



A Review on Utilization of OER in Teaching and Research in Academic Institutions

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Abstract

In this digital era OERs are considered to be offering opportunities to improve access to quality education and information resources worldwide. Academic institutions are taking advantage of technology revolution to transform teaching and research by allowing access to digital resources. Teaching and research are changing significantly worldwide and currently more academic institutions and members of faculty have availed digital resources through the internet by eliminating financial, legal and technological hurdles. Being inexpensive and adaptable, OERs have created a way to provide accessible and free information resources for all in the academic arena. The ability to adapt and modify content provides an important advantage especially when targeting specific populations. The increasing demand for teaching and learning resources contrasts with the financial situations in many institutions of higher learning in Kenya. The purpose of this study is to review utilization of OER in teaching and research by members of faculty in selected universities in Kenya.

Subject Areas

Educational Technology

Keywords

Open Educational Resources, Members of Faculty, Information Resources, Teaching and Research, Academic Institutions

1. Introduction

In academic institutions, information resources are essential for they support teaching and research. Globally there has been radical changes and demand for

information resources in academic institutions which has led various governments to develop and implement policies to support creation and access to Open Educational Resources (Inamorato dos Santos, Punie, and Castaño-Muñoz, 2016) [1]. In Africa libraries have an obligation for providing access to required reading information resources for their parent institutions which are not available elsewhere. Commission for University Education (CUE) in Kenya has made it a requirement that academic institutions must support their courses with enough, current and relevant information resources both print and electronic. In institutions for higher learning, CUE standards stipulate that their libraries should be adequately stocked with resources that are up to date, authoritative and varied for their academic programs to be accredited (Commission for University Education, 2014) [2]. In this digital era technology has a greater role in academics compared to previous generations. (Cosan, 2021) [3] With availability OERs, libraries shall avail information resources that are free to access, shareable, adaptable and can be redistributed with no need of consulting the copyright owner for approval (Mays, 2017 [4]; Bahrawy, 2019 [5]).

OER are learning, teaching and research materials either in digital or otherwise that are available under an open license that permits access, use, adaption or redistribution by others (UNESCO, 2019) [6]. Open Educational includes text books, all and parts of e-courses, course materials, curriculum maps, multimedia, simulations, experiments, video recordings, applications and lesson plans. As ascertained by Organization for Economic Co-operation and Development (2007) [7], OER are digital information assets that can be adjusted and which provide benefits without restricting the possibilities for others to share and enjoy them. Butcher (2011) [8], terms OERs as openly available educational resources that are provided for use without further need to pay for license fee or royalties. They can be revised, remixed, or redistributed freely. They range from textbooks to course materials, videos to software, journals to digital collections. The sharing and creation of Open Educational Resources can reduce the cost of learning resources thus escalating access to knowledge and enhancing faculty and student success (Suber, 2004) [9].

Due to economic crisis globally library budgets have been significantly affected therefore making sharing of information resources unavoidable (Mays, 2017 [4]; UNESCO, 2012 [10]; Smith, 2006 [11]; Hodgkinson-Williams, 2010 [12]; D'Antoni, 2009 [13]; Sarika & Hanchete, (2013) [14] and Cimen, (2014) [15]). This magnifies the need for OERs for teaching and research which is not predominant in most libraries and academic institutions in Kenya. Literature review has made it eminent that the number of OERs coming from African institutions and Africans is very low, almost non-existent which clearly indicates that the study on review on utilization of OER in teaching and research in academic institutions is highly needed and timely to unearth the underlying issues.

2. Methodology/Design

The paper reviews data on utilization of Open Educational Resources in teaching

and research in academic institutions. It then narrows down to influence of OER on teaching in institutions of higher learning, reviews access to teaching information resources and concludes by looking at impact of OER teaching and concludes by authors giving their opinions on actions that can be applied to improve utilization of OERs in teaching and research in academic institutions.

3. Literature Review

3.1. Influence of OERs on Teaching and Research in Institutions of Higher Learning

In the developed as well as in the developing countries, integration of OERs is a growing phenomenon in institutions of higher learning. Advances in education asserts that OERs are not only used to address issues of inadequate learning resources but as a strategy to also enhance academic performance of learners and members of faculty, save cost and improve quality in learning and teaching endeavours (Atkins, Brown & Hammond, 2007, p. 2) [16].

Research by Butcher (2016, p. 12) [17] in analyzing quality learning, viewed it as one that aims at eradicating all unnecessary obstacles to learning while leveling at providing learners with practical opportunities of success in academic institutions. Key aspects of quality learning have been pointed out in this research, which indicate that quality learning should embrace both education and training as well as lifelong learning. The learning process should also focus on the learners by building their experience, independent and critical thinking. Commonwealth of Learning and UNESCO (2011, p. 13) [18] cites quality learning as changing from the old notion of the “talking teacher” to complete the curriculum to a one that is embracing communication between members of faculty and students through use of different media and providing various forms of student support that includes discussions, tutorials or practical sessions. The research recognized that relating OERs and resource grounded learning increases the quality of learning.

Loglo & Zawacki-Richter, (2019) [19] conducted an exploratory research which focused on perception and level of understanding of OERs among members of faculty from the global south by use of in-depth questionnaires. The study discovered a gap in differentiating OERs from proprietary resources and an informal culture of use, reuse, remix and redistribution of OERs was also noted. It was clear from the study that members of faculty viewed OERs positively, noting their role in minimizing information resources imbalances amongst the developed and developing countries and decreasing open divide. The research recommended an extensive navigation of opportunities for enhancing utilization of Open Educational Resources.

Paskevicius, (2019) [20] conducted a survey on learners’ access to Open Educational Resources in academic institutions within Commonwealth countries which used questioners through a quantitative and qualitative approach. The study noted that students were engaging in both digital and print information

materials but they were not differentiating OERs from Online Knowledge Resources. The study recommended that more effort needed to be put to train members of faculty and students about OERs specifically where to find and use them and faculty were expected to choose the most appropriate information resources like OERs.

Bahrawy (2019) [5] in Norway conducted a project on digital technologies which looked at their effect on academic institutions and how they will shape education in future. The research noted that OERs have a major potential in supporting educational transformation due to the CC license that facilitates adaptation and reuse without asking authorization from the copyright holder. It was also noted from the research that due to shrinking government funding on academic institutions, OERs will counteract some of these financial issues by availing information resources for the faculty and learners as well.

A research by Stutchbury *et al.*, (2019) [21] on open practices with faculty proved how Open Educational Resources have supported professional development of facilitators mentioning the necessity for additional educational resources to build their capacity in under-resourced and overcrowded academic institutions. The study collected its evidence through monitoring visits and workshops, structured interviews and observation. The research concluded by putting emphasis on empowering faculty to work together in developing suitable learning information materials to support a learner centered approach citing how the TESSA OER offers a vision for good practice.

Mays (2017) [4] participatory action research conducted on four African Universities noted evidence on use of OERs in African academic institutions but noted very little evidence on relationship of between theory and practice. Mays acknowledged OER as a vital tool in supporting pedagogical transformation in institutions of higher learning. The data collection instruments involved observation, review of documents, focus group discussions and interviews. The research suggested a theoretical analysis reflecting on the nature of engagement with OERs other than descriptive studies in academic institutions.

In Kenya, faculty members are expected to teach and produce research but hardly are they provided with educational information resources by their academic institutions. Although a faculty member may have the ability to teach a number of units, they lack time to modify and revise the curriculum on a regular basis (Ngugi, 2013, p. 7) [22]. Nevertheless, a true fact is that various faculty members some of which are the best intellectuals are teaching in developed countries hence the adoption and use of OERs need to be highly considered to tap the educational resources available internationally. Ngugi and Juma (2016, p. 3) [23] cited the increase of an international society that has brought out a worldwide demand for education and also noted an growing gap between demand for education and teaching and learning information resources. Kenya is not an exemption to this. As academic institutions are expanding their reach so that they to meet the demands of the community, maintaining the quality has become a big challenge. UNESCO (2012) [10], campaigned for governments to

allocate more funds to expand quality education nationwide, increase society access to information resources, communication technologies and increase cross border scientific knowledge sharing. As advocated by Ngugi and Juma (2016, p. 4) [23], while spending more on academic institutions is a positive move, there are still numerous challenges facing academic institutions in sub-Saharan Africa which include insufficient learning and teaching information resources. Inadequate ICT infrastructure to access up to date information resources available on the Internet is also limited. It is projected that through utilization of OERs the quality of learning and teaching as well as education will increase. As noted by UNESCO (2012) [10], in Kenya the quality of education has a major role in developing economies and the competitiveness of a nation is primarily defined by quality of education. The study aims at supporting Das (2011, p. 2) [24] view that OERs are some of the current revolutions that are relevant for attaining equitable access to high quality education in a country. As noted in the above studies, while there are several studies on utilization of OERs from developed countries, very few link to the real situation in developing countries hence this research focuses on addressing the Kenyan context giving specifications on utilization of OERs for teaching and learning in academic institutions.

3.2. Access to Teaching Information Resources

(Marshall, 2008, p. 4) [25] views Open Educational Resources as a public good that should be exploited by all as it provides an opportunity to use, share and re-use educational resources. Research by Salem (2016, p. 1) [26] on student success and course content is important in achieving the objectives of this research as it recognizes lack of access to teaching resources as a key concern in academic institutions. Salem acknowledged access to learning resources as the permission or right to use a resource while learning information resources are materials used to train concepts outlined in the curriculum. Salem noted that access to teaching information resources by faculty and students has emerged as success issue because many lack authentic course materials to navigate. From the above research it is evident that the rising cost of teaching materials is noticeable and presents the most difficult aspect for faculty and students success. The research acknowledged that utilization of OER as the more affordable option that many academic institutions are implementing with libraries partnering or leading. The research by Salem appeals for renowned authors to support that access to OERs as teaching information resources relates directly to high quality education in academic institutions.

Komba and Mays (2014, p. 8) [27] contribution on integrating OER in teacher programs indicated that academic institutions in Africa are undergoing a challenge of dealing with a changing economic environment. The study noted that there is a rise in enrolments often in scenarios of decreasing funding whereas at the same time academic institutions are struggling to maintain teaching and learning as the cutting edge of the institutions. The research supported that one option to deal with the issue is utilization of OER because they provide great

opportunities for access to teaching information resources. OERs are able to address issues like quality assurance, copyright and publications which normally expose teaching to public scrutiny. Results from the study indicated that faculty members desired to access OERs as a significant step in attaining trustworthy teaching information resources to support curriculum development process. Finally, the authors developed a plan for implementing the e learning teaching materials that incorporates utilization of OERs.

In addition to the significance associated with OERs, studies by Bissell (2011) [28] and Komba and Mays (2014) [27] also underscored the need to recognize open licenses as they expose faculty members and students to great choice of information resources and approaches. OER also increases faculty and student interaction with teaching and learning information materials while designing activities with feedback that students can work independently with their colleagues while at the same time simplifying complex concepts into approaches that are practical. Utilization of OER in academic institutions leads to curricula standardization through sharing of ideas, reducing workload on materials development and comparison in approaches as units and courses are availed to be scrutinized by the public (Komba and Mays, 2014, p. 10) [27] For many programs, it is possible to find much of the course content so that development of curricula work is reduced to filling gaps and adapting rather than creating new ones.

Research by study by Gakindi (2010) [29], focused on gathering faculty and students experiences in information resources access. From the research, demand for more specialized and more inter disciplinary resources is increasing. As emphasized by Gakindi (2010, p. 19) [29], in every nation is education is considered to be the cornerstone of economic and social development therefore access to teaching and learning information materials is a vital aspect to be considered for success of every academic institution. To enable teaching and research in academic institutions, information resources must be accessible. As indicated by Gakindi (2010, p. 20) [29] and Butcher (2016, p. 25) [17], academic institutions experience challenges related to access to learning information materials include unsuitability, high cost, intellectual property rights and government resources constraints.

One of the most recent advancements in academic institutions and generally in the education sector is open access which is transforming the setting under which information resources are being shared and accessed. The idea of openness is basically availing free information resources with very few restrictions over the Internet, which is the main objective of Open Educational Resources (OER Africa, 2016) [30]. For faculty members and students to fully benefit in utilization of OER they need knowledge about them.

The aim and promise of utilizing OERs in academic institutions is to broaden access to more teaching and research information resources and open up more alternative options for members of faculty and students. The research intends to promote OERs as teaching and research resources in academic institutions and as support tools for teaching and learning. A research on utilization of OERs in

academic institutions is deficient without examining impact of OERs on teaching and research in order to effectuate their use.

3.3. Impact of OERs Content on Teaching and Research in Institutions of Higher Learning

According to Kabir (2016, p. 2) [31] research is a careful inquiry or investigation of new facts in a branch of knowledge. He simply puts it as an organized effort to gain knowledge.

Considerable effort on utilization of OERs in academic institutions has been experienced in the United States of America (USA), but practices are increasing swiftly worldwide. Main aim of OERs is on sharing and developing freely accessible teaching and research materials and stand-alone online courses which largely includes items such as lecture notes, reading lists, syllabi, tests, course assignments, simulations, samples and study materials (Butcher, 2016, p. 65) [17].

A research by Sandarayake (2019) [32] in Sri Lanka which evaluated learner perceptions on OER-focused blended research to measure the quality of teaching and research. The research utilized questionnaires on 106 business students and recommended inclusion of OERs in academic institutions by supporting OERs for being copyright free teaching and research resources as well as being a consolation for faculty and students who have limited classroom access and cannot afford textbooks. This research is supported by Brasley (2018) [33] on the basis of availing free information resources for teaching and research that come from reputable backgrounds. The above studies contribute to this research however there is a limitation in that Sandarayake (2019) [32] only focused on a limited group of business studies students and it is important to conduct broader studies on utilization of OER in academic institutions which is the goal of this research.

UNESCO (2020) [34] report hailed OERs in having an important advancement in achieving the goal of access and quality information resources for all. The report commended OERs in attaining inclusive and open knowledge societies and in realizing the goal of the United Nations Sustainable Development Goals particularly goal four on education. Butcher & Hoosen (2019) [35] and UNESCO (2020) [34] noted that utilization of OER, distribution, use and development since 2012 has been based more by rhetoric other than action. The great hindrance as indicated by the two authors is largely on awareness of OERs. As supported by Ossiannilsson *et al.*, (2020) [36] it is now more than ever time for the international society to join in fostering access on knowledge and information through utilization of OERs. The above studies unveil current state of utilization of OERs however since the data provided is correlational, the lack of a control group limits the strength of the causal claims. The articles also do not represent official national perspectives which means they do not provide a comprehensive review of the development of OERs globally. As noted from the case studies there are still gaps in efforts to move from awareness to utilization which is the aim of this study.

Karunanayaka *et al.*, (2013) [37] research on designing an online learning en-

vironment on OERs for Science education underscored Open Educational Resources concept as a major breakthrough in academic institutions in relation to utilization and sharing. Butcher (2016) [17] and UNESCO (2011) [18] agreed with Karunanayaka *et al.*, (2013) [37] as they realized a major potential of OERs in the capacity to reuse, remix, and redistribute information resources based on the flexibility of the CC licenses in place. Karunanayaka *et al.* (2013) [37] embraced the views by supporting that there is great gratification by utilizing OERs as an inspiration for faculty members and students through utilization of the information resources for teaching and research. As indicated by UNESCO (2011) [18], when appropriately supported faculty members have a major potential to support academic institutions in utilization of OERs in partnership with the students. The above studies contribute to this research however there are limitations, example Karunanayaka *et al.* (2013) [37] focused on one department in an institution other than academic institutions.

Despite the economic benefits of OERs as noted earlier in this research, utilization of OER in academic institutions still remains a challenge. The major reason for this is that faculty members and learners lack knowledge and skills to use OERs (Hori *et al.*, 2015, p. 2) [38]. This research intends to bridge the gap by introducing OERs as reliable and sharable resources for academic institutions. This research also aims at informing academic institutions with low operational budgets, to adequately invest in institutional networks and build the capability of faculty members to join the international knowledge economies such as the OER movement as a boost to their teaching and research potential as recommended by Prabhala and Commonwealth of Learning (2016, p. 23) [39], Open Educational Resources have the potential of lowering the cost and leading to greater flexibility. The research also aims at supporting Karunanayaka, Fernando and Silva (2013) [37] views that raising awareness and capacity building of faculty members and students is vital so as to utilize the full potential of OERs in teaching and research.

3.4. OER Policy in Specific Academic Institutions

According to Nicol (2016, p. 3) [40] an OER policy is a document that summarizes the academic institutions position on OERs and gives guidelines for practice in teaching and research. The aim of the policy is to offer direction on review and development of OERs materials in advance before availing them on an international platform. It also gives guidelines on licensing issues and publication rights, layout directions related to the use of necessary infrastructure such as the support systems and library and information technology (Mays, 2012, p. 4) [41]. It also specifies on other resources and people involved in developing OER for teaching and research. The policy also helps in defining partnerships external and within the academic institution and intentions for utilization (Bissell, 2011, p. 3) [28].

In order to successfully utilize OERs, an OER policy at institutional and na-

tional level has been noted to be among the major driving force (Commonwealth of Learning and UNESCO, 2015) [42] Campaigning for OERs is important for them to be developed and implemented in academic institutions, and one vital aspect for their promotion is through policy development. Bialobrzaska, (2014) [43]; Mays (2014) [44]; Silva, Rogerson, Pektas, Ogunleye and Demir (2012) [45], contended that academic institutions should focus on developing policies that support research works produced in the institution to be shared as OERs and also faculty members and students to publish their research articles in Open Access journals and where a reliable journal exists and give support for that to occur. Through this utilization of OERs globally shall be attained. The above study noted that a country like South Africa has over the last 10 years developed e-learning and ICT policies which have enabled them to create an enabling environment for OERs to be utilized and shared particularly by academic institutions.

Where a clear policy exists it is expected to plainly lay out the perspective rights of the institution and its faculty members, students and other staff members regarding intellectual property rights (Mays, 2014, p. 4 [44]; (Ngugi, 2009b) [46]). Mays and Ngugi indicated that academic institutions need to consider the extent to which policies encourage their members to devote some of their time in continued curriculum development, creation of effective teaching and research backgrounds within courses and development of high quality teaching and research materials. Nicol (2016) [40]; Mays (2016) [47] emphasized on numerous issues like whether a certain academic institution has a well-defined copyright and intellectual property rights and policy, whether policies in the institutions and practices reward the creation of new information materials more than adaptation of already existing ones, whether there is a suitable initial point for starting a sharing culture and encouraging movement towards OER publishing, whether members of faculty understand issues of copyright and different ways in which they can utilize openly licensed resources, and whether there are convincing reasons to retain all-rights reserved copyright over teaching and research materials as well as the curricula.

Commonwealth of Learning and UNESCO (2015, p. 128) [42] recognized some significant policy issues to consider if academic institutions are to effectively develop OERs. For example, a policy on materials development to support collaboration and promotion of intellectual property. UNESCO insisted that the policy should also include open licenses like the CC, plagiarism and copyright issues among the need to share information. Marte and Coolidge (2016) [48], noted that all information resources shared on the African Virtue University (AVU) site are under the CC Attribution-ShareAlike 3.0 license as noted in their policy users can freely modify, rework, extend any of the material and later distribute. The AVU policy clearly states that it is the obligation faculty member or student to make sure they have the needed rights to publish OER and that all information resources published adhere to appropriate policies, like intellectual property rights, copyright rules and accessibility.

As indicated in the above researches, OER policies are significant in supporting the utilization of OERs in academic institutions. The articles contribute to this research because the various authors have given suggestions on the significance of institutions having OER policies to guide the utilization process.

4. Conclusions

The intent and focus of this study on review of utilization of OER in teaching and research was to identify activities through the lens of academic institutions that have potential to advance utilization of OERs for teaching and research. The conclusions that follow are based on insights extracted from the literature review.

It is eminent from the literature that academic institutions need to prioritize training and discovery activities that will increase access and utilization of OERs by integrating them into the curriculum. Also proactive measures should be taken to increase awareness of OER as a concept and benefits of utilization in academic institutions. There should also be strategic activities undertaken in institutions of higher learning to promote OER-enabled pedagogy. Academic institutions should also provide professional development for adopting OER. Institutional resources should be allocated to OER early adopters so that they can engage in activities that will facilitate OER utilization at their institutions.

Through this research, academic institutions will be enlightened about experiences of faculty members in utilizing OERs and will enable them to understand how OERs could be useful. The research shall also be an addition to what is written on significance of OERs in facilitating access to information resources in academic institutions. It shall also demonstrate that utilization of OERs support quality teaching and research by availing information resources under open licenses that would have been restricted.

Academic institutions are also motivated to increase their teaching and research productivity and output so that they can meet the information resources demands of the 21st century. As indicated by Mays (2014) [44] low levels in teaching and research production and involvement in research activities have been highlighted within academic institutions and utilization of OER is cited as one of the solutions to this issue. With this deteriorating situation this research hopes to offer solution for the existing gap on utilization of OER in academic institutions for teaching and research. An appropriate financial contribution of utilization of OERs in teaching and research is cost reduction. With the development of the internet the world is able to access immense amounts of information resources letting people to research and select what they find necessary to share with others. The major motivation behind Open Educational Resources is to provide openly licensed documents which are freely accessible and fits well with the online learning scheme for learning and research (Hori *et al.*, 2015, p. 4) [38].

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] dos Santos, I.A., Punie, Y. and Castaño-Muñoz, J. (2016) Opening up Education: A Support Framework for Higher Education Institutions.
- [2] Commission for University Education (2014) Standards and Guidelines for University Academic Programmes.
- [3] Cosan, O. (2021) The Importance of Open Educational Resources in the Digital Age. *The Online Journal of New Horizons in Education*, **11**, 255-258. <https://www.tojned.net/journals/tojned/articles/v11i04/v11i04-15.pdf>
- [4] Mays, T. (2017) Mainstreaming Use of Open Educational Resources in an African Context, *Open Praxis*, **9**, 387-401. <https://doi.org/10.5944/openpraxis.9.4.714>
- [5] Bahrawy, N. (2019) Digital Pedagogy, New Media Literacies and Open Educational Resources: Exploring the Impact of Digital Resources in Higher Education. The University of Bergen, Bergen.
- [6] UNESCO (2019) Recommendation for Open Educational Resources (OER). <https://www.unesco.org/en/legal-affairs/recommendation-open-educational-resources-0er#item-0>
- [7] Organisation for Economic Co-Operation and Development (2007) Giving Knowledge for Free: The Emergence of Open Educational Resources. https://www.oerafrica.org/system/files/7762/38654317.7aeb69ae-48c7-4bee-b88b-531bb30c0b37_0.pdf?file=1&type=node&id=7762
- [8] Butcher, N. (2011) A Basic Guide to Open Educational Resources. https://www.oerafrica.org/system/files/9243/basic-guide-0er_0.pdf?file=1&type=node&id=9243
- [9] Suber, P. (2004) Creating an Intellectual Common through Open Access. http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/4445/Suber_Creating_041004.pdf
- [10] UNESCO (2012) 2012 World Open Educational Resources (OER) Congress UNESCO. <https://www.opensocietyfoundations.org/voices/unesco-releases-declaration-open-educational-resources>
- [11] Smith, M.S. and Casserly, C.M. (2006) The Promise of Open Educational Resources. *Change: The Magazine of Higher Learning*, **38**, 8-17. <https://www.oerafrica.org/resource/promise-open-educational-resources>
- [12] Williams, H.C. (2010) Benefits and Challenges of OER for Higher Education. https://www.academia.edu/3042016/Benefits_and_challenges_of_OER_for_higher_education_institutions
- [13] D'Antoni, S. (2009) Open Educational Resources: Reviewing Initiatives and Issues. *Open Learning: The Journal of Open, Distance and E-Learning*, **24**, 3-10. <https://doi.org/10.1080/02680510802625443>
- [14] Sarika, S. and Chete, P. (2018) A Study on ICT Based Library Services with Reference to Academic Libraries in Rural Area. *Knowledge Librarian*, **7**, 85-93.
- [15] Cimen, E. (2014) Future of Resource Sharing in Turkey: Can Open Access Be an Alternative? *Interlending & Document Supply*, **40**, 144-149.
- [16] Atkins, D.E., Brown, J.S. and Hammond, A.L. (2007) A Review of the Open Educational Resources (OER) Movement: Achievements, Challenges and New Opportunities. William and Flora Hewlett Foundation, California. <https://hewlett.org/wp-content/uploads/2016/08/ReviewoftheOERMovement.pdf>
- [17] Butcher, N. (2016) Open Educational Resources and Higher Education. Common-

- wealth of Learning, Burnaby.
<http://www.oerafrica.org/foundation/FoundationOERHome/BundaCollegeofAgriculture/tabid/878/Default.aspx>
- [18] Commonwealth of Learning and UNESCO (2011) Guidelines for Open Educational Resources (OER) in Higher Education.
https://www.oerafrica.org/system/files/9269/guidelinesoerhe_0.pdf?file=1&type=node&id=9269&force=1
- [19] Loglo, F. and Zawacki-Richter, O. (2019) Exploring OER Awareness and Engagement of Academics from a Global South Perspective—A Case Study from Ghana. *Frank Senyo Loglo and Olaf Zawacki-Richter, 2*, 15-42.
<https://www.semanticscholar.org/paper/Exploring-OER-Awareness-and-Engagement-of-Academics-Loglo-Zawacki-Richter/c4f15308ea1021ea8def5b5ebd73e6f48d41ec9b>
- [20] Paskevicius, M. (2019) Practicalities of Implementing Open Pedagogy in Higher Education. *Journal of Interactive Media in Education*, No. 1, 2-10.
<https://doi.org/10.5334/jime.512>
- [21] Stutchbury, K., Gallastegi, L. and Woodward, C. (2019) Supporting Open Practices with Teachers in Zambia. *Journal of Learning for Development, 6*, 208-233.
<https://doi.org/10.56059/jl4d.v6i3.367>
- [22] Ngugi. (2013) Higher Education in a Time of economic Crisis: OER as an Equalizer. *GUIDE Association 6th International Conference*, Megaron Athens, 3-4 October 2013, 1-19.
- [23] Ngugi, C. and Juma, R. (2016) OER Country Profile: Kenya. SAIDE.
- [24] Das, A.K. (2011) Emergence of Open Educational Resources (OER) in India and Its Impact on Lifelong Learning. *Library Hi Tech News, 28*, 10-15.
<https://doi.org/10.1108/07419051111163848>
- [25] Marshall, S. (2008) The Promise of Open Educational Resources. The William and Flora Hewlett Foundation, California.
http://www.oerafrica.org/system/files/7675/promise-open-educational-resources_0.pdf?file=1&type=node&id=7675&force
- [26] Salem, J.A. (2016) Open Pathways to Student Success: Academic Library Partnerships for Open Educational Resource and Affordable Course Content Creation and Adoption. *The Journal of Academic Librarianship, 43*, 34-38.
<http://www.oerafrica.org/system/files/12550/open-pathways-student-success.pdf?file=1&type=node&id=12550&force>
- [27] Komba, W. and Mays, T. (2014) Mkwawa University College of Education and University of Dar-es-Salaam Tanzania: Integrating OER into Teacher Development Programmes. OER Africa.
- [28] Bissell, A. (2011) OER and Open Licenses: The Dual-Pub Solution.
<http://www.saide.org.za/resources/Library/Bissell%20-%20OER%20and%20Open%20Licenses.pdf>
- [29] Gakindi, M.W. (2010) Information Access Needs of Satellite Campuses in Kenya—Can OER Close the Gap? The Case of Moi University Nairobi Campus.
<http://eprints.rclis.org/15384/1/Information%20Access%20Needs%20of%20Satellite%2>
- [30] OER Africa (2016) The 2016 OER Africa Convening: Report of Proceedings.
<https://www.oerafrica.org/sites/default/files/2016%2008%2016%20OER%20Africa%20Convening%20Workshop%20Report.pdf>
- [31] Kabir, S. (2016) Introduction to Research.

- https://www.researchgate.net/publication/325846733_INTRODUCTION_TO_RESEARCH
- [32] Sandarayake, T. (2019) Promoting Open Educational Resources-Based Blended Learning. *International Journal of Educational Technology in Higher Education*, 16, Article No. 3. <https://doi.org/10.1186/s41239-019-0133-6>
- [33] Brasley, S. (2018) Advancing Faculty Adoption of Open Educational Resources: A Delphi Study. <https://www.proquest.com/openview/aafaaf26c66be7ec877e2ca1739df63b/1?pq-origsite=gscholar&cbl=18750&diss=y>
- [34] UNESCO (2020) Launch of the UNESCO Dynamic Coalition for Open Educational Resources. <https://en.unesco.org/news/launch-unesco-dynamic-coalition-open-education-resources-oer>
- [35] Butcher, N. and Hoosen, S. (2019) Harnessing OER Practices to Drive Pedagogical Improvement: The Role of Continuing Professional Development. OER Africa.
- [36] Ossiannilsson, E., Zhang, X., Wetzler, J., Gusmao, C., Aydin, C., Glapa-Grossklang, J. and Harichandan, M. (2020) From Open Educational Resources to Open Educational Practices: For Resilient Sustainable Education. *Open Edition Journals*, e5393. <https://doi.org/10.4000/dms.5393>
- [37] Karunanayaka, S., Fernando, C. and Silva, V. (2013) Designing an Online Learning Environment on Open Educational Resources for Science Education. *Asian Association of Open Universities Journal*, 8, 1-11. <https://doi.org/10.1108/AAOUJ-08-01-2013-B001>
- [38] Hori, M., Ono, S., Kobayashi, S., Yamaji, K., Kita, T. and Yamada, T. (2015) Learner Autonomy through the Adoption of Open Educational Resources Using Social Network Services and Multimedia E-Textbooks. *Asian Association of Open Universities Journal*, 10, 23-35.
- [39] Prabhala, A. and Monwealth of Learning (2016) Copyright and Open Educational Resources. <https://www.oerafrica.org/resource/copyright-and-open-educational-resources>
- [40] Nicol, S. (2016) Open Educational Resources Policy. <https://www.ed.ac.uk/files/atoms/files/openeducationalresourcespolicy.pdf>
- [41] Mays, T. (2012) OER Policy Review and Development Toolkit: A Guide for Higher Education Institutions Interested in Creating and Using Open Educational Resources. South African Institute for Distance Education, Johannesburg.
- [42] Commonwealth of Learning and UNESCO (2015) A Basic Guide to Open Educational Resources (OER). <http://creativecommons.org/licenses/by-sa/3.0/igo/>
- [43] Bialobrzeska, M. (2014) Research on Open Educational Resources for Development. <https://www.oerafrica.org/resource/roer4d-oer-country-profile-south-africa>
- [44] Mays, T. (2014) OER in Teacher Education: Reflections from the OER Africa Teacher Education Network. <http://oerafrica.org/system/files/9810/201403-oer-teacher-education-final.pdf?file=1&type=node&id=9810>
- [45] Silva, P.A., Rogerson, D., Pektas, H., Ogunleye, O.A. and Demir, O.F. (2012) OER Mapping Discussion DRAFT Report. <http://www.journalacademicmarketingmysticismonline.net/index.php/JAMMO/article/view/828682780>
- [46] Ngugi, C. (2009) The Relevance of Open Educational Resources to Higher Educa-

tion in Africa.

<https://www.oerafrica.org/resource/relevance-open-educational-resources-higher-education-africa>

- [47] Mays, T. (2016) The Role and Importance of an Institutional OER Policy. <https://www.oerafrica.org/resource/role-and-importance-institutional-oer-policy>
- [48] Marte, D. and Coolidge, A. (2016) OER Policy Development Toolkit for Higher Education. <http://policy.lumenlearning.com/>