EFFECT OF E-LEARNING UTILIZATION DURING COVID-19 ON LEARNING EFFECTIVENESS IN RWANDAN PUBLIC HIGHER-LEARNING INSTITUTIONS: A CASE OF UR-CAVM

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Abstract

The purpose of this study was to examine the effect of e-learning utilization during covid-19 on learning effectiveness in Rwandan Public Higher-learning institutions. The study had the following specific objectives. To assess the effect of lecturers' attitudes to use e-learning platforms during Covid 19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic, to examine the effect of learners' attitudes towards on-line learning during COVID 19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic.It had also the following hypotheses as they follow: There is no effect between lecturers' attitudes to use e-learning platforms during Covid-19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic, there is no significant effect between learners' attitudes towards on-line learning during Covid-19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic. Researcher used correlational research design while interpreting and analyzing the data. The study used 2161 as study population and sample of 337 participants. Data was collected using structured questionnaire with 5-point Likert scales. The data was analyzed using descriptive statistics (frequencies, percentages, standard deviation and means) and inferential statistics (correlational and regression analysis). The findings revealed that there is significance effect of e-learning utilization during covid-19 on learning effectiveness in Rwandan Public Higher-learning institutions. It was also revealed that all the independent variables have significant effect on learning effectiveness. They are namely: lecturers' attitudes to use e-learning platforms during Covid-19 (p-value=0.001, β=1.041), learners' attitudes towards on-line learning during Covid 19(p-value=0.000, β=1.291). The study recommended that training programs and inter-departmental communication strategies should be implemented for an efficient online learning experience.
Keywords: *Learning effectiveness, e-learning, Covid-19, attitudes and ability, academic performance and motivation*

One use of technology in education is E-learning. E-learning is the distribution of information via all electronic media, including the internet, intranets, extranets, satellite broadcast, audio/ video tape, interactive TV, and CD-ROM (Urdan & Weggen, 2000). It is an innovative approach for delivering well-designed, learner-cantered, interactive, and facilitated learning environment to anyone, anyplace, anytime by utilizing the attributes and resources of various digital technologies along with other forms of learning materials suited for open, flexible, and distributed learning environment as described by Khan (2005). E-learning systems are

increasingly being integrated into universities as a new means of learning and teaching (Hassan, 2012).

Across the world, different examples substantiate the fact that the current Covid-19 Pandemic has affected all sectors including social, economic, political, education, travels among others worldwide (Açikgöz & Günay, 2020). The education sector, one of which countries emphasize as a target for sustainable development (Sterling, 2016) has faced escalated systems of teaching and learning where both learners and teachers have been a core focus to assure effective delivery of the education output (Rohonczi, 2015). This has urged governments to enforce new teaching strategies (Shraim & Khlaif, 2010) such as the home learning, television and radio (media) teaching and learning and a blended teaching and learning especially in higher education institutions which includes little time in class and more time online using the e-learning platforms (Bezhovski & Poorani, 2011; Irfan et al., 2020; Lestiyanawati & Widyantoro, 2020).

E-learning as opposed to distance learning is a term that used to refer to all ICTs, networks, internet and other forms of electronic media that can be used to enhance teaching and learning so to transfer knowledge and skills. The integration of ICT in education has revolutionized and transformed the education sector worldwide and created positive impacts provided successful implementation strategies are followed (Intel, 2012). E-learning takes various forms, for instance, it can be web-based, computer-based, virtual classrooms and content delivery via e-networks, audio or video tape, satellite TV, video conferencing, CD-ROM, i-pods, e-mails, wireless and mobile technology among others (Eke, 2011).

The transition from face-to-face classes to online learning goes with the technological capacity of the institutions' infrastructure (Maphalala & Adigun, 2020) to offer the e- learning and the learners' ability to acquaint with the new learning methodologies to name a few, a possession of technological devices such as a computer or smart phones, internet bundles and a comfortable space for online studies (Kisanga & Ireson, 2015). All these implies not only the satisfaction of academic demands such as schools' teaching and learning reports, assessing students through formative assessments, marking and grading students' performance (Kumar Basak et al., 2018) but also a need for the students and teachers to be able to manipulate the devices and use of the e-learning portals to meet the intended learning outcomes (Bhardwaj et al., 2015; Dong & Thao, 2020)

In Africa, many higher institutions are utilizing e-learning as a mean of teaching and learning but suffer from insufficient facilities and inadequate capital which can enhance them to make it effective and efficient. Many researches revealed that the access to institution is narrow to less that 5% in Africa compared to the world average of 16% (Gunga & Ricketts, 2007). Information Communication Technology, particularly e-learning has attracted many higher institutions of learning (Yieke, 2010). However, its

use in less developed countries, especially in Africa has many challenges such as poor internet connection, inadequate materials, high cost of technology, insufficient skills and fear of change (Gunga & Ricketts, 2007). E-learning is highly being welcomed by higher institutions worldwide as a solution which can supplement to constant mode of education transmission, and it has become an alternative which could strengthen education system in world countries. Hence, in developed countries like USA at least, over 3.5 million university students utilize at least one online course since 2006 (Allen & Seaman, 2007).

Research hypothesis

There is no effect between lecturers' attitudes to use e-learning platforms during Covid-19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic and There is no significant effect between learners' attitudes towards on-line learning during Covid-19 on learning effectiveness in UR-CAVEM during COVID-19 pandemic.

Learners' ability and lecturer' attitudes to use e-learning technologies

Teachers and students were aware of the use of e-learning but theoretically or without knowing that it can be used to cover the whole content but with the arrival of COVID-19 , students and lecturers remained with one opportunity of teaching and learning but through the utilization of e-learning because all were supposed to attend classes from their homes. Teaching and learning is a wide activity which involves various tasks, efforts and energy and flexibility of the lecturers and students (Jaarsveldt & Wessels, 2015). According to Vandeyar (2015), teaching refers to the transmission of knowledge from one person to another while learning refers to the change that can take place in the one who were taught. The lecturers and students asserted that the importance of ICT may be seen as a mediator or ridge which can contribute positively to teaching and learning. The ability of teachers and learners were low because before the outbreak of COVID-19 pandemic, majority of teaching and learning activities in Rwanda were conducted physically, this means that using technology in teaching was not common in Rwandan higher learning institutions except during the module which requires the lecturers to take students in computer labs or for the students who did IT in higher institutions. Mushimiyimana (2021) indicated that some students were in secondary schools where their leaders and teachers were not experienced to use smart classrooms which could have become an opportunity for them to start learning by using electronic devices and ICT. Some were afraid of being prisoned because some of the computers would have broken and government or others official condemn them for being careless while others did not know well how to use e-learning. This affect learners' ability in higher institutions because they did not have the opportunity to use ICT in secondary schools. Education is being improved and take new ways of change. But when there is a great change, education system must search for new strategies or

methods to cope with those changes. For instance during the time of COVID-19 outbreak countries had to look for capacity and readiness to cope with those challenges and to search for the ways of continuing teaching students while they are at their homes. This was a bit challenging for the institutions, colleges, universities and other educationists to keep providing inputs to the students of different levels and this was a challenge to parents too who have to create a conducive environment for teaching and learning into their homes, where activities could continue taking place after quitting their schools. The learners and lecturers ability to use e-learning as medium of providing teaching materials was also another issue. One of the main factors related to e-learning which would make it successful is motivation, physical learning which can also be termed as face to face obliges students high level of concentration, students must pay attention to their lecturers and keep enriching and learning new things. But, e-learning seems to be more attractive and important as they have to improve and keep that rate of motivation on their own and pay attention when they are searching new information, searching new grammar and vocabularies without facilitator or instructor in front of them. For this point,student's ability plays an important role to enhance learning by utilizing e-learning. (Muthurmana, Veerasamyb & Al-Hazaizic,2020). E-learning can be treated as something to be happy with. The learners spend long period of time sitting in front of devices- chatting, texting, watching, using many social media and online platforms. The main challenges is to know whether students use it in right ways (Zhao, McConnell & Jiang, 2009).students' ability to use e-learning tend to be the most factor to conduct a successful learning as indicated by Akbari, Eghtesad and Simons, (2012).

As new generations are becoming more familiar and seemingly enjoying using them for entertainment, this adds to the side of E-learning. This would give a chance to educators and curriculum developers to make use of it, and to familiarize themselves with the methodologies needed. Most students found difficulties in moving from face to face learning activities to modern technological ways of e-learning. Some higher institutions were capable of moving from traditional ways of teaching and adoption to e-learning which was considered as modern ways of teaching.

Effect of E-learning utilization on learning effectiveness in higher learning institutions

Even if the world had many challenges for instructors, schools, government regarding online teaching from different sides, there are also many opportunities brought by the Covid-19 pandemic for the unready and further plans of putting into practice online learning. It has developed a strong connection among lecturers and community than ever before. The home schooling obliges community and families to help the students learning academically and economically. Students with disabilities requires additional and special help during this ongoing emergency (Visker,

2020).The opinion article written by the Spanish secondary school teachers, ferdino- Pérez(20202) the researcher assessed the activities of teaching and learning and then later took stands regarding to self-education education, the researcher asked himself in time when the teachers and learners knew each other through interaction and socialization which are things taken away by pandemic across the world. Further disclosed that Covid -19 reduced the work of teacher as tank of knowledge but the students also become like a machine which can process that raw materials and produce finished products.

Other side e-learning such as blended learning and online learningincluded the conditions and techniques which increased students' involvement or engagement, satisfaction and motivation (Lockman & Schirmer,2020). The effect of e-learning utilization was witnessed by many lecturers who disclosed that through online learning the task of teachers has been reduced and even the students were not under pressure for attending schools. The students can explore the contents which are saved online or they can even attend the class while they are at their home doing other activities instead of walking many kilometers going to schools. Even if there other negative impact, students were empowered to be self-reliant and able to make researches on their own without waiting for teachers supervision or waiting for teachers to deliver the contents face to face. Other researcher perceive the effect of pandemic on the utilization of e-learning and its effectiveness in other way, according to Lile Lockman and Schirmer (2020), learners encountered challenges of poor performance due to the utilization of e-learning amidst Covid-19 pandemic because most of the time instructors were not available on their emails and telephone calls, this caused them to feel isolated, and lack of communication and support between students and lecturers and this impeded learning effectiveness. The lecturers perceive academic help as the most important need and inadequate students' self-orientation as an obstacle to students' success.

Frankly, in online learning students are highly motivated since the ball is in their hands to play with, but this lead them to be self-disciplined so that they can finish their courses. It is not abnormal a surprise that time management and self- motivation were discussed to positively affect their end examination grades (Broadbent, 2017). Therefore, having a stigma of isolation and loneliness are always discussed as issue raised by the learners in online courses (Parkes, Stein & Reading, 2015).

Research methodology

A descriptive survey research design consisted of gathering information from one or more groups of people. This information should be relating to their opinions, attitudes, characteristics and their routine habits. This type of information was gathered by deploying questionnaires to the sampled people. In this project both questionnaires. Simply, the project used quantitative approaches. According to Fraenkel, Wallen, and Hyun (2011),

descriptive survey research design used to examine the effect of e-learning adoption on students' engagement and success in Rwandan public higher-learning institutions during covid-19 pandemic. The researcher decided to adopt this methods because it is the best one, one can use to examine the effect between two variables or more and provide best results for the study. The target population of this project were students, lecturers and academic managers. UR-CAVM is the higher institutions of learning which was targeted, it has 1991 students, one Principal,9 head of departments, 3 PG program coordinators, 4 Deans, 1 Director of teaching and Learning, 1 Director of Research, 6 E-learning champions and Director of ICT, 1 campus registrar, one director of library services. The target population was therefore 2161 people. The researcher decided to orient her case of study to UR- CAVM because it is the only public higher institution of learning which provide the service of agriculture and veterinary in the whole country.

Findings

This section involved presentation, interpretation and analysis of the findings of involved variables by using descriptive statistics of variables. For analysis researcher used maximum, minimum, mean and standard deviation.

Descriptive Statistics on Lecturers' ability to use e-learning platforms during covid-19

Statements	N	Min	Max	Mean	Std.
Lecturers' ability in using on-line learning platforms is high	337	1.00	5.00	4.2908	.81923
Lecturers communicate with their students regularly to engage them	337	1.00	5.00	4.3234	.80131
Lecturers set guidelines for communication and interaction so that no student misuse the online platform	337	1.00	5.00	4.3116	.93587
Lecturers are better organized as a result of using e-learning platforms	337	1.00	5.00	4.5579	.73014
Lecturers have sufficient pedagogical skills and knowledge to teach online	337	1.00	5.00	4.5697	.70418
Lecturers are more effective at sharing materials as a result of e-learning	337	1.00	5.00	4.2700	.84591
Learners use e-learning to contact lecturers and peers out of class	337	1.00	5.00	4.3056	.90554
Lecturers share materials more effectively due to e-learning	337	1.00	5.00	4.2226	.91987
Lecturers are proactive in their attitude towards e-learning	337	1.00	5.00	4.2938	.97882
Students do effectively develop their knowledge as a result of e-learning	337	1.00	5.00	4.3353	.82935
Overall total	337			4.3480	0.47022

Note: Strongly Disagree = [1[= Very Low mean; Disagree= [1-2[=Low mean; Neutral= [2-3[=moderated mean; Agree= [3-4[=High mean; Strongly Agree= [4-5[= Very High mean

The results from the table 7 showed that majority of respondents strongly agreed that Lecturers' ability in using on-line learning platforms is high(μ=4.2908 and STD=.81923), Lecturers communicate with their students regularly to engage them(μ=4.3234 and STD=.80131), Lecturers set guidelines for communication and interaction so that no student misuse the online platform(μ=4.3116 and STD=.93587), Lecturers are better organized as a result of using e-learning platforms (μ=4.5579and

STD=.73014), Lecturers have sufficient pedagogical skills and knowledge to teach online(μ=4.5697 and STD=.70418), Lecturers are more effective at sharing materials as a result of e-learning(μ=4.2700 and STD=.84591), Learners use e-learning to contact lecturers and peers out of class(μ=4.3056 and STD=.90554), Lecturers share materials more effectively due to e-learning(μ=4.2226 and STD=.91987), Lecturers are proactive in their attitude towards e-learning(μ=4.2938 and STD=.97882), Students do effectively develop their knowledge as a result of e-learning(μ=4.3353 and STD=.82935). Overall, results approved that most of the respondents strongly agreed that there is significant effect of Lecturers' ability to use e-learning platforms during covid-19 on learning effectiveness in higher institution of learning as indicated by overall Mean of agreement is high (Mean=4.51953) and the overall standard deviation is (STD=0.444658).

Descriptive Statistics on the effect of Learners' attitudes towards online learning during Covid 19

Statements	N	Min	Max	Mean	Std.
Learners have a positive impact on their studies due to online class	337	1.00	5.00	4.3353	.82935
Learners feel learning is same in class and at home on the Internet	337	1.00	5.00	4.3412	.76329
E-learning is better than classroom learning	337	1.00	5.00	4.5401	.80124
Learners feel self-responsible for learning in on-line learning	337	1.00	5.00	4.2493	.94658
Learners feel comfortable using online learning tools	337	1.00	5.00	4.4481	.77793
Learners' ability in using on-line learning is high	337	1.00	5.00	4.3947	.79153
Learners have effective and appropriate communication skills to use in e-learning	337	1.00	5.00	4.3353	.89161
Students have specific computer skills to manipulate e-learning tools	337	1.00	5.00	4.1454	.96343
Students are well prepared to use e-learning platforms	337	1.00	5.00	4.3531	.78865
Students have reading and writing skills to engage in e-learning platforms	337	1.00	5.00	4.5074	.82417
Overall total	337			4.3649	0.83777

Note: Strongly Disagree = [1[= Very Low mean; Disagree= [1-2[=Low mean; Neutral= [2-3[=moderated mean; Agree= [3-4[=High mean; Strongly Agree= [4-5[= Very High mean

The results from the table 8, showed that majority of respondents strongly agreed that Learners have a positive impact on their studies due to online class (μ=4.3353 and STD=.82935), Learners feel learning is same in class and at home on the Internet(μ=4.3412 and STD=.76329),E-learning is better than classroom learning (μ=4.5401 and STD=.80124). Learners feel self-responsible for learning in on-line learning(μ=4.2493 and STD=.94658),Learners feel comfortable using online learning tools(μ=4.4481and STD=.77793),Learners' ability in using on-line learning is high(μ=4.3947 and STD=.79153),Learners have effective and appropriate communication skills to use in e-learning (μ=4.3353 and STD=.89161),Students have specific computer skills to manipulate e-learning tools (μ=4.1454 and STD=.96343),Students are well prepared to use e-learning platforms(μ=4.3531 and STD=.78865),Students have reading and writing skills to engage in e-learning platforms(μ=4.5074 and

STD=.82417).Overall, results approved that most of the respondents strongly agreed that there is significant effect of Learners' attitudes towards on-line learning during Covid 19 on learning effectiveness in higher institution of learning as indicated by overall Mean of agreement is high (Mean=4.3649) and the overall standard deviation is (STD=0.83777).

Descriptive statistics on learning effectiveness in on-line learning courses during Covid-19 period

Statements	N	Min	Max	Mean	Std.
Learner's academic performance in exams for online modules are good	337	1.00	5.00	4.2700	.84942
Students' self-study skills have considerably improved due to E-learning	337	1.00	5.00	4.2938	.86931
The student academic performance in online quizzes was satisfactorily	337	1.00	5.00	4.3798	.78941
Learners' academic performance in online assignments was good	337	1.00	5.00	4.2700	.90703
Students get better marks in modules learnt online than in those taught using the traditional method	337	1.00	5.00	4.3798	.74678
Students' attendance to on-line learning has increased amidst covid-19 pandemic	337	1.00	5.00	4.3353	.76203
Assignments and other academic tasks done online are submitted on time	337	1.00	5.00	4.5638	.77705
Students attend online classes on time	337	1.00	5.00	4.3858	.77123
Lecturers can easily monitor students' attendance due to online learning	337	1.00	5.00	3.8012	1.10421
Dropout cases have decreased due to online learning	337	1.00	5.00	4.0326	.94277
Valid N (listwise)	337			4.2712	0.85192

Note: Strongly Disagree = [1[= Very Low mean; Disagree= [1-2[=Low mean; Neutral= [2-3[=moderated mean; Agree= [3-4[=High mean; Strongly Agree= [4-5[= Very High mean

The results from the table 10, showed that majority of respondents strongly agreed that Learner's academic performance in exams for online modules are good (μ=4.2700 and STD=.84942),Students' self-study skills have considerably improved due to E-learning (μ=4.2938 and STD=.86931),The student academic performance in online quizzes was satisfactorily (μ=4.3798 and STD=.78941),Learners' academic performance in online assignments was good (μ=4.2700 and STD=.90703),Students get better marks in modules learnt online than in those taught using the traditional method(μ=4.3798 and STD=.74678),Students' attendance to on-line learning has increased amidst covid-19 pandemic (μ=4.3353 and STD=.76203),Assignments and other academic tasks done online are submitted on time(μ=4.5638 and STD=.77705),Students attend online classes on time(μ=4.3858 and STD=.77123),Lecturers can easily monitor students' attendance due to online learning(μ=3.8012 and STD=1.10421), Dropout cases have decreased due to online learning(μ=4.0326 and STD=.94277).Overall, results approved that most of the respondents strongly agreed that there is significant effect of learning effectiveness during COVID-19 in higher institution of learning as indicated by overall

Mean of agreement is high (Mean=4.2712) and the overall standard deviation is (STD=0.85192).

Discussion

Considering the objective one of this study, it was found that lecturers' attitudes to use e-learning platforms during Covid-19 has a positive significant effect on learning effectiveness in UR-CAVEM during COVID-19 pandemic, this was confirmed by p and Beta values (p-value=0.001, β=1.041). This was achieved by providing 10 statements or options about lecturers' attitudes to use e-learning platforms during Covid-19 for which the respondents were asked to choose appropriate box by Likert scales. Therefore, it was found that lecturers' attitudes to use e-learning platforms variables have effect with overall Mean of agreement is high (Mean=4.51953) and the overall standard deviation is (STD=0.444658). According to Karasneh, et al(2021) indicated that Responses to his study demonstrate a nationwide institutional support for online teaching following the COVID19 pandemic. Compared to the 56.5% of educators agreeing that their universities supported online learning before coronavirus spread, around 81.9% stated such support is now present after the pandemic. A considerable percent of educators (40.9%) also endorsed the technical and hardware support offered by their universities for e-learning activities, while 44.7% stated that their universities offer high-quality online education. Sife, Lwoga and Sanga (2007) identify institutional support as a factor vital for successful integration of technologies in the learning and teaching processes.

Considering the objective two of this study, it was found that students' attitudes to use e-learning platforms during Covid 19 has a positive significant effect on learning effectiveness in UR-CAVEM during COVID-19 pandemic, this was confirmed by p and Beta values (p-value=0.000, β=1.291). This was achieved by providing 10 statements or options about students' attitudes to use e-learning platforms during Covid 19 for which the respondents were asked to choose appropriate box by Likert scales. Therefore, it was found that students' attitudes to use e-learning platforms during Covid 19 variables have effect with overall Mean of agreement is high (Mean=4.2584) and the overall standard deviation is (STD=0.85609). Online teaching became an irreplaceable tool for maintaining education at universities. Online learning and classes are increasingly becoming part of education systems worldwide (Nambiar, 2020). "Both teachers and university students found themselves in a situation that the very day before was unimaginable" (Plavšić et al., 2021). Universities have focused on identifying ways to provide knowledge during the coronavirus pandemic. In a very short time they had to adapt educational processes for exclusively online teaching and learning (Diković et al., 2021; Shevchuk et al., 2021).

Conclusion

During the COVID-19 pandemic, online teaching appeared as an elixir for uninterrupted academic activities making it feasible to continue with the teaching-learning processes while keeping the academic fraternity safe at their homes. The faculty members started adapting themselves to the changed virtual academic scenario having new modes of content delivery and teacher-student interaction. The diverse online tools were in practice for imparting online instructions to the students, encompassing many teachers using even two or more tools for content delivery to the students. This is due to the fact that online meeting tools were used for conducting virtual classes in live mode and concurrently Learning Management System were input in use for sharing information resources with students, vis-à-vis for giving assignment and conducting quiz, etc. Teachers from academic institutions of various levels, viz. colleges and universities had exploited the vintages of technology for academic affairs, irrespective of their gender. Though, online teaching has been seen as the best replacement of face-to-face didactic classes during emergent COVID-19 situation, it cannot completely replace the traditional classroom teaching, not only in case of professional and practical courses but also for other allied subjects.

Recommendations

It is recommended that training programs and inter-departmental communication strategies are implemented and using fewer platforms for online education for an efficient online learning experience. This study revealed that lecturers need regular Continuous Professional Development which can enable them to update their knowledge on the use of e-learning as they get regular CPD, learning effectiveness will be increased.

References

Akbari, E., Eghtesad, S., & Simons, R. J. (2012). Students' attitudes towards the use of social networks for learning the English language. Paper presented at International Conference on ICT for Language Learning, Retrieved from

Allen, I. Elaine, and Christopher A. Seaman. "Likert scales and data analyses." *Quality progress* 40.7 (2007): 64-65.

Allen, J., Rowan, L., & Singh, P. (2020). Teaching and teacher education in the time of COVID-19.

Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher education studies*, *10*(3), 16-25.

Alsabawy, A. Y., Cater-Steel, A., & Soar, J. (2013). IT infrastructure services as a requirement for e-learning system success. *Computers & Education*, *69*, 431-451.

Alsabawy, A. Y., Cater-Steel, A., & Soar, J. (2013). IT infrastructure services as a requirement for e-learning system success. *Computers & Education*, *69*, 431-451.

Altbach, P. G. (2005). Patterns in higher education development. *American higher education in the twenty-first century: Social, political, and economic challenges*, *2*, 15-37.

Applebee, A. C., McShane, K., Sheely, S. D., & Ellis, R. A. (2005). Balancing act: How can universities recognise the scholarly nature of e-learning development for university teachers. In *22nd ASCILITE conference (Brisbane, Queensland). http://www. ascilite. org. au/conferences/brisbane05/blogs/proceedings/03_Applebee. pdf.*

Applebee, A. C., McShane, K., Sheely, S. D., & Ellis, R. A. (2005). Balancing act: How can universities recognise the scholarly nature of e-learning development for university teachers. In *22nd ASCILITE conference (Brisbane, Queensland). http://www. ascilite. org. au/conferences/brisbane05/blogs/proceedings/03_Applebee. pdf.*

Arkhipova, M. V., Belova, E. E., Gavrikova, Y. A., Lyulyaeva, N. A., & Shapiro, E. D. (2017, July). Blended learning in teaching EFL to different age groups. In *International conference on Humans as an Object of Study by Modern Science* (pp. 380-386). Springer, Cham.

Azuka, E. B., Nwosu, B. O., Kanu, I. N., & Agomuo, E. E. (2006). Foundation of Business Education. *Aba: Data word Publication*.

Azuka, E. B., Nwosu, B. O., Kanu, I. N., & Agomuo, E. E. (2006). Foundation of Business Education. *Aba: Data word Publication*.

Bashir, M., Afzal, M. T., & Azeem, M. (2008). Reliability and validity of qualitative and operational research paradigm. *Pakistan journal of statistics and operation research*, 35-45.

Bocconi, S., & Trentin, G. (2014). Modelling blended solutions for higher education: teaching, learning, and assessment in the network and mobile technology era. *Educational Research and Evaluation*, *20*(7-8), 516-535.

Brown, M. G. (2016). Blended instructional practice: A review of the empirical literature on instructors' adoption and use of online tools in face-to-face teaching. *The Internet and Higher Education*, *31*, 1-10.

Karasneh, R., Al-Azzam, S., Muflih, S., Hawamdeh, S., Muflih, M., & Khader, Y. (2021). Attitudes and practices of educators towards e-learning during the covid-19 pandemic. *Electronic Journal of e-Learning*, *19*(4), pp252-261.

Eze, S. C., Awa, H. O., Okoye, J. C., Emecheta, B. C., & Anazodo, R. O. (2013). Determinant factors of information communication technology (ICT) adoption by government-owned universities in Nigeria: A qualitative approach. *Journal of Enterprise Information Management*.

Eze, S. C., Awa, H. O., Okoye, J. C., Emecheta, B. C., & Anazodo, R. O. (2013). Determinant factors of information communication technology (ICT) adoption by government-owned universities in

Nigeria: A qualitative approach. *Journal of Enterprise Information Management.*

Fjermestad, J., Hiltz, S. R., & Zhang, Y. (2005). Effectiveness for students: Comparisons of "in-seat" and ALN courses. *Learning together online: Research on asynchronous learning networks*, 39-80.

Garrison, D.R. (2009). Communities of inquiry in online learning. In Encyclopedia of Distance Learning, Second Edition. IGI Global.

Garrison, D.R., Cleveland-Innes, M., Koole, M., & Kappelman, J. (2006). Revisiting methodological issues in transcript analysis: Negotiated coding and reliability. The Internet and Higher Education, 9(1), 1-8.

Gerbic, P., & Maher, M. (2008). Collaborative self-study supporting new technology: The Mahara e-portfolio project. *Proceedings of ASCILITE Melbourne*, 320-324.

Gunga, S. O., & Ricketts, I. W. (2007). Facing the challenges of e-learning initiatives in African universities. *British Journal of Educational Technology*, *38*(5), 896-906.

Harerimana, A., & Mtshali, N. G. (2018). Implementing e-learning in resource-constrained nursing education institutions in Rwanda. *Research and Reviews: Journal of Nursing and Health Sciences*, *4*, 1-14.

Holley, D., & Oliver, M. (2010). Student engagement and blended learning: Portraits of risk. *Computers & Education*, *54*(3), 693-700.

Jimoh-Kadiri, S. O. (2008). Rationale for integrating ICT into business education curriculum in Nigeria. *Nigerian Journal Citizenship Education*, *7*(1).

Johnson, G., Scholes, K., & Whittington, R. (2008). *Exploring corporate strategy: Text and cases*. Pearson education.

Junk, V. W., & Culbertson, J. C. (2004). Creating dynamic web courses. In *Proceedings of the 3 rd Annual Hawaii International Conference on Education. Honolulu. http://www. hiceducation. org/edu1. pdf.*

Karasneh, R., Al-Azzam, S., Muflih, S., Hawamdeh, S., Muflih, M., & Khader, Y. (2021). Attitudes and practices of educators towards e-learning during the covid-19 pandemic. *Electronic Journal of e-Learning, 19*(4), pp252-261.

Whipp, J.L., & Lorentz, R.A. (2009). Cognitive and social help giving in online teaching: An exploratory study. Educational Technology Research and Development, 57(2), 169-192.

Wong, K. F., Wu, M., & Li, W. (2008, August). Extractive summarization using supervised and semi-supervised learning. In *Proceedings of the 22nd international conference on computational linguistics (Coling 2008)* (pp. 985-992).

Yakin, M., & Linden, K. (2021). Adaptive e-learning platforms can improve student performance and engagement in dental education. *Journal of Dental Education.*

Yieke, F. A. (2010). Ethnicity and development in Kenya: Lessons from the 2007 general elections. *Kenya Studies Review*, *3*(3), 5-16.

Yildirim, S. (2007). Current utilization of ICT in Turkish basic education schools: A review of teacher's ICT use and barriers to integration. *International journal of instructional media*, *34*(2), 171.

Young, S. (2006). Student views of effective online teaching in higher education. *The American Journal of Distance Education*, *20*(2), 65-77.

Zhao, J., McConnell, D., & Jiang, Y. (2009). Teachers' conceptions of e-learning in Chinese Higher education: A phenomenographic analysis. *Campus-Wide Information Systems*.

Zhao, Y., Lei, J., Yan, B., Lai, C., & Tan, S. (2005). What makes the difference? A practical analysis of research on the effectiveness of distance education. *Teachers College Record*, *107*(8), 1836-1884.