily. The ICT infrastructure and facilities are still inadequate, but the prevailing issue of broadband connection and availability of high bandwidth through National Research and Education Networks (NRENs) is believed to solve the ICT infrastructure in terms of broadband connectivity, but unfortunately while solving the issues of broadband connectivity, electricity is becoming a scarce resource in most of African countries.

Resistance from Content Sellers

As one would expect, the concept of OER is the subject of significant resistance from organizations whose business models are based on ring-fencing and selling content. This struggle is playing itself out in many industries, not just in education, and is to be expected when new technologies make it possible to do business in new ways.

CONCLUSION

Although there are a growing number of OER initiatives at the moment, some few challenges need to be resolved before we can harness the full potentials OER have to offer. The phenomenon – that individuals and institutions give away learning resources for free – which at first seems counter intuitive and difficult to explain within the old economic and educational context, might be better understood as a part of a new culture and an emerging economic reality with partly different characteristics. The apparently contradictory trends – on the one hand a growing competition among higher learning institutions and on the other that some do not protect their intellectual capital, but share it for free – might not be so contradictory after all. For some institutions free sharing of learning resources might be a strategy to create a competitive advantage by using unorthodox methods. One can predict a growing debate within the OER movement concerning the role of commercial actors using open resources as part of their business model. Therefore, creating and sharing OER is essentially about working together towards a common cause, whether this be within a single faculty or across a global network. Sharing materials that others can adapt and use recognizes the value inherent in teamwork and the improvements in thinking that will emerge from such collaboration.

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