Title: Using an Online Technology Accessibility Strategy Towards a Leadership Programme for Professional Development at an Open and Distance Learning (ODL) University

Author: Mmabaledi K. Seeletso

Affiliation: Botswana Open University (BOU) / PDF (UNISA)

Abstract

Using an online technology accessibility strategy towards a leadership programme for professional development at an open and distance learning university is aligned to the sustainable development goal of Ensuring Inclusive and Equitable Quality Education and Promotion of Life-long Learning for All. This study determines perceptions and experiences of students regarding Master of Educational Leadership (MEdEL) programme, delivered using a blended teaching and learning approach. The sample consisted of 67 practicing educationists enrolled at Botswana Open University (BOU). A mixed methods approach was adopted for this study. Students were purposively sampled, interviewed and a survey administered to establish the extent to which using an online technological space through ODL integrated technology connectedness contributed to increased accessibility and training of MEdEL students. Key issues for data collection included experience regarding use of tablets, electronic content, general perceptions and experiences on internet connectivity, online support, online interaction with tutors and other students, and assessment. Progression at work due to the programme was another issue for data collection. Descriptive statistics and thematic interpretation were used for data analysis. Findings of the study revealed that students improved their technology competencies and accessed quality training that contributed to their professional development. Furthermore, findings suggested that using technology such as tablets to package content instead of print study materials encouraged students to learn. It emerged that students used tablets for various purposes including studying online, doing their assessment, submitting their written assignments, and receiving their marked assessments from tutors. Finally, it concluded that accessibility and integration of technology in the MEdEL programme enhanced teacher professional development positively. Their experiences revealed that they had not only developed as people, but also professionally. It is recommended that a longitudinal study be undertaken to further explore the impact of integrating technology to access learning and in professional teacher development in the entire country.

Keywords: accessibility strategy, online technology, open and distance learning, professional development

Introduction and background

In his study, Pangeni (2016) observed that open and distance learning (ODL) has been used for teacher professional development in Nepal because *"additional skills could be attained at anytime while being in-service from anywhere,"* (p. 37). This study is about perceptions and experiences of students that pursued a Master of Educational Leadership (MEdEL) programme with Botswana Open University (BOU), using technology as an innovation for quality education and lifelong learning. The MEdEL programme has helped bridge academic, skills and competency gaps of employees in the education sector, especially those in leadership positions. In Botswana there are people in senior and leadership positions that have worked for long time yet lack the requisite leadership qualifications. The MEdEL seeks to improve the leadership skills of such employees.

The study focused on the first and second cohorts of MEdEL programme. Students enrolled in the programme were all adults and employed. They had competing responsibilities; both professional and social, hence opted for ODL for their professional growth to close qualification gaps for promotion opportunities, (Pangeni, 2016). The MEdEL programme was offered online. Course content and all delivery and support were through Modular Object-Oriented Dynamic Learning Environment (Moodle) platform. Academic and student support were achieved through email, chats and discussion forums. Registered students met with their tutors for face-to-face support for four days at the start of every semester, then studied on their own while interacting with tutors and peers through technology. The programme was packaged in wifi enabled tablets with no paper-based content. Technology mediation, which was convenient and flexible, allowed students to study wherever they were, (Pangeni, 2016). A key aspect of the MEdEL programme was that tutors used different online strategies to facilitate learning and actively engage students (Martin *et.al*., 2018).

Technology mediated ODL helped increase access and quality in education through online interaction. This interaction created dialogue between students, student and tutor, and between the student and content, (Chawinga & Zozie, 2016; Kudryavtseva, 2014; Aslam, 2000). Tomei (2008) explained interactivity as silent, creative conversation that is supposed to be the learning space. This involves students using different communication tools such as Skype, WhatsApp, chats and others to facilitate and influence collaborative learning (Xu, Du & Fan, 2015). The discussion forum is one of the commonly used tools for interaction, and is *"operationally referred to as a platform that is prescribed by the researched ODL institution to facilitate online interactivity between the students and the lecturer in order to enhance online teaching and online learning,"* (Maboe, 2017, p. 223).

Awadhiya and Miglani (2016, p.35) contend that *"The ODL system is adopting mobile technology for providing quality educational opportunities to its students in order to achieve its mission of equity, access and democratisation of education more effectively."* This study by Awadhiya and Miglani (2016), further observed that *"Indian universities largely use mobile technology in their various activities in order to increase their reach to students and provide them uninterrupted support at their own pace"* (p.36). Salyers, Carer, Carter, Myers, & Barrett (2014) shared that in technology mediated teaching and learning students are able to relate to, and interact with content in different ways, thus addressing their diverse needs.

This study was guided by the following research questions:

(i) To what extent do students enrolled in the MEdEL programme with BOU embrace the use of ICTs to facilitate their learning and professional development?

(ii) What opportunities are associated with using technology to support learning in an ODL University?

(iii) Is there a relationship between gender of students and technology uptake?

Purpose of the study

BOU introduced the MEdEL programme in July 2014. I carried out this study to explore perceptions and experiences of ODL students enrolled in the programme regarding technology mediation in the programme delivery and support.

Literature on technology for development through open and distance learning

Talk has it that "learning is a race without an end," and that "learning starts from the womb to the tomb." This remains true and people, irrespective of the sector they work for, need to engage in lifelong learning to remain

relevant. An initial study of the available literature on technology mediated open and distance learning indicates that not much research has been done on teacher training and professional development using technology and ODL in the developing context. This study sought to provide extensive dialogue regarding the gap in literature on how technology supported ODL can contribute to teacher training and professional development.

People need to be able to study irrespective of where they are. Robinson (2008, p.7) shared that *"ODL and ICT can bring benefits to disadvantaged groups and make educational provision more equitable."* Technology uptake in ODL continues to create opportunities for learner centred learning and provision of *"rich learning resources to address issues of quality and student motivation,"* (Pangeni, 2016, p.41). Technology mediation helps institutions such as BOU*"cater for widely scattered students,"* (Chawinga & Zozie, 2016, p. 6), and gives students opportunity of where and when to study (Mbatha & Naidoo, 2016; Traxler, 2018). Technology mediated teaching and learning *"brings together students, lecturers and educational materials in different locations via interactive technologies …."* (Maboe, 2017, p. 222). Technology facilitates both instructor and social presence during chats and discussions to impact positively on students' learning and academic performance. Richardson *et. al.,* (2015) view instructor presence as those specific actions and behaviours that make him or her real, despite being away from the students. Instructor presence *"enhances student motivation to learn, increases quality of students' interactions and discussions … reduces the sense of isolation and improves student performance,"* (Richardson *et. al.*, 2015, p. 52).

Technology mediation can help teachers improve their delivery of content and their student support. Research has shown that technology uptake can increase learning and facilitates students' academic performance. Traxler (2018) and Pangeni (2016) contend that digital technologies have potential to significantly reduce the distance separating people from education opportunities. Jamtsho & Bullen (2007, p. 9) further stated that *"Using new technologies in teaching can lead to better teaching styles, assessment types and feedback, then it is improving the quality of teaching"*. They however, acknowledged that in Africa, teachers themselves needed proper training to understand new technologies used in teaching and learning.

Views by Lubis, Ariffin, Muhamad, Ibrahim, & Wekkes (2009), and Jamtsho & Bullen (2007) are corroborated by the African Union Commission Agenda 2063 (2016) that it is important to empower teachers for institutions to get desired results because teacher quality determines quality of their products. Teacher training and development should therefore, become a priority for improved teaching and learning in all institutions. Teachers are most of the time expected to produce top achieving students yet they themselves received, and continue to receive mediocre training. It is therefore, imperative for countries and institutions to invest in teacher training and development programmes for good results.

Another study by Habler, Major, & Hennessy (2015) reached the same findings with Dhir, Gahwaji, & Nyman's (2013) that technology can extend and enrich learning and raise students' motivation and knowledge acquisition through increased research. Research has also shown that teachers in developing contexts can use education to advance their personal and professional lives. Giavrimis, Giossi, and Papastamatis (2011, p.285) reported that *"In-service training pre-supposes systematic planning and development of programmed activities of an instructional and professional character, so that needs and interests related to teachers' personal advancement in their professional development as well as the overall function of the educational system can be satisfied."* Giavrimis *et. al.*, (2011) further argued that in-service training needs not be identified only by the acquisition of new knowledge, *"but also by supplementing knowledge acquired within basic qualification studies,"* (p.285). In his study Robinson (2008, p.2) reported that *"ICT has not only contributed to added opportunities for teachers' professional development, but to inclusion of disadvantaged groups."*

Teachers' training is an investment for both their professional and personal development, and growth. It is for this reason that all BOU MEdEL students, majority of whom are teachers, are self-sponsored. Giavrimis *et. al.*, (2011) contends that teacher in-service training enables teachers to grow their abilities and skills, as corroborated by Lubis *et. al.*, (2009), who pointed out that in-service training can reduce educational inequalities. When teachers appreciate technology they can introduce it to enhance their own teaching and learning; and encourage students to use their electronic devices to study rather than chat with their friends during teaching sessions. Teachers are one group that should stand up and raise the bar when it comes to learning as they are looked up to by their students and communities as vessels of knowledge and change. They should, therefore, always be learning lest they be considered redundant.

Methodology

This study adopted a mixed methods approach to collect data from participants. The online survey had demographic data and both close and open-ended questions. These questions centred around students'

perceptions and experiences on the usefulness of using technology to enhance delivery and support of the MEdEL programmme. Descriptive statistics and thematic interpretation were used for analysis. Semi-structured interviews and an online questionnaire were used to establish the extent to which technology mediated ODL contributed to increased access to training by MEdEL students. Key elements for data collection included students' experiences regarding the use of tablets, online content, general perceptions and experiences regarding internet connectivity. Of particular interest was data about online support, interaction with tutors and other students using technology mediation, assessment, as well as progression at work as a result of the MEdEL programme.

The online survey was reviewed for content validity. The final survey had a total of thirty-two items. These covered participants' demographic profile and specific questions on issues of using technology for delivery and support of the MEdEL programme. A likert scale from "Strongly Disagree" 1 to "Strongly Agree" 5 was developed to measure different aspects identified by the researcher. For data collection, an online survey was emailed to (67) purposively selected students who had completed 2 years in the programme using their student numbers. There were 42 females and 25 males. Out of the 67 participants 53 responses were received and used for analysis. These were 37 females and 16 males.

Participants

Participants in the study were mostly serving teachers enrolled in the BOU MEdEL programme, majority of whom were in leadership positions. Participants had been in the programme for at least two academic years; equivalent to twenty-four months or 4 academic semesters; and so were able to easily answer the research questions. Participants were from all over the country, in terms of geographic distribution. Out of the 53 students who responded to the survey, 20 were also purposively picked to participate in the qualitative interview. This was conducted over the telephone and Skype to enforce the use of technology.

Bio-data of participants

Of the 53 students that responded to the online survey 37 were females while only 16 were males. This was bound to happen since the two groups had more females registered than males. Participants' age ranged between 30 and 55+ years, with majority in the 46-50 years age range. Of the 53 who participated in the study 47 were married, 4 were single while 2 indicated that they were divorced.

Data Analysis, Findings and Discussions

During data analysis anonymity was assured. No identifiers were on the survey form that participants completed. Participants were given 21 days to respond to the form. Descriptive analysis helped describe and summarise the data collected. Qualitative data were analysed thematically. Patterns and emerging themes were identified and used to answer the research questions. Thematic analysis helped identify patterns or themes responding to perceptions and experiences of participating students. Generally, students thought using technology to enhance teaching and learning was relatively helpful and appreciated.

Despite females out numbering males, the study showed male dominance in technology related activities. Male students were more active in online forums. Van Braak (2001); Clark (2001); and Huang & Liaw (2005) argued that this pattern, where males are more responsive to technology in education is likely to influence acceptance and usefulness of technology as well as its integration into teaching and learning. This meant that male teachers had positive perceptions about technology uptake and so accepted technology more than their female counterparts.

One item in the survey sought to establish students who had technology skills when they enrolled in the MEdEL programme. Out of 53 that responded, 26 indicated that they did not have skills to use technology. These were 8 school heads, 7 deputy school heads, 5 senior teachers and 6 teachers. They all shared that they struggled with accessing the portal in the first year since they were still trying to find out how their tablets functioned. From the survey some participants shared that they had to ask for help from their colleagues and family members with typing of assignments. This made sense since some of them never participated in synchronous activities such as chats, during first year. During the interview 14 students who had indicated lack of technology skills shared that they preferred to download content and read it as printed documents instead of interacting with content online. They also shared that they generally struggled with accessing other forms of assessment which wanted them to interact online. Study findings suggest that using tablets to package content and Moodle as a learning space encouraged students to use technology since they had to access other online materials such as videos.

During the interview all participants indicated that by the end of Year 1, they were able to use tablets for various purposes such as studying online, doing assessment, submitting and receiving marked assignments from tutors. This showed their ability to use technology for teaching and learning. They further shared that later they could even use tablets for capturing important moments - as a camera. There was further evidence from the study that from the second year of study students were gradually overcoming technophobia which was evident at the start of the programme. It was also evident by the end of their first year that students had started to communicate with each other using technology mediated social networks like Twitter, Whatsapp etc. There was further evidence from their learning space, Moodle, that students had started engaging with their tutors and peers through discussion forums and chats. These were graded to encourage students to use them. Students could easily access the content through the portal and were now able to leave discussion threads for their peers and tutors to comment on. Technology integration in teachers' professional development programme was therefore, perceived positively and their experiences revealed that not only had they developed as a people, but also professionally. They had acquired necessary technological skills and competencies needed for the knowledge society of the 21st Century. During the interview one senior teacher shared that they now used computers to file and store their records, which they did manually before enrolling in the programme. She confirmed that manual filing was always problematic as records often went missing.

Learning Materials

On whether they received their learning materials on time, 50 answered "Yes" and 3 were "Not Sure". However, all 53 agreed that MEdEL content was well organised. There was an item on whether programme workload was appropriate, given the 2 years minimum and 5 years maximum duration to which 50 answered in the affirmative, considering that it was supported by technology. During the interview students explained that the duration of the programme allowed them to study at their own pace. Students, however, shared that using a tablet with a small screen was a challenge. The initial tablets that students used had 7 inch screens. These were later replaced with larger tablets that had 10 inch screens. Students also expressed their dissatisfaction with inadequate infrastructure to support online learning. They made specific reference to internet accessibility. At the time of data collection there were no wifi hotspots on BOU.

Use of technology for course delivery and support

From the survey students also responded to issues of delivery and support. Once students had registered with the University, they received their tablets and were all given access rights to the learning portal, starting acquisition of *"… the advanced technical skills associated with the information society we are going to become"* (Lubis *et. al.*, 2009, p.189).

One item for data collection sought to establish whether students had smart phones before enrolling in the MEdEL programme. This was to assess how much of technology they were exposed to. Not all students had used a smart phone before. Out of the 53 students who responded to the survey 42 indicated that they had smartphones before enrolling in the programme. However, some only used them for calling and sending text messages, and their children and grandchildren played games on them. However, 11 said they did not have smartphones before enrolling in the programme. Students needed to be trained on how to effectively use their tablets not only as communication gadgets, but also as learning tools. Regarding whether they had email accounts before enrolling in the MEdEL programme, 50 said they did while 3 did not have email accounts. Out of the 53, 42 further reported that they knew how to use different social platforms such as whatsApp before enrolling in the programme, 7 said they were not able to use social platforms while 4 could not say whether they knew or not. On accessing internet, 47 participants reported that they could easily access internet from work, and 26 said they could easily access internet from home. This was critical since access to internet was important for the programme delivery and support, those without internet connection at home expressed their willingness to pay to get connected.

Regarding use of online resources, at the end of their second year 51 participants shared that they frequently used e-books and journals to research for their assignments. Of the 53, 48 participants indicated that they were satisfied with online support and interaction provided by their tutors. All participants expressed satisfaction with online support they received from their tutors; with 49 very satisfied and 4 satisfied. It was evident from the study that students' perceptions were high and generally positive towards the use of technology. This was encouraging as interaction was considered central to online learning. When assessing how learners interacted with one another, with the content and with the tutor, it was evident from the discussion threads that male students dominated during participation and provided more comprehensive discussions. Their female counterparts mostly posted the "I agree" type of responses and comments. However, all participants indicated that using technology enabled them to effectively interact with the content, their facilitators, and with fellow

students. They also explained that technology in open and distance learning allowed them to create learning communities which gave them opportunities to interact as groups, through chats and discussion forums. Csete *et. al.,* (2005); Jamtsho & Bullen (2007); Van Brakel & Chisenga (2003) observed that technology facilitates different types of interaction in a teaching and learning environment.

On whether use of tablets motivated them to learn 52 said "Yes" while 1 said "No". No reasons were provided as to why the participant said "No." On whether tablets helped facilitate teaching and learning in ODL, 50 answered in the affirmative. From the interviews 51 participants again indicated that tablets had increased their quality of online learning experience while only 2 said they did not. All the 53 participants indicated that they could easily access the portal alone. All 53 participants again agreed that technology mediated content delivery encouraged student-centered learning while 50 indicated that they enjoyed studying through technologies than print.

This study further asked students to explain key tablet features that contributed to their learning. Participants responded that there were multiple features in one gadget. These, they pointed out, included built-in cameras, dictionaries, and manuals for first time users. They added that tablets had multiple support features which allowed them to adjust colour, voice and to zoom as they wished. Participants explained that tablets could adapt to suit their individual, diverse needs. All participants further pointed out that tablets were handy and could be easily carried around, allowing one to study anywhere. All participants again shared that tablets were wifi-enabled, and allowed them to access research resources through wifi hotspots. They shared their observation that at Master's level, wifi enabled tablets were good for research as it allowed them to access search engines such as Google Scholar. They all expressed appreciation that tablets encouraged high participation especially in discussion forums and chats, therefore, reducing isolation of students who were most of the time studying alone.

There was an item on whether tutors provided them with meaningful feedback on marked assignments; 51 agreed while 2 disagreed. All participants agreed that synchronous interventions, especially chats, Whatsapp and Skype facilitated immediate feedback. One shared that *"Chats help me ask the tutor questions on issues I don't understand, and I am able to get feedback immediately."* The only concern raised was that some missed out especially on chats as they could not log in at the agreed time due to different reasons such as arriving home late. Others complained of power and internet interruptions especially in rural areas. One participant working in a rural area shared that *"Skype is good, but it is only for the few with accounts."* Amongst teaching and support strategies discussions rated the lowest, while chats were rated highest. Students shared that facilitators did not normally provide the necessary support during discussions like they did with chats.

Personal and professional development

One survey item sought to establish whether the programme contributed in anyway to students' personal and professional development. They revealed that they had improved their technological competencies, and had accessed quality training that had contributed to their professional development. One survey item sought to know why students had enrolled in the MEdEL programme. In response 23 indicated that they were interested in management and leadership issues, 21 said they enrolled for personal development while 9 said they enrolled to improve service delivery to their customers and stakeholders. From the survey, 31 participants indicated that they had been promoted to higher positions of responsibility at their different institutions within 24 months of their studies. Of these 31; 21 said the programme helped them get promotion as it made them better leaders, 4 said the programme did not help them get promotion while 6 could not say whether they got promotion because of the programme or not. Students who were already in leadership positions shared that the programme helped them make much more informed decisions than they did before enrolling in the programme. One of the school heads explained during the interview that MEdEL programme had encouraged them to engage more with their colleagues for ownership of decisions taken in their institutions. However, all the 53 participants agreed that the programme contributed to their leadership growth and development.

Students were given open-ended questions to address issues that may have not been addressed by the close-ended questions regarding their technology supported learning. One of the questions was for them to explain areas where they thought their tutors excelled. They indicated that tutors went an extra mile helping them, and provided good, comprehensive comments and feedback on marked assignments. Students further indicated that their tutors were friendly and responded to their queries on time. A follow-up survey item during the interview, requested participants to share areas where they thought tutors should improve. There was some contradiction here as they indicated that tutors should provide feedback to marked assignments on time, yet they had earlier said tutors provided constructive and timely feedback. All the 53 participants, however, complained about delayed feedback from their tutors, despite using technology to support the programme. During the interview all

20 students agreed that they often submitted assignments without having received feedback for previous assignments, thus ended up repeating mistakes that could have been avoided.

Students also suggested that BOU needed to engage full-time tutors to be able to access them with ease since part-time tutors tend to value and prioritise their full-time jobs more than their part-time tutoring responsibilities. They encouraged more interaction with tutors outside scheduled discussion forums and chats. During the interview some students confirmed what they stated in the survey where they were requested to explain any aspect they thought was beneficial to them as leaders in their respective institutions, on how they could become better leaders. They shared that reading online resources helped them become better leaders since the assignments, which they had to research for, exposed them to diverse and extensive readings that shared experiences from different scholars related to their own work. As such, they were able to reflect on where and how they could improve in their own work spaces. They also indicated that they had improved their research skills through searching for online from the internet.

Conclusion

Whilst technology is important for ODL content delivery and support, Van Brakel and Chisenga (2003) warn that Africa may not get the best as the continent still lags behind in many areas of technology access and usage. They commented that *"While most homes in the developed world have access to a telephone, a television set and a computer with access to e-mail and internet, this is not the case in sub-Saharan Africa. The cost of computers is too high for many to afford, monthly internet access rates are exorbitant, and the charges for satellite television are unaffordable for most people."* (p. 479).

Overall, integration of technology in teacher professional development was received positively. BOU MEdEL students' experiences revealed that the programme equipped them with the necessary technology skills and competencies needed for the knowledge society of the 21st Century by the time they completed the programme. This suggests that developing countries can benefit from using technology to achieve their development goals.

Recommendation

With the findings as discussed, I find it ideal that a longitudinal study should be undertaken to further explore the impact of integrating technology to enhance access and learning for professional development. This would help institutions make informed opinions on the role of technology in teacher training and professional development. It would further help ODL institutions establish if technology in any way, contributes to students' retention and progression rates.

References

Aslam, M. (2000). Education and Training for Millions: Pedagogical Challenges for Distance Education. *Open Learning*, 15(3), 309-315.

Awadhiya, A. K., and Miglani, A. (2016). Mobile learning: Challenges for teachers of Indian Open Universities. *Journal of Learning for Development.* 3(2). 35-46.

Bejjar, M. A. & Boujelbene, Y. (2014). E-Learning and web 2.0: A Couple of the 21st Century Advancements in Higher Education. In A. Gard (Ed). *E-Learning 2.0 Technologies and Web Applications in Higher Education.* Pp. 1 - . Hershey, PA: Information Science Reference.

Clark, K. D. (2001). Urban middle school teachers' use of instructional technology. *Journal of Research on Computing in Education*. 33(2). 178-195.

Csete, J., Lam, P., and Wong, Y. (2005). *Online Learning Strategies: Interaction Examples that work.* 21st Annual Conference on Distance Teaching and Learning.

Chawinga, N. D. and Zozie, P. A. (2016). Increasing Access to Higher Education Through Open and Distance Learning: Empirical Findings From Mzuzu University, Malawi. *International Review of Research in Open and Distributed Learning.* Vol. 17 (14).

Dewiyanti, S., Brand-Gruwel, S., Jochems, W., & Boers, N. (2007). Students' Experiences with Collaborative learning environments. *Computers in Human Behaviour*, 23(1), pps. 496-514.

Dhir, A., Gahwaji, N. M., and Nyman, G. (2013). The role of the ipad in the hands of the student. *Journal of Universal Computer Science.* 19(5). 706-727.

Ertmer, P. A., and Ottenbreit-Leftwich, A. (2013). Removing obstacles to the pedagogical changes required by Jonassen's vision of authentic technology-enabled learning. *Computers and Education*, 64. Pp.175-182.

Giavrimis, P., Giossi, S., and Papastamatis, A. (2011). Teachers' attitudes towards training in ICT: A critical approach. *Quality Assurance in Education*. 19(3). 283-296.

Habler, B., Major, L., and Hennessy, S. (2015). Tablet use in schools: A critical review of the evidence for learning outcomes. Paper to be published in the *Journal of Computer Assisted Learning.*

Hou, Y. (2015). Raising self-awareness of learning styles: From a Gender Difference Perspective. *International Journal of earner Diversity and Identities, 21(3/4). Pp.1-10.*

Huang, H. M., and Liaw, S. S. (2005). Exploring users' attitudes and intentions toward the web as a survey tool. *Computers Behaviour.* 21(5). 729-743.

Jamtsho, S., and Bullen, M. (2007). Distance Education in Bhutan: Improving access and quality through ICT use. *Distance Education.* 28(2). 149-161.

Kudryavtseva, M. G. (2014). Possibilities of Distance Learning as a means of Foreign Language Motivation Among Students of Economics. *Procedia-Social and Behavioural Sciences*, 152, 1214-1218.

Lubis, M. A., Ariffin, S. R., Muhamad, T. A., Ibrahim, S. M., and Wekkes, S. (2009). Proceedings of the 5th International Conference on Educational Technologies. *The integration of ICT in the teaching and learning processes: A study of smart school of Malaysia*. National University of Malaysia.

Maboe, K. A. (2017). Use of Online Interactive Tools in Open Distance Learning Context: Health Studies Students' Perspective. *Health SA Gesondheid.* 22 (2017). pp.221-227.

Martin, I., Wang, C., & Sadaf, A. (2018). Student Perception of Helpfulness of Facilitation Strategies that Enhance Instructor Presence, connectedness, engagement and Learning Online Courses. *The Internet and Higher Education.* 37. pp.52-65.

Mbatha, B., and Naidoo, K. (2010). Bridging the Transactional Gap in Open an Distance Learning (ODL): The Case of University of South Africa (UNISA). *Inkanyiso: Journal of Humanities and Social Sciences*, 2(1), pp.64-69.

Meares, C. (2013). Wha is Online Engagement and Why Should you Measure it? Massmedia E-Marketing Analysics. Retrieved online from http://www.massmedia.com/what-we-say/blog/what-is-online-engagement-and-why-should-you-measure-it-part-one/

McGreal, R., and Elliott, M. (2008). Technologies of Online Learning (e-learning). In T. Anderson (Ed). Theory and Practice of Online Leadrning (2nd Ed). Pp.143-165). Edmonton, Australia: AU Press, Athabasca University.

Pangeni, S. K. (2016). Open and Distance Learning: Cultural Practices in Nepal. *European Journal of Open, Distance and E-Learning*. Vol. 19. No. 2 pp.32-45.

Richardson, J. C., Koehler, A. A., Besser, E. D., Caskurlu, S., Lim, J., & Mueller, C. M. (2015). Conceptualising and Investigating Instructor Presence on Online Learning Environments. The International Review of Research in Open and Distributed Learning, 16(3).

Robinson, B. (2008). Using distance education and ICT to improve access, equity and quality in rural teachers' professional development in western China. *International Review of Research in Open and Distance Learning.* 9(1).

Salyers, V., Carer, L., Carter, A., Myers, S., and Barrett, P. (2014). The search for meaningful e-learning at Canadian Universities: A multi-institutional research study. *The International Review of Research in Open and Distributed Learning.* 15(6).

Sang, G., Valcke, M., van Braak, J., and Tondeur, J. (2009). Student teachers' thinking processes and ICT interaction: predictors of prospective teaching behaviours with educational technology. *Computers and Education.* 1-10.

Traxler, J. (2018). Distance Learning – Predictions and Possibilities. *Education Sciences*.

Tomei. L. (2008). Online and Distance Learning, Concepts, Methodologies, Tools and Applications. New York: *Information Science Reference*.

UNESCO, (2015). African Union Commission. *Agenda 2063: the Africa We Want.* Addis Ababa: Ethiopia.

Van Braak, J. (2001). Individual characteristics influencing teachers' class se of computers. *Journal of Educational Research*. 25(2). 141-157.

Van Brakel, P. A., and Chisenga, J. (2003). Impact of ICT-based learning, "the African story." The electronic library. 21(5). 476-486.

Xu, J., Du., & Fan, X. (2015). Students' Groupwork Management in Online Collaborative Learning Environment. *Education Psychology and Society*.