Utilization of Open Educational Resources in Polytechnics in Nigeria: The Nigerian Situation

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Abstract

The utilization of open educational resources (OER) in Nigerian polytechnics represents a significant step towards improving access to quality education and fostering innovation in teaching and learning. This paper explores the concept of OER, emphasizing on the significant of OER in polytechnics, efforts to adopt OER in Nigerian polytechnics, the challenges of utilizing OER which include inadequate infrastructure, limited awareness among educators and students, and resistance to change from traditional teaching methods. Despite these challenges, the benefits of OER are profound. They include cost savings, increased access, customization and localization, collaboration and knowledge sharing, continuous improvement. Finally, this paper also discusses potential solutions to overcome the challenges in OER utilization, such as awareness and capacity building, infrastructure and connectivity, quality assurance, intellectual property rights, sustainability and maintenance. By addressing these issues, Nigerian polytechnics can fully harness the benefits of OER, thereby contributing to the overall improvement of the country's educational system.

Keywords: Open Educational Resources, Nigerian Polytechnics

Introduction

Utilization of open educational resources (OER) has become a global trend and the advent of new technology has made the world to become a global village in information dissemination. This age of technology has witnessed tremendous opportunities in accessing learning materials online globally, thus bringing information to the door steps of the people. Educational sector is taking the advantage of technology to assess online learning resources of which Nigeria is not left out. The idea of Open Educational Resources (OER) was first introduced at the United Nations Educational, Scientific and Cultural Organization (UNESCO) meeting in July 2002 to address the effects of Open Courseware on higher education in developing countries. Before the UNESCO conference, the OER campaign has gained significant attention in 2001, when Charles Vest, the then President of the Massachusetts Institute of Technology (MIT) made public the institutes plan to bring all of its course materials online for everyone's profit (Commonwealth of Learning, 2017).

The Paris OER declaration was adopted at the World Open Educational Resources (OER) congress held in June 2012 at UNESCO headquarters in Paris, France to drive the global concept of OER. This declaration was the first step in establishing OER- supporting policies worldwide. (UNESCO, 2017).

Open Educational Resources (OER) may be defined as online learning tools accessible to Students, self-learners and educators. It could also be explained as free access to learning materials without any obstacles at no cost and with the possibility of comparing and contrasting educational programmes and course content (The Organization for Economic Cooperation and

Development (OECD, 2007). According to UNESCO (2002), Atkins, Brown and Hammond (2007), OER is one of the ways to improve the teaching and learning resources available in higher education institutions and to provide access to education in a truly scalable way.
In all, OER is meant to offer free access to all kinds of educational resources to all those who desire it without financial or geographical limitations. It is a new paradigm that would make learning and teaching much more existing and limitless and at the same time enrich the quality of education generally whether at national or international level.

Open Educational Resources: A Conceptual Explanation

Open Educational Resources (OER) as defined by Johnson (2005) is the open provision of educational resources, made possible by information and communication technologies, for non-commercial consultation, use and adaptation by a community of users. At a conference hosted by UNESCO in 2002, OER was first used as a concept. Since then, the OER movement has progressed all over the world, and in 2012, COL and UNESCO organized the first World OER Congress. This resulted in the 2012 Paris OER Declaration, calling upon all countries to release teaching, learning and research materials developed with public funds under an open license to allow their reuse, revision, remixing and redistribution without the permission of the copyright holders.

The 2012 Paris OER Declaration defines OER as:

> teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work. (UNESCO, 2012).

OER refers to educational resources and other materials designed for use in teaching and learning that are openly available for use by both educators and students without having to pay the accompanying fee or royalties for the license. Its principal attribute is the ability to make free use of educational resources. UNESCO (2017) defined OER as any kind of educational material that is in the public domain or introduced under an open license. The nature of this open materials means they can be legally and freely copied, used, adapted and re-shared by anyone. OECD (2007) sees Open Educational Resources as digitalized materials that are freely and openly available for use and re-use by educators, students, and self-learners for teaching, learning and research. The underline issue from these opinions is that OER is freely accessed and used.

McAndrew (2006), Geser, ; Salzburg Research and EduMedia Group (2007) and Corcoles, et al, (2007) posit that the term Open Educational Resources is used synonymously with “Open courseware” Open e-learning content”, “Open digital educational content”, Open education content” to even “Open content”. OERs are created through systems which enable authors to grant specific permission to use their works. OER should be measured against the four quality factors of usability, accessibility, durability, and effectiveness (Stephen, 2009). The idea behind OER is to apply open licenses to enable wider dissemination of educational resources, such as CC licenses. These special licenses allow for the dissemination of educational and learning materials otherwise protected by copyright (Creativecommons.org). In its simplest form. According to Butcher (2011), all educational resources (including curriculum maps, textbooks, course materials, streaming videos, podcasting, multimedia

applications and any other materials intended for use in teaching and learning) are openly available for use by educators and students, without the need to pay royalties or license fees.

According to the Hewlett Foundation, OER is resources for teaching, learning and research that resides in the public domain or is released under an intellectual property license that allows others to use it freely and re-use it. In 2012, the Paris OER Declaration adapted the original UNESCO version and defined OER as "teaching, learning and research material in any medium, digital or otherwise, residing in the public domain or released under an open license that allows other persons with no or limited restrictions to access, use, adapt and redistribute at no cost.

OER includes complete courses, modules, course materials, textbooks, video streaming, tests, software, and any other tools, materials or techniques used to support access to knowledge. McGreal (2017) defines OER repositories as digital databases which accommodates learning content or materials, applications and resources such as documents, audio recordings, texts, videos, social networking tools and multimedia applications. Via these servers, OER is made available on the World Wide Web for learners and teachers. According to Downes (2009), OER represents those resources which do not attract fees, licenses, tuitions, commitments, registrations, etc. to the clients or recipients of the said resources even as Smith and Casserly (2006) considered OER to be ideological. According to the duo, the OER movement's ideology and at its heart is the simple and powerful idea that the knowledge of the world is a public good and that technology is general, and the World Wide Web in particular, provides an extraordinary opportunity for everyone to share, use and reuse that knowledge. Wiley (1998), reflects that the Open Educational Resources (OER) movement originated from Open and Distance Learning (ODL) development, and from a broader context of the culture of open knowledge, free sharing and peer collaboration that emerged in the late 20th century.

Over time, the Open Educational Resources have come to include not only materials, but also learning and knowledge management application and content creation tools, and digital resources publishing standards and licensing mechanisms that enable users to adapt resources to their cultural, educational pedagogical requirements. Though the phenomenon of Open Educational Resources (OER) is very recent, it is a subject of increasing interest. There are no clear figures available but it has grown in terms of numbers of initiatives, number of people involved and number of available resources. It is a global development, though most resources are generated in developed countries at present. Despite the lack of reliable figures, it can also be said that OER fosters international interinstitutional cooperation as well as peer-to-peer cooperation.

Indeed, OER enhances educational quality, accelerates knowledge flow and increases the number of people involved in educational process such as informal and lifelong learning. According to Grodecka and S'liwowski, (2014); Kurelovic, (2016) OER can be used worldwide independently of the education system and the structure of national curricula. Caswell, Henson, Jenson & Wiley, (2008) claimed that moving towards OER use could significantly reduce the learning cost. Thus, OER has the potential to broaden access to education and provide equity. This is particularly important within the commonwealth for developing countries like Nigeria and others.

Significance of OER in Polytechnics in Nigeria

Open Educational Resources (OER) play a significant role in polytechnics in Nigeria. Here are some of the key significances:

Affordability and Accessibility:

OER provide free or low-cost educational materials, including textbooks, lecture notes, videos, and interactive modules. This affordability makes education more accessible to students

who may face financial constraints. Nigeria, like many other developing countries, has a large population of students who struggle to afford traditional textbooks. OER bridge this gap by providing open access to quality learning resources.

Expanded Learning Opportunities:

OER offer a vast range of learning materials that can supplement or enhance traditional classroom instruction. Nigerian educators and students can access a diverse array of resources from various disciplines, including those that may not be readily available in local libraries or institutions. This expanded access to knowledge enables students to explore subjects beyond their prescribed curriculum and supports lifelong learning.

Customization and Localization:

OER allows educators to adapt and customize learning materials to suit local contexts and learning needs. Nigerian educators can modify OER content to align with the cultural, linguistic, and educational requirements of Nigerian students. This localization enhances student engagement and relevance, as the materials are more relatable and meaningful with the Nigerian educational context.

Collaboration and Sharing:

OER foster collaboration and knowledge sharing among educators and institutions. Nigerian educators can collaborate with their peers within Nigeria and globally, exchanging ideas, best practices, and educational resources. This collaborative environment promotes innovation, pedagogical advancements, and the collective development of high-quality educational materials.

Quality Enhancement:

OER can contribute to improving the quality of education in Nigeria. By utilizing OER, institutions and educators have access to a wide range of peer-reviewed and vetted resources. They can select the most relevant and up-to-date materials to enhance their teaching and learning processes. This exposure to diverse perspectives and resources supports the development of critical thinking skills and enriches the overall educational experience.

Capacity Building:

OER enables capacity building initiatives for educators and students. Open educational platforms and resources often come with training materials, guidelines, and support systems that help educators effectively integrate OER into their teaching practices. This empowers educators with new skills and pedagogical approaches, enabling them to provide quality education using modern digital tools.

Open Licensing and Copyright:

OER promote the use of open licenses, such as Creative Commons licenses, which allow educators to legally share, adapt, and modify educational resources. This reduces copyright barriers and encourages a culture of openness and sharing within the educational community. Nigerian educators can leverage OER and open licensing to contribute their expertise, create local content, and share their resources with others, thereby fostering knowledge exchange and collaboration.

Effort in the Utilization of Open Educational Resources (OER): The Nigerian Situation

In Nigeria, there have been strong efforts for use of OER. For instance, in order to raise awareness and validate the draft on OER policy, the National Universities Commission (NUC)

organized two consultative meetings on 21 August and 12 September 2017 respectively, and (NUC), and with the approval of the Ministry of Education, the NUC formed a National Steering Committee to oversee the implementation of the policy. The first Steering Committee meeting, held on 21 August 2017, was intended to share OER. Nigeria and this led to the creation of the National OER Repository known as the Nigerian University System Open Educational Resources (NUSOER) (Commonwealth of Learning, 2017). The Repository is maintained by the National Universities Commission to among others, serve as a gateway to Open Resources held by 153 universities. According to the current Executive secretary of the National Universities Commission (NUC), Professor Abubakar Rasheed, "the Nigerian National Policy on Open Educational Resources for Higher Education is the governments' initiative to ensure a coordinated and deliberate approach to the higher and enhancement of quality teaching and learning materials, curricula, course design, programmes, as well as the preparation of successful interactions with students. With the development of the policy, the government hopes to address issues of access to quality higher education and student enrolment beyond the capacity of existing polytechnics in Nigeria.

Again, as part of Nigeria's efforts to increase access to affordable learning opportunities, through the INVEST Africa Programme, The Commonwealth of Learning (COL) (2017) organized a six-day workshop on OER course development at the Yaba College of Technology (YCT) in Lagos in May 2016. The workshop was designed to build capacity at YCT in developing short, non-formal courses using OER content where appropriate by producing learning resources as OER in a range of different media formats. However, some institutions have been promoting the use of OER; For instance, the National Open University of Nigeria (NOUN) which was reopened after been suspended in 1984 by the Federal Government as an ODL institution, strive to provide education for all and promote lifelong learning. NOUN's OER activities started in 2014 with the establishment of an OER unit under the Vice-Chancellors office. NOUN in collaboration with UNESCO and COL had engaged in capacity building in this area.

Benefits of Open Educational Resources in Nigerian Polytechnics

There are a lot of benefits for utilizing Open Educational Resources for the government institutions, educationist and learners as noted by Hodgkinson Williams (2010). Here are some key benefits:

Cost Saving: OER are freely available for students, reducing the financial burden of purchasing expensive textbooks and course materials. This accessibility allows more students to access and engage with the required resources without financial constraints.

Increased Access: OER provide open access to learning materials, ensuring that students from diverse backgrounds and with limited resources can access educational content. This is particularly beneficial in Nigeria, where many students face financial challenges and limited access to traditional educational resources.

Customization and Localization: OER can be adapted, customized, and localized to suit the specific needs and contexts of Nigerian universities. Educators can tailor the content to align with the local curriculum, cultural references, and language, making it more relevant and meaningful to students.

Collaboration and Knowledge Sharing: OER promote collaboration and knowledge sharing among educators and institutions. By openly sharing resources, educators can benefit from each other's expertise and build a collective repository of high-quality learning materials. This collaboration can lead to improved teaching practices and the development of a vibrant educational community.

Continuous Improvement: OER are often subject to continuous improvement and iteration. As new information becomes available, resources can be updated and refined to reflect the

latest knowledge and research. This ensures that students have access to up-to-date and accurate information.

Flexibility and Adaptability: OER offer flexibility in terms of how they are used and integrated into teaching practices. Educators can remix and combine different OER to create personalized learning experiences that suit their teaching styles and the needs of their students. This adaptability promotes student engagement and active learning.

Enhanced Digital Literacy: OER encourage the development of digital literacy skills among students. By using open educational resources, students gain experience in searching, evaluating, and utilizing online resources effectively. These digital literacy skills are valuable in today's technology-driven world.

Sustainability and Scalability: OER have the potential to create a sustainable and scalable education system in Nigeria. With limited resources, OER offer an affordable and accessible alternative to traditional educational materials. By investing in the development and adoption of OER, Nigerian universities can reduce their reliance on costly textbooks and expand educational opportunities for a larger student population.

In Nigeria, the benefits of OER according to Commonwealth of learning (COL, 2017) are numerous. Some of the benefits include:

1. Access to relevant learning resources which promotes lifelong learning.
2. Addressing the challenge of ensuring inclusive and equitable quality education and lifelong learning opportunities for all and supporting citizens in gaining sustainable livelihoods.
3. It provides government, institutions, organizations and individuals with access to some of the best materials available globally, allowing them access to education in a truly scalable manner.

Onaifo (2016) noted that the advent and growth of open resources are facilitating creative new ways of supporting teaching and learning. Navarrete, Lijan-Mora and Penafiel (2016) says that OER is becoming a valuable alternative to improve access to high quality educational contact released under open license by outstanding universities worldwide. McGreal, Kinuthia & Marshall, (2013) noted that by using OER learners are exposed to different educational resources that are in accordance with their learning styles. Also, learners can become more active participants in the educational process through collaboration in virtual communities of learning. it would also help teachers to compare their teaching materials with other teachers all round the world. They can learn how to release their work under an open license and to improve quality of teaching practice and encourage pedagogical innovations. Also, OER reduce the cost of accessing educational materials. Harsasi (2015) agrees that OER can be an asset to expanding education, in the same vein, Mc Dowell (2010) says that OER offer a dramatically new approach to the sharing of knowledge which can lead to economic success of individuals, communities, companies and ultimately entire countries.

Challenges in Utilization of OER in Nigerian Polytechnics

The utilization of Open Educational Resources (OER) in Nigerian universities can bring numerous benefits, such as increasing access to quality educational materials, reducing costs for students, and promoting collaboration among institutions. However, several challenges hinder the effective utilization of OER in Nigeria. Some of these challenges include:

Awareness and Capacity Building: Limited awareness and understanding of OER among faculty, administrators, and students is a major obstacle. Many individuals may not be familiar with OER or how to find, evaluate, and use these resources effectively. Therefore, there is a need for capacity building initiatives, including training programs, workshops, and awareness

campaigns, to promote the use of OER and enhance digital literacy skills. According to Onaifo (2016), learners utilize OER without most of them being aware of what OER is all about.

Infrastructure and Connectivity: Inadequate technological infrastructure and limited internet connectivity in many Nigerian universities pose significant barriers to accessing and utilizing OER. Slow internet speeds, unreliable electricity supply, and outdated computer systems can hinder the seamless integration of digital resources into teaching and learning processes. Efforts should be made to improve infrastructure and provide reliable internet connectivity on campuses. Akomolafe & Olajire (2014) opines that, lack of familiarity with OER websites, erratic electricity supply, universities not internet connected, ignorance of OER availability affects the utilization of OER in universities.

Quality Assurance: The quality of OER can vary significantly, and it can be challenging for educators to determine the reliability, accuracy, and relevance of the resources. Without proper quality assurance mechanisms in place, there is a risk that substandard or outdated materials might be used, which could negatively impact the learning outcomes. Establishing quality assurance frameworks and involving subject matter experts in reviewing and endorsing OER can help address this challenge.

Intellectual Property Rights: OER typically operate under open licenses that allow for the free use, adaptation, and sharing of resources. However, copyright issues and intellectual property right can be complex, especially when incorporating OER into the traditional academic landscape. Universities need clear policies and guidelines regarding copyright, licensing, and attribution to ensure compliance and avoid legal issues. McCrachen (2006) states that 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.

Cultural Context and Localization: OER often originate from Western contexts, which might not align with the cultural, social, and educational needs of Nigerian students. Localizing OER by adapting and contextualizing the resources to Nigerian cultures, languages, and curricula is crucial for enhancing their relevance and effectiveness. This requires active collaboration among educators, content creators, and local communities to create and share OER that reflect local perspectives.

Sustainability and Maintenance: OER initiatives require ongoing support, maintenance, and updating to remain relevant and effective. Without sustained funding and institutional commitment, OER projects can become stagnant and lose their value over time. Nigerian universities need to develop sustainable strategies for maintaining OER repositories, supporting content creators, and ensuring continuous improvement and availability of resources.

Resistance to Change: Resistance to change is a common challenge in utilization of Open Educational Resources. Overcoming resistance to change is crucial for its successful adoption and implementation.

Other challenges according to D'Antonio (2010) include:

1. Technical, such as lack of broadband access.
2. Economic, such as inadequate resources to invest in the necessary software and hardware e.g. buying a laptop.
3. Social, such as lack of skills needed to use technology.

4. Policy-oriented, such as lack of academic recognition of the development of OER by teaching staff,
5. Legal, such as the time and expense associated with gaining permission of use of third party owned copyrighted materials or its removal from materials.

Way Forward

To address the challenges of open educational resources (OER) in Nigerian Polytechnics, the following ways can be adopted:

- **Awareness/Sensitization Programmes:** Implementing training programmes for faculty, staff and students on the benefits and use of OER. This can include workshops, webinars and seminars. Also, awareness campaign can be lunch within the polytechnics to highlight the importance of OER. These could include posters, newsletters, and social media outreach.
- **Funding and Partnership:** Polytechnics can partner with government agencies and private companies to improve internet connectivity and infrastructure in polytechnics. Also, applying for grants from international bodies focused on education to fund the purchase of necessary infrastructure. Developing and distributing OER materials on offline platforms, such as USB drives, CDs, or local servers, to reach areas with limited internet access.
- **Capacity Building and Training:** Training lecturers and staff on how to create, adapt, and use OER effectively and including OER development in faculty development programs and workshops
- **Developing and Implementing Clear Policies:** Developing clear guidelines and policies on intellectual property rights (IPR) for OER materials, ensuring they comply with national and international laws. Also, promoting the use of Creative Commons licenses, which allow creators to specify the terms of use for their OER content.
- **Localizing Content:** Encouraging the development of OER materials that reflect the local culture, languages, and educational needs of Nigerian students. Involving local educators and cultural experts in the creation and review of OER contents to ensure it is culturally appropriate.
- **Establishing OER Repositories:** Setting up national repositories where OER materials can be accessed, shared, and evaluated should be done and ensuring these repositories are regularly updated with high-quality resources
- **Encouraging Collaboration and Knowledge Sharing:** Promoting collaborations between polytechnics and other institutions for resource sharing should be encouraged and establishing platforms for lecturers and students to exchange knowledge and experiences using OER.

Conclusion

There is no gainsaying that OER is an excellent approach towards reducing the attendant high cost of education especially in developing countries. The adoption of the National Policy on OER for Higher education in Nigeria is applauded in many quarters as the right step in the right direction towards improving the quality of education without the usual increase in the cost of acquisition of same. However, the policy in itself does not translate into the numerous benefits (unrestricted access to quality educational materials, reduced cost of learning, elimination of copyright and license restrictions, global access, etc.) idealized and

advocated by UNESCO and other authorities. Implementation remains a challenge but could be enhanced by putting up a sustainable mechanism for driving regular assessments on various implemented OER platforms. The model discussed herein is an aid or tool expressed a computerized information system model. The implementation of this model would among other things, ensure the periodic monitoring and evaluation of various University OER repositories in Nigeria so as to enable the appropriate regulatory authorities (such as: National Universities Commission, National board for Technical Education, Council on Colleges of Education, Ministry of Education, etc.) to track the non-conforming institutions as well as ascertain the progress of policy implementation.

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