

OPEN AND DISTANCE LEARNING: BENEFITS AND CHALLENGES OF TECHNOLOGY USAGE FOR ONLINE TEACHING AND LEARNING IN AFRICA

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Abstract: Open and Distance Learning (ODL) is gaining prominence in African Universities. Universities in Africa use distance learning mode where materials are sent to learners, supplemented with a few contact sessions through study centers. With the advent of new technologies for teaching and learning, African Universities are also moving towards online teaching and learning. This paper presents the benefits and challenges associated with the use of technology in ODL mode in Botswana Higher Education context. Web based surveys were used to collect the data for this study. The study was carried out among the online lecturers and learners in two institutions of Higher Learning in Botswana. 9 experienced lecturers and 25 learners who had used technology for their ODL teaching and learning participated in this study. Findings indicate that, major benefits of using technology for online teaching and learning include interaction and student engagement; access to latest information; content sharing and communication. The major challenges faced are access of technology, affordability and technophobia. Emerging technologies recommended include Virtual learning platforms (Blackboard, Moodle, Edmodo, Schoology), Social networking platforms (Facebook, WhatsApp) and Content sharing software (Camtasia). The survey results will provide insightful guidelines to ODL lecturers, ODL learners and the institutions who are offering online learning modes of learning, especially in Africa.

Keywords: Open and Distance Learning (ODL); Higher Education; Benefits; Challenges; Technology usage

1.0 Introduction

Online teaching and learning is emerging as a growing trend in Open and Distance Learning (ODL) and gaining wider popularity among Higher Education institutions in Africa. Online teaching and learning in the context of this study, refers to a method of instruction and acquisition of knowledge that is carried out in ODL with the help of computer and technologies via internet. Usage of technology offers wide range of opportunities in ODL including promoting the quality of interaction among learners, interaction between learner and lecturer. It also provides access to plethora of resources. Many African Universities are on the verge of adopting increased usage of technology to increase access and effectiveness of their ODL offerings.

Botswana is now increasingly moving towards the usage of technology for online teaching and learning. Botswana's Vision 2016 advocates for an educated and informed nation (Botswana, 1997). It is hoped that this vision would be realized through the provision of more institutions of higher learning that can provide more opportunities of education. In that light, institutions of higher learning such as Botswana College of Distance and Open Learning, University of Botswana and other private universities like Botho University have adopted the usage of technology to enhance their ODL offerings. These institutions have now introduced online learning courses along with their traditional classroom learning courses. This study aimed at understanding the benefits and challenges in the usage of technology for online teaching and learning in Botswana. It is believed that the results of this will provide some insightful guidelines to ODL lecturers, ODL learners and the institutions who are offering online learning modes of learning in Africa, especially in Botswana.

2.0 Literature Review

As the demand for higher education grows in Botswana on a quicker pace and with issues such as increased cost associated with infrastructure for education; reduced budget at the side of government who is primarily the sponsor for higher education; online education is now seen as an immediate solution. While online teaching and learning can offer convenience, flexibility, and affordability what needs to be noted is that, technology usage is also associated with numerous challenges especially in Africa.

2.1 Benefits of using technology for online teaching and learning

Across the globe, the higher education system is now transformed to a world where extreme usage of tablets and social media is very common for both teaching as well as learning. According to Kim & Bonk (2006), technology has played and continues to play an important role in the development and expansion of online education. The way we use technology for teaching and learning has enhanced our education and also proved to have a positive impact on the education process. This adoption of technology has enriched the popularity for ODL among learners as it offers flexibility and accessibility. Similarly ODL lecturers also found the usage the technology can improve the interaction as well as collaboration among learners. Technologies assist in handling large number of students from different parts of the world and hence at an institutional level, learning using technologies may be considered as a cost effective teaching method (Botham & Mason, 2007). Technologies can transform higher education in many ways: Digital technology enables fundamental shifts in instructional methods, content and assessment (West, 2012). The benefits of using technology for online teaching and learning are well documented in literature. Some of them are:

Learn at own pace: ODL offers the learners the opportunity to study at own pace, learners have the opportunity to learn at any time, from anywhere at their own pace. According to Hegarty (2006), students report benefits of using learning technologies such as the ability to learn at their own pace, to learn independently and to have fun. With the help of technology for online teaching and learning the materials can now be accessed from a computer or from mobile devices. This has created more opportunities for the learners.

Promotes interaction: Technology offers the opportunities to promote interaction between learners, learners and lecturers as well as with experts in ODL. One of the research shows that interaction can increase learning and lessen the psychological distance involved in ODL (Mayes, Luebeck, Ku, Akarasriworn, & Korkmaz, 2011). Similarly interactions can help in achieving the learning outcomes and thus ensure successful learning; interactions can be facilitated in ODL through effective usage of technology. The use of interactive technology with the affordances of two-way communication and multiple representations may provide more interactions for online learners, and thus lead to enhanced learning outcomes (Hyo-Jeong, 2010). Interaction in turn can promote students motivation and can enhance the whole learning process. According to Espasa & Menses (2010) as cited by Croxto (2014) online courses with high levels of interactivity lead to higher levels of student motivation, improved learning outcomes, and satisfaction over less interactive learning environments. An increasing body of literature shows that learners learn best when they are actively engaged with the curriculum and content (McGraw Hill, 2011). The results are learners with higher levels of motivation and engagement.

Promotes higher-order think skills: According to various researchers, technology can promote critical thinking and problem-solving skills among learners which are required in the 21st century. Online lecturers can make use of various technologies such as Google Docs, Discussion Forums in Blackboard and create various activities that can help to develop the critical skills of learners (Mansbach, 2015).

Opportunities for real-time student assessment: Technology allows the lecturers to monitor their learners continuously, the progress of the learners in terms of reading, participation in discussion forums and even the amount of time spent on the virtual learning platforms. Digital technology makes it possible to monitor how long students devote to readings and videos, where they get electronic resources, and how quickly they master key concepts (West, 2012).

Hence both ODL lectures and learners have equally embraced the usage of technology to enhance the potential for teaching and learning.

2.2 Challenges faced in online teaching and learning in Africa

Access to technology: Access to technology is also a challenge, especially in many parts of Africa. The underdeveloped areas, as in other countries on the African continent, face challenges in accessing information technology as a result of poor infrastructure (Molawa, 2009).

Digital Divide: When compared with other countries of the world, digital divide in Africa is a main constraint. This is a major barrier for the usage of technology for online teaching and learning. According to researchers, blocking the distance learners' realization of their information needs is the digital divide, which further marginalizes the underclass of "info-poor" (Oladokun & Aina, 2011). It was also noted that cultural barriers also poses problems to technology innovation in Africa.

Pedagogical skills of online lecturers are also a challenge in online teaching. Online lecturers need to acquire relevant skills to teach online, they are also challenged to develop curricula of an exploratory nature that engages learners with hands-on, inquiry-based learning.

2.3 Emerging technologies that can be used for online teaching and learning

Usage of technology in ODL teaching and learning has become very crucial nowadays. In the initial days of ODL the common technologies used for communication were emails and bulletin boards; these are now replaced with synchronous technologies such as mobile technologies and social media. 21st century has also witnessed the replacement of physical textbooks with e-books, tablets and ipads. Usage of social media for teaching and learning is also gaining popularity in ODL. Similarly, remote classrooms enhanced by video images (video conferencing), shared writing and display spaces (smartboards), and feedback mechanisms including polling and text chat (web conferencing) are very common in ODL (Anderson & Dron, 2012).

3.0 Research Rationale

This study assessed the following factors:

- Benefits of using technology for online teaching and learning
- Challenges faced while implementing online teaching and learning in Africa
- Emerging technologies that can be used for online teaching and learning in Africa

3.0 Methodology

3.1 Research Design:

The study used qualitative approach and purposive sampling that led to soliciting good responses from the actual participants of the study. Qualitative approach was used in this study for various reasons. First and foremost, qualitative researchers are interested in people's experiences. This study focused on the experiences of lecturers and learners who used technology for ODL. This study attempts to explain the reality, not through universal laws of knowledge but through understanding the benefits and challenges that lecturers and learners have experienced in ODL. A number of studies exploring the experience of learners within a specific academic field have chosen qualitative method. For example, researchers have explored the learning experiences of students of psychology using qualitative method (Mitchell, 2007). In this study also, the experiences of ODL learners are being studied and hence qualitative approach is chosen.

Purposive sampling method was used in this study. Purposive sampling allows selecting the people who give the information. Creswell (2009) recommends selecting participants who can provide information about the phenomenon being studied. The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable you to answer your research questions. Purposive sampling methods are often used in qualitative research studies so that the participants have experience in the phenomenon

being studied. For this study, the participants were lecturers and learners who use technology for ODL and this sampling strategy serves the purpose of the study.

3.2 Participants and Description of the Study

The study was based on web based survey conducted among the online lecturers and learners in two institutions of Higher Learning in Botswana. Typically qualitative research involves multiple opportunities for researchers to interact with participants (Creswell, 2013; Ravitch & Carl, 2016). However, since the participants were online teachers and learners who are scattered in different parts of the country, we utilized a survey approach that can help us to reach maximum participants within a short time period. A survey approach is an efficient means to gather data from participants in a range of locations and from a large number of people in a short amount of time (Ravitch & Carl, 2016). An email invitation including a link to the survey created using Google survey was sent out to the participants who were known to use technologies for online teaching and learning. Participants responded to the survey anonymously, 9 experienced lecturers and 25 learners who had used technology for their ODL teaching and learning participated in this survey. The survey was used to understand the perceptions of online learners and teachers on the benefits and challenges associated with using technology for teaching and learning in an online environment. The survey created for lecturers had 4 demographic questions and 6 open-ended questions. Some of the key questions are as follows:

- How have various technologies such as Virtual Learning Platforms (Blackboard, Moodle) and social networking assisted your online teaching?
- What technologies have you been exposed to doing your online teaching?
- What are the challenges that you might have faced while using technologies for your online learning?
- Please describe some of the best practices in teaching with technologies based on your direct or indirect experiences.
- What opportunities do you see in using online technologies for effective online teaching?
- Can you suggest some of the emerging technologies that can improve the effectiveness of online teaching in African Higher Education?

The survey created for learners had 5 demographic questions and 5 open-ended questions. Some of the key questions are as follows:

- How have various technologies such as Virtual Learning Platforms (Blackboard, Moodle) and social networking assisted your online learning education?
- What technologies have you been exposed to doing your online learning?
- What are the challenges that you might have faced while using technologies for your online learning?
- What opportunities do you see in using online technologies for effective learning?
- Can you suggest some of the emerging technologies that can improve the effectiveness of learning in African Higher Education?

Data collected using the survey were analyzed using constant comparative method (Glaser & Strauss, 1967; Strauss & Corbin, 1990). All responses were carefully read and categorized. A number of categories or themes were identified and were organized under three overarching categories that this study focused on:

- (1) Benefits of using technology for online teaching and learning
- (2) Challenges faced while implementing online teaching and learning in Africa
- (3) Emerging technologies that can be used for online teaching and learning in Africa

4.0 Results and Discussion

The survey results provided insightful information on the benefits and challenges of using technologies for online teaching and learning. The survey was left open for 2 weeks, of the 9 lecturers who responded 56% was male and 44% was female; 89% live in urban areas and 11% live in rural areas of Botswana. Similarly, of the 25 learners who responded 62% was male and 38% was female; 76% of them live in urban areas and 24% live in rural areas of Botswana. In addition, 0% was below age 25, 44% belongs to age group 25 to 34, 32% of age 35 to 44, 24% of age 45 to 54 and there were no respondents from the age group 55 and above.

Findings from both lecturers and learners used in the study revealed that usage of technology for online teaching and learning comes with the following benefits: improved access, interaction with lecturer as well as other learners (through participation in discussion forums, wikis and blogs), access to a wide variety of resources that are available online, not outdated as well as shared by lecturers through the learning platforms as well as content sharing. Usage of social platforms is another major benefit of using technology for online teaching and learning and this also improved interaction during the teaching and learning process. Technology made possible the access to content (24/7). It also improved the collaboration among learners as well as with experts around the world, provided access to latest/updated information and ensured that there is no more usage of outdated physical books. According to the survey results, technology can bring many opportunities for online teaching and learning. Technology can provide improved access to higher education in Africa; it opens up access to higher education to the marginalized population of Africa. Hence creates more opportunities for needy people staying in rural areas and for women of Africa with much of domestic chores can access education. Technology offers global learning opportunity to Africans. It can provide flexibility for learning; learners have the opportunity to learn at their own pace and convenience. Following are some of the most typical comments made by the learners:

I just completed my MBA through online learning, I had the comfort of learning from my own home at my own pace; staying far from resources or universities is no longer a learning barrier. I see an opportunity opening up for needy people staying in rural areas now getting education through online learning.

Online learning with the help of technology provides global learning opportunity.

Usages of technology for my online learning have eased my interaction with other learners and program facilitators.

The greatest benefit I see in using technology for online learning is the opportunity to communicate with other learners on discussions and assignments.

When lecturers were asked about the benefits of technology for online teaching, many responded that they see the benefit of using technology to improve interaction opportunities between lecturers and learners and among learners themselves. One lecturer commented:

The Learning Platform was of great use to me when teaching, without which online teaching was NOT possible. WhatsApp was used by me for small groups and it was such great handy tool for announcements and simple enquiries and encouragement.

While technology use for online teaching and learning comes with a number of benefits, it poses some challenges in Africa. The major challenge according to the study results is the unreliable internet access. Africa is still facing huge bandwidth issues. In many parts of Africa internet access is not reliable, always facing challenges such as slow internet or limited availability of internet. The high cost of internet is another major challenge and many of the learners found the affordability of internet as a major concern for online learning. Technophobia is also a common concern among many learners as well as lecturers. This is due to the fear of change in some cases, while in others due to the fact that they are not equipped with the necessary 21st century technology skills. During the process of learning, learners found that there is slow or no response from lecturers, similarly lecturers also found slow or no response from learners, the fact that in the process of online teaching and learning lecturers and learners may not have any physical contact has thus posed a challenge for doing regular follow up in the process of teaching and learning. Pedagogical skills of online lecturers was also found to be a challenge; lecturers also found it difficult to create formative tests on the learning platforms used. One lecturer singled out the need for continuous professional development opportunities and commented:

Learning to use those technologies was a challenge because change itself is a challenge. Technologies are changing on a daily basis and hence there is need to create continuous professional development opportunities for online lectures.

Findings from the study revealed that lecturers and learners in Botswana are currently using various technologies for their online teaching and learning. Most popular technologies used include Moodle, Blackboard, wikis and social networking platforms (WhatsApp, Skype). Participants also felt some of the emerging technologies such as videoconferencing, social media (WhatsApp, Facebook), virtual classrooms, Camtasia, Edmodo, Edu Blogs, Wikispaces, Schoology and Skype can further improve the effectiveness of their ODL teaching and learning.

5.0 Conclusion

This study examined the benefits and challenges of the use of technology in ODL teaching and learning in the context of African institutions of higher learning. Two institutions of higher learning in Botswana were used as case studies. Findings indicate that technology usage in ODL teaching and learning avail a lot of opportunities for both learners and lecturers. The benefits accruing from technology usage include; improved access, interaction with lecturer as well as other learners, access to a wide variety of latest and updated resources that are available online as well as content sharing. While it is acknowledged that usage of technology has a lot of benefits, there are some challenges faced by both lecturers and learners such as; unreliable internet access, high costs associated with bandwidth, technophobia and inadequate pedagogical skills of online lecturers. The use of emerging technologies such as videoconferencing, social media, and virtual classrooms, Wikispaces, Schoology and Skype were also recommended by the participants for the enhancement of ODL offerings.

References

- Anderson, T., & Dron, J. (2012). Learning technology through three generations of technology enhanced distance education pedagogy. *European Journal of Open, Distance and E-Learning*.
- Botham, R., & Mason, C. (2007). *Good Practice in Enterprise Development in UK Higher Education*. Birmingham: National Council for Graduate Entrepreneurship.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles: Sage.
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3 ed.). Los Angeles, CA: Sage Publications.
- Croxto, R. A. (2014, June). The Role of Interactivity in Student Satisfaction and Persistence in Online Learning. *MERLOT Journal of Online Learning and Teaching*, 10(2).
- Hegarty, C. (2006). It's Not an Exact Science: Teaching Entrepreneurship in Northern Ireland. (M. H, Ed.) *Education + Training: Special Issue on Entrepreneurship Education*, 48(5), pp. 322–335.
- Hyo-Jeong, S. O. (2010, April). TOWARDS RIGOR OF ONLINE INTERACTION RESEARCH: IMPLICATION FOR FUTURE DISTANCE LEARNING RESEARCH. *The Turkish Online Journal of Educational Technology*, 9(2).
- Kim, K.-J., & Bonk, C. J. (2006). The Future of Online Teaching and Learning in Higher Education. *EDUCAUSE QUARTERLY*, pp. 22-30.
- Mansbach, J. (2015, September 14). *Using Technology To Develop Students' Critical Thinking Skills*. Retrieved September 10, 2016, from <http://dl.sps.northwestern.edu/blog/2015/09/using-technology-to-develop-students-critical-thinking-skills/>
- Mayes, R., Luebeck, J., Ku, H. Y., Akarasriworn, C., & Korkmaz, O. (2011). Themes and strategies for transformative online instruction: A review of literature and practice. *The Quarterly Review of Distance Education*, 12(3), 151-166.
- Mitchell, T. F. (2007). Learning against the grain: Reflections on the challenges and revelations of studying qualitative research methods in an undergraduate psychology course. *Qualitative Research in Psychology*, 4(3), 227- 240.
- Molawa, S. (2009). The “first” and “third world” in Africa: knowledge access, challenges and current technological innovations in Africa. *First International Conference on African Digital Libraries and Archives*. Addis Ababa, Ethiopia.
- Oladokun, O., & Aina, L. (2011). ODL and the impact of digital divide on information access in Botswana. *International Review of Research in Open and Distance Learning*, 12(6), 157–177.
- Ravitch, S. M., & Carl, N. M. (2016). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. Thousand Oaks, CA: Sage Publications, Inc.
- West, D. M. (2012). *Digital Schools: How technology can transform education*. Washington:DC: Brookings Institution Press.

**Appendix 1: Hierarchical Analysis of Data
Overview of Themes**

Central Themes	Underlying Themes
Benefits of using technology	Interaction with other learners and program facilitators. Online lectures and study materials. Online assessments – discussion forums and assignments. Access to wide range of resources. Improved access to education. Increased motivation on the part of learners. Flexibility - learn from home at own pace. Efficiency. Increase access - opportunities for those staying in rural areas. Easy and increased exchange of ideas. Global learning opportunity.
Challenges faced while using technology	Internet challenges – low bandwidth, high costs of bandwidth, access issues. Learning challenges – technophobia, reluctance to change from traditional mode of learning. Limited interaction with lecturers and other learners. Delay in getting response from lecturers. Different time zones affecting synchronous sessions.
Emerging technologies for online teaching and learning	LMS - Blackboard Learn, Moodle, Edmodo. Camtesia. Social Media – Whatsapp, Facebook and Skype. Video conferencing. Virtual classrooms. Edu Blogs, Wikispaces. Schoology