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Effectiveness of E-Learning on Students' Learning Process at Catholic University of Eastern Africa

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Abstract

Purpose: The main aim of this study was to investigate the effectiveness of eLearning on the student's learning process at the Catholic University of Eastern Africa. The research questions addressed the following areas: how students access educational learning resources on e-learning platforms, how eLearning has been integrated into the process of learning, how eLearning integrations affect students' learning process, how computer-based learning influences students'' completion rate at the CUEA, how e-learning and traditional learning environments significantly relate to students' learning process, the challenges that are associated with e-learning, and the mitigation measures the university is taking to resolve the eLearning challenges.

Methodology: The researcher used an integrated mixed-method approach involving qualitative and quantitative paradigms. Probability and non-probability sampling techniques were used. The target population for the research was 816 out of which, 260 respondents were sampled. From the sampled population, 218 participated in the research making an 85% return rate. The hypothesis was tested using chi-square, while internal consistency was used to ensure the internal reliability of the research instruments. Cronbach validity was used to validate the Likert scale items. Besides, correlation was used to find out the relationships between the dependent and independent variables. The researcher obtained approval from the faculty of education and permission from NARCOSTI to collect data from the respondents.

Findings: The research findings revealed that independent variables, eLearning benefits, eLearning resources, eLearning incentives, and eLearning integration contribute to students' learning process. The research further revealed that the introduction of a favorable and supportive eLearning environment positively influences Students' Learning Processes. The

researcher concluded that eLearning contributes to the effective learning process of students, therefore, is imperative to be embraced.

Unique Contribution to Theory, Policy and Practice: The researcher recommended that the government, curriculum developers and IHL focus on Instructional design, build a strong Learning management system, guidelines and policy, comparative analysis, leverage Cultural and Global perspectives, eLearning accessibility, engagement, Assessment and evaluation of the eLearning platform. Besides, the students subscribing to the eLearning platform should be given proper orientation in order to navigate the platform easily.

Key Words: *Educational Learning Resources, Computer-Based Learning, Traditional Learning Environments, Students' Learning Process and eLearning Challenges*

Background to the Study

According to Gonser, Merill and Terada, (2021), Educational researchers agree to the definition of learning to be much deeper than memorization and rote learning. They contended that, profound and long-lasting learning encompasses understanding, relating ideas and making connections between prior and new knowledge, independent, critical thinking and ability to transfer knowledge to new and different contexts. According to Kapur, (2018), Learning in the ancient times was purely inclined by religious, political, or economic aspects. The ideal name for practices and conduct was called Dharma. Olden Learning is backdated to the Ancient Indian education which is also understood as being finally the outcome of the Indian theory of knowledge as part of the corresponding structure of life and values. However, the world has transformed and skills needed are based on the product of the education system. Learning in the 21st century is different from the ancient learning systems because of the dynamic nature of the world. In the 21st century, technology is at the epicenter of everything and hence, eLearning, which is aided through computer is fundamental. Education is expected therefore, to produce competent products who are able to navigate the world of work and cope in a society that needs modern skills.

E-Learning can be defined as the application of ICTs in the delivery of content in teaching and learning. The use of ICT has changed the narrative of Institutions of Higher Learning (IHL) across the globe as most IHL have embraced innovative technology in the process of teaching and learning, (Kalembera and Majawa 2015). Countries like the United States inspire technology at the forefront of education (Camera, 2017). Equally, the Chinese government has highlighted the commitment of learning technology in their curriculum to enhance a new age of digital natives (Talbot, 2015). Technology in the African continent is an important factor to help evaluate the impact of modern technology on the education system, leading to improvement of modern education opportunities. A big percentage of course would not view e-learning as a platform whose time has come as most people believe in the physical school and traditional set-up since they were oriented in that line. A handful of people working in the eLearning fields have introduced standards for various aspects of learning to support innovative learning technology in the institutions for higher learning. There is a great need for the third world countries to transition and adopt the sustainable development strategies that would best improve the education system (UN Report, 2014).

According to Webster, (2016) the ideas of technology progress from exploratory to the underlying conventions of how humans' profit from technology and to the extent it has developed and transformed over the years. Embracing of eLearning as discovered by other studies illustrate that implementation of e-learning in schools leads to cooperative, dynamic and permanent learning, intensified students' motivation, improved access to data, communal working resources, deepened understanding, and improved and creative communicate. Universities have expanded their roles to serve and promote innovative knowledge through the introduction of practical programs that are interlinked with innovation (Rheaume & Gardoni , 2015). In addition, UNESCO report indicated that the African continent needs to embrace every available resource to bridge the global education gap of illiteracy.

Statement of the Problem

Due to the high demand of the 21st century skills and owing to the fact that the world has become so dynamic and digitalized, effectiveness of eLearning to the learning process of students is a social concern in Kenya, and particularly in CUEA fraternity. The wake of Covid-19 was an eye opener to the educationists and IHL as they were bound to set strategies for continued learning. On the other hand, the researcher's personal experience during Covid-19 pandemic increased to conduct research on effectiveness of eLearning on students learning process at CUEA. During the pandemic, learners at CUEA, especially, post graduate students subscribed to online learning which proved to be very flexible, cost effective, convenient, interactive and fun. There was success learning, where students accessed online materials, platforms, examination and results. On the other hand, there were myriad of challenges including lack of proper ICT skills on the part of both students and the lecturers, internet challenge and breakdown, electricity failure, lack of gadgets amongst students to access learning platforms and assignments.

The researcher found out that the effectiveness of eLearning has not really been focused on. Many studies are pointing out to the many challenges hindering successful implementation of eLearning in the third world countries and to narrow it down, at CUEA. The implementation of eLearning is still at the infancy stage in the Kenyan Universities due to many challenges related to technology, readiness, effectiveness, efficiency and costs of implementation. Some of the highlighted challenges facing eLearning implementation in Kenya, include inadequate ICT skills, insufficient eLearning infrastructure, inadequate finances, inadequate Internet bandwidth, poor policies and laws that create an eLearning enabling environment, inadequate eLearning technical skills especially on content development by the teaching staff and lack of concern and commitment among the teaching staff to use eLearning.

Tarus, Gichoya, and Muumbo (2015), highlighted the benefits of eLearning on the students learning process and the challenges faced by the IHL in the implementation process, in Africa and beyond, but did not address the concerns in this study. Equally, Ateka 2018, Maini, Gichihi and Muriira (2023) highlighted the challenges that still hinder success of eLearning at CUEA to include IoT adoption in CUEA libraries is limited by infrastructure challenges, training gaps, and organizational barriers but did not point out the mitigation measures that can lead to the effectiveness of eLearning on the learning process of learners. Several studies

support the use of technology in classroom but they do not assess its effectiveness on the students' learning process in terms of performance, graduation, skills acquisition, and attitude. Therefore, the researcher concluded that there was a need to conduct the study on the effectiveness of eLearning process at CUEA amid the issues challenges and benefits that have been mentioned..

Research Questions

i How do students access diverse sources of educational resources at the Catholic University of Eastern Africa?
ii What effect does eLearning integrations have on students' learning process at Catholic University of Eastern Africa?
iii To what extent has computer-based learning influenced students' learning completion rate at the Catholic University of Eastern Africa?
iv What challenges are associated with e learning at The Catholic University of Eastern Africa?
v What are the benefits of eLearning environment on the students' learning process as compared to Traditional learning environment at the Catholic University of Eastern Africa?

Theoretical Review

Online Collaborative learning (OCL) Theory

The researcher adopted online collaborative learning theory to inform this study because the study was focused on investigating the effectiveness of eLearning on the learning process of students, which is supported by computer or technology. OCL theory was relevant to this study because it gave insights on how computer aided learning is beneficial in the learning process of learners. It also emphasized insights on how best the lecturers or the instructors can employ finest practices to ensure that online learning yield results and have positive impacts on the learners. Online collaborative learning theory (OCL) was developed by Harasim in 2012 from foundations in computer-mediated communication and networked learning. (Bates, 2015) stated that OCL theory is grounded on and integrates cognitive development theories that focus on formal learning, abysmal learning situations, educational skills improvement, and construction of knowledge. OCL theory, proposes that for academic and conceptual development, discussions need to be well organized by instructors and they need to provide the necessary support, which allows students to achieve the advancement of ideas and construction of new knowledge. For learning to be effective, the lecturers and the students should be able to access the internet and organize themselves in such a way that learning will take place.

This theory proposes that the harmony of both constructivist approaches to learning and the development of the Internet resulted to the expansion of a specific form of constructivist teaching, originally called computer-mediated communication (CMC), which has developed into collaborative learning theory Harasim (2012). OCL does not seek to replace the teacher from the classroom but enables the use of technology to improve communication and collaborated learning with a specific method to the enlargement of learning based on

knowledge production aided and industrialized through social discourse. In the 21st century where technological skills are required this theory highlights the benefit that a computer or technology aided learning can lead to improved skills, efficiency in technological navigation skills that can result to high marketable graduates needed for the 21st century work force. Besides, the theory states that with technology, the teacher gets varieties of online activities and communication channels that can aid learning.

Cognitive Learning Theory (CLT)

As the name suggests, this theory deals with the cognitive ability of the learners. The proponent of the theory is the educational psychologist Jean Piaget who coined the theory in 1939. The theory (CLT) focuses on the mind and specifically the mental process such as thinking, memory and problem solving with a sole aim of opening the 'black box' of human mind to enable learning to occur. According to this theory, knowledge is approached as a schema construction and learning is viewed as a change in the learner's schemata. The CLT is also concerned with how information is processed by the brain, and how learning occurs through the internal processing of information. Piaget's theory of cognitive development works on the development of human intelligence. In his studies, Piaget reveals findings of the nature of knowledge and how, from this, humans are able to grasp and utilize it. The theory propagates those thoughts are determined by emotions and behavior. This theory compares human brain to that of a computer on how it reacts or processes an information. With cognitive learning, students learn by doing. This hands-on approach allows learners to gain a deeper, more comprehensive understanding of new materials. Therefore, behavior is subject to the brain reaction. McLeod, S. A. (2018) reiterated that cognitive approach holds that the fact that if we are to understand learning, we cannot confine ourselves to observable behavior, but must also concern ourselves with the learner's mental ability to re-organize his psychological field (i.e. his inner world of concepts, memories, etc.) in response to experience. This latter approach therefore lays stress not only on the environment, but also upon the way in which the individual interprets and tries to make sense of the environment. It sees the individual not as the somewhat mechanical product of his environment, but as an active agent in the learning process, deliberately trying to process and categorize the stream of information fed into him by the external world. This theory, therefore highlights that education provided in line with CLT will help the learners to be actively engage in learning. This latter approach lays stress not only on the environment, but upon the way in which the individual interprets and tries to make sense of the environment. For eLearning to be effective therefore the learner's attitude towards eLearning must change and they should be ready to learn and acquire skills that will enable them to be competitive in the global market as they are expected to be efficient with computer skills. Besides, the theory enlightens about the cognitive ability of the learners when it comes to learning. Indeed, learning depends on the cognitive ability of the learners and attitude towards the content taught. Even when the environment is conducive for learning, when there is lack of positive attitude and mental ability, the process is rendered futile. Hence, this theory is important as it advocates for the learners to get their brains ready to cruise computer-based learning with an open mindset to be able to effective in the contemporary workforce and to thrive in life.

Conceptual Framework

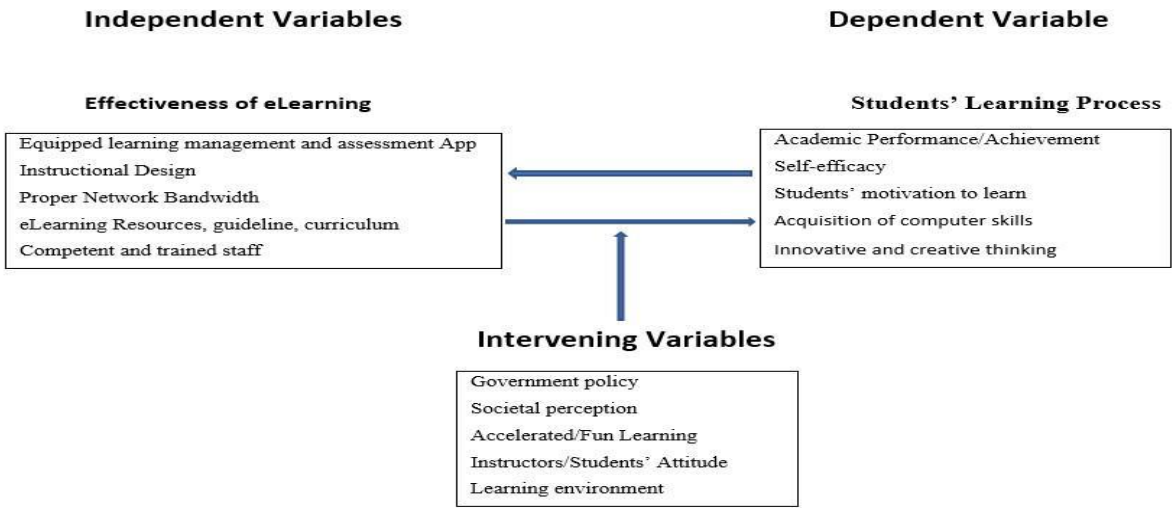

Figure 1: Conceptual Framework

Research Methodology

The study used integrated mixed methods approach was used, thus, employing both qualitative and quantitative methods in a single study to collect and analyze data. The total target population for this research was 816. The distribution of target population was as follows: Odel director (1), ICT admin (1), H.o.D s (2), Odel Post graduate students (114), Onsite P.G.S (619). ODEL undergraduate students (73) and lecturers (4). The researcher sampled a total number of 260 participants from the target population, culminating to 32% of the target population. The study focused on the three types of research instruments to collect both qualitative and quantitative data from the field. Structured questionnaire was used to collect quantitative data while open-ended interviews designed to collect qualitative date. Besides, document analysis was used to collect qualitative information about the policies and eLearning guidelines available at CUEA.

The raw data was obtained from the field, arranged and a cross examination done for all the completed questionnaires to ensure that the data collected were accurate and consistent. The researcher coded the data on SPSS, cleaned, sorted, tabulated and presented the data on tables. The data was summarized into tables to measure frequencies of abstracts, means, and percentages. The data then was analyze using correlation on SPSS version 23.0 analytical tool that enabled the researcher to find out the relationships between the dependent and independent variables. Qualitative data was and analyzed through thematic data analysis technique by coding and examination of statements and themes. This was further done by inclusion of verbatim and useful quotation. Finally, data presentation, discussion and interpretation of the research findings was done after which, conclusion and recommendations were recorded. The recommendations were drawn through the literatures reviewed, feelings and thought process of the researcher.

Results

Analysis of responses for constructs measuring statements

Access to diverse sources of educational resources at CUEA

The first research question sought to determine how students accessed education resources and particularly ICT and eLearning resources. To answer this question, students were given questionnaires, lecturers and ODEL officials interviewed. Facilities were also observed. Here we present their responses starting with quantitative data followed by quotations from interviews.

Students' response to access to diverse educational resources.

The first research question sought to determine how students accessed education resources and particularly ICT and eLearning resources. To answer this question, students were given questionnaires, lecturers and ODEL officials interviewed. Facilities were also observed. Here we present their responses starting with quantitative data followed by quotations from interviews.

Table 1: Students' response to access to diverse educational resources.

Variable	Frequency			
	Agree	Uncertain	Disagree	Total
	83%	3%	7%	93%
Cost-effectiveness in terms of infrastructure and access to learning	**204**	**6**	**8**	**218**
	86%	3%	3%	92%
Access to digital content and resources	**194**	**8**	**12**	**214**
	83%	3%	5%	95%
Responses to exam result	**185**	**19**	**10**	**214**
	79%	8%	4%	91%
Healthier absorbent of skills	**167**	**50**	**1**	**218**
	71%	21%	4%	96%
eLearning aids completion of units	**190**	**18**	**10**	**218**
	81%	8%	4%	93%
eLearning is assimilated in the delivery process	**184**	**25**	**9**	**218**
	78%	11%	4%	93%
eLearning used in the assessment process	**156**	**51**	**11**	**218**
	67%	22%	5%	94%
eLearning offers online interaction between students and lecturers	**138**	**22**	**33**	**193**
	59%	9%	15%	83%

The findings in the table 1 indicate that out of 218 respondents, 194 (83%), students agreed that the aspect of eLearning resources has simplified learning process as materials are readily available and can be accessed online with a lot of ease- leading to simplified learning procedures. Moreover, 8 out of 218 students (3%) expressed their uncertainty about how eLearning resources can simplify learning process Whereas, 16 students (7%) disagreed with

the statement that eLearning resources simplifies learning process of students, 7 out 218 students (3.0%) strongly disagreed that eLearning resources have no effect on the learning process of students. In conclusion, according to the research, 83% of the students generally agreed that eLearning resources can easily be accessed by students for effective learning at CUEA. Thus, confirming what the other researchers proposed that, eLearning resources leads to the effectiveness of learning in the IHL. The results further indicate that out of 218 responses, 204 (86%) students agreed that eLearning is cost effective in terms of infrastructure and access while, 6 out of 218 (3%) were not really sure about the cost effectiveness of eLearning. On the other hand, 8 out of 218 (3%) disagreed that eLearning is not cost effective. Moreover, some students supported their arguments by clarifying that, they agree with the statement because, while studying online, there is no need of building huge libraries and classes to accommodate students. Also, learning can be accessed flexibly without having to travel miles away to attend lessons physically. Similary, 194 out of 218 (83%) students agreed that there is access to digital content. On the other hand, 8 out 218 (3%) were uncertain or never gave their opinion on this aspect, 12 out 218 (5%) disagreed that there is no access to digital learning. From these results, there is clear indication pointing out to the fact that there is access to learning resources leading to effectiveness of eLearning on the process of learning.

From the research, it was noted that eLearning leads to immediate response of the results. The results showed that,185 out of 218 (79%) students agreed to the fact that exam results are duly recorded on eLearning. On the other hand, 19 out of 218 (8%) students were not sure, whilst, 10 out of 218 students (4%) disagreed that eLearning does not lead to immediate responses. This result indicates that over 79% are in agreement that eLearning enables students to get quick results, leading to effectiveness of eLearning on the students' learning process. The researcher found out according to the results in table 1 that, 167 out of 218 (71%) students agreed that eLearning leads to healthier absorbent of skills. While, 50 out of 218 (21%) students were uncertain about healthier absorbent of skills aspect. On the other hand, 1 out of 218 students (0.4%) students strongly disagreed that eLearning does not lead to healthier absorbent of skills. From the responses, therefore researcher concluded that eLearning leads to healthier absorbent of skills leading to its effectiveness on the learning process of students as every learning opportunity requires skills testing and results production for better decision making. From this survey, the researcher recorded that 191 out of 218 (81%) students agreed that eLearning aids the completion of units while, 18 out of 218 (8%) students were uncertain if eLearning leads to completion of units. On the other hand, 10 out of 218 (4%) disagreed to the fact eLearning leads or aids completion of the units.

The largest potion agrees with the fact that eLearning supports completion of units hence, the researcher concluded that eLearning is effective to the learning process of students. From this survey, the researcher recorded that 184 out of 218 (78%) students agreed that eLearning is assimilated in the delivery process while, 25 out of 218 (11%) students were uncertain if eLearning is assimilated in the delivery process. On the other hand, 9 out of 218 (4%) students disagreed to the fact eLearning is assimilated in the delivery process. The largest potion agrees with the fact that eLearning supports completion of units hence, the researcher concluded that eLearning is effective to the learning process of students. From this survey indicated on table,

the researcher recorded that 156 out of 218 (67%) students agreed that eLearning is assimilated in the assessment process while, 51 out of 218 (22%) students were uncertain if eLearning is assimilated in the assessment process. On the other hand, 11 out of 218 (5%) students disagreed to the fact eLearning is assimilated in the assessment process. The largest potion agrees with the fact that eLearning supports completion of units hence, the researcher concluded that eLearning is effective to the learning process of students. Based on the studies reviewed in relation to access to educational resources, most researchers agreed that eLearning gives students and opportunity to access diverse sources of resources and materials online across the globe. Meaning that, eLearning resources simplify the process of learning by availing flexible and cost-effective learning in terms of access to the resources, journals and materials that simplifies learning process. Also, the studies indicated that there is promptness when it comes to response to exam result as there is ease of submission and response at a click of a button. Also indicated that eLearning leads to healthier absorbent of skills, which happens as a result of active participation, fun in learning and collaboration between the lecturers and the students. the students also agreed that there is assimilation of eLearning in the assessment and the generally, the learning process and accessibility of all these learning resources has been made so easy.

Effects of eLearning integrations on students' learning process at CUEA

The second research question sought to determine the effects of eLearning integration on students learning process at CUEA. To answer this question, students were given structured questionnaires to respond to and the lecturers and ODEL officials were interviewed. Their responses are presented here starting with quantitative data followed by quotations from interviews.

Table 2: Effects of Learning Integration

Variable	Frequency			
	Agree	Uncertain	Disagree	Total
eLearning is assimilated into the delivery process	**184**	**25**	**9**	**219**
	78%	11%	4%	93%
eLearning used in the assessment process	**156**	**51**	**11**	**218**
	67%	22%	5%	92%
eLearning offers online interaction between students & lecturers	**132**	**47**	**33**	**212**
	59%	20%	14%	95%
eLearning and traditional learning are embedded in the learning process at CUEA	**131**	**43**	**44**	**218**
	56%	18%	19%	91%

From the results in table 2, the researcher found out that, 184 out of 218 (78%) students agreed that eLearning is assimilated in the delivery process. Also, 25 out 218 (11%) students were uncertain about the fact that eLearning is assimilated in the delivery process. on the other hand, 9 out of 218 (4%) students disagreed that there is no assimilation of eLearning on the delivery

process. eLearning has been embedded in the learning process as we are able to access materials and learn online with a lot of ease. There is fun in learning and collaboration is more effective as the lecturers communicate via LMS, Big Blue Button, through emails and also, consultations can be done via phone Therefore, based on the feedback, the researcher concluded that eLearning is assimilated in the delivery process making eLearning to be effective to the learning process of students. The results from this research showed in table 2 indicate that 156 out of 218 (67%) students agreed that eLearning is used in the assessment process. While, 51 out of 218 (22%) students recorded that they were not sure if eLearning is used in the assessment process of at CUEA. Additionally, 11 out of 218 (5%) students purported that eLearning is not used in the assessment process. One of the lecturers gave the following feedback. At CUEA, assessment is being scheduled online especially for the students who subscribe fully to the ODEL platform? The examination is being set, moderated and uploaded by various lecturers for the students to access.

Once the students have logged in to take their exams, they cannot move to other tabs once they log into the examination platform. From this analysis therefore, the researcher concluded that, with the majority of students agreeing that eLearning is used in the assessment process, therefore, eLearning has effect on the learning process of students. From this research indicated in table 2, it was recorded that 132 out of 218 (59%) students agreed that eLearning offers online interaction between students and the lectures. Likewise, 47 out of 218 (20%) were uncertain if eLearning offers interaction between the lecturers and the students, while, 33 out 218 (14%) students disagreed that eLearning does not offer interaction between students and lecturers. From the results above, the majority of the students (59%), agreed to the statement that, eLearning offers online interaction leading to a conclusion that eLearning has effect on the learning process of students. Table 2 indicated that 131 out of 218 (56%) students agreed that eLearning and traditional learning are embedded in the learning process of students. 43 out of 218 (18%) were not sure if eLearning and traditional learning are embedded together in the learning process of students. 44 out of 218 (19) and agreed that there is no ambition of eLearning and traditional learning in the process of process of students. This means that, majority of the students agreed to this statement leading to a conclusion that, there is effectiveness of eLearning on the learning process of students. The main aim of education should be to acquire skills and particularly, eLearning should be very effective in enabling students to acquire 21st century skills vital for work and life. The feedback from one of the students was recorded as follows: Access to learning and materials both online and onsite can be achieved at CUEA. We are able to attend both online and onsite platforms especially during the school holidays. I am subscribed to the part-time teaching advancement and, when schools are closed, we go to CUEA and learn on crush program and when schools are opened, we access online materials and modules online. The studies reviewed contended that the evolving technology has provided an opening to improve teaching skills and increase student's learning capabilities. Every learning institution is unique and may have varied eLearning practices and program implementation, but nevertheless, the goal is to promote eLearning effectiveness and measurement of its impact to teaching and learning is deemed essential. They further argued that, Operative eLearning should be able to attain the course learning outcomes through transfer

of knowledge, acquisition of skills, and advancement of competency. Additionally, it motivates students and teachers to work in an interactive, supportive, collaborative, and resourceful learning environment (Noesgaard and Orngreee, 2015).

Bezhovski and Poorani (2016) on the Determination of the Effectiveness of eLearning for higher education stated that eLearning has been adopted in our contemporary society and definitely is here to stay. The study further gave insight that eLearning might seem to be ineffective in the process of delivering proficiency but if embraced and integrated well, it leads to an effective learning process because of the flexibility of the Information Technology which allows the usage of different approaches and implementation of new methods regarding the process of learning. The study further contended that Academics have new possibilities to make the pedagogical process more interesting and interactive (Aristovnik, Kerzic, Tomazevic and Umek, 2016). From the findings of this study, 91% of the students generally agreed that eLearning has benefits to the learning process leading to the effectiveness of eLearning on the learning process of students. Indeed, eLearning from my perspective, having reviewed the responses and the literature remains a souvenir to education and the process of learning in terms of skills acquisition that can enable students to be effective and well-acquainted with the first-century world. We live in a world that needs graduates who are able to apply the 21st-century skills to innovate, create and assimilate processes. With the ICT skills acquired during the interaction and learning process while subscribed to the eLearning programs, students graduate with robust ICT skills that enable them to adjust to the world of work and modern society.

How computer-based learning influence students' completion rate at the Catholic University of Eastern Africa

Table 3 show that, 177 out of 218 (75%) students agreed that students subscribed to the earning platform complete school on time, while, 36 out of 218 (15%) students were uncertain about the completion rate. On the other hand, 5 out of 218 (2%) students disagreed with the statement that students subscribed to eLearning platform complete school on time. One of the Odel Administrator highlighted his opinion during the interview as follows: Reception by students is a very positive aspect of online learning as their attitude towards online studies is high and hence, most of them strive to complete school on time. Also, due to the flexibility of the online classes, most students who subscribe are in the work force and hence, find it beneficial and complete on time. Besides, students who subscribe to online learning are thrilled by the platform because of the high interactivity rate and fun in learning.

Table 3: Computer Based Learning and completion of units by students

Variable	Frequency			
	Agree	**Uncertain**	**Disagree**	**Total**
Students subscribed to the eLearning platform complete on time	**177**	**36**	**5**	**218**
	75%	15%	2%	93%
The attendance on eLearning platform is perfect	**140**	**45**	**33**	**218**
	60%	19%	14%	92%
eLearning provide efficient and more accessible space than TLE	**152**	**44**	**22**	**214**
	64%	19%	9%	95%
eLearning benefits on students learning process are enhanced by memorability	**171**	**33**	**14**	**214**
	73%	14%	6%	91%
eLearning offers efficacy and exquisite ICT skills than TLE	**180**	**28**	**13**	**218**
	75%	12%	6%	96%
eLearning enables students to acquire skills needed for the 21st-century work.	**160**	**53**	**5**	**218**
	68%	23%	1%	93%
eLearning is assimilated in the delivery process	**184**	**25**	**9**	**218**

From the analysis above, 75% of the students support that student subscribed to eLearning have the ability to complete on time. Also, the administrators affirmed that students who subscribe to eLearning complete and graduate successfully. Some of the students gave more views on why there is timely completion such as of flexibility, availability of learning resources etcetera.bThe result of the research in table 3 indicated that 140 out of 218 (60%) students agreed that attendance on eLearning platform is perfect. Meaning that, eLearning marks good attendance of students. Equally, the research specified that 45 out of 218 (19%) indicated that they were uncertain about the attendance on eLearning platform and its perfection. On the other hand, 33 out of 218 (14%) students disagreed that attendance on eLearning platform is not perfect. Since 60 % of students supported the fact that the attendance on eLearning platform is perfect, the researcher concluded that, there is effectiveness of eLearning on the learning process of students. The Odel Administrator confirmed this during the interview as indicated below: Because of the flexible nature of the eLearning platform, the attendance is good and we have not had absenteeism issues as students can log in from their comfort zone and do the assignments on time.

From the table 3, 152 out of 218 students (64%) agreed that eLearning provide efficient and more accessible space than traditional learning platform. On the other hand, 44 out of 218 (19%) students responded that they were not sure about this aspect therefore, they either reserved their comments or simply responded that they do not know. 22 out 218 (9%)) students disagreed with the statement that eLearning provide efficient and more accessible space than

TLE. Feedback from one of the students was as follows:We can join the class at our own convenience without struggling with jam to and from school. Besides, we can access materials and resources without having to travel long distance. From this analysis, it is strongly noted that 64% of the students agreed that eLearning do provide efficient and more accessible space than TLE leading to effectiveness of learning on the students learning process.Table 3 states that, 171 out of 218 students (73%) agreed that eLearning provide eLearning has benefits on students learning process. On the other hand, 33 out of 218 (14%) students responded that they were not sure about this aspect therefore, they either reserved their comments or simply responded that they do not know. 14 out 218 (6%)) disagreed with the statement that eLearning provide efficient and more accessible space than TLE. One of the Odel Administrators highlighted the following during the interview: Some of the benefits of eLearning on students learning process include: Flexible learning, learning control, students become technological savvy, best practices learnt, graduation is timely and students and university's learning expectation met. From this analysis, it is strongly noted that 73% of the students agreed that eLearning do provide efficient and more accessible space than TLE leading to effectiveness of learning on the students learning process. Equally, based on the feedback given by the Odel Administrator who interacts with the platform and the students, we can conclude that eLearning has benefits on the students' learning process.; Table 3 highlight that, 160 out of 218 (73%) students agreed that eLearning enables students to acquire skills needed for the 21st-century work. On the other hand, 53 out of 218 (23%) students responded that they were not sure about this aspect therefore, they either reserved their comments or simply responded that they do not know. 14 out 218 (6%)) disagreed with the statement that eLearning enables students to acquire skills needed for the 21st-century work. From this analysis, it is strongly noted that 73% of the students agreed that eLearning enables students to acquire skills needed for the 21st-century work leading to effectiveness of learning on the students learning process.

Benefits of eLearning on the students learning process as compared to traditional Learning environment

The fourth research question sought to determine the benefits of eLearning on the students learning process as compared to traditional Learning environment. To answer this question, students were given structured questionnaires to respond to and the lecturers and ODEL officials were interviewed. Their responses are presented here starting with quantitative data followed by quotations from interviews.

Table 4: Benefits of eLearning on the students learning process as compared to traditional Learning environment

Variable	Frequency			
	Agree	**Uncertain**	**Disagree**	**Total**
eLearning environment provide efficient and more accessible space for learning than TLE	**148** 63%	**45** 21%	**25** 11%	**218** 95%
ICT has been incorporated in curriculum	**171** 73%	**33** 14%	**14** 6%	**214** 91%
The eLearning benefits on students' learning process are enhanced by memorability	**171** 73%	**21** 9%	**26** 11%	**218** 93%
eLearning environment offers fun and engagement on eLearning process more than	**156** 66%	**36** 15%	**26** 11%	**218** 92%

Table 4 indicate that 148 out 218 (63%) agreed that eLearning environment provide efficient and more accessible space for learning than TLE. While 45 out 218 (21%) were uncertain if eLearning environment provide efficient and more accessible space for learning than TLE. 25 out of 218 (11%) disagreed eLearning environment provide efficient and more accessible space for learning than TLE. Some students further elaborated that eLearning environment provide spaces and opportunity for students to learn from a distance and access resources and thus, many students have achieved academic goals without necessarily having to attend physical classroom. Table 4 indicate that 171 out 218 (73%) agreed that ICT has been incorporated in curriculum. While 33 out 218 (14%) were uncertain if ICT has been incorporated in the curriculum. On the other hand, 14 out of 218 63 %) disagreed that ICT has been incorporated in curriculum. According to this research, most students agreed that the curriculum at CUEA has been embedded with ICT and thus, leads to the effectiveness and success of eLearning on the learning process of students. Table 4 indicate that 171 out 218 (73%) agreed that eLearning has benefits on students' learning process and are enhanced by memorability**.** While 21 out 218 (9%) were uncertain if ICT has been incorporated in the curriculum. On the other hand, 26 out of 218 (11 %) disagreed that eLearning has benefits on students' learning process and are enhanced by memorability. According to this research, most students agreed that the curriculum at eLearning has benefits on student's learning process. They further cited that such benefits include, flexibility, accessibility**,** acquisition of ICT, availability of online resources and ability to prepare and take exams online etcetera. The TAM stated that the individual's benefits and perceptions have an effect on the formation of an individual's attitude towards e-learning. In this case, the variable that the individual perceives as a benefit is "academic motivational" and the variable perceived as convenience is "computer self-efficacy" (Chow, Herold, Choo, and Chan, 2012). All the students subscribed to eLearning are engaged fully through learning and accessibility of resources.

According to the finding, generally, 92% of the students agree that eLearning has benefits to the students learning process as compared to the traditional learning platform due to myriad of benefits that occur when students enroll on the eLearning platform. This means, the students educational objectives is achieved because they are able to benefit and acquire skills needed for the 21st century job market. The researcher, based on these reviews therefore, concluded that eLearning is effective to the learning process of students. According to the interviews carried out among the students in CUEA, many of them agree that incorporation of ICT in curriculum has boosted the effectiveness and led to success of the eLearning in the institution. A bigger percentage of the students further agreed the ICT play a bigger role in boosting memorability which in turn benefit students in the learning process.

What are the challenges associated with eLearning in the Catholic University of Eastern Africa?

The fifth research question sought information on the challenges that are associated with eLearning in the Catholic University of Eastern Africa.. To answer this question, students were given structured questionnaires to respond and the lecturers and ODEL officials were interviewed. Their responses are presented as follows starting with quantitative data followed by quotations from interviews

Table 5: Challenges of eLearning on the students learning process

Variable	Frequency			
	Agree	**Uncertain**	**Disagree**	**Total**
Students plagiarize or copy exams (from other students or Google)	**148**	**45**	**25**	**218**
	63%	21%	11%	95%
Students over-rely on ICT	**144**	**36**	**38**	**218**
	61%	17%	16%	94%
There is lack of interaction between lecturers and students	**95**	**23**	**100**	**218**
	40%	10%	43%	93%
Limited computers with internet connections	**171**	**21**	**26**	**218**
	73%	9%	11%	93%
Technical support not sufficient	**156**	**36**	**26**	**218**
	66%	15%	11%	92%
Accessibility of eLearning materials is a challenge for students	**155**	**45**	**18**	**218**
	66%	19%	8%	93%

From the results in table 5, 148 out 218 (63%) agreed that students plagiarize or copy exams (from other students or google) while 45 out 218 (19%) were uncertain about the students plagiarize or copy exams. 21 out of 218 (11%) disagreed that students do not plagiarize or copy examination due to high level of technology. Some students further elaborated that there are no measures set aside to curb cheating in examination. Besides, some students

suggested that chatgpt and AI are normally used by students to get answers to the questions as no one supervises over online platform. Table 5 indicate that, 144 out of 218 (61%) agreed that students do rely on ICT as they cannot think but surf for answers on the platform. 36 out of 218 (17%) were uncertain if the students over rely on ICT while, 38 out of 218 (16%) disagreed with the fact that students do not rely on ICT. This means that eLearning has effectiveness on learning process of students

From these results in table 5, 95 out 218 (40%) agreed that there is lack interaction between lecturers and students. 23 out 218 (10%) were uncertain if there is lack of interaction between lecturers and students on the eLearning platform while, 100 out 218 (43%) disagreed with the fact there is lack of interaction between lecturers and students. the researcher concluded that there are challenges related to limited computers and internet issues that hinder effectiveness of eLearning on the learning process of students at CUEA. From the result table 5, 171 out of 218 (73%) agreed that there are limited computers with limited internet connection leading to disruptive connection to eLearning. This, according to the feedback, leads to ineffectiveness on the learning process of students at CUEA. On the other hand, 21 out of 218 (9%), of the students never gave they views as they were uncertain if there are limited computers with limited internet connection. Equally, 26 out of 218 (11%) of the students strongly disagreed and agreed respectively that they have not faced limited computer and internet related issues while undertaking their studies at CUEA.

From the observed result therefore, the researcher concluded that there are challenges related to limited computers and internet issues that hinder effectiveness of eLearning on the learning process of students at CUEA. According to the results in table 5, 156 out of 218 (66%) of students submitted that there is lack of sufficient technical support to help them with smooth transition while undertaking their studies at CUEA. Also, 36 out 218 (15%) of the students were uncertain if there is technical support for the students subscribed to eLearning platform. 26 out of 218 (11%) of students disagreed and strongly disagreed that technical support is not sufficient at CUEA. From the analysis above, the researcher concluded that, since 66% of the students responded that there is lack of technical support means that this is a challenge that impeded learning process of students at CUEA. From the result in table 5, 155 out of 218 (66%) of the students agreed that accessibility of the materials online is a challenge as they are not oriented to how well they need to access the materials and secondly, the procedures and materials they need seem not be easily available. On the other hand, 45 out of 218 (19%) students were uncertain if accessibility of learning materials is a challenge for students while 18 (8%) of students agreed and strongly disagreed respectively that accessibility of eLearning materials is a challenge at CUEA. From the results above, with 66% students supporting that accessibility of learning materials is a challenge, the researcher concluded that, the challenge of accessibility do exist at CUEA and that can hinder the learning process of the students.

From the interview conducted by the researcher, the Odel Administrators gave some of the challenges facing online learning as follows: Material preparation takes long, Lack of trainings and skills amongst the lecturers, Students' lecturer is interaction limited, resistance to change by lecturers. One of the lecturers gave the following opinion on the challenges of eLearning on

students' learning process: Exam cheating by students/plagiarism, Lack of proper tools to track plagiarized work, Application and rigidity by the lecturers/ parents to embrace eLearning platform. She further suggested the following mitigation measures during the interview: Acquisition of proctoring to detect cheating, plagiarism, copy pasted work, motivating the lecturers to be able to embrace change, Conduct more in-service training for the lecturers and staff on eLearning. Based on the various studies reviewed, the researcher highlighted a number of core lessons including the research by Burkholder, Morad and Marsh (2017), who found out that digital insurgency has deeply impacted daily living, as manifested in the upsurging of technological devices witnessed in the world today. The use of computers, mobile phones, the internet and other digital devices is at its highest peak and will continue to rise as the world continues to advance technologically. The studies further indicated that most of the barriers that IHL face in the process of technological integration are subjected to institutional policy and practice and faculty beliefs and abilities. For instance, university administrators may view technology as a tool to attract and retain students, while faculty might struggle to regulate how technology overlaps with prevailing pedagogy.

Besides, other challenges included the existence or deficiency of such a framework that determines whether eLearning initiatives will fail or succeed. In the Kenyan context, the initial government policy that dealt with DE in institutions of higher education was anchored on the Act of Parliament of 1966 which created the Adult Education Board. Other challenges pointed out included, insight that ICTs are driven by electricity; the rural electrification program (REP) and the last mile electricity connectivity initiative are other government effort geared towards the expansion of the national ICT infrastructure has not been successful and hence, there is a huge gap in filling this quagmire. In Kenya, for instance, quality is seen as the degree of excellence and in the e-Learning context, the availability of network and electricity to use the technological tools is key for the success of eLearning to occur. In conclusion, the researcher supported that there are challenges related to eLearning platform that hinders the effectiveness of learning process of students at CUEA and in other IHL. According to the research, 93% of the students supported that there are various challenges hindering learning process. If these challenges are mitigated, eLearning platform can become the best platform for learning as its benefits are more than the challenges, including the fact that it offers the 21st century skills to learners helping them to achieve the 21st century educational objectives.

Besides, eLearning has got both positive and negative effects on the learning process of students. From the data collected through interviews, it was noted that eLearning have effects on the learning process of students. From the answers, the benefits of eLearning superseded the negative effects which, according to the perspectives of various participants, can be mitigated for improved performance. It was noted that students embraced eLearning platform as it is more flexible and suits their schedules, cost effective as the subscribers on eLearning pay less money, accessibility of the learning resources is easier and at the end, the students acquire ICT skills needed for work and life as eLearning navigation requires students to acquaint themselves with ICT skills. On the other hand, the administrators recognized the fact that eLearning is achieving its objectives as students are able to graduate and further their studies as appropriate. On the other hand, the interviewees recorded challenges associated with

the eLearning platform to include: lack of in-services training and reluctance of the lecturers to adopt to the new technological ways, designing of content for the students subscribed to the platform, lack of proper tools like proctoring to detect cheating and copy pasting, and network challenges etcetera. These, if not mitigated well, can hinder the learning process of students. Further, the researcher seek opinions of the interviewees on the proposed mitigation measures and the following were the proposed measures to curb challenges hindering functionality of eLearning which in return affects the learning process of learners at CUEA:

Table 6: Correlation of the variables

Correlations

Control Variables			Accessibility and flexibility	Incorporation of ICT in the curriculum	eLearning benefits on students learning process are enhanced by memorability	Students plagiarize or copy exams (from other students or google)
Gender of the respondent & Level of study & subscribed to eLearning platform & Mode of study & Other learning motivations on student's learning process	Accessibility and flexibility	Correlation	1.000	.020	-.040	.255
		Significance (2-tailed)	.	.770	.558	.000
		Df	0	211	211	211
	Incorporation of ICT in the curriculum	Correlation	.020	1.000	-.110	-.002
		Significance (2-tailed)	.770	.	.108	.978
		Df	211	0	211	211
	eLearning benefits on students learning process are enhanced by memorability	Correlation	-.040	-.110	1.000	-.087
		Significance (2-tailed)	.558	.108	.	.205
		Df	211	211	0	211
	Students plagiarize or copy exams (from other students or google)	Correlation	.255	-.002	-.087	1.000
		Significance (2-tailed)	.000	.978	.205	.
		Df	211	211	211	0

The four correlations of interest include: accessibility and flexibility, incorporation of ICT in the curriculum, eLearning benefits on students learning process and students plagiarize or copy exams. The 4 correlations are of interest because the diagonal consist of correlations of each variable with itself always resulting in a value of 1.00 and the values on each side of the diagonal replicate the values on the opposite side of the diagonal. From the above table, there is a a unique correlation resulting to a positive correlation between Incorporation of ICT in the curriculum and Accessibility and flexibility of eLearning platform (.020) indicates that there is a statistically significant ($p < .001$) linear relationship between these two variables such that the incorporation of ICT in the curriculum leads to benefits of eLearning on the students learning process at CUEA. Also, there is a statistically significant ($p<.001$) negative correlation coefficient (-.040)for association between that the incorporation of ICT in the curriculum leads to benefits of eLearning on the students learning process at CUEA indicating that, the linear relationship between these two variables is one in which the value of one variable decrease as the other increases.

Conclusion

This research focused on the effectiveness of eLearning on Students' Learning process (SLP) at CUEA. The target population was both the Odel and regular post graduate, Undergraduate, lecturers, Odel technical team and Administrator. From the findings of the study, it was evident

that eLearning benefits, motivations, and integration have exclusive and noteworthy aids to Students' Learning Process (SLP). On the other hand, it was noted that eLearning challenges have exceptional influence which is not statistically significant to SLP. Nevertheless, a qualitative interview of respondents exhibited that eLearning challenges unpleasantly affect the process of learning. Therefore, IHL should strive to look for mitigation measures to minimize the challenges and look for solutions in order to realize effective and efficient SLP. On the eLearning environment, which entail Interface design, Instructional content and Learners' support services, the researcher concluded that, eLearning benefits are heightened by good eLearning environment which in turn facilitates SLP. It was noted that, underprivileged eLearning environment upsurges eLearning challenges which negatively affect SLP. The findings of this research proposes numerous decision-making inferences. Significantly, IHL administration should widen the use of eLearning to facilitate Students' Learning Process. On the other hand, they ought to cautiously diminish eLearning challenges and unfavorable eLearning environment as that will result to reduced negative effect on the SLP. Conclusively, eLearning setting plays a serious part in enhancing effective and efficient SLP.

Recommendations

The IHL should investigate further how eLearning can be incorporated into the traditional classroom for possibility of effective blended learning. Students need to acquire the ICT skills that will prepare them for the world of work and life. Education at the IHL should produce graduates who are computer proficient as the world requires computer literate employers and citizens who are able to be productive, adjustive, creative, innovative and proficient with technology. Hence, the researcher recommends that in order for effective learning to take place, there should be exquisite blending of the eLearning platform. According to the findings, the researcher recommends that the institutions for higher learning implementing eLearning should explore how different sets of LMS platforms impact the effectiveness of eLearning. The researcher recommends that the government should evaluate and implement adherence standards for accessibility standards of eLearning materials and their effectiveness on eLearning process.

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