Abstract

Education institutions world over have turned to the Internet and other digital technologies to develop and distribute teaching and learning. Recently, Open Educational Resources (OER) has gained accelerated focus for their potential to transcend geographic, socio-cultural, economic and educational boundaries and to promote life-long learning. The rapid expansion of OER provides new and great opportunities, but at the same time, they challenge existing views on teaching and learning practices. There are many critical issues surrounding access, quality and costs of information and knowledge over the Internet as well as on provision of content and learning material. As the world acknowledges that the growth of Internet brings real opportunities for improving access and transfer of knowledge and information to a wide range of users, there is an urgent need to clarify these issues with special focus on Open Educational Resources initiatives. This paper examines the concept of Open Education Resources and its interplay with Massive Open Online Courses (MOOCs) with a view to encouraging their production and use. The author also shares experience from Mombasa Technical Training Institute, Kenya, in developing open online courses.

Key words: OER, MOOC, opportunities, challenge, quality, access,
Introduction

We are living in a world in constant flux as we move speedily towards the new knowledge-based society and the knowledge economy. Educational resources are now accessible by different media formats through information and communication technologies (ICT) and the internet. Various search engines and Web tools make it possible to access information and knowledge. The capacity for innovation is an acknowledged indicator of competitive strength and vitality in an organization, and has become extremely valued in a knowledge-based economy (Carrillo 1998, 2004).

One way of enhancing benefits resulting from the advances in information communication technology (ICT) is the promotion of open educational resources (OERs). In an educational environment this means valuing and using knowledge produced by the academic community, from courses and teaching materials, articles and books, conferences and lectures, research reports, learning resources and other educational materials. The Internet has proven to be of great potential in facilitating knowledge dissemination from organizations, universities and educational institutions.

Open Educational Resources (OER) Definitions

The concept of OER describes educational resources that are freely available for use, re-use and adaptation by educators and learners, without an accompanying need to pay royalties or license fees. The term was introduced by UNESCO (2002), which defined OER as the “technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non-commercial purposes.” According to Downes (2011), OER broadly is “materials used to support education that may be freely accessed, reused, modified and shared by anyone.”

Wiley (2010) gives a more clarified definition of OER. His definition includes three elements: 1) the concept of “free”; 2) the four Rs permissions (re-use, redistribute, revise, remix); and 3) non-interfering technology and media choices. Wiley argues that free-of-charge access is a necessary feature of OER, but is not sufficient, noting that many resources online are freely accessible
whether they be texts, videos, pictures, games and so on. Another widely used definition of OER has been provided by Atkins et al. (2007), who defined OER as “full courses, open courseware and content, educational modules, textbooks, streaming videos, tests and assessments, open source software tools, and any other tools and materials used to support teaching or learning.”

Open Educational Resources (OER) aim to promote open access to digital educational resources “that are available online for everyone at a global level” (Caswell et al. 2008). The William and Flora Hewlett Foundation (2010), one of the primary donors in the OER movement, supported the use of OER “to equalize access to knowledge for teachers and students around the globe.” They defined OER 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 or repurposing by others” (Hylen 2007).

The free and open sharing of educational resources is essential for promoting the building of learning networks as well as reducing the knowledge divide that separates and partitions societies. Educators worldwide continue to face significant challenges related to providing increased access to high-quality learning while containing or reducing costs. Basic education for all continues to be a goal that challenges many countries. OER can be used to overcome many of the obstacles faced by both learners and educators.

**Open Educational Resources Theory**

Open Educational Resources (OER) are important learning materials with the potential to facilitate the expansion of learning worldwide. The flexibility, both technological and legal, afforded by openly licensed content is an important pre-condition for supporting the educational use of content. It is anticipated that a very high percentage of resources of relevance to African education and training will be shared as rich text format (RTF) or similar files (for purposes of adaptation) and packaged as PDF files (for purposes of printing).
It is impossible to pin down any one theory that best fits the OER movement other than the principle of openness in education. This includes, at the forefront, the principle of accessibility, i.e. opening educational resources so that anyone can access and learn from these resources at no cost. OER can be used online or in traditional classrooms, or in blended or flexible learning contexts. This includes a focus on the importance of interoperability for both learners and instructors, in their free re-use or repurposing of the resource, including mixing and mashing. Interoperability of the resources in different contexts is a pre-condition for useful OER.

Educators using OER can draw on multiple theories, mixing and mashing them to fit what they feel is reasonable given their particular context. Pragmatism that links practice and theory in order to improve both can also be an important theory associated with OER. Pragmatists consider the practical effects of using OER and base their decisions on these.

**Potential of OER for Education and Training in Africa**

It is important to note that OER is not synonymous with online learning or e-learning, and for African, it is anticipated that many OERs produced –while shareable in a digital format –would need to be printable to be useful. High quality human resources are vital to national development and the creation of global competitiveness. A key component to producing these human resources is an effective, quality higher education system.

The last two decades have seen a rapid rise in student enrolments at most institutions, but a corresponding reduction, in real terms, in the public financial resources allocated to higher education institutions. Where increases in funding have taken place, they have generally not been sufficient to combat the combined effects of inflation and growing student enrolments. This has impacted on issues of quality as resources failed to match the rate of increase in enrolment and African universities have been called upon to do more with less in terms of infrastructure, teaching and research facilities, and staff.

OER can make a significant contribution to this process. Its transformative educational potential revolves around four linked possibilities:
• Making educational resources easily available can contribute to transparency and the improvement of quality in the higher education system;
• Building capacity for the creation of OER can be an attractive element in the professional development of academic staff;
• OER can be used to optimize deployment of institutional staff and budgets; and
• Involving students in the adaptation of OER engages them more actively in the learning process.

**Challenges to OER Access, Quality, Cost and Content**

OER in Africa faces a clear set of specific challenges which include the following:

i) African higher education institutions are seriously structurally under-funded for the core function they are expected to discharge.

ii) Because academics are over-extended, they may be reluctant to alter the current passive teaching and learning paradigm to one that is more active on the part of the student, as this generally increases the teaching burden.

iii) In many higher education programmes on the continent, the amount of money available to run programmes is inadequate to meet the educational needs of enrolled students.

iv) There are too few learning resources for learners and lecturers in African learning institutions, and many of those available are too expensive to be purchased by institutions or students.

v) Much existing content available to and within African learning institutions is based on weak and largely outmoded educational design principles.

vi) Although improvements will occur over time, there is limited ICT infrastructure to gain access to up-to-date information available on the Internet and to participate in inter-institutional, geographically dispersed collaborative activities.

Given the above context, the following key assumptions become essential to consider when harnessing the potential of OER in African higher education:
i) Increased availability of high quality, relevant, need-targeted learning materials can contribute to more productive learners and faculty members.

ii) Because OER removes restrictions around copying existing resources, it holds potential for reducing the cost of accessing educational materials in environments where students often cannot afford to buy textbooks.

iii) The principle of allowing adaptation of materials can contribute to enabling learners to actively participate in educational processes.

iv) The potential of OER is best achieved through a collaborative partnership of people working in communities of practice, preferably across institutions.

v) OER has the potential to build capacity in African higher education institutions by providing educators with access, at reduced cost, to the tools and content required to produce high quality educational materials.

vi) To be successful and sustainable, development of OER cannot be a sideline activity within a learning institution. It must be integrated into institutional processes in order to both leverage its potential and provide for its sustainability.

vii) The potential of OER includes help to facilitate collaborations between faculty members and students at different institutions.

African governments should seek to facilitate the design of OER that can work immediately and add educational value within the current ICT infrastructure constraints of any participating institutions. This is particularly important given that infrastructure constraints are typically more severe in Africa than in other parts of the world.

**Critique of OER**

Bates (2011) and others have criticised OER as being elitist and a form of cultural imperialism. In some contexts this could very well be true. However, educated readers understand that any content can be elitist and imperialistic. This criticism cannot be reserved for OER alone. Much of the content that is not free and is sold to developing countries by international publishers can be described as elitist and imperialistic. On the other hand, unlike proprietary content, OER can be
adapted, amended, abridged, localised and otherwise altered to suit specific cultures, approaches or sensitivities.

Another criticism leveled at supporters of OER is that the content is not really free and that someone has to pay for it. Bates (2011) does concede that OER are good for use by students and by instructor groups; that there are innumerable other approaches to using OER that may be more or less effective. Finally, one has to agree that OER are not a panacea, neither is proprietary content, nor is technology nor any anything else, but they all could have a place in any of the multiple approaches that we can develop to promote accessible learning.

The OER movement has been accused of insularity and failure to connect with the larger world: "OERs will not be able to help countries reach their educational goals unless awareness of their power and potential can rapidly be expanded beyond the communities of interest that they have already attracted. The very project has been accused of imperialism in that the creation and dissemination of knowledge according to the economic, political and cultural preferences of highly developed countries for the use of less developed countries is alleged to be a self-serving imposition.

Open Educational Resources and MOOCs

Open online courses, sometimes called “massive” (MOOCs) due to their high enrolment numbers. MOOCs heavily rely on open educational resources (OER) by their nature of using open licences. In a traditional classroom or online course, learning designers and educators structure the readings, learning resources, lectures and activities of learners. As a result, learning is directed toward clearly articulated goals and outcomes. The educator provides shape and direction to the learning experience by forming groups and providing assessments, assignment focuses or guidelines.

MOOCs are:

**Massive**, involving hundreds and thousands of students. The scale of “massive” is somewhat relative.

**Open**, in terms of access. MOOCs, particularly those offered by for-profit firms such as Coursera, though not necessarily openly licensed, students can access the course content and participate in guest lectures without fees.
Online, exclusively. In some instances, learners arrange physical meet-ups, but most of the learning activity occurs online.

Courses. MOOCs have a set start and stop time.

OER are very useful when developing MOOCs as their open licences make the ideal for development of content and reference materials for participants. These resources can be mounted for free access, reuse and adaptation thus contributing a lot towards the success of online courses. Flexible and blended learning (FaB/FBL) also does heavily benefit from use of OER. MOOCs are part of the trend of innovation, experimentation and the use of technology to provide learning opportunities for large numbers of learners.

**Case of MoTTI, - Brief Report on FaB/OER Integrated Activities at Mombasa Technical Training Institute**

The journey towards optimization of the use of online material for teaching and learning at MoTTI gathered steam after the CAPA Abuja Conference of April/May 2010. It is at the said conference that the CEO of MoTTI, Mr. Bashir H. Mursal agreed with Alison Mead Richardson to explore ways of starting a Flexible and Blended Learning (FaB) unit at the institute. Pursuant to this, Alison held a two day workshop for TVET institutions in Kenya at MoTTI in June of 2010. From there after, the institute management has never looked back.

Today, the institute has a FaB/OER section with twelve staff. The section has managed to finalise course material for five courses for launch by September 2013, the courses are:-

- Cake making & Decoration
- HIV & AIDS Management
- Small & Micro Enterprise Management
- Couture Fashion
- Auto Care
Other developments as a result of embracing FaB/OER Concept include:-

1) ICT improvements

- The college e-library has uploaded over three thousand e-books which faculty and students can use and adopt as they wish. This is now being extended to bring on board global libraries by subscription.
- Lecturers upload their course materials and registered students can access the same using passwords allocated to them.
- Moodle is up and running on the Polytechnic Website, the materials for the five courses are being uploaded.
- All staff & students use institute Gmail system to communicate on official matters.
- A Webmaster was employed and the college website is updated daily.
- A lot of learning and feedback taking place through class emails between staff and students.
- Internet bandwidth increased to 10mb and two Hot Sports introduced with one more coming soon.

Connectivity throughout the institution is by fiber cabling with wireless switchover when LAN is down.

2) New Multimedia Laboratory

Through a proposal written by the chief Principal a fully equipped multimedia lab is in place. Staffs are now using the facility to develop audio/video teaching material. This lab shall be used to develop and mount more online material, most of which are envisaged to be OER.

3) Teachers ICT Capacity

Teachers from all departments are integrating ICT in teaching and learning- (this is set as a rapid results initiative (RRI) every semester and achievements reported in general staff meeting. Owning a laptop or iPods is becoming the norm among teachers these days.
4) MoTTI Space at Invest Africa CLN

MoTTI has a space on the Invest Africa community learning network where members interact on a variety of topics relevant to trainers and through this there is an exciting awakening to the myriad possibilities that technology brings to the teacher. A case in mind is a posting by Alison of COL on 50 Education Technology Tools Every Teacher Should Know About available at; http://fluency21.com/blog/2013/03/26/50-education-technology-tools-...

CONCLUSIONS AND RECOMMENDATIONS

Commonwealth of Learning fraternity should support Open Educational Resources activities within Africa to infuse the principles of Open Educational Resources among stakeholders, both as individuals and as institutions in using free web-based courses to stimulate learning among all people. This paper among other ongoing efforts recommends;-  

- Conducting a feasibility study on determining the copyright status of published works with a view to making widely accessible those whose copyright patents are expired.
- Accelerating the constructive dialogue between commercial and noncommercial stakeholders active in the digitization and publication of educational materials.
- Establishment of a services infrastructure for creating, federating, and finding OER resources developed within the context of specific OCW projects.
- The building of a website to increase awareness and understanding about open educational resources.
- Extending the reach and impact of open courseware by encouraging the adoption and adaptation of open educational materials around the world.
- Ensuring the long-term sustainability of open courseware projects by identifying ways to improve effectiveness and reduce costs.
- Finding ways to enhance use of the OER with special attention to problems encountered by diverse student communities and teachers using, remixing or repurposing the material.
References

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