An analysis of the adoption of online learning in universities; a case of the Cavendish University Learning Platform (CU-LP)

Arinaitwe Ambrose

Distance Learning and Instructional Technology, Cavendish University, Kampala, Uganda

Correspondence Author: Arinaitwe Ambrose

Abstract

The adoption of online learning as a prerequisite to continuous education is new among most universities in Uganda. Although its adoption is mandatory for teaching and learning, online learning has been hard to embrace because the training facilitators or teachers to embrace the new technologies and students learning how to use and afford the process is a challenge (Kituyi & Robert 2012). Since the covid-19 pandemic outbreak, a number of universities have tried to promote electronic learning environments and adopt e-learning systems like Moodle, melimu, and others to aid teaching and learning. The paper presents results from a study conducted using a mixed methods (qualitative and quantitative) approach to the adoption of online learning in Universities in Uganda. The data collection methods adopted a demanding systematic scientific inquiry based on; facts, analysis, and reporting. Of the 2241 target respondents, 2129 (2025 students, 104 lecturers, and non-teaching academic staff) participated in the study with a response rate of 95%. The findings of the study showed that the factors influencing the acceptance and use of e-learning platforms as a tool of teaching and learning range from training to and adoption of technologies using gadgets like laptops, smartphones, and others. The approaches adopted to monitor student learning on e-learning systems ranged from frequent training on the use of the platform and constant feedback.

Keywords: e-learning, online learning, information technologies

1. Introduction

The COVID-19 pandemic has caused drastic changes to the teaching and learning processes in education institutions worldwide. The lock down has forced learning institutions to adopt new ways of enabling continuous education. In Uganda, the Ministry of Education and Sports (MoES) together with the Uganda National Council of Higher education (UNCHE) promoted Open, Distance and e-learning (ODeL) at all education levels as an alternative to learning and assessment method (MoES, 2020; Soni, 2020) [19]. The pandemic which started in China in 2019 later spread to the rest of the world causing a total lock down of schools thus affecting over 15million learners in Uganda by forcing them to stay home and teachers teaching from home (MoES, 2020). The decision for learners to learn from home via e-learning was mainly because it was difficult to keep the learners in schools while observing Standard Operation Procedures (SOP's) such as; keeping social distancing, which was attributed to the big population. These SOPs were set as part of the preventive measures for the spread of Covid19 by the Ministry of Health (MOH) together with World Health Organization (MOH, 2020; WHO, 2020) [21].

Most universities have therefore supported and implemented e-learning and e-assessment as a solution to this crisis. The universities were inspected and those that met the required standards were permitted to use the ODeL programme by the UNCHE. Cavendish University is known to be among the universities that were permitted to adopt the use and implement e-learning using the Cavendish University Learning Platform (CU-LP). Cavendish University has since trained and graduated students from over 21 e-learning courses and acquired over 500 google meet accounts and 20 educational Zoom licenses to facilitate the interactions between lecturers and students.

Cavendish University has been using the Cavendish University Learning Platform (CU-LP) using an advanced learning platform known as Claned even before the COVID-19 pandemic outbreak and has widened its use after the outbreak. The CU-LP was adopted to initially boost the traditional distance learning where students carried away notes preloaded on tablets to read on their own. More effort was put into conducting education sessions such as; lectures, tutorials, seminar presentations, open discussion forums and chats. Formative assessments (assignments, quizzes, tests and exams) are also performed on CU-LP.

With the adoption of CU-LP, MoES together with the UNCHE further issued a number of guidelines to universities for running programmes on ODeL these include; provision of assessment and evaluation mechanisms of learning; Availing a list of staff trained to teach and assess students online and there must be evidence of the ability to conduct final examinations (MoES, 2020).

The Uganda National Council for Higher Education (UNCHE) is the mandated body that regulates the provision of Higher Education in Uganda. Since the COVID-19 pandemic outbreak, UNCHE devised ways of ensuring teaching and learning in Uganda's higher education institutions continues by enabling the desire to implement an emergency ODeL system. The ODeL system focused on learners by providing continuous engagements between the lecturer and student irrespective of the location.

UNCHE guidelines included but not limited to the existence of COVID-19 standard operating procedures (SOPs), a structure of the proposed ODEL model, a list of accredited academic programmes, a list of qualified staff ready to roll out ODEL and a list of students willing to engage in the proposed arrangement. More guidelines included principles on how ODEL system would run, evidence of the mechanism of access and usage by staff and students, a description of the pre-training of both staff and students, the availability of assessment and evaluation mechanisms of learning, existence of learning support mechanisms in case learners require so, evidence of the ODeL capability, including the recording and documentation mechanisms for post viewing and an action plan in place indicating how teaching and learning as well as assessment would be implemented.

The following were the objectives of the study

1. Evaluate the factors influencing the acceptance and use of e-learning platform as a tool of teaching and learning
2. Identify the approaches adopted to monitor student learning on e-learning systems
3. Recommend the requirements universities can adopt to guarantee learning among students

It should be noted that the adoption of e-learning systems by universities ha most of the requirements needed for e-learning with course content, group discussions and chat sessions. The smooth implementation and use of the online platforms has been hindered by the running costs for both the universities and students. The cost of internet is high and one must have a smart phone, a tab or computer to access the learning platforms. The lack of reliable internet service providers as well as data centers and connectivity are also a big challenge in having smooth running of online learning (Goktalay 2006) [10].

However, Broadley (2007) carried out a study and established that if e-learning is well embraced and implemented, it will enable teachers to understand the value of online education and attend to individual students needs more effectively, it will enable students learn from a global perspective.

Kituyi and Robert (2012) highlight that as the Moodle platform was being introduced to the teachers and learners of Makerere University Business School (MUBS), parameters were used to understand the current state of e-learning adoption. This was done through learning the level of experience in using online systems among students and teachers or lecturers. At least 63% of them were knowledgeable about e-learning and said they preferred using online learning because of the relative advantage or need.

Bwire, Bagarukayo & Muyinda (2020) [7] ascertain that online management systems used for teaching and learning have the ability to track learning and course delivery. Although there is limited social interaction and participation, online learning systems have the ability to have high student course completion rates. This can be done by involving teachers in the knowledge and course content creation and designing content that allows learners to actively engage in the process. This is assumed to determine the effectiveness of the learning process by allowing learners to move from a situation where they need guidance to the level where they are more responsible for their learning. This creates a sense of problem solving, collaboration, reflection and exposure (Cavus 2015) [8].

2. Literature review

Factors influencing the acceptance and use of e-learning platform as a tool of teaching and learning

The adoption of e-learning in education institutions has connected both facilitators, teachers and lecturers with students via internet, study platforms to transfer knowledge. This knowledge is transferred via instant messaging, SMS, WhatsApp and online discussions (Almaiah, *et al*, 2021) [3]. Teaching and learning online is managed by the institution's online software or learning Management Systems with features and software that allows students, their peers and lecturers to interact with each other in either real time or at their pace (Al-Adwan, Al-Adwan & Smedley, 2013) [1].

The relevant learning institutions can closely monitor to see how effective the use of the platforms for teaching and learning are effective. In addition, their usefulness is checked for the purposes of improving the usability. The lecturers are the first line people who a student contacts for help on the use of the platform. Their attitude, teaching style, provision of quality teaching material and efficiency will determine student acceptance, adoption and learning. The guidance lecturers give to students encourages and motivates students to use the learning platforms. The lecturers are also influenced to use the learning platforms to teach because of the ease they find in updating the teaching materials to the best quality (Muhamad & Agatha, 2020) [16].

The ease students find while using the platforms, their ability to use and navigate the platform to learn and the help a student gets while using the platforms are some of the factors that enhance a student to use the platforms to learn. (Yu Q, 2022) [22].

Approaches to monitor student learning on e-learning systems

Learning management Systems provide instructors and learners the parameters to use to determine progress of learning. A number of the parameters include attendance and interaction during learning for learners and instructors, the ability of learners to attempt online assignments and lecturers to assess them on time and the ability of the system to ensure classroom reviews within the learning semester. To ensure all this is done, effective monitoring is expected using the following attributes for students; setting standards for both students and lecturers on classroom attendance and time management on attempting assignments and continuous assessments (Kerka & Wonacott 2000) [11].

For lecturers, frequent refresher trainings on the use of the platform, ensuring students are assigned assignments, assessed and feedback given and constantly engaging students in group discussions often throughout the semester. During lessons, lecturers could monitor learning by asking questions based on learning outcomes and objectives, asking learners to interpret what has been learnt in a lecture and encouraging students to listen as feedback is being given. Feedback can be peer evaluation by fellow students, direct or automatic feedback from the learning management system and that provided by the lecturer. Students are also given assignments that force them to work together. These assignments can only be accomplished after attending a number of lessons and discussions as a team with guidance from the lecturer (Ali & Atta 2014) [2].

Requirements universities can adopt to guarantee learning among students

E-learning is without doubt being adopted by learning institutions globally. As these institutions adopt new technologies that come with e-learning a number of ways are used to ensure sustainability for teaching and learning. The adoption of e-learning policies that guide the implementation and the need for all users of learning platforms to have gadgets (tablets, smart phones, laptops etc) that complement its use are some of the major requirements institutions can have. In addition, in house trainings on the use of the platform, best practices and guidelines can visibly encourage users to continuously use the platforms for learning online (Baguma & Wolters 2021) [6].

3. Materials and Methods

The study adopted the mixed methods (qualitative and quantitative) data collection methods where an online google survey questionnaire, interviews and desk review were used. The respondents that took part in the study included students and staff of Cavendish University Uganda. Out of the target 2330 respondents, a total of 432 of who 327 were students and 86 lecturers/ teaching staff and 19 non-teaching academic staff took part in the study. The respondents were chosen using the purposive sampling technique. The purposive sampling technique involves the selection of respondents putting into consideration the unique qualities they have that will allow them to give the anticipated opinions and experiences about a given occurrence. It is a non-probability sampling technique used for establishing a sample space for a given study (Ma 2007) [14]. The selection of participants is shown in the table 1 below.

Table 1: Study Respondents as per the village

	Category	Population of respondents	Sample size	Sampling technique
1.	Students	2200	327	Purposive sampling
2.	Teaching staff	110	86	Purposive sampling
3.	Non-teaching staff	20	19	Purposive sampling
	Total	2330	432	

Source: Primary Data 2022

The methods of data collection included the online survey questionnaire which had both open ended and closed ended questions. It is highlighted that for the adoption of the questionnaire to have both the closed and open-ended questions, it is advantageous because it allows the collection of information in the shortest period of time (Kothari 2005) [13]. The interviews were carried out to collect opinions from respondents on the subject matter. The desk review was done through referring to secondary data, journals, published research to gain more information on the problem under investigation. The information got from secondary sources reduces the time and cost of collecting information (Sekaran 2003).

4. Study results and discussion of findings

The results of the study targeted 2330 respondents of who 432 were sampled and 327 were students and 86 lecturers/ teaching staff and 19 non-teaching academic staff. The findings are based on the objectives; a) Evaluate the factors influencing the

acceptance and use of e-learning platform as a tool of teaching and learning; b) Identify the approaches adopted to monitor student learning on e-learning systems; c) Recommend the requirements universities can adopt to guarantee learning among students. The findings are presented below.

4.1 Factors influencing acceptance and use of e-learning acceptance and use of e-learning platform as a tool of teaching and learning

Before the COVID-19 pandemic outbreak, Cavendish University Uganda had both Distance Learning (DL) and campus-based students. The DL students were not impacted by the shutdown as they were already studying remotely assisted by the tablets loaded with study materials which they obtained from the university. They were linked to their instructors and other learners by the learning platform (CU-LP). It was therefore the campus-based students that were greatly impacted by COVID-19. At the start of the shutdown, the contact students were surveyed to establish their willingness to transition to online and e-learning. An approximate 97% of them were willing. Consequently, CU-LP user licenses were procured from the learning platform vendor (Claned) and granted free (for a period of 2 years) for all contact students who agreed to study online.

Learning support technologies

The students who were willing were trained and guided on how to add the learning platform on their devices after activating their credential. (The compatible devices are personal Laptops, Smart Phones, Tablets and Personal Computers) to aid learning. For those who did not have devices though willing (4% of those willing), they were provided with tablets. These were assumed to support studies online. This meant that students would not incur costs of daily transport going to campus to study, spending on rather expensive food around campus.

Implementation of ODeL on CU-LP

The shift from blended learning to entirely online created obstacles and opportunities for student learning and lecturer teaching. Student motivation decreased because of the inability to relate with teachers face to face, delayed feedback on inquiries because of lack of internet at the time, lack of physical presence with classmates and others. The finances associated with the purchase of internet are not easily sustainable for lecturers as well as the length of time a lecturer takes while teaching using CU-LP can be a limiting factor in teaching (Coman *et al.,* 2020) [9]. The first solution was training of staff and students to transit from blended to fully online teaching and learning through the Online learning transition centre (OLTC).

4.2 Approaches adopted to monitor student learning on CU-LP

Through the adoption of claned on the Cavendish University Learning Platform (CU-LP), CUU was able to adopt a number of steps to ensure online teaching and learning is emphasized.

Training of staff and students on use of platform

At the time of the shutdown in March 2020, all the DL students knew how to use the CU-LP platform and most of the staff were already trained. These trainings run twice every semester for

lecturers at the beginning of the semester and towards examination period. The content includes how to use the platform, uploading content, how to respond to students on chats, using the collaboration features on the platform, access materials, access Continuous Assessment Tests (CATs), mark CATs, setting, uploading and marking exams. Trainings were also done on how to engage students who have not yet enrolled on the platform through the use of electronic methods like Google classroom, WebEx, zoom etc.

Besides the trainings, a remote online teaching guide for academic staff was developed for use, initially during emergency recess and, thereafter in continuing online classes. The Guide was shared and used to train all teaching staff to ensure that they continue to offer a learning experience that supports students to achieve the essential course learning outcomes in a remote online learning environment. Staff were trained to support student readiness for online learning by improving their experience online. This was done by staff monitoring of students' progress, monitoring discussion boards to ensure that students are interacting with the content, providing additional assignments, identification and follow-up of issues or barriers to online learning. Instructor responsiveness and availability to motivate students was a key factor in improving student engagement and retention. Staff were trained and encouraged to model and support development of desirable skills (effective time management, self-directed or self-regulated learning and online learning self-efficacy, growth mindset). This is supported by Mishra & Koehler (2006) [17] who highlight that staff are trained and encouraged to offer radical hospitality to the students in implementing one strand of trauma- informed pedagogy. Flexibility while ensuring accountability is also important. Mishra & Koehler (2006) [17] continue to highlight that for a university to have properly monitored systems, each faculty should possess technological, pedagogical, content knowledge model (TPACK) to be able to communicate effectively. This is realized best through trainings.

Student preparedness was also done by engaging students in self-directed skilling in advanced Excel, PPT and word programmes on kubicle, an online e-learning system that helps learners to develop better analytical skills, improved decision making and faster results and is focused on leading data analytics solutions such as Excel, Tableau, Power BI and Alteryx using a combination of e-learning techniques and tailored support services. This upskilling was meant to ensure employability of the students and to interest them in authentic learning activities and in developing transferable skills. The students were therefore provided with five tier technical support by Information Technology (IT) personnel, DL office personnel, Faculty ODeL Response teams and Course Facilitators. The university trained and continued to support students to leverage the broadened learning spaces -learner-to-content, learner-to-instructor, learner-to-learner (peer) interaction, diversity (learners from all over the world with different backgrounds and from different demographics).

CUU also widens the learning scope for both staff and students by allowing them to experience learning online through another international online learning platform called courser. This is done for the sole purpose of improving student and lecturer online learning experience. Every week, three online support clinics are run one for staff and two for students where issues

or problems are discussed and solutions identified. The issues identified include uploading CATs, how to log on to the platform and coursera, registration and finance issues as well as how to respond the questions and assess others. Others include access of results through the platform.

Preparation and upload of the content on to the platform and tablets

In collaboration with the course facilitator, materials are developed and sent to a review team every semester, 2 weeks before semester commencement. The review team comprising of experts in particular fields suggests changes to be addressed by the course facilitator or lecturer. Once approved, content is uploaded onto the platform.

Each student is guided to use their devices (smart phone, tablets and laptops) but those missing devices are given tablets preloaded with study content organized in weeks. The students are assigned accounts on the CU-LP which they use to access the content, the weekly quizzes and essay questions. Here, they are also able to engage other learners as well as their instructors. This is a unique technology where students can even access content offline hence reducing the internet costs for students.

Teaching and learning using CU-LP

Access and usage of the CU-LP platform by staff was ensured by provision of devices (laptops and study tablets) to facilitate learning remotely. A number of aspects were adopted for example the use of the Google meet where a maximum of 100 users are able to learn at a go.

The ability for students to use a number of options to learn on CU-LP like messaging on various social media platforms, emails, making phone calls, access recorded teaching enhanced online learning and experience.

The lecturers were given the ability to log in and log out of the platform, record lectures for students to access later on, respond to chats, assess and provide feedback on attempted weekly assignments, write and submit weekly reports and use the system tracker to ascertain the level of progress for each student on a weekly basis. A lecturer is also able to ascertain how long in terms of time spent by the student to study the content online, how regularly a student is able to access content and the accumulated time spent studying altogether. A lecturer is also able to generate reports and use CU-LP to find out how much time a student spends on a specific topic and look at user experiences on how challenging or not a particular topic has been.

Appropriate course assessment

CUU emphasizes the design of authentic assessments where grades are based on the authentic activities required of learners and the methods of providing feedback are clearly indicated. Authentic activities are those that help learners apply knowledge to real life situations, those that replicate what learners will find in the work place and those that can be demonstrated by skills gained. All content is checked to ensure that there is integration of higher order thinking problems and assessments. Additionally, CUU emphasizes the "triple function" of assessment which is diagnostic, formative and summative which assesses what learners know before, during and after the formal learning session.

Continuous Assessment Tests are given every six weeks and in addition weekly assessment done for every aspect of knowledge gained on a weekly basis. Assessments range from multiple choice, short essay, timed tests and a final online exam. Once submissions are done, they are scanned through the anti-plagiarism software to ascertain their originality. There is also oral assessment using google meet where students are given the opportunity to defend their submissions.

Monitoring and evaluation of the CU-LP

The adoption of a monitoring and evaluation system can none the less overcome the obstacles both students and lecturers face while using the CU-LP. Progress monitoring of students' learning is important in assessing if learning is or isn't happening while using e-learning platforms. It ensures students study away from the class and learn from home. A number of strategies are implemented to keep students engaged, motivated and mentally stable (Beulah, 2020). Cavendish University has a step by step monitoring system in place throughout the learning journey as the students use CU-LP to learn and lecturers to teach.

Recess study support

Students were assigned class/group email accounts linked to a monitoring account called "Recess Study Support" whose aim was to monitor quality of materials being shared, ensure that students received materials and that if anyone asked a question or needed clarification, it was given in good time. Instructors were asked to submit weekly reports showing how they were conducting their classes, whether on the platform or outside the platform with evidence. These reports highlight best practices as well as challenges encountered that week and these can include non-attendance by students, internet glitches and others.

Database system

Cavendish University Uganda has got a functional database system linked to the platform that is able to track the affairs of each student right from enrolment, student payment, class attendance, exam sitting to financial clearance. From the platform, the university is able to develop a weekly academic dashboard showing the students and staff who are active and those who are not etc. Basically, the CU-LP has digital exchange of content and information from the instructors to the learners. It provides for interactivity between learners and instructors and between learners themselves. It also provides for formative assessment of learning which is based on the principles of assessment for learning. The new students are given tablets that are already uploaded with study materials but are able to continuously access new content via the learning platform.

The key features of this learning platform (CU-LP) include: Student Centric solution creating personalized learning paths for each student which makes learning more personalized and easier; Collaborative Learning (interaction with other students encouraged) which provides for peer interactions among learners; Intuitive Interface (looks and feels like a social media interface) which is a very friendly feature for especially the youthful students. More features include the use of artificial Intelligence where a machine is able to read all uploaded content and identify which content is most accessed; It offers

pedagogical design services (meaning when using the platform, the instructor can enjoy a collaborative process for course development using specific learning objectives to identify teaching strategies, activities and assessments to achieve desired educational outcomes).

The platform also captures data on every online interaction made by learners. Interactions occur when learners read, write, collaborate, organize and plan which makes monitoring of learning easy. In addition, it offers real-time graphic analytics e.g. showing proportion of instructors and learners who logged on the platform, asked questions, got feedback and completed weekly assignments. Lastly, the platform has the ability to identify high-risk students per course and allow interventions to be made in good time when a student can still be assisted to catch up.

Support offices and activities

CUU through the mandated DLIT office monitors both student and lecturer engagement by using the tracker. The tracker has the ability to show if a lecturer has been able to upload content and quizzes on time, if uploaded responses from students are assessed or marked, if students are being taught through the mandated google meet and how long teaching has taken. It also checks how long each individual student takes in a lecture and if work has been uploaded for assessment. Reports are generated and sent through by the lecturer to the respective faculty where issues if any are identified and rectified before the next week or lecture commences.

Besides the DLIT office, the lecturer is known to be the first line support to students because students mostly highlight a number of issues during the lectures. The lecturer should be in position to refer the student to the rightful office or try and solve the issue if he or she can. At the faculty level, each faculty has faculty ODEL teams that offer help and guidance to students. These are also supported by the IT department who render the necessary support.

Support activities can include collaborative messaging where the use of the CU-LP chats is accessed by students and lecturers and online peer tutoring where scholarship students support others with issues only on claned through the respective chats. Other activities include the use of google meet to teach students where students can ask a facilitator directly and a response is given in real time. If some of the issues raised cannot be acted upon, then they are raised during the weekly clinics held twice a week by the DLIT office. Still, based on the issues, the monthly trainings are guided this way.

To ensure that teaching and learning is consistent throughout the semester, CUU embraced what is known as zero rating. Cavendish University Uganda makes this happen by working with internet service providers who are allowed to pay an agreed sum of money. The service provider then opens an account for the client. The client is then asked to identify what sights they want to be zero rated. Zero rating allows students to access information without the use of internet like the pdf drive, kubicle, CU-LP and others. The client in this case CUU, provides to the service providers phone numbers of students and lecturers who are expected to access the content online. The content can be accessed through what is known as pdf drive.com at 80%-claned, 20% internet rates. However, some content to be used on platforms like you tube are not zero rated by the service provider.

CUU also provides two learning modes, offline mode and online mode. The offline mode gives students the opportunity to access study material without the need for data. The Learning Management System (LMS) for CU-LP allows offline learning where one has to first install the App. Once installed, one can access content without internet. This however works with and only on Android devices like tablets and smart phones. The online mode allows a user to access content only with internet using any device with an internet browser.

To enhance the online mode, CUU also provided a remote teaching guide to lecturers to facilitate their teaching process online. The main aim of the guide was to build capacity of teaching staff or lecturers to teach students online through the LMS known as the claned platform. The guide specifically allows lecturers to demonstrate awareness of the current changes in the educational context in relation to technology. It explains the importance of using technology in teaching and learning practices.

A lecturer is able to understand the principles underpinning teaching blended courses and analyse course design options in relation to curriculum inclusion for student learning. A lecturer is able to identify strategies for engaging and motivating students in online learning scenarios. The guide also provides lecturers with various ways through which students are engaged and motivated to learn through adopting various technologies to enhance learning. In addition, the guide allows lecturers to assess how the appropriateness of the online activities and related technologies (video clips) can impact on student learning. The use and frequency of the guide also helps the DLIT team monitor its adoption throughout the semester.

4.3 Desired requirements that guarantee integrity of online learning with universities in Uganda

Although CUU has an online platform facilitating teaching and learning, it has not catered for persons with disabilities.

CUU is only using google meet to teach but it limits the number of users. It could consider using zoom because the security features of zoom are better than those of google meet where number of learners at a time for zoom is 300 as opposed to 100 of google meet. Also zoom has what is known as zoom room which allows a facilitator to divide a class into different discussion rooms and re-converge again as one.

CUU can consider to expand and increase their zero rated sites to include google search engine for academic research, you tube purposes.

CUU can also consider content review checklist for all content reviewed every semester by individual lecturers. This will ensure updated content that is valid to promote research.

CUU can consider the training of supervisors of supervisors where some management teams like the administration and deans can be asked to attend some online classes. This is aimed at peer reviewing content for learning of students.

CUU would need to consistently check the standard teaching guidelines or steps where a lecturer is expected to teach with other lecturers who are familiar with the topic. This enhances and encourages learning among peers. The peer reviews can also be done through student surveys which are also shared with lecturers.

5. Conclusion

The adoption of e-learning and e-assessment as a way of having continuous education has elevated the different ways through which lecturers teach and students learn at CUU. It has diversified teaching and learning and enabled provision of quality education and academic progress for all students who are studying anywhere in the country. Due to the COVID-19 outbreak, CUU enhanced the use of CU-LP as the learning Management System and tool to be used to influence the continuation of teaching and learning. Other factors that were identified to influence acceptance and use of e-learning platforms as a tool for teaching and learning, included training both lecturers and students to adopt the technologies identified and this included provision of tablets, the use of personal laptops and smart phones. The effects included cost effectiveness, convenience and flexibility of studying anywhere anytime and benefits from visiting expatriates teaching online in real time and improvements in virtual communication and collaboration.

CUU adopted a number of approaches to monitor student learning on e-learning system. The approaches ranged from conducting frequent trainings for lecturers and students on the use of the platform where a lecturer can upload learning materials, update them after a specified period, upload an assignment and assess it. A student is also trained on how to download and upload an assignment. Feedback is provided to this effect. To effectively monitor the approaches, CUU adopted support services where students can be able to access content and lecturers produce weekly reports on what type of service has been given to them. If students have any questions, a database system was developed for tracking student academic progress from the time he or she enrolls for the course to the time graduation occurs. Support teams from relevant offices are in place to ensure issues are rectified as soon as a student raises them. For lecturers, a remote teaching guide was provided and allow them ensure their service provision is well monitored.

CUU to this effect requires a number of innovations to guarantee integrity of online learning. These include the use of zoom to allow multiple users and the ability to zero rate to allow users to access the google search engine for academic purposes. The ability to train supervisors of supervisors where members of the management team can be part of a peer review process that can help users improve on what may be identified. This will be essential in providing upscale education to students and improve CUU as a provider of online education in Uganda and Africa as a whole.

References

1. Al-Adwan A, Al-Adwan A, Smedley J. Exploring students acceptance of e-learning using Technology Acceptance Models in Jordanian universities. International Journal of Education and Development using Information and Communication technology (IJEDICT), 2013; 9(2):4-18.
2. Ali A, Atta Badii. Review of monitoring tools for e-learning platforms. International Journal of computer science and information technology (IJCSIT), 2014, 6(3). DOI:10.5121/ijcsit.2014.6306
3. Almaiah MA, Al-lozi EM, Al-Khasawneh A, Shishakly R, Nachouki M. Factors Affecting Students' Acceptance of

Mobile Learning Application in Higher Education during COVID-19 Using ANN-SEM Modelling Technique. Electronics, 2021; 10:3121. https://doi.org/10.3390/electronics10243121

4. Jeremy B. "Progress Monitoring Through the Lens of Distance Learning Dissertations, Theses, and Projects, 2020, 398. https://red.mnstate.edu/thesis/398

5. Tania B. "Implementation of E-Learning: A Case Study of Three Schools Curtin University of Technology (SiMERR WA), AARE, 2007.

6. Baguma R, Wolters MK. Making Virtual Learning Environments Accessible to People with Disabilities in Universities in Uganda. Front. Comput. Sci, 2021; 3:638275. doi:10.3389/fcomp.2021.638275

7. Bwire, Bagarukayo, Muyinda. Online Learning Challenges in Academia: The Case of Uganda. DOI: 10.5220/0009794504840489 In Proceedings of the 12th International Conference on Computer Supported Education, 2020; 2:484-489. ISBN: 978-989-758-417-6 Copyright c 2020 by SCITEPRESS – Science and Technology Publications, Lda. All rights reserved.

8. Cavus N. Distance Learning and Learning Management Systems. Procedia-Social and Behavioral Sciences, 2015; 191:872-877.

9. Coman, Claudiu, Laurențiu G. Țîru, Luiza Meseșan-Schmitz, Carmen Stanciu, Maria C. Bularca. "Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective" Sustainability, 2020; 12(24):10367. https://doi.org/10.3390/su122410367

10. Goktalay Sehnaz Baltaci. Faculty Adoption of Online Technology in Higher Education, The Turkish Online Journal of Educational Technology – TOJET. HERI (1999). Faculty Survey 1998/1999, 2006. Retrieved from http://www.gseis.ucla.edu/heri/fac_survey.html on May 13, 2011

11. Kerka S, Wonacott ME. Assessing learners online: practitioner file. Columbus: Ohio State University, ERIC Clearing House on Adult, Career, and Vocational Education Center on Education and Training for Employment, 2000.

12. Kituyi, Geoffrey. An Analysis of E-learning Information System Adoption in Ugandan Universities: Case of Makerere University Business School. Information Technology Research Journa, 2012; 2:1-7.

13. Kothari CR. Research Methodology. Methods & Techniques. New Age International (P) Limited, Publishers, New Delhi, 2005.

14. Ma DC. Purposive Sampling as a Tool for Informant Selection. A Journal of Plants, People and Applied research, 2007, 147-158.

15. Ministry of Education and Sports. Policy Statement for 2000/2001, MoES, 2001c.

16. Muhamad S, Agatha F. Factors influencing the students' acceptance of e-learning at teacher education institute: An exploratory study in Malaysia. International Journal of Higher Education, 2020, 9(1). ISSN 1927-6044; URL: https://doi.org/10.5430/ijhe.v9n1p133

17. Mishra P, Koehler J. "Technological pedagogical content knowledge: A framework for teacher knowledge." Teachers college record, 2006; 108(6):1017-1054.

18. Sekaran U. Research method for business: A skill building approach, 4th edition, John Wiley & Sons, 2009, 2.

19. Soni VD. Challenges and solution for artificial intelligence in cybersecurity of the USA. SSRN Electronic Journal, 2020. https://doi.org/10.2139/ssrn.3624487

20. World Health Organization, 2020. https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-1 9%2D%2D-11-march-2020

21. WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). The WHO-China Joint Mission on Coronavirus Disease 2019, 2020, 16-24. Retrieved from https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-onCOVID-19-finalreport.pdf

22. Yu Q. Factors Influencing Online Learning Satisfaction. Front. Psychol, 2022; 13:852360. doi: 10.3389/fpsyg.2022.852360

23. Zalat MM, Hamed MS, Bolbol SA. The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. PLoS ONE, 2021; 16(3):e0248758. https://doi.org/10.1371/journal.pone.0248758