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STUDENTS' READINESS TO ADOPT E-LEARNING: A CASE STUDY OF ALUPE UNIVERSITY COLLEGE, KENYA

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Abstract

In March 2020, institutions of learning in Kenya closed down due the COVID-19 pandemic. In a bid to salvage the situation, universities and colleges embarked on establishing e-learning infrastructure to enable continuity of learning through virtual platforms. In as much as e-learning continued to gain foothold, there was a need to obtain data about student readiness in terms of user preferences, access and training, since these were critical to the implementation of e-learning systems. This paper therefore presented part results from a wider study on only two constructs of student e-learning readiness: technology access and technological skills. The study employed the quantitative research approach and the descriptive case study research design. It provided opportunity for investigating trends and specific situations for describing, comparing, evaluating and understanding the technology access and technological skills of 300 Alupe University College (AUC) students. Data was collected using an online survey, whose reliability and validity was guaranteed since the constructs were adopted from a standard e-learning readiness tool designed by the Penn State University, and verified by AUC Department of Computer and Applied Statistics. Data gathered was analysed using descriptive statistics, for frequencies, averages and patterns that emerged based on the study variables, and presented using tables/figures and narrations. The study findings revealed that determinants of students' e-learning readiness reflected variedly. However, technology access and relevant technology skills for e-learning were lacking across the board. To ensure sustainability, the study concludes: student support in adoption of e-learning is key to smooth transition. It recommends establishment of relevant support structures – for instance user friendly Learning Management Systems, and readily available and ICT-compliant technical staff and faculty – to ensure that individual and group student needs are addressed for successful implementation.

Keywords - *e-learning, e-learning readiness, student support*

Introduction

In 2019, education around the world was going on well until the intrusion by the spread of the COVID 19 disease which according to OECD (2020, p. 7) "… sent shockwaves across the globe". COVID 19 utterly disrupted the normal operations of all human activities, including education, and was therefore declared an international pandemic by the World Health Organization (WHO) on 11th of March 2020. In response, almost all governments around the world temporarily closed educational institutions in an attempt to contain the COVID-19 pandemic. Accordingly, UNESCO (2020) reports that, this led to almost 70% of the world's student population not attending school. In another report of July 2020 by United Nations Human Rights, it is noted that, according to the latest figures from UNESCO, there are still more than one billion learners affected by school and university closures (OHCHR, 2020). In the context of this study, specifically when the first Corona Virus case was identified, the

Government of Kenya announced the sudden closure of all institutions of learning from 16th March, 2020, bringing learning to a halt.

The sudden stop to learning around the globe is a sure pointer towards education systems that are not sustainable with regard to the approaches used in offering education. Education for sustainability in the face of adoption and utilization of e-learning approaches is a reality that institutions of learning have to embrace and coexist with. Focused on sustainability, with regard to how education is offered and the nature of outcomes desired, the Education for Sustainable Development (ESD) anchored in the Sustainable Development Goals (SDG), with particular reference to SDG 4 – on Quality Education**:** *ensuring inclusive and equitable quality education and promotion of lifelong learning opportunities for all* **–** provides a sound platform upon which future areas of focus can be shaped. It is noted by UNESCO (2017, p. 7) that, "ESD is holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment. Thus, ESD does not only integrate contents such as climate change, poverty and sustainable consumption into the curriculum; it also creates interactive, learner-centred teaching and learning settings."

Elements of sustainability as expressed through the ESD come alive as the world faces the COVID 19 pandemic and tussles with how to adequately handle, manage and possibly move on, amid its adverse effects and the "new normal". The scenario COVID 19 presents education with, definitely points to transformations for more sustainable education processes and systems. Certainly "real change often takes place in deep crises, and this moment holds the possibility that we won't return to the status quo when things return to "normal"," (OECD, 2020, p. 26). As such "… COVID-19 demands that we rethink the trajectories to diffuse e-learning or any other means to augment or replace our traditional classroom-centric educational delivery systems," (Tumwesige, 2020, p. 2).

Notably, the COVID-19 pandemic presented higher education with a host of unprecedented challenges, among them facilitation of continuity to learning amid the lockdown. OECD (2020) observes that, "the COVID-19 pandemic has also had a severe impact on higher education as universities closed their premises and countries shut their borders in response to lockdown measures," (p. 4). Subsequently, in response, most universities and colleges were compelled to establish or enhance e-learning infrastructure to enable gradual migration to online instruction with elements of blended instruction or full-fledged e-learning. These changes and transitions resonate with the sentiments of Wachira and Ombati (2020) who observe: the fact that most of our Kenyan public universities seem to have been caught unawares by the COVID-19 pandemic can be forgiven. What cannot be forgiven is their inability to quickly adapt. In addition, the OECD (2020) report highlights the fact that in order "to remain relevant, universities will need to reinvent their learning environments so that digitalization expands and complements student-teacher and other relationships, (p. 4). All these transformations are embedded within the requirement of ESD, with particular reference to the Strategic competency which states that an individual or institution should have "… the abilities to

collectively develop and implement innovative actions that further sustainability at the local level and further afield," (UNESCO 2017, p. 10).

In Kenya, universities were at varied levels with regard to utilization of e-learning approaches; some did not even have any form of technology infrastructure in place. In the wake of these changes, for institutions that have to begin from the basics of e-learning implementation, Wachira and Ombati (2020) note that it is now a race against time as the era of traditional teaching methodologies comes to a rapid end. On the other hand, whereas some institutions of higher education already had/have elements of blended learning, converting content with face-to-face components to completely online environments are new territories for students, faculty and institutions.

In the light of the foregoing situation, and in the context of migration to e-learning, data about user preferences, access and training are central with regard to student readiness, since they are among key elements in the implementation and success of any e-learning systems. As highlighted in available literature, one crucial factor that cannot be ignored in any discourse on online attrition rate is students' readiness for online learning (Davis, 2010; Miller, 2005; Plata, 2013; Yu & Richardson, 2015). "Readiness for online learning is an international research domain conceptualizing and measuring various success factors and enabling conditions," (Blayone, Mykhailenko, Kavtaradze, Kokhan, Oostveen & Barber, 2018, p. 3) and its "… assessment is therefore necessary for any institution that wants to gain competitive edge," (Oketch, Njihia & Wausi, 2014, p. 30).

Students' learning needs are therefore critical in any new mode of learning, regardless of the situation. Picciano (2009; 2017), for instance, presents the multimodal model, wherein he advocates a blending with purpose model in the design and development of learning courses and programmes. For him, tutors ought to design instruction that meets learners' needs. It holds that since learners vary in terms of generational differences, personality types and learning styles, tutors and instructional designers ought to employ multiple approaches such as face-to-face methods and online technologies in order to meet the diverse needs. Termed as blended learning, the mode involves integration of online with the conservative face-to-face class activities in a planned, pedagogically valuable manner (Dziuban and Picciano, 2013; Watson *et al*, 2010). Accordingly, the current study extrapolated Picciano's reasons for blended models, interpreting it to mean that emergent situations such as the COVID-19 pandemic – which necessitated social distancing – was part of students' learning needs. Had the blended aspect been established earlier on in the country's institutions of higher learning, the situation would not have been as severe. Indeed, learners would be skilled enough to use online learning platforms, hence quickly adopted to the new demands. But sudden adoption of the new e-learning technologies where none existed means that students are equally unaccustomed to them, and therefore unskilled, let alone their lack of requisite devices to connect to the virtual platforms.

Accordingly, this study serves to underscore the possibilities and opportunities that Alupe University College has in trying to diffuse e-learning to ensure continuity in learning, which is in line with her endeavour to promote access and sustainability to education. This purpose was accomplished by highlighting students' readiness by determining their access to e-learning technologies and tool, alongside their abilities to use these technologies in and for learning.

Research Objectives

The purpose of this study was to determine AUC students' readiness to adapt to e-learning. This was accomplished through the following specific study objectives:

a) To examine students' access to e-learning technologies and tools
b) To assess students' technological skills for online learning

Methodology

a) Research Approach

The quantitative research approach was utilised in this study since the data collected was numerical in nature (Creswell & Creswell, 2018). Embedded in this approach, the descriptive case study research design was adopted since it is usually focused and detailed, in which propositions and questions about a phenomenon are carefully scrutinized and articulated at the outset (Mills, Durepos & Wiebe, 2010). In addition, Gall, Gall, and Borg (2007, p. 451) note that it can be used for one of the three purposes: "to produce detailed description of a phenomenon, to develop possible explanations of it, or to evaluate the phenomenon". In this context, the study sought to describe the current status of e-learning readiness of AUC students by conducting an evaluation to determine their technology access and skills levels. Furthermore, the case study method provided opportunity to investigate "… a contemporary phenomenon ("the case") in-depth and within its real world context, especially when the boundaries between the phenomenon and context may not be clear evident" (Yin, 2018. p. 15). In the context of this study, the students' e-learning readiness represents the "the case" while the "real world context" is represented by the AUC students and learning environment. As such, the case study method was chosen as the most appropriate research methodology to gain insights into the forces, processes, and decisions involved in changing a higher education institution's general education offerings (Mills, Durepos & Wiebe, 2010).

b) Sampling

The convenient sampling technique was employed. Dörnyei, (2007) says that convenient sampling is a type of non-probability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. As such, only the students who were readily accessible, available and were in technology enabled environments took part in the study given that this data was collected during the COVID 19 educational institutions' lockdown period between July and

September, 2020. The study sample comprised of 300 AUC undergraduate students who responded to the online questionnaire out of a population of 785, translating to 38.2% of the population. This was considered representative to draw valid conclusions and generalize the findings to the larger AUC student population based on Krejcie and Morgan (1970) table of determining sample size in research.

c) Data Collection Tool

An online self-administered questionnaire was used to collect data. Doe, Castillo and Musyoka (2017) indicate that currently, no single instrument on online education has addressed all gaps in assessing online readiness. Besides, Ali and Leeds, (2009) and Lee and Choi, (2011) observe that there is no consensus on the specific number of underlying theoretical constructs to be included in any instrument to concisely measure online readiness. In this light, Searle and Waugh (nd., p. 599) opine that, because these earlier readiness instruments were developed in specific contexts and may be in need of significant revision, a new student readiness instrument should be developed which would be appropriate across a broader range of contexts. Further, it should be based upon the common attributes found in the previous instruments, and incorporate additional relevant demographic characteristics. Consequently, in order to ascertain validity and reliability of the study tool, a standard e-learning readiness tool designed by the Penn State University was adopted, alongside the inclusion of constructs defined by the students' online learning readiness model (Hung, Chou, Chen & Own, 2010) and reviewed literature on online learning student readiness. Further, the instrument was verified by AUC Department of Computer and Applied Statistics faculty.

The scope of the adopted tool rendered itself to the two main readiness constructs of the study, the latter being broken down to specific parameters for more in-depth survey. The available literature basically categorizes the student e-learning readiness constructs almost similarly. In some cases, though, only the terminology of reference differs. Hung *et al.*'s (2010) classification of the constructs helps define the broad construct categories as: computer interest, self-efficacy and online learning self-efficacy. Selection was done based on the advice that, when selecting a model "… implementers of e-learning should determine readiness for e-learning of the target audience by selecting a suitable one …. the criteria set to include a certain component … might conceivably be modified with regard to the needs and points of view of the researchers," (Demir & Yurdugül, 2015, p. 191 -192). Thus in addition, reference was made to literature with related parameters of reference as: knowledge of technology use and interaction using online technologies (Joosten & Cusatis, 2020), technological readiness: resources and skills ((Oketch, Njihia & Wausi, 2014), skills, digital infrastructure, computers and internet penetration and connection (Mafenya, 2013), access to computer, access to internet, basic Internet skills, literacy on software, literacy of software application, basic Internet skills (Contreras & Hilles, 2015), technical: access to computers, use of the computer for e-mail, sourcing information, software applications, e-discussions, internet access, (Kaur & Abas, 2004), technological skill (aptitude) and equipment (Chapnick, 2000), technology skills,

technology usage, technology availability, computer and internet efficacy (Adams, Sumintono, Mohamed, & Noor, 2018), and lastly Coopasami, Knight and Pete (2017) observe that most e-readiness models identify eight broad constructs among which are: technological skill readiness (the availability of technical support) and equipment readiness (the ownership and availability of proper and appropriate equipment).

d) Data Analysis

The nature of investigation in this study rendered itself to the use of descriptive statistics. Leedy and Ormrod (2013, p. 233) observe that these statistics "… describe what the data look like—where their centre or midpoint is, how broadly they are spread, how closely two or more variables within the data are inter-correlated…". Thus the data analysis process involved the questionnaires being serialized and entered on a pre-programmed data entry screen in SPSS version 24.0. All data values were coded, cleaned and analysed using descriptive statistics. All categorical variables, counts, proportions and correlations are reported here after in tables – with frequencies and percentages – and brief descriptions that are used to present the results.

Results and Discussion

The study findings from a total of 300 respondents, are reported in two main categories, based on the two broad constructs that are reported in this paper: technology access and technological skills of the AUC students.

a) Student Technology Access Features

The study sought to establish the technology access features of the respondents in the survey, under which several elements were examined. First, the survey sought to establish the readiness of the respondents to take up online learning based on their access to dependable or ownership of technological devices and reliable internet connections. The results revealed that most of them (94%) owned either a computer, smart phone or an Ipad. However, 76% stated that they had no access to a dependable computer installed with the necessary software for online learning.

80% of the respondents said they did not have reliable computers running on either Windows XP/Vista/7/ or Mac OS or higher, while 96% had no printer connected to their computers. Only 28% were willing or able to obtain a computer at home whilst 68% neither had nor could obtain computers. In campus, only 26% indicated that they had access to a computer. While at home, only 38% said they would access technical support in case they encountered a hardware or software challenge.

Regarding Internet connectivity, 74% indicated that they had access to internet connection at home. However, it was not fast and reliable as articulated by 40% of the respondents, while 76% said they had access to Internet cafes with stable connections. While all the respondents acknowledged that their browsers could play several common multimedia (video and audio)

formats, only 20% could access headphones/speakers, webcam and a microphone to use if a class had a videoconference, and for use in simple multimedia participation. In addition, concerning access to technology tools, 82% of the respondents said they could not access Java-enabled web browsers, Internet Explorer facilities and virus protection software. The detailed summary of this information is presented in Table 1.

Table 1: Online Learning Technological Access characteristics of Students

Device Access and Ownership	**Yes (%)**	**No (%)**	**Missing (%)**	**Total (%)**
Computer/Smart phone/IPad	282 (94.00)	18 (6.00)	0 (0.00)	300 (100.00)
Access dependable computer	22 (24.00)	228 (76.00)	0 (0.00)	300 (100.00)
Software installed computer	22 (24.00)	228 (76.00)	0 (0.00)	300 (100.00)
Reliable Windows XP/Vista/7/Mac OS/higher	60 (20.00)	240 (80.00)	0 (0.00)	300 (100.00)
Printer with computer	12 (4.00)	288 (96.00)	0 (0.00)	300 (100.00)
Willingness to obtain/ access a computer	84 (28.00)	234 (68.00)	12 (4.00)	300 (100.00)
Computer access in campus	78 (26.00)	210 (70.00)	12 (4.00)	300 (100.00)
Technical support access	114 (38.00)	180 (60.00)	6 (2.00)	300 (100.00)
Internet Connectivity				
Access to internet connection at home	222 (74.00)	72 (24.00)	6 (2.00)	300 (100.00)
Access to internet café	72 (24.00)	228 (76.00)	0 (0.00)	300 (100.00)
Access to fast internet (DSL/cable modem)	60 (20.00)	240 (80.00)	0 (0.00)	300 (100.00)
Access to webcam & microphone	198 (56.00)	132 (44.00)	0 (0.00)	300 (100.00)
Tools				
Java-enabled web browser	54 (18.00)	240 (80.00)	6 (2.00)	300 (100.00)
Virus protection software	54 (18.00)	246 (82.00)	0 (0.00)	300 (100.00)
Browser plays several multimedia formats	150 (50.00)	150 (50.00)	0 (0.00)	300 (100.00)

b) Students Technological Skills

The study also sought to establish the technological skills under the following categories: basic computer skills, basic internet skills and Literacy on software applications of the respondents.

The results showed that more than half of the respondents possess basic computer skills. A total of 58% respondents possessed the knowledge of basic functions of computer hardware components like CPU and monitor, including its peripherals like the printer, speaker, mouse among others; and were also able to save or open documents within a hard disk or removable storage device. A large number, 72% could not turn on or shut down a computer with ease, while 78% were not able to resolve common hardware or software problems. The confident utilization of MS word could be performed by 60% of the respondents, with only 26% having the ability to use different computer applications with ease.

With regard to knowledge about the use of basic internet skills, the survey report showed that 94% had email addresses, however 80% were not able to open and send an email with file attachments, 70% being able to log into an internet service provider, 72% being able to navigate the web pages, and 80% being able to download files using any browsers. However, only 40% indicated they were able to resolve common errors such as "page not found" or "connection timed out", with 66% not able to access online libraries and other resource databases. Moreover, 40% and 38% stated that they had attended prior online classes and joined prior online discussions and forums respectively, with only 12% of the respondents reporting to have attended seminars/workshops related to online learning activities. On average, 56% and 44% respondents reported to be comfortable with surfing the Internet and have used Internet chat programs respectively.

The constructs on literacy on software applications showed that 88% of the respondents knew about PDF files and had the ability to download and view them, while 72% were comfortable conducting searches, setting bookmarks and downloading files. On the other hand, only 48% were familiar with word processing and were able to use it comfortably, while only 42% were knowledgeable on installation of additional software and changing the configuration settings on their computers. In contrast, very small proportions of the students (10% and 28%) said they knew how to use file compression and had knowledge on how to use MS Excel spreadsheet respectively. The detailed summary of this information is presented in Table 2.

Table 2: Students Technological Skills

Basic Computer Skills	**Yes (%)**	**No (%)**	**Missing (%)**	**Total (%)**
Knowledge of computer hardware (CPU, monitor, mouse, printer)	174 (58.00)	126 (42.00)	0 (0.00)	300 (100.00)
Save/Open document to/from hard disk / removable storage	174 (58.00)	126 (42.00)	0 (0.00)	300 (100.00)
Proper turn on/ shutdown of computer	216 (72.00)	84 (28.00)	0 (0.00)	300 (100.00)
Resolve common hardware /software problems	66 (22.00)	234 (78.00)	0 (0.00)	300 (100.00)
Write & format using MS word	180 (60.00)	120 (40.00)		300 (100.00)
Good at using different computer applications	78 (26.00)	222 (74.00)	0 (0.00)	300 (100.00)
			0 (0.00)	
Basic Internet Skills				
Has an email address	282 (94.00)	12 (4.00)	6 (2.00)	300 (100.00)
Open/send an email with file attachment	240 (80.00)	60 (20.00)	0 (0.00)	300 (100.00)
Log into the internet service provider (ISP)	210 (70.00)	90 (30.00)	0 (0.00)	300 (100.00)
Navigate web pages	216 (72.00)	84 (28.00)	0 (0.00)	300 (100.00)
Download files using any browser	240 (80.00)	60 (20.00)	0 (0.00)	300 (100.00)
Resolve common errors while surfing (Page not found, etc.)	120 (40.00)	180 (60.00)	0 (0.00)	300 (100.00)
Knowledge to access online library & resource databases	96 (32.00)	198 (66.00)	6 (2.00)	300 (100.00)
Attended online classes before	120 (40.00)	180 (60.00)	0 (0.00)	300 (100.00)
Previously joined online classes/forums	114 (38.00)	186 (62.00)	0 (0.00)	300 (100.00)
Attended seminars related to online learning activities	36 (12.00)	264 (88.00)	0 (0.00)	300 (100.00)
Comfortable surfing the internet	132 (44.00)	168 (56.00)	0 (0.00)	300 (100.00)
Used internet chat programs	168 (56.00)	132 (44.00)	0 (0.00)	300 (100.00)
Literacy on Software Applications				
Knowledge of PDF files, PDF downloads and viewing.	264 (88.00)	36 (12.00)	0 (0.00)	300 (100.00)
Comfortable doing searches, downloads & setting bookmarks.	216 (72.00)	84 (28.00)	0 (0.00)	300 (100.00)
Comfortable use & familiarity with MS Word.	144 (48.00)	156 (52.00)	0 (0.00)	300 (100.00)
Use of file compression (zip file).	30 (10.00)	270 (90.00)	0 (0.00)	300 (100.00)
Use of spreadsheet application (MS/ Excel).	84 (28.00)	216 (72.00)	0 (0.00)	300 (100.00)
Knowledge of additional software installation & configuration of settings.	126 (42.00)	168 (56.00)	6 (2.00)	300 (100.00)

Study Discussion

Generally, whereas a large proportion of the results indicate that students' access to technology is low with unreliable internet connectivity and lack of the require tools to facilitate learning (most scoring below 28%), almost all the students said they had a device and internet connectivity, even though it was weak and so they had to visit cyber cafes that had stronger connectivity. Besides, about two thirds said that they were unable to receive technical support in event of challenges and acquire or access a computer/device while in campus. During the Commission for University Education (CUE) conference on 29th October, 2020, it emerged that many students lacked laptops, and that they could not afford internet connectivity therefore limiting ability to attend to all classes. Greaves (2008) and Globokar (2010) assert that, access to technology, comfort of using the technology, reliability of technology, ability to logon frequently and technological skills are important technological aspects of e-learning readiness. Furthermore, Fathaigh (2002) states that a basic prerequisite of online learning is the access to a reliable and secure internet connection and a computer or other such device. Therefore, the glaring lack of access to technology devices and tools, alongside unreliable internet connectivity – elements that Chung, Noor and Mathew (2020) highlight in their study too – are great challenges to the adoption and implementation of e-learning modes of instruction for AUC, not only when the students are off-campus, but also on-campus. A study on student e-learning readiness established that, "… an e-learning environment, students need access to technological tools, software and the internet, which enables them to be interested in engaging in the blended learning mode of instruction," (Adams, et al. 2018, p. 244). Further, research demonstrates that, without appropriate equipment and easy access, it is quite hard, if not impossible, to implement any e-learning (Oliver & Towers, 2000).

Okinda (2014) who observes that "e-learning requires that learners have basic literacy skills that would enable them to comfortably use ICT for learning." This resonates with the study results which generally point to the fact that, the AUC students' competency levels in technology skills required to easily navigate the various technology related devices and tools is generally high. In particular, Okinda found out that, of the student respondents, "93.5 % have basic computer skills, 88.0 % have basic computer literacy skills and 78.0 % are comfortable using computers indicate that KTTC learners are ready for e-learning." While the AUC students displayed high competencies in technology-related skills and tools, they require support in resolving common software errors, accessing online classes and library learning resources and the use of internet for surfing. This implies that they require skill-development interventions on application of basic computer, internet and literacy on software applications skills. Additionally, these elements affect the students at varying degrees of readiness, the study generally affirms that this scenario would greatly affect harmonised e-learning student engagement as they are key predictors towards effective e-learning adoption and implementation. In such cases, Agboola, (2006) opines that training is important for e-learning readiness, and that it should be considered in the implementation of e-learning. Similarly, a

study by Brooks and Grajek (2020) advised institutions against making an assumption that those students with no formal LMS training would easily navigate the online learning environment.

AUC finds itself in this space due to the COVID-19 disruptions. However, as observed by OECD, all is not lost: "While this crisis has deeply disruptive implications, including for education, it does not have predetermined outcomes. It will be the nature of our collective and systemic responses to these disruptions that will determine how we are affected by them," (OECD, 2020, p. 26). Consequently, there is an opportunity to develop technological skills and literacies among the students. This will require that AUC offers undivided support to the students to ensure a smooth transition from the pure face-to-face learning approaches to employment of varied components of e-learning approaches that provide opportunity for blended learning methodologies. In the long run this should expose them to more practical, learner-centred instructive approaches that support the acquisition, development, appreciation and utilization of 21st digital literacy skills that will help build their capacity for e-learning tailored towards AUC learning environment. By and large, it is imperative that, "when implementing a fully-online or blended-learning course/program, findings should be used in tandem with a digital-learning model well-aligned with the context and desired outcomes," (Blayone, et al., 2018, p. 15).

Conclusions and Recommendations

In the current state, the study concludes that AUC students are not adequately ready for e-learning because they only possess part of the range of basic technology skills and technology access facilities and resources for technological readiness. Pursuant to the foregoing, the study further makes the following points on the conclusion:

a) Students do not have the ideal technology access, Internet connectivity and technology tools that are required to facilitate efficient e-learning.
b) Student lack the required technological skills to navigate the AUC Learning Management System and related online platforms for learning purposes.
c) Student lack support opportunities to enable them easily and comfortably access and use devices, internet, technology tools and skills required for efficient e-learning.

Recommendations

AUC is obligated in the journey towards the adoption and implementation of e-learning placing a necessary demand on its instructional operations, just like many other universities in Kenya. "Real change often takes place in deep crises …," (OECD, 2020, p. 26). As such, the implementation of e-learning should endeavour to enhance faculty and student training sessions, and to improve capacity for e-learning content. More importantly it is noted that, to ensure high level of student engagement, Higher institutions of Education can provide resources to help students assess whether they are ready to take an online course and offer

suggestions for preparation (Joosten & Cusatis, 2020). In order to partly meet such requirements, the University Education Permanent Secretary, Simon Nabukwesi (during the virtual Conference organised by CUE on 29th October, 2020, aimed at assessing the state of University education in Kenya), called on Universities to make laptops a requirement during admission of students. Thus, based on the main study conclusion focus, the study recommends that AUC:

a) AUC should be prepared to make accommodation for students who either do not have access to devices or lack devices that are compatible with the institutional LMS or virtual classroom e-learning platforms
b) Students be advised to make arrangements to acquire devices that can be utilized for online learning purposes
c) Lecturers should be readily available to provide the required technological and pedagogical support to the students in order to help them comfortably access devices, internet, technology tools and skills required for efficient e-learning
d) Student training on technology skills to aid them navigate the AUC LMS is required, just as other technology-related devices are necessary
e) Study for institutional readiness should be conducted to have a clearer picture of how prepared AUC is to adopt and implement the use of technology for teaching and learning through e-learning modes
f) Further studies based on qualitative methodology required so as to elicit other factors that may influence e-learning readiness in the AUC e-learning environment and provide a more detailed understanding of the e-learning environment.

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