A Review of Virtual Environment for Sharing Curriculum and Research Collaboration among Universities in Kenya during COVID-19 Pandemic

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***Abstract*: Universities in Kenya need to be aware of the impact of curriculum and course sharing in order to become world-class academic institutions and to help one another during this period of COVID-19 pandemic. This research filled an unexplored gap in regards to the impact of curriculum and course enablers; trust, knowledge self-efficacy, reciprocal benefits, top management support, organizational rewards, organizational culture, curriculum system infrastructure and curriculum system quality, openness in communication, and face-to-face (F2F) interactive communication on knowledge sharing that supports teaching, learning and research collaboration by University faculty members. The study further classified these enablers into a six point pyramid of variables on adoption; personal volition, education resource availability, technical capability, conceptual awareness, legal permission, infrastructure access. The purpose of this study was to research factors associated with curriculum sharing that University management should leverage to ensure a strong innovation management process and successfully deliver quality teaching and learning to the intended customer. No prior research has focused on the impact of curriculum enablers that influence research university members to share knowledge, research findings, and curriculum and course materials via a virtual environment. Virtual education environment is a standard and accepted way of life, and many people prefer the virtual system as it comes with numerous advantages such as saving on costs and time spent. A self-administered questionnaire was employed on members of fourteen universities in Kenya using the google form for survey. The usable responses were analysed and review results discussed. This review work proposes the development of a Virtual Learning Environment (VLE) to capture the strengths of all the three Virtual platforms and this review work.**

***Keywords;* Strategies, Curriculum, Virtual environment, Virtual education, Universities, partial least squares.**

I. INTRODUCTION

The evolving growth in networking and telecommunication technologies leads to their enhanced usage in many and different aspects of human activity. One of the technologies that shows great interest is Collaborative Virtual Environments, which may be used in various applications, such as tele-education. Virtual Learning Environments (Britain & Liber, 1999) are learning management software systems that synthesize the functionality of computer-mediated communication software and on-line methods of delivering course material. Most of the systems that are currently under development are intended not simply to reproduce the classroom environment online, but also to use the technology to provide learners with new tools that facilitate learning. An Educational Virtual Environment is a system where the emphasis is mainly on the "education and collaboration" Bouras, Psaltoulis, Psaroudis, & Tsiatsos (2002). Collaborative e-learning is any kind of learning process performed by more than one person that takes place mainly in a virtual environment Michailidou, & Economides, (2002).

Development of a virtual environment for collaborative teaching and learning and sharing research outcomes is an important and difficult task. Pedagogical issues, like conceptual learning, collaboration, constructivism and adaptability, should be taken under serious consideration. These parameters are crucial in achieving strong learning effectiveness. The parameters to consider include; the pedagogical – psychological issues, the technical - functional issues, the organizational - economic issues and the social - cultural issues

The implementation of innovative pedagogical practices is a response to the social needs for educational advancement. Participants are experiencing new ways of learning and communicating with teachers by organizing the learning environment in a different way, based on several technological innovations. Additionally, one should respond to the academic, linguistic and cultural diversity of today's world, to avoid the risk of creating systems of low social, pedagogical and economic efficiency.

Education has long been seen as a crucial tool for national development, with various education initiatives designed to work towards eliminating poverty, increasing the health of a population or enhancing local economies, among others.

Higher education plays an important part in the life of any country as it provides them with highly-qualified specialists for future development and progress. Currently higher education is facing a number of challenges: rapid technological development, growing competition between universities both nationally and internationally. Besides, in spite of the financial crisis which has affected the whole world standards of living are steadily changing in Kenya. Today's

world is vastly different from that of 20 years ago. And the pace of change is accelerating, with increasing globalisation; advances in technology, communications and social networking; greatly increased access to information; an explosion of knowledge; and an array of increasingly complex social and environmental issues. The world of work also is undergoing rapid change with greater workforce mobility, growth in knowledge-based work, the emergence of multidisciplinary work teams engaged in innovation and problem solving, and a much greater requirement for continual workplace learning. Student pressure on universities to help them get good jobs is not new, but it is becoming a greater priority of governments as well. Governments in many countries have for years put pressure on universities to be relevant and responsive to societal needs. This initially focused on applied research and expanding access, but recently, improving employability has been added to the list. University curriculum must attempt to equip students for this significantly changed and changing world. The rising cost of traditional education is another reason for change. While it is clear that higher education systems and institutions worldwide face unprecedented challenges in meeting the increasing demand for initial and continuing education, it is also clear that there are developments that will increase access, make learning opportunities more flexible and help contain rapidly increasing costs.

However, many features of university curriculum have been unchanged for decades. We continue to present disciplines largely in isolation from each other, place an emphasis on the mastery of large bodies of factual knowledge and treat learning as an individual rather than collective activity.

This all means that the kind of education, which was good enough twenty years ago, is not good today Frumina, E., West, R., (2012). This means that styles of teaching, quality of learning materials and university education management have to be brought up-to-date and improved Tuomi, I., (2013). The time has come to reimagine education.

One of the important issues which has to be settled in Kenya is developing connections between universities and business by means of implementing new technologies in education and making education, to a greater extent, international. Universities focus on educating people and in creating new knowledge and excelling in existing know-how, while companies concentrate on mastering the challenges of a competitive environment and are striving for market success. Current pedagogical approaches are insufficient for preparing students pursuing higher education globally as well as the type of leaders, entrepreneurs, and thinkers that we need for the future. The curriculum of most institutions still focusses on acquiring skills needed to become a researcher or a scholar. What is even worse, most university teachers have no practical experience other than research and teaching. The vast majority of graduates, however, do not plan to become researchers, nor would they ever become scholars. What they really need is adequate training, real-world experience and practical knowledge. Only with students being well-educated in new methodologies and corporate experts transferring these innovations into practical projects which involve students, it will be possible to see how the collaboration can bring about mutual advantages.

The researcher believe that only a balanced combination of well-designed, standardised and evidence-based professional university education with implementation of Open Educational Recourses (OER), with Shared Online Courses (SOC) and Massive Open Online Courses (MOOCs) can provide a solution to the problems mentioned above especially in the wake of the global corona virus pandemic.

This study critically look at the developing global challenges such as; no overcrowding in places including classrooms, the ongoing restrictions on keeping social distance due to COVID-19, the duplication of curricula, funding of research, lack of adequate experts in various programmes and new market demands. The paper proposes a virtual environment (VE) that will enable room for collaborating universities to formulate and developing acceptable policies that govern the environment.

Situational Analysis

The globalisation of the world's economies is leading to increased permeability of national educational boundaries as well as to greater emphasis on the internationalisation of curricula.

Internationalisation continues to be on the agenda of higher education providers worldwide. It has significance for the sustainability of higher education at national level and subsequently the contribution that higher education makes to the development of a nation, its people; and its ability to compete in a global market. Developing the ability to be flexible, to adapt to differing contexts, to apply skills and knowledge, to be able to engage with other students who are internationally or culturally diverse – these are all characteristics of students in a successful university of today. Thus, the internationalisation of higher education seems to be a double-edged phenomenon, inducing growing collaboration and growing competition among countries and among institutional providers Altbach, P.G., Reisberg, L., Rumbley, L.E., (2009)

Internationalisation takes many forms, including co-taught courses and degrees, online courses, academic faculty exchanges, student recruitment and joint research, collaborative research projects and student exchanges. All this has become possible only recently, with the emergence of the Internet, to a greater part. Today, almost all higher education institutions offer programs that integrate digital media in an online environment to provide flexible learning opportunities, independent of time and place. All of these activities involve reaching out into the international arena in some way and partnering with or communicating with institutions, staff, faculty and students in other countries European Commission, (2014) This cannot be fully applied to Kenya, though. Despite the growth of and further demand for international links and

partnerships, there remain a variety of challenges, particularly relevant to its higher educational system. One key barrier is a finances, the GoK cannot get financial support for either students or academic faculty exchanges or for co-taught courses.

At last, while the internationalisation of the higher education classroom provides many benefits, challenges are also associated with a culturally diverse and rich environment. Each culture that is represented possesses varying expectations, perceptions, and prejudices based upon their cultural norms and experiences. Unless these differences are recognized and addressed, a true globalization of the classroom will not exist. Rather, students from different societal backgrounds will co-exist in the same classroom, but intercultural learning will not occur Crose, B., (2011).

II. INFORMATION COMMUNICATION TECHNOLOGY AND THE SOCIETY

Although information and communication technology has been widely introduced to most domains of human life, researchers have not yet come to an agreement of how virtual environments should be defined. From the 1980's, social scientists began to use the concept of 'virtual community' to describe people linked by e-mail and other similar systems on the Internet. Howard Rheingold (1993) defined a virtual community as follows: Virtual communities are social aggregations that emerge from the Internet when enough people carry on ... public discussions long enough, with sufficient human feelings, to form webs of personal relationships in cyberspace.

For Rheingold, virtual communities emerged in response to a widespread 'hunger of community', a hunger which is increased as more traditional types of communities disintegrate (Mercer, 2000). However, many communication researchers like Neil Postman and Neil Mercer have suggested that there are four good reasons for being cautious about applying the term 'virtual communities'. Compared with 'community of discourse' and 'community of practice', the term virtual community has been mostly used very loosely, and it has been suggested that, unless it is more precisely defined, it will be of little value. For this reason, instead of the concept of community, we use in this publication the concept of environment to refer to the virtual sites and places used as other environments of learning and working.

The virtual environments, which have emerged with the growth of the information society, do not exist in isolation from the wider social context. The information society, which is based on global information environments, has been characterized as a society in which knowledge is situated in dynamic weblike networks rather than in static, often hierarchical structures Castels & Himanen (2001). Information societies have also been characterized as learning societies which implies that continuous learning is a necessity for communities as well as for individuals. Moreover, learning is not something that takes place only in the context of schools and other institutions. Rather, it is a central constituent of human life – indeed, a way of life. Such a conception of learning corresponds to a definition of learning as something essential to human survival. This definition is all the more apt when our environment is undergoing continuous and rapid change.

The Kenyan Higher Education

The economic and political events of the past decades have had a dramatic effect on every sphere of Kenyan life, including the education system. These reforms brought new ideological and managerial freedom for universities as well as new opportunities and demands. The higher education reform in Kenya are aimed at bridging the gap between the educational quality of the graduates, research outputs and the ratio of academic staff and non-academic staff. The situation in higher education is complicated by many problems resulting from Kenya's economic difficulties and the transition to a market economy.

As a result, the system of higher education has undergone considerable change in the following areas: Goals: with an orientation towards the needs of the market, society, and individuals; Structure: hiring of more academic staff than non-academic staff and assigning administrative functions of the university to academic staff ; Autonomy of higher educational institutions: universities left to shape their own niches; Financing: diversification of financial sources instead of a reliance solely on state financing; Content: increasing the humanitarian components in the curriculum, and diversifying programs and courses Nikolaev, D., Chugunov, D., (2012).

The system continues to experience major changes, all connected to the political goal of improving the quality and therefore international competitiveness of the country's universities. Political initiatives focus particularly on the consolidation of the system, which is characterized by a very high number of higher education institutions, many of which do not meet national and international quality standards Zawacki-Richter, O., Kondakci, Y., Bedenlier, S., Alturki, U., Aldraiweesh, A., Püplichhuysen, D., (2015).

The thing is that the network of higher education institutions has experienced significant growth and decline, increasing by almost 200 percent in 2015 and then decreasing by about 40 percent in 2020.

At the moment, the Kenyan higher education system remains relatively centralized; the Government of Kenya provides no less than 80% of all higher education institutional expenditures and keeps all state-owned institutions' funds under strict control through a special system of treasury accounts, it provides accreditation, attestation and licensing of all institutions, private or public, it establishes considerably detailed unified standards of higher educational programs defining the curricula and content for all disciplines and it maintains a monopoly on controlling the issuing degree level diploma certificates.

In Kenya, there are three possible ways of studying at universities and other higher education institutions:

conventional study: students attend mandatory face-to-face lectures, seminars, practical classes (usually 21 -27 hours a week); combination of face-to-face and self-study: students attend evening and week-end classes (after 5.00 pm and on Saturdays and Sundays) at the university 3-4 times a week and combine it with self-study (usually 21 hours a week); correspondence study, combined with face-to-face study blocks: twice a year students attend face-to-face sessions including lectures, seminars and examinations

Online education and eLearning was not considered to be a part of university education until the COVID-19 pandemic came early 2021. Currently most universities in Kenya have at least a learning management system and web conference application that enables them to provide online learning as a measure to avoid physical contact to help reduce and contain the spread of the virus

On the other hand, significant development of Internet connectivity around the world and proliferation of digital devices give birth to new uses in the field of teaching and learning and there are strong efforts by the Kenyan Government, as well as higher education institutions, to increase the range of programs and courses offered online, to improve their quality and to make new forms of education a universally accepted part of university education. The time has come to reimagine education and regional state-budgeted universities have to do it with a minimal expenditure.

III. THE RESEARCH STRATEGY

The current pedagogical approaches are insufficient for preparing students pursuing higher education globally as well as the type of leaders, entrepreneurs, and thinkers that we need for the future. The rising cost of traditional education is another reason for change. So are the enormous advances in technology that allow the customization of education to individual learning styles, group learning, online interactivity, gaming and real-time employer projects.

At the same time, technology is becoming central to the process of learning and teaching in higher education and it is also driving wider access to education and training. As societies rapidly develop into knowledge-based information economies, information technology becomes a key driver of both economic competitiveness and social development.

We all know that eLearning and open distance learning has gained momentum around the world as a new, flexible, and dynamic way of acquisition of academic knowledge and professional experience in a complex albeit changing and challenging global environment of the XXI century Giving Knowledge for Free: the emergence of open educational resources", (2007).]. But now it is not enough. There are three innovative practices that can successfully reform and improve the existing system of higher education in Kenya if properly introduced. Thus, the researcher hopes propose the development of a "Virtual Learning Environment (VLE)" with implementation of Open Educational Recourses (OER) with Shared Online Courses (SOC) and Massive Open Online Courses (MOOCs). This will ensure that the VLE will consider the strengths of all the three learning systems reviewed in this paper. The review work for the Learning Systems is as below;

IV. MASSIVE OPEN ONLINE COURSES

In 2011, the respective roles of higher education institutions and students worldwide were brought into question by the rise of the Massive Open Online Courses. MOOCs are freely available, accessible and contain materials that are cleared for use in any educational or personal context.

The European Commission defines a Massive Open Online Course as: "an online course open to anyone without restrictions free of charge and without a limit to attendance, usually structured around a set of learning goals in an area of study, which often runs over a specific period of time (with a beginning and end date) on an online platform which allows interactive possibilities (between peers or between students and instructors) that facilitate the creation of a learning community. As it is the case for any online course, it provides some course materials and (self) assessment tools for independent studying" Alekseev, O., (2014). These courses are offered mainly by universities, and, increasingly, institutions around the world are joining various MOOC platforms to offer their courses.

The literature on MOOCs is growing Barber, M., Donnelly, K., Rizvi, S., (2013). This literature tends to acknowledge that MOOCs bring an impetus of reform, research and innovation to the process of learning. For example, using a definition of MOOCs as courses which "are free of charge, open to a global audience and built for large numbers of people", Prof. M. Barber from Institute for Public Policy Research identifies the significant difference between MOOCs and prior forms of online learning as "this shift from depending on the government to focusing on the customer – in this case the student – has played out again and again in other sectors as globalisation and technology have changed the rules of the game." Anderson, T., Dron, J., (2011).

American and European literature addressing MOOCs from the perspective of university education considers the pros and cons of MOOCs for universities, assesses the problems of MOOC production and delivery, forecasts MOOC impact on university models, and analyses trends Feldmann, B., Schlageter, G., (2011). However, there is little published discussion on MOOCs and their possible contribution to university education in Russia and some universities and their staff have not even heard about them.

Still, MOOCs offer university-level courses without the need to complete an entire program. They are ideal for unsupervised activities and other universities can select courses from any institution offering them to their students. There are very few face–to–face courses that include the flexibility of online access to lecture materials and recordings.

MOOCs provide an online version of a complete course, with video instruction, online quizzes and forums to encourage

student engagement, virtual office hours where professors communicate with students, and graded assignments (using software or peer students to do the grading) to evaluate whether students learn from the course.

The main limitation of these distance-learning approaches is the fact that it only impacts those whose primary motivation is to acquire new knowledge and skills. In other words, this type of course is not very effective with those who are only motivated by obtaining credits. The MOOC format itself suffers from weaknesses around access, content, quality of learning, accreditation, pedagogy, poor engagement of weaker learners, and exclusion of learners without specific networking skills.

Another problem here is that content from a MOOC offered by a university outside your students' home country may not match cultural and other conditions with which they are familiar. There may also be some issues for students who lack motivation Hanson, J., (2010). Since a MOOC is voluntary and there is no penalty for dropping the program or lagging behind, there may be issues with course completion. Although a student may have received an excellent education, there will not be a corresponding diploma. Besides, MOOC certificates are not recognised by Russian universities at the moment, so MOOCs serve mostly for the purpose of self-education. Besides, Russian universities face here other problems, including the need to localize content by translating it from English into Russian and a difficult adjustment of online courses to Russian universities' curricula.

On the other hand, at a national level, MOOCs represents a further blurring of the borders between formal and informal learning, and universities are recommended to study how MOOCs can be efficiently used to meet some of the demand for increased lifelong learning.

V. OPEN EDUCATIONAL RESOURCES

First of all, it is Open Educational Resources: digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research. The development of the information society and the widespread diffusion of information technology give rise to new opportunities for learning. At the same time, they challenge established views and practices regarding how teaching and learning should be organised and carried out. Higher educational institutions have been using the Internet and other digital technologies to develop and distribute education for several years. Yet, until recently, much of the learning materials were locked up behind passwords within proprietary systems, unreachable for outsiders. The open educational resource (OER) movement aims to break down such barriers and to encourage and enable freely sharing content Giving Knowledge for Free: the emergence of open educational resources", (2007).. The term "OER" is not synonymous with online learning, eLearning or mobile learning. Many OER – while shareable in a digital format – are also printable.

Let us mention briefly that it was the Massachusetts Institute of Technology that first talked about placing learning materials for free on the Internet in 2001. Soon after the term "Open Educational Resources" (as well as an abbreviation OER) emerged and was defined as: "educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes" United Nations Educational, Scientific and Cultural Organization (UNESCO), (2002). The trend towards sharing software programmes (open source software) and research outcomes (open access publishing) is already so strong that it is generally thought of as a movement. It is now complemented by the trend towards sharing learning resources – the open educational resources movement.

Using OER is not cheating; in fact, it can improve the quality of learning experiences by building on other people's work. Too often staff are creating learning materials for modules and courses that have already been developed elsewhere to an excellent standard.

Since this first initiative, the number of repositories storing OER has grown in number and constantly shifts. The institutions involved so far seem to be well-reputed internationally or in their countries. Attitudes are changing in education globally to promote the open sharing of educational courses and resources Anderson, T., Dron, J., (2011).

The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes and recorded lectures, essay questions and other assignments, tests, projects, audio video and animation, discussion topics or reading lists. Teaching staff can "pick and mix" them to suit their own purposes Butcher, N. (2011).

That leads us to the role that institutional staff play in producing and what is more important for our study using the content. A number of studies conducted in European universities have explored staff attitudes towards OER Giving Knowledge for Free: the emergence of open educational resources", (2007). Generally, the most significant barriers surrounding the use of OER included the lack of time and lack of a reward system. In Russia we add here staff attitudes to borrowing and sharing resources. A culture of borrowing and sharing of resources exists between close colleagues, but not further afield something like "I only use resources recommended by someone I know and trust", and whilst some teachers would obtain resources from the Internet, they are unwilling to place materials there saying: "Why give away resources to other universities?" Besides, the concept of open licensing with respect to content has arrived to Russia relatively recently: people producing and using intellectual products in Russia are predominantly familiar with the concepts of copyright and author rights and unaware or know very little about open licenses, the more so as the culture of sharing is not prevailing yet.

Another difficulty of using OER is that the openness of the resources is often limited by a language barrier. Most repositories are in English and university staff in Russia use and create their own cultural content in their own language. That is why advantages of OER and opportunities they offer to different levels of the educational system are not yet fully recognized.

As for the arguments supporting OER projects, they are as follows: OER expand access to learning for everyone but most of all for non-traditional groups of students and thus widen participation in higher education; they can be an efficient way of promoting lifelong learning for both the individual and the government; they can bridge the gap between non-formal, informal and formal learning.

Thus, OER projects expand access to learning for everyone, most of all for non-traditional groups of students and thus widen participation in higher education. They can be an efficient way of promoting lifelong learning. They can bridge the gap between non-formal, informal and formal learning. OER is itself a challenge, but may also become a sound strategy for individual institutions to reimagine.

VI. SHARED ONLINE COURSES

Shared Online Courses are high-quality online courses and learning modules that are broadly available for sharing across multiple institutions. The idea of SOCs comes from MOOCs as to share eLearning courses via a learning management system now is common Baaren, J. van der, (2015).

Still there are differences here; A SOC is a combined effort of higher education institutes and not of an individual company or a prestigious university. Current approaches to reduce cost have a negative effect on quality and diversity (smaller studies disappear). Only by sharing resources this can be prevented. Resource sharing is not necessarily restricted to digital resources; also teachers can be shared, e.g. by using on-line classes or webinars, SOCs developed by a group of universities are good quality courses and materials positioned within their institutional branding and are available online for students of these universities only and SOCs also provide support for actual certification to be carried out by certain universities. Certification is probably the last service universities want to lose. That is the reason Shared Online Courses are not open.

This initiative aims to present the various online offerings of Kenyan universities on one website, and to develop a platform for further development of high-quality online education in the country Sigalov A., Skuratov A., (2012). Its long-term goal is to make a full analogue of university's curricula which will allow to get knowledge of the same level and quality as during academic education. It implies high requirements to the developing programs and their effectiveness. Students will have an opportunity to successfully complete the basic education programs staying at home. This resource is expected to raise higher education to the next level and improve overall quality in regional universities and affiliated structures

The platform, used for publishing online courses created by the members of the Association, facilitates the adoption of international standards, formulates its own requirements concerning the quality of online courses and collaborates with providers of higher educational programs, which are implemented using online courses hosted on the platform. Each course undergoes an internal expertise at a university, and a review by the Association to ensure compliance with the "Requirements and Recommendations for Online Courses on the National Open Education Platform", co-developed by members of the Association. In contrast to other on-line educational resource, Open Education is designed primarily for university students. Nearly all the offered courses are part of higher education programs and are compulsory modules in higher education curricula. Upon successful completion of the course, learners get a course certificate, and credits for the course can be counted towards the students' curriculum at any university in Russia. In the future, students will be able to master a major part of their university program online by taking courses on this platform. Since the teacher's role as supplier of reading lists and teaching materials is diminishing, SOCs are likely to accelerate changes in the traditional teaching role and the evolution of more independent learners. Most university authorities believe that the quality of education in Kenya will grow thanks to the fact that any student from any Kenyan university will be able to take courses at top Kenyan universities wherever and whenever they choose. Still now the choice of courses on the platform is limited. It is the goal of the Kenyan Ministry of Education to incorporate more universities in this national open learning initiative and to increase the number of courses offered via this gateway.

The ultimate goal of the program is to replace distance learning with online courses, improve the quality of education in universities and regional branches, make the educational process in Kenya more modern, and improve students' computer skills. Furthermore, the introduction of new technologies will enable the program creators to produce more research resources for universities and increase competition in higher education by enabling students and administrators alike to choose their online options in accordance with the suitability and quality of the courses.

VII. CONCLUSION

Technology is becoming central to the process of learning and teaching in higher education and, in some countries, is driving wider access to education and training. As societies rapidly develop into knowledge-based information economies, information technology becomes a key driver of both economic competitiveness and social development. Knowledge in information technology has thus become a central pillar of higher education – both implicitly in how information is shared and explicitly in preparing students for the global markets they will enter after graduation.

The current challenges facing traditional higher education, including higher tuition, budget cuts, and the gap between theoretical and practical training, have caused many universities to search for alternatives. Thus, online learning environments have come to the forefront of higher education. The options the researcher choose in this review work are implementation of Open Educational Recourses, Shared Online Courses and Massive Open Online Courses into the educational process. All three offer new approaches to traditional campus-based teaching, with virtual learning environments used for course administration, storage of course content and additional resources. Still these new resources should be introduced gradually, while maintaining proper balance between introducing them and traditional education. Only on this condition will we create a new effective learning environment and increase students' satisfaction, better management of intellectual property, and community building. Universities in Kenya are advised according to this review work to actively take up on line learning systems that conform to their infrastructure.

REFERENCES

[1] Alekseev, O., (2014). "First Steps of Russian Universities to Top-100 Global University Rankings", Higher Education in Russia and Beyond, No.1, pp. 6-7.

[2] Altbach, P.G., Reisberg, L., Rumbley, L.E., (2009). "Trends in global higher education: Tracking an academic revolution." A report prepared for the UNESCO 2009 World Conference on Higher Education, 2009, available at: http://www.uis.unesco.org/Library/Documents/trendsglobal-higher-education-2009 world-conference-en.pdf (Access date: 10 November, 2016), 278 p.

[3] Anderson, T., Dron, J., (2011). "Three Generations of Distance Education Pedagogy in International Review of Research in Open and Distance Learning", Athabasca University, Vol. 12.3, pp. 80-97.

[4] Baaren, J. van der, (2015). "Cheaper, better and more relevant Higher Education using Shared Online Course", Open Education 2030, pp. 8-10.

[5] Barber, M., Donnelly, K., Rizvi, S., (2013). "An avalanche is coming: Higher education and the revolution ahead", London, Institute for Public Policy Research, available at: http://www.ippr.org/publication/55/10432/anavalanche-is-coming-higher-education-and-the-revolutionahead (Access date: 23 December, 2016), 78 p.

[6] Bozkurt, A., Aydın, C., (2015). "Satisfaction, Preferences and Problems of a MOOC Participants, Proceedings of The Association for Educational Communications and Technology" AECT International Convention, pp. 35-41.

[7] Butcher, N. (2011). "A Basic Guide to Open Educational Resources (OER)", Vancouver: Commonwealth of Learning, 134 p.

[8] Crose, B., (2011). "Internationalization of the Higher Education Classroom: Strategies to Facilitate Intercultural Learning and Academic Success", International Journal of Teaching and Learning in Higher Education, Volume 23, No. 3, pp. 388-395.

[9] European Commission, (2014). "Report on Web Skills Survey: Support services to foster Web Talent in Europe by encouraging the use of MOOCs focused on web talent", D1.1, First Interim Report, available at: http://openeducationeuropa.eu/sites/default/files/MOOCsfor-web-skillssurvey-report.pdf (Access date: 1 December, 2016), 20 p.

[10] Federal State Statistics Service, (2016). "Russian yearbook of statistics", available at: http://www.gks.ru/bgd/regl/b16_13/Main.htm (Access date: 1 April, 2016).

[11] Feldmann, B., Schlageter, G., (2011). "Five Years Virtual University – Review and Preview", World Conference on WWW and Internet Proceedings Orlando, Florida, Oct. 2011, pp. 23-27.

[12] Frumina, E., West, R., (2012). "Internationalisation of Russian Higher Education: the English language dimension", British Council, 83 p.

[13] "Giving Knowledge for Free: the emergence of open educational resources", (2007). Organisation for Economic Co-Operation and Development publications, France, available at: www.sourceoecd.org/education/ 9789264031746 (Access date: 3 December, 2016), 153 p.

[14] Gounko, T., Smale, W., (2007). "Modernization of Russian higher education: exploring paths of influence", Routledge, Journal of Comparative Education, Vol. 37, No. 4, pp. 533–548.

[15] Haggard, S., (2013). "The Maturing of the MOOC: Literature review of Massive Open Online Courses and other forms of online distance learning", available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/240193/13-1173-maturing-of-themooc.pdf (Access date: 1 December, 2016) 123 p.

[16] Halic, O., Greenberg, K., & Paulus, T. (2009). "Language and academic identity: A study of the experiences of non-native English speaking international students", International Education, 38(2), pp 73-93.

[17] Hanson, J., (2010). "Displaced by not replaced: the impact of e-learning on academic identities in higher education", Teaching in Higher Education, 14 (5), pp. 553564.

[18] International Trends in Higher Education 2016-17, University of Oxford, available at:http://www.ox.ac.uk/sites/files/oxford/trends%20in%20globalisation_WEB.pdf, (Access date: 2 April, 2017), p. 24.

[19] Kalman, Y.M., (2015). "A race to the bottom: MOOCs and higher education business models", Open Learning: The Journal of Open, Distance and e-Learning, 29(1), pp. 5-14.

[20] Mossley, D., (2014). "Open Educational Resources and Open Education", The Higher Education Academy, York Science Park, Heslington, 26 p.

[21] Nikolaev, D., Chugunov, D., (2012). "The Education System in the Russian Federation", Education Brief, International Bank for Reconstruction and Development, Washington, 100 p.

[22] Sigalov A., Skuratov A., (2012). "Educational Portals and Open Educational Resources in the Russian Federation", Federal Research Institute of Information Technologies and Telecommunications "Informika", Moscow, 45 p.

[23] Tuomi, I., (2013). "Open Educational Resources and the Transformation of Education", European Journal of Education, 48 (1), pp. 58-78.

[24] United Nations Educational, Scientific and Cultural Organization (UNESCO), (2002). "Forum on the Impact of Open Courseware for Higher Education in Developing Countries", Final Report, available at: http://unesdoc.unesco.org/images/0012/001285/128515e.pdf. (Access date: 25 August, 2016), p. 30.

[25] Zawacki-Richter, O., Kondakci, Y., Bedenlier, S., Alturki, U., Aldraiweesh, A., Püplichhuysen, D., (2015). "The Development of Distance Education Systems in Turkey, the Russian Federation and Saudi Arabia", European Journal of Open, Distance and e-Learning – Vol. 18 / No. 2 (113), pp. 113-129.