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FACTORS INFLUENCING LECTURERS AND STUDENTS' UTILIZATION OF E-LEARNING RESOURCES AT THE UNIVERSITY OF EASTERN AFRICA BARATON, KENYA: TOWARDS IMPROVEMENT OF THE INNOVATION

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Abstract

In Kenya and across the world, Universities partnered with technology companies to invest in innovations, which sustained the teaching and learning processes during the Covid 19 pandemic. Such innovations, which at first appeared to be disruptive, have now been adopted and are likely to sustain the universities in case there would be another pandemic. The researchers are of the opinion that the Covid 19 instigated short-term innovations such as eLearning platforms will lead to long-term innovations as universities continue to leverage in the post Covid-19 lock down period. However, research reveals that as universities invest more in the Learning Management Systems, their utilization by faculty and students is poor. This study explored the faculty and students' knowledge, skills, attitudes and challenges in the utilization of the eLearning platform at the university of Eastern Africa, Baraton, Kenya. Community of inquiry and TPACK frameworks informed the study. Descriptive, correlational and comparative design approaches and a sample of 203 eLearning platform users were used in the study. Means, standard deviations, t-test, ANOVA, Pearson correlation and multiple linear regression were employed. The findings revealed that there is a significant difference between the faculty and students in utilization of eLearning resources ($p=0.010$). Age also significantly influenced utilization of eLearning resources and activities ($p= 0.036$) with those between 26-36 years showing higher utilization. Utilization of eLearning resources also had a strong, positive and significant correlation with skills ($r=0.885$) and knowledge ($r=0.880$). Skills was the best predictor of utilization of eLearning resources ($p=0.000$). The greatest challenge in utilization of eLearning was infrastructure ($p=0.000$). The study therefore recommends faculty and students skill improvement on eLearning resources, specifically for those aged over 36 years. In addition, more focus should be on investing more on the infrastructure that supports the eLearning platform of the University.

Key Words: eLearning, Learning Management Systems, Covid 19 Pandemic, Curriculum, Innovation, University Education.

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Introduction

During Covid-19 pandemic Universities collaborated with technology companies to invest in innovations which sustained the teaching and learning processes. Such innovations, which at first appeared to be disruptive, have now been adopted and have prospects of sustaining the universities in case there would be another pandemic. However, research reveals that as universities invest more in the Learning Management Systems, having been gagged by the tangible and the intangible threats of the disease, their utilization by faculty and students remains poor. As much as literature points to multiple factors that influence utilization of eLearning resources by faculty and students; demographic characteristics of the users often stand out and are among the recommended factors for further investigation. Demographic characteristics such as the users' age, attitudes, knowledge, and skills have been found to impact on engagement of students and faculty in online courses. This study explored such factors, with the aim of establishing the attitudes, knowledge, skills and levels of utilization of the resources and activities on the eLearning platform of the University of Eastern Africa Baraton. The study further compared students and faculty on these variables, and regressed the given challenges and utilization to draw conclusions on those that need immediate attention.

Development and Trends in Online Learning

According to Niaz, Memon,and Khokhar (2021) the history of online learning dates back to the 1920s and 1930s distance learning through email, radio and Tele courses. This was later improved by the introduction of Programmed Logic for Automated Teaching Operations (PLATO) in 196os; CD-based training that integrated use of text, digital video, digital audio, graphics, and animated information multimedia technology in 1990s. In the same period, Computer Assisted Language Learning-CALL, a multimedia technology was introduced in the teaching and learning of all four language skills (listening, speaking, reading and writing). The expansion of World Wide Web contributed to the invention of Learning Management System branded as Cecil in 1996; which enabled organization of documents, recording and delivery of e-learning courses. The latest version of LMS, Moodle, was developed by Martin Doguianas in 2001. It is an open source and free software which assists instructors to build online courses focusing on interaction. The LMS are used for hosting, and delivering content, web conferencing, chat forums, learning games, among others. Modern LMS support web based program delivery enhanced by subsequent innovations such as You Tube in 2005, MOOCs in 2008, Mobile phones; and E-Learning web sites such as Coursera, FutureLearn and EdX which have formed memorandum of understanding with universities. Since the onset of Covid 19 pandemic there is a continuing decline in traditional physical classroom settings, contrasted with the rising enrollment in online education, primarily driven by supply and demand factors for online teaching and learning (Allen & Seaman, 2017). Adult learners worldwide are increasingly adopting online learning through learning management system (LMS) platforms (Pappas, 2019). Educators are recognizing the significant advantages of LMS in enabling adult learners to complete their college education

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irrespective of geographic constraints (Brown, 2018). Many colleges and universities are integrating advanced LMS technologies that align seamlessly with their existing technological frameworks, thereby providing an enhanced educational experience for both instructors and students (Chao, Wu, & Wu, 2021). As observed by Redmond et al (2018) and Bradley (2021) the overall experiences with LMS have been largely positive.

The Justification for Online Learning

Prestigious institutions across the world are offering courses, professional certificates, and college degrees online via the learning management systems, and consider this as a more efficient way to attract a large clientele of students. Besides, it is considered to accrue several benefits to the users as compared to traditional instructional models. Online learning offers no restrictions of time or distance. It provides conducive environment for learning and teaching (Epping, 2010). It further helps in proper organization of content. If any institution plans to operate traditional courses online, an LMS is required for courses, faculty, students and grades. LMs also provides tools for multimedia, contents, assignments, and supporting interaction, including discussion groups, chat sessions, and online quizzes and examinations.

According to Bonk and Graham (2006), eLearning platforms have pedagogical improvement that is a more learner centered. This increases access and flexibility. Access is one of the most important key factors, which influence the growth of learning environments. LMS makes learning possible, even when learners have most of their learning experiences far from instructors or other learners. Further, online learning is cost effective in higher education. It provides an opportunity for reaching a large, globally dispersed audience in a short period with consistent content delivery. In Kenya, the main instigator of eLearning was Covid19; such short term innovation which was used to counteract the lock down protocols have a potential for long term innovations as universities continue to leverage in the post Covid-19 lock down period. More research on the utilization of eLearning is crucial as institutions look forward to new innovative Learning Management Systems that will offer the best education delivery services to adult learners in the online environment (Ortiz & Green, 2019; Ohliati & Abbas, 2019).

Learning Resources available on the Moodle Learning Management System (LMS)

Moodle, a widely-used open-source Learning Management System (LMS), provides a robust platform for delivering online education. It supports numerous plugins and built-in tools designed to enrich the online learning environment. These tools can be broadly categorized into communication tools, collaboration tools, assessment tools, and content delivery tools. The following is a discussion of each category of tools highlighting their features, benefits, and impacts on educational outcomes.

Communication Tools

Forums: Forums are a core feature in Moodle, allowing asynchronous communication among students and instructors. They support various types of discussions, including question and answer forums and peer discussions. Recent studies highlight that forums facilitate deep learning by enabling reflective thinking and interaction among peers (Wise, Hausknecht, & Zhao, 2014).

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Chats: Moodle's chat tool supports real-time communication, making it suitable for synchronous discussions and instant feedback. Recent research notes that chat sessions can enhance social presence and immediacy in online courses, fostering a sense of community among learners (Griffiths & Graham, 2010).

Messaging: The messaging tool in Moodle allows private communication between users. It supports notifications and alerts, which are crucial for keeping students informed and engaged (Rodriguez & Armellini, 2021).

Collaboration Tools

Wikis: Wikis in Moodle support collaborative writing and knowledge construction. They allow multiple users to create and edit content, making them ideal for group projects and collaborative assignments. Recent studies indicate that wikis promote collaborative learning and enhance students' writing and critical thinking skills (Wheeler, Yeomans, & Wheeler, 2008; Pifarré & Li, 2012).

Workshops: The workshop module in Moodle facilitates peer assessment and collaborative learning. It allows students to submit work and receive feedback from peers, promoting active engagement and critical evaluation skills (Van den Berg, Admiraal, & Pilot, 2006; Topping, 2018).

Glossaries: Glossaries enable students to collaboratively create and manage a repository of terms and definitions. This tool supports cooperative learning and helps build a shared knowledge base (De Smet, Van Kheer, & Valcke, 2008; Sung, Chang, & Liu, 2016).

Assessment Tools

Quizzes: Moodle's quiz module supports a variety of question types, including multiple-choice, true/false, and short answer questions. It provides automatic grading and feedback, which enhances learning by offering immediate performance insights (Alruwais, Wills, & Wald, 2018). Recent advancements in this area highlight improvements in adaptive learning technologies and their integration into quiz modules to provide personalized feedback and assessment (Baker & Siemens, 2019).

Assignments: The assignment module enables instructors to collect, review, and provide feedback on student submissions. It supports various file types and submission formats, making it versatile for different assessment tasks (Reeves, 2000). Recent updates include enhanced tools for plagiarism detection and the incorporation of peer review features (Kurt, 2019).

Gradebook: The gradebook in Moodle integrates with other assessment tools to provide a comprehensive overview of student performance. It allows instructors to track progress, identify learning gaps, and provide targeted support (West, Waddoups, & Graham, 2007). Recent developments focus on advanced analytics and reporting features that offer deeper insights into student performance and progress (Kirkwood & Price, 2020).

Content Delivery Tools

Lessons: The lesson module in Moodle delivers content interactively, guiding students through a series of pages and questions. This tool supports adaptive learning by providing different paths based on student responses (Eom, Wen, & Ashill, 2006). Recent research highlights advancements in adaptive learning technologies within lesson modules that enhance personalized learning experiences (Chen, & Hsu, 2020).

SCORM: Moodle supports the integration of SCORM packages, which are standardized e-learning content modules. SCORM-compliant content can include multimedia, quizzes, and interactive activities, enhancing engagement and interactivity (Koutsoukou-Argyraki &

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Triantafillou, 2013). Recent updates focus on the improved compatibility and functionality of SCORM packages with modern LMS platforms (Gonzalez & Rivas, 2021).

Multimedia: Moodle allows the embedding of multimedia content such as videos, podcasts, and interactive simulations. The use of multimedia has been shown to enhance understanding and retention of complex concepts (Mayer, 2003). Recent studies emphasize the effectiveness of multimedia in supporting diverse learning styles and improving educational outcomes (Sorden, 2020).

Utilization of eLearning Resources by Faculty and Students

The utilization of eLearning resources involves engagement with various tools and content available on the platforms. Faculty members use eLearning platforms for diverse instructional activities including content delivery, communication, and assessment. They upload lecture notes, videos, and reading materials (Martin, Budhrani, & Wang, 2019), and create interactive activities such as discussion forums and assignments to engage students actively (Crawford-Ferre & Wiest, 2012). Additionally, they use online tools to conduct formative and summative assessments, providing instant feedback (Wang, Wang, & Huang, 2020). On the other hand, students engage with eLearning platforms primarily for accessing learning materials, participating in interactive sessions, and assessment. They download lecture notes, view recorded lectures, and read eBooks (Johnson, Adams Becker, Cummins, Estrada, Freeman, & Hall, 2016). Interactive sessions include participating in discussion forums, group projects, and virtual labs (Roberts, 2018). Their participation in assessment and feedback includes completing online quizzes and assignments and receiving feedback from instructors (Gašević, Dawson, & Siemens, 2015). However, it should be noted that student's utilization of resources and general participation in an online class is not in isolation. As depicted in the Community of Inquiry framework in Figure 1, which informed this study, for effective learning experience in an online course there must be an interaction between three components; social presence, cognitive presence and the teaching presence.

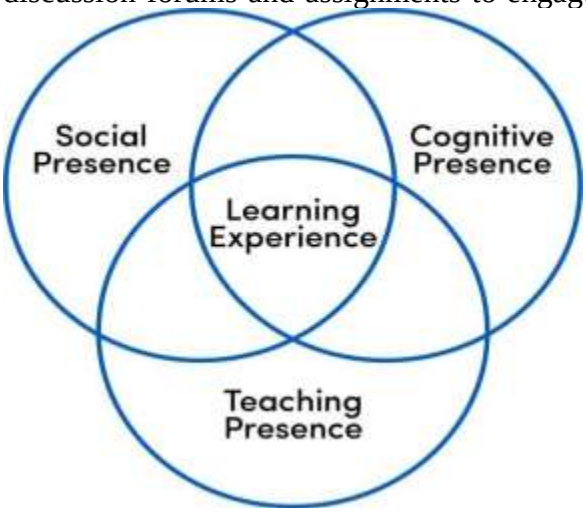

Figure 1: Community of Inquiry Framework, Source, University of Buffalo

Knowledge and Skills for eLearning Resource Utilization

Instructors Knowledge and Skills:

Effective use of eLearning platforms by course instructors requires a blend of technical, pedagogical, and content knowledge. According to Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework, educators must integrate these knowledge domains to design and deliver effective online courses. This is why this theoretical framework was deemed suitable for the study. Figure 2 below shows the interaction.

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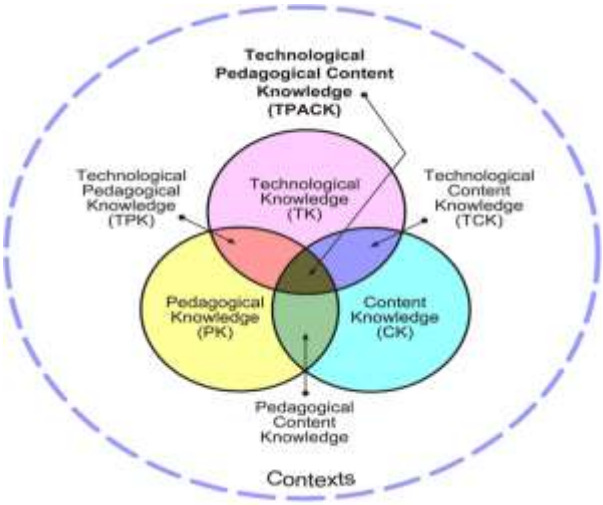

Figure 2: TPACK MODEL: Reproduced by permission of the publisher, © 2012 by tpack.org

With regard to technical skills, instructors need proficiency in using eLearning tools such as learning management systems (LMS), multimedia content creation, and online communication platform. Studies indicate that ongoing professional development is crucial for equipping faculty with these skills (Koehler, Mishra, & Cain, 2013). In addition, they should have pedagogical skills which require an understanding of how to facilitate online learning, engage students, and assess their progress. As observed by Anderson (2008), Instructors must be adept at creating interactive and collaborative learning environments. Lastly, it is important for instructors to have knowledge on content. They must ensure that their subject matter expertise is effectively translated into the online format, utilizing appropriate digital resources and activities (Shulman, 1986).

Student Knowledge and Skills:

Students require specific skills and knowledge to effectively navigate and benefit from eLearning platforms. Digital literacy is paramount, encompassing the ability to use various digital tools and resources, including navigating LMS, participating in online discussions, and utilizing digital libraries (Ng, 2020). Moreover, online learning necessitates a higher degree of self-discipline and motivation. Students must possess strong self-regulation skills, which include effective time management, goal setting, and self-assessment of progress (Barnard-Brak, Paton, & Lan, 2019). General skills application has been particularly challenging in the technical subjects. For instance, Bradley(2021) observed that even though students have a positive attitude toward LMS technology resources, but many…do not know how to apply LMS tools in a mathematics classroom and online environment.

Research Methodology

The study adopted descriptive, correlational and comparative design to explore the types of facilities and resources on the eLearning platform; lecturers 'and students' knowledge on the facilities and resources; lecturers and students' levels of skill in the utilization of the facilities and resources. The level of actual utilization of each facility and resource, the attitude towards eLearning platform and the challenges experienced in the utilization of the facilities and resources

Population and sampling

The target population was all the 5,000 eLearning platform users at the University of Eastern Africa, Baraton. The target sample size was determined using formula;

$$\frac{N}{(1+(Ne^2)} = \frac{5000}{(1+(5000*0.05^2)} = 370.$$

However, the actual number of respondents was 203 comprising of faculty and students. This gave a 55% response rate. This response rate was deemed sufficient as it met the threshold for online survey, which provides a minimum sample size of 100 as sufficient.

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Research Instrument

An online questionnaire that comprised of four sections was used to collect data. Section A comprised of items on demographic information; Section B- knowledge on the functions of resources on the eLearning platform; Section C - skills in using resources on the eLearning platform and Section D - attitude of the Faculty and students towards eLearning platform as a medium for instruction.

Results and Discussion

The data collected was analyzed using descriptive and inferential statistics. The descriptive statistics were mainly the mean and standard deviations, which were used to understand the data. The inferential statistics such as the t- tests, Pearson product moment correlation and regression analysis were used to test the various hypotheses. The SPSS statistical tool was employed in the analysis. The first research question sought to establish the faculty and students' knowledge on the functions of resources on the UEAB eLearning platform. It read, what are the faculty and students' ratings on their knowledge on the functions of various activities and resources on the UEAB E-Learning platform?

Table 1: Knowledge on Activity Resources (Descriptive Statistics)

Status	Students			Faculty			All		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Assignments	3.4855	173	0.6786	3.6667	30	0.4795	3.5123	203	0.6552
Discussion Forum	3.2775	173	0.8783	3.3000	30	0.7497	3.2808	203	0.8588
Chat	2.9827	173	0.9969	3.0000	30	0.8710	2.9852	203	0.9774
Big Blue Button	2.7977	173	1.1308	3.1333	30	0.7761	2.8473	203	1.0906
Data base	2.9294	170	1.0353	2.6333	30	1.0334	2.885	200	1.0377
Choice	3.2023	173	0.9642	2.7000	30	1.0222	3.1281	203	0.9867
EBSCO Library	2.6879	173	1.1542	2.7000	30	1.0222	2.6897	203	1.1333
External Tool	2.6936	173	1.1329	3.1667	30	0.7466	2.7635	203	1.0960
Feedback	3.0289	173	1.0254	2.9000	30	0.8447	3.0099	203	1.0000
Glossary	2.7283	173	1.0736	2.3333	30	0.8442	2.6700	203	1.0504
Lesson	3.4104	173	0.8689	3.3667	30	0.7184	3.4039	203	0.8469
H5P	2.5202	173	1.1693	2.0000	30	0.8710	2.4433	203	1.1434
Questionnaire	3.0809	173	0.9909	2.8667	30	1.0417	3.0493	203	0.9988
Workshop	2.6763	173	1.1046	2.2667	30	0.9072	2.6158	203	1.0855
Survey	3.0636	173	1.0239	2.7667	30	1.0400	3.0197	203	1.0291
Wiki	2.6879	173	1.1492	2.2000	30	0.8052	2.6158	203	1.1170
Quiz	3.5665	173	0.7490	3.6333	30	0.6150	3.5764	203	0.7297
SCORM Package	2.4682	173	1.1888	2.0000	30	0.8305	2.3990	203	1.1533
Proquest	2.4682	173	1.1691	2.1333	30	0.9371	2.4187	203	1.1419
Attendance	3.422	173	0.9028	2.9667	30	1.1290	3.3547	203	0.9504
Book	3.3006	173	0.9034	3.0333	30	0.8503	3.2611	203	0.8987
File	3.1329	173	0.9763	3.6333	30	0.5561	3.2069	203	0.9422
Folder	3.1214	173	0.9290	3.3333	30	0.8442	3.1527	203	0.9181
IMS Package	2.6069	173	1.1135	2.2333	30	0.8976	2.5517	203	1.0905
Label	2.7225	173	1.0855	2.2000	30	0.8867	2.6453	203	1.0728
Page	2.9884	173	1.0229	2.4333	30	1.0063	2.9064	203	1.0370
URL	2.9769	173	1.0284	3.3000	30	0.95231	3.0246	203	1.0217

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The study established as shown in Table 1 that the respondents had a better understanding and knowledge of the following resources; Quizz (3.5764), Assignment (3.5123), Attendance3.3547, Discussion Forums (3.2808), Book (3.2611), File (3.2069), Folder (3.1527) and Choice (3.1281). The respondents homogeneously agreed on knowledge on these resources as indicated by standard deviation of less than 1.000. Areas of moderate knowledge was, however noted on; Page (2.9064), Data base (2.8850), Big blue button (2.8473), EBSCO Library (2.6897), glossary (2.6700), Workshop (2.6158) and H5P (2.4433). The large standard deviations, greater than 1.0000, shows heterogeneity among respondents thus indicating variation in knowledge. The areas of least knowledge were noted on SCORM Package and ProQuest.

Skills on How to use Resources on UEAB eLearning Platform

The second research question sought to find out the levels of skills possessed by faculty and students on how to use resources on UEAB eLearning platform. The research question was- What are the faculty and students' ratings on their skills in using each activity and resource on the eLearning platform? The results are shown in table 2 below.

Table 2: Skills on Activity Resources

Status	Students			Faculty			All		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Assignments	3.5723	173	0.6835	3.7333	30	0.5208	3.5961	203	0.6633
Discussion Forum	3.3468	173	0.8531	3.3333	30	0.8841	3.3448	203	0.8556
Chat	3.0578	173	0.9866	2.9333	30	1.0148	3.0394	203	0.9893
Big Blue Button	2.7919	173	1.0688	2.9333	30	0.9072	2.8128	203	1.0457
Data base	2.7457	173	1.0805	2.5333	30	0.8193	2.7143	203	1.0470
Choice	2.948	173	1.0358	2.6333	30	0.9994	2.9015	203	1.0341
EBSCO Library	2.6185	173	1.1279	2.5000	30	0.9738	2.6010	203	1.1051
External Tool	2.6069	173	1.0871	2.8667	30	0.9732	2.6453	203	1.0728
Feedback	2.948	173	1.0358	2.7667	30	0.9353	2.9212	203	1.0214
Glossary	2.7283	173	1.0790	2.1667	30	0.8743	2.6453	203	1.0681
Lesson	3.2717	173	0.9029	3.2333	30	0.8584	3.2660	203	0.8945
H5P	2.5665	173	1.1271	1.9667	30	0.7649	2.4778	203	1.1005
Questionnaire	3.1445	173	0.9257	2.8667	30	0.9732	3.1034	203	0.9356
Workshop	2.7746	173	1.1055	2.4667	30	1.0743	2.7291	203	1.1038
Survey	3.0058	173	1.0201	2.5333	30	1.0743	2.9360	203	1.0393
Wiki	2.7341	173	1.1044	2.1000	30	0.9229	2.6404	203	1.1007
Quiz	3.5087	173	0.7203	3.6667	30	0.6065	3.5320	203	0.7055
SCORM Package	2.5434	173	1.1637	1.9667	30	0.8087	2.4581	203	1.1354
Proquest	2.5491	173	1.1685	2.1000	30	0.8847	2.4828	203	1.1404
Attendance	3.3237	173	0.9272	3.0000	30	1.0171	3.2759	203	0.9454
Book	3.1792	173	0.9688	3.1667	30	0.8743	3.1773	203	0.9534
File	3.1098	173	0.9910	3.5333	30	0.6288	3.1724	203	0.9569
Folder	3.0289	173	0.9610	3.1333	30	0.9732	3.0443	203	0.9611

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IMS Package	2.7341	173	1.1200	2.0667	30	0.8277	2.6355	203	1.1059
Label	2.8439	173	1.0532	2.3000	30	1.0222	2.7635	203	1.0639
Page	2.9711	173	1.0254	2.4667	30	1.0743	2.8966	203	1.0456
URL	2.9422	173	1.0659	3.3333	30	0.8442	3.0000	203	1.0436

The findings in Table 2 shows that the respondents were more skilled in the use of the following eLearning resources; Assignments – 3.5961, Quiz (3.5320), Discussion Forums (3.3448), Attendance (3.2759), Lesson (3.2660), Books (3.1773), Questionnaire (3.1034), Folder (3.0443) and URL (3.0000). Other than URL, all standard deviations were less than 1.000 indicating a low variability on the opinions among respondents. On the other hand, the respondents had moderate skills in the use of Big blue button (2.8128), Data base (2.7143), Choice (2.9015), Page (2.8966) EBSCO Library (2.6010), External Tool (2.6453), feedback (2.9212), Glossary (2.6453), H5P (2.4778), Workshop (2.7291), Survey (2.9360), Wiki (2.6404) and IMS Package (2.6355). The large standard deviations of more than 1.000, however, indicate variation in skills in this category of activities and skills. Least Skills were noted in category of SCORM package (2.4581) and ProQuest (2.4828).

Utilization on Activities and Resources

The researchers also wanted to establish levels of utilization of the UEAB eLearning resources by faculty and students. The research question read- What are the faculty and students' ratings on their utilization of each of activities and resources availed on the eLearning platform? Table 3 shows that the resources highly utilized ranged from Assignments (3.6108), Quiz (3.5123), Lesson (3.2808), Attendance (3.2709), Discussion Forums (3.2069), Books (3.1724) and files 3.1576). The standard deviation shows little variation in utilization of activities and resources meaning that respondents unanimously agreed on their frequent use.

Moderate utilization was depicted in Folder (2.9606), Choice (2.8966), URL (2.867), Questionnaire (2.8522), Feedback (2.8670), Chat (2.8218), Survey (2.7537), Database (2.7192), External Tool (2.6798), Big Blue Button (2.6700), Glossary (2.6305), Label (2.5911), Wiki (2.5862), EBSCO Library (2.5813), Workshop (2.5616), and IMS Package (2.5025). As indicated by the respective standard deviations are greater than 1.000, there are some variability in these responses. The resources indicating underutilization were SCORM Package (2.4483), ProQuest (2.4433), H5P (2.433); still with large standard deviations which can be interpreted to mean that the utilization of these eLearning resources were not just low, but respondents seemed unsure about them.

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Table 3: Utilization on Activities and Resources

Status	Students			Faculty			All		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Assignments	3.5954	173	0.6633	3.7	30	0.5350	3.6108	203	0.6458
Discussion Forum	3.2370	173	0.8934	3.0333	30	0.7184	3.2069	203	0.8719
Chat	2.8663	172	1.0813	2.5667	30	1.006	2.8218	202	1.0734
Button	2.6936	173	1.1482	2.5333	30	1.0080	2.6700	203	1.1277
Data base	2.7861	173	1.1026	2.3333	30	0.8442	2.7192	203	1.0789
Choice	3.000	173	1.0173	2.3000	30	1.0222	2.8966	203	1.0456
EBSCO Library	2.6301	173	1.1369	2.3000	30	0.9523	2.5813	203	1.1156
External Tool	2.659	173	1.1177	2.8000	30	1.0306	2.6798	203	1.1040
Feedback	2.9017	173	1.0547	2.6667	30	0.9589	2.867	203	1.0422
Glossary	2.7399	173	1.0872	2.0000	30	0.8305	2.6305	203	1.0838
Lesson	3.3179	173	0.9324	3.0667	30	0.9072	3.2808	203	0.9308
H5P	2.5260	173	1.1692	1.9000	30	0.8447	2.4335	203	1.1472
Questionnaire	2.9422	173	0.9983	2.3333	30	1.0933	2.8522	203	1.0330
Workshop	2.6127	173	1.1130	2.2667	30	1.0807	2.5616	203	1.1124
Survey	2.8439	173	1.0138	2.2333	30	1.0727	2.7537	203	1.0429
Wiki	2.6936	173	1.1380	1.9667	30	0.9643	2.5862	203	1.1416
Quiz	3.4971	173	0.8186	3.6000	30	0.6215	3.5123	203	0.7920
SCORM Package	2.5318	173	1.1490	1.9667	30	0.8899	2.4483	203	1.1306
Proquest	2.4913	173	1.1545	2.1667	30	0.9855	2.4433	203	1.1347
Attendance	3.3468	173	0.9681	2.8333	30	1.0532	3.2709	203	0.9959
Book	3.2370	173	0.9743	2.8000	30	0.9248	3.1724	203	0.9779
File	3.0751	173	1.0059	3.6333	30	0.5561	3.1576	203	0.9723
Folder	2.9364	173	1.0407	3.1000	30	1.0289	2.9606	203	1.0381
IMS Package	2.5838	173	1.1665	2.0333	30	0.8899	2.5025	203	1.1448
Label	2.6705	173	1.1212	2.1333	30	1.0080	2.5911	203	1.1193
Page	2.8266	173	1.1018	2.2667	30	1.08076	2.7438	203	1.1140
URL	2.8150	173	1.1566	3.1667	30	0.9499	2.867	203	1.1332

Summary of Extents of Knowledge, Skills and Utilization tools as per their intended purposes

The researchers further sought to establish if there were any variations in the usage categories of resources as shown in Table 4. Knowledge, skill and utilization was highest in assessment tools and least in collaborative tools. A meta- analysis of previous studies by Kirkwood, Adrian and Price and Linda (2014) revealed that eLearning tools are mostly used by instructors to replicate or supplement traditional instruction. In such cases the utilization of content such as e-books, file and folder; and power points will not be necessarily to enhance teaching and learning. Thus, the quantitative rather than qualitative benefits are emphasized. In addition, their revelation of limited use of collaborative tools in all the studies reviewed, is a testament to this fact.

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Table 4: Knowledge, Skills and Utilization of eLearning activity and resources tools as per category of their intended purpose

Status	Students			Faculty			All		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Content Tools Skills	2.8456	173	0.8933	2.6000	30	0.6223	2.8093	203	0.8618
Content Tools Knowledge	2.8723	173	0.8032	2.6923	30	0.6114	2.8457	203	0.7791
Content Tools Utilization	2.7944	173	0.9002	2.4881	30	0.6047	2.7491	203	0.8685
Communication Tools Knowledge	2.9561	173	0.8083	3.1000	30	0.5960	2.9773	203	0.7810
Communication Tools Skills	2.9503	173	0.8336	2.9667	30	0.7595	2.9527	203	0.8213
Communication Tools Utilization	2.8699	173	0.8976	2.7200	30	0.6759	2.8478	203	0.8686
Assessment Tool Knowledge	3.1532	173	0.7004	2.9000	30	0.6419	3.1158	203	0.6964
Assessment Tools Skills	3.2505	173	0.6997	3.0722	30	0.63379	3.2241	203	0.6918
Assessment Tools Utilization	3.2042	173	0.7358	2.8333	30	0.6328	3.1494	203	0.7320
Collaborative Tools Knowledge	2.6975	173	0.9885	2.2667	30	0.7601	2.6338	203	0.9687
Collaborative Tools Skills	2.7457	173	1.0164	2.2444	30	0.8707	2.6716	203	1.0101
Collaborative Tools Utilization	2.6821	173	0.9973	2.0778	30	0.8696	2.5928	203	1.0008

Attitude on eLearning Platform as Medium of instruction

The fourth research question sought to find the attitudes of UEAB faculty and students towards eLearning. The question that was investigated was, what is the attitude of the Faculty and students towards eLearning platform as a medium for instruction? As indicated in Table 5 the respondents believe that eLearning Platform simplifies teaching and learning (3.6404), makes learning flexible (3.6355). Besides, it is easy to keep records on the platform (3.6256). Administering assessment and evaluation is easy (3.5862) and that eLearning helps to focus learners on

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designated activities (3.5764). The least rating was on the area of motivation of learning (3.4877), though this was still rated high as the mean was above 3.000. According to (Ohliati & Abbas (2019), key determinants of satisfaction with eLearning as a medium of instruction are: quality of information (content), service, perceived ease of LMS use and usefulness. In particular, service quality is the most dominant factor that affects the satisfaction as it enhances communication and hence, "helps users share information, provide feedback, negotiate and integrate system users. It can also improve user satisfaction with e-learning system learning" p. 183.

Table 5: Attitude towards eLearning

Status	Students			Faculty			Total		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Mean	N	Std. Deviation
The use of E-Learning platform simplifies teaching and learning processes	3.6532	173	0.5561	3.5667	30	0.5683	3.6404	203	0.5574
It is easy to use E-Learning platform for instruction	3.4855	173	0.7121	3.4667	30	0.6288	3.4828	203	0.6990
The activities and resources on E-Learning platform motivates learning	3.4913	173	0.7040	3.4667	30	0.7761	3.4877	203	0.7131
The current E-Learning platform is appropriate for use at university level	3.4913	173	0.6525	3.5	30	0.6823	3.4926	203	0.6553
The activities and resources on E-Learning platform are relevant to the courses that I teach	3.5087	173	0.7040	3.5	30	0.5724	3.5074	203	0.6848
It is easy for me to populate content on the E-Learning platform	3.4566	173	0.6944	3.4	30	0.6747	3.4483	203	0.6901
E-Learning platform helps to organize instruction in terms of content, activities and resources	3.5318	173	0.6245	3.4333	30	0.6789	3.5172	203	0.6320
E-Learning platform makes it easy to administer assessments and evaluation	3.578	173	0.6388	3.6333	30	0.5561	3.5862	203	0.6263

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Inferential Statistics

The researchers performed a t-test to establish whether there is significant difference between faculty and students' ratings on knowledge, skills, and utilization of resources; and on attitudes towards eLearning as medium for instruction. The research question read;

Is there a significant difference between the faculty and students on the following variables?

a. Knowledge on resources on eLearning platform
b. Skills in utilization of eLearning resources
c. Utilization of eLearning resources
d. Attitude towards eLearning as medium for instruction

A t-test results in Table 6 indicated that there was a significant difference (p=0.0.05) between faculty and students.

Table 6: t-test on difference between faculty and students on Knowledge, skills, utilization and attitude towards eLearning platform activities and resources

	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Knowledge	1.075	201	0.284	0.1531	0.1424
Skills	1.265	201	0.207	0.1961	0.1551
Utilization	1.942	201	0.054*	0.3093	0.1593
Attitude	0.500	201	0.618	0.0505	0.1010

*Significant at 10% level

The researchers further explored whether there is significant difference on knowledge, skills, utilization and attitude towards the use of eLearning platform as a medium of instruction based on the following demographic variables; gender, year of study, age and residence

Whether there is significant difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources based on gender

T-test showed that there was no significant difference between utilization of resources and gender (p>0.1) meaning that utilization of eLearning resources was the same whether the eLearning platform users were male or female.

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Table 7: T Test on Difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources between Genders

	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Knowledge	-0.496	201	0.621	-0.05279	0.10654
Skills	-0.069	201	0.945	-0.00799	0.11624
Utilization	-0.567	201	0.571	-0.06798	0.11992
Attitude	0.794	201	0.428	0.05985	0.07536

Whether there is significant difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources based on residences

T-test showed in Table 8 that there was no significant difference between utilization of eLearning resources and residence all p values were greater than 0.1. This means that utilization of eLearning resources was the same whether the eLearning platform users were staying on campus or off campus.

Table 8: Difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources between residences

	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Knowledge	0.348	201	0.728	0.0421	0.1210
Skills	0.643	201	0.521	0.0847	0.1319
Utilization	0.779	201	0.437	0.1059	0.1361
Attitude	0.432	201	0.666	0.0370	0.0857

Whether there is significant difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources based on age

ANOVA test results in Table 9 on whether there is significant difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources based on age indicate Knowledge, Skills, Utilization were significant (all p values were less than 0.1) except for attitude. This means younger users have better knowledge, skill and utilize eLearning platform better than older users.

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Table 9: Difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities, resources and age

		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
Knowledge	Between Groups	4.376	3	1.459	2.891	0.037
	Within Groups	100.391	199	0.504		
	Total	104.766	202			
Skills	Between Groups	4.994	3	1.665	2.771	0.043
	Within Groups	119.569	199	0.601		
	Total	124.564	202			
Utilization	Between Groups	5.412	3	1.804	2.818	0.040
	Within Groups	127.361	199	0.640		
	Total	132.772	202			
Attitude	Between Groups	.512	3	0.171	.653	0.582
	Within Groups	52.003	199	.261		
	Total	52.515	202			

Whether there is significant difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources based on year of study

ANOVA Test results in Table 10 showed that there was no significant difference (all p values were greater than 0.1) on students' knowledge, skills and utilization and attitude towards eLearning activities and resources based on year of study.

Past research is not conclusive, but suggests that demographic factors such as gender, age, residence, and year of study can influence knowledge, skills, utilization, and attitudes toward Learning Management Systems (LMS). Studies found that male students often exhibit higher confidence and usage rates of LMS compared to females, possibly due to differing technology exposure. Younger students tend to adapt more easily to LMS, likely due to their familiarity with digital tools. Urban students generally have more advanced LMS skills than their rural counterparts, and students in higher years of study display greater knowledge and positive attitudes toward LMS. These findings highlight the significant impact of demographic variables on the use of LMS in educational settings (Al-Samarraie & Saeed, 2018; Sánchez et al., 2019; Fayyoumi & Alshathry, 2020; Ifenthaler & Schweinbenz, 2016).

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Table 10: difference on Knowledge, Skills, Utilization and Attitude towards eLearning activities and resources and year of study

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Knowledge	Between Groups	1.619	4	0.405	0.777	0.541
	Within Groups	103.147	198	0.521		
	Total	104.766	202			
Skills	Between Groups	1.040	4	0.260	0.417	0.797
	Within Groups	123.524	198	0.624		
	Total	124.564	202			
Utilization	Between Groups	3.002	4	0.751	1.145	0.336
	Within Groups	129.770	198	0.655		
	Total	132.772	202			
Attitude	Between Groups	.243	4	0.061	0.230	0.921
	Within Groups	52.272	198	0.264		
	Total	52.515	202			

The relationship between utilization of eLearning Resources, Knowledge, Skills and Attitudes towards use of eLearning as a Medium of Instruction

To understand factors bearing on the utilization of eLearning resources, the study investigated the relationship between utilization of eLearning resources; and the respondents' ratings on knowledge of activities and resources on eLearning platform, skills in utilization of eLearning activities and resources and attitudes towards use of eLearning as a medium of instruction. A correlation analysis was carried out to determine if there was significant relationship between Utilization eLearning resources and Skills, Knowledge and Attitude. The results in Table 11 indicate that utilization of eLearning resources has a strong, positive and significant correlation with skills (r=0.880) and knowledge (r=0.826). Utilization of eLearning resources has a weak positive, but significant correlation with attitude (r=0.466). The strong, positive correlation between the utilization of eLearning resources and both skills and knowledge (r=0.880 and r=0.826, respectively) is supported by studies like those of Al-Maroof and Al-Emran (2018), which found that frequent use of eLearning tools enhances users' competencies and understanding. Additionally, the weak but significant positive correlation with attitude (r=0.466) is corroborated by research from Liaw, Huang, and Chen (2007), which suggests that while attitudes towards eLearning can improve with use, other factors such as motivation and previous experience also play a crucial role.

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Table 11: Correlation between Utilization of eLearning, Skills an Attitude

		Utilization	Knowledge	Skills	Attitude
Utilization	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	202			
Knowledge	Pearson Correlation	.825**	1		
	Sig. (2-tailed)	.000			
	N	199	200		
Skills	Pearson Correlation	.880**	.920**	1	
	Sig. (2-tailed)	.000	.000		
	N	202	200	203	
Attitude	Pearson Correlation	.466**	.501**	.475**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	202	200	203	203

**. Correlation is significant at the 0.01 level (2-tailed).

Regression Analysis

A regression analysis was conducted to establish the best factor that predict utilization of eLearning resources to address the research question which read, which factors best predict utilization of eLearning activities and resources. The goodness of fit of the prediction model as indicated in Table 12 indicate a good prediction with R squared of 0.778. This means that the model consisting of attitude, skills and knowledge of eLearning resources can explain 77.8 percent of variation in utilization of eLearning resources.

Table 12: Goodness of fit of Predictor Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882[a]	.778	.774	10.43048

a. Predictors: (Constant), Attitude, Skills, Knowledge

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Factor that best predict utilization of eLearning resources

The regression output in Table 13 indicates that skills on activities and resources is the only significant and best predictor ($p<0.05$) of eLearning utilization. This finding aligns with research by Chiu and Wang (2008). They found that users' proficiency and comfort with eLearning tools significantly influence their likelihood to engage with and utilize these platforms effectively, emphasizing the critical role of skills in driving eLearning adoption and usage.

Table12: Best Predictor of eLearning Utilization

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2.739	5.236		-.523	.602
	Knowledge	.085	.099	.075	.859	.391
	Skills	.812	.089	.783	9.087	.000
	Attitude	.227	.152	.058	1.490	.138

a. Dependent Variable: Utilization

Based on the statistical output provided in Table 12, the model equation for predicting eLearning Utilization can be written using the unstandardized coefficients (B). The model equation represents the relationship between the dependent variable (Utilization) and the independent variables (Knowledge, Skills, and Attitude).

The general form of the linear regression model is:

$$Y=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\epsilon$$

Where:

- Y is the dependent variable (Utilization)
- β_0 is the intercept (Constant)
- β_1, β_2, β_3 are the coefficients for the independent variables X_1 (Knowledge), X_2 (Skills), and X_3 (Attitude)
- ϵ is the error term

Substituting the given coefficients into the model:

Utilization=−2.739+0.085(Knowledge) + 0.812(Skills) +0.227(Attitude)

This equation indicates that:

i. For each unit increase in Knowledge, Utilization increases by 0.085 units, holding Skills and Attitude constant.
ii. For each unit increase in Skills, Utilization increases by 0.812 units, holding Knowledge and Attitude constant.
iii. For each unit increase in Attitude, Utilization increases by 0.227 units, holding Knowledge and Skills constant.
iv. The constant (-2.739) represents the predicted value of Utilization when all the independent variables (Knowledge, Skills, and Attitude) are equal to zero.

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The greatest challenges in utilization of eLearning platform by students and faculty

Regression analysis model was also further conducted to establish the greatest challenge in utilization of eLearning platform among students and faculty. The question under investigation was, what challenges do faculty and students face in the utilization of the eLearning platform? Table 14 shows that only infrastructure and skills were significant

challenges (P<0.05). The model indicated a goodness of fit of the model which was significant (p<0.05) as indicated in the ANOVA in Table 15. The predictive ability as indicated by R squared in the Model summary in Table 16 is that 11.1 percent in variation in challenges in utilization of eLearning platform is explained by the infrastructure, Knowledge and the skills. An earlier study by Amimo (2021) revealed that lack of sufficient training and technical support for both students and faculty, made it difficult for them to adapt to digital learning environments. The limited digital literacy among some users further exacerbates these challenges, affecting the overall effectiveness of eLearning initiatives.

Table 14: Greatest Challenge in Utilization of eLearning Platform

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	58.018	6.254		9.277	.000
	Infrastructure	1.470	.363	.363	4.051	.000
	Knowledge and Skills	-1.228	.415	-.293	-2.961	.003
	Ethics	-.064	.434	-.016	-.148	.882
	Curriculum	.093	.643	.017	.144	.886
	Administrative	.612	.475	.125	1.289	.199

a. Dependent Variable: Utilization

Table 15: ANOVA to Indicate Goodness of Fit of Model for Challenges of eLearning Platform

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10697.394	5	2139.479	4.916	0.000[b]
	Residual	85305.205	196	435.231		
	Total	96002.599	201			

a. Dependent Variable: Utilization

b. Predictors: (Constant), COA, COI, COE, COS, COC

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Table 16: Model Summary for Challenges of eLearning Platform

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.334[a]	0.111	0.089	20.86218

a. Predictors: (Constant), COA, COI, COE, COS, COC

Conclusion

The faculty and students' had high ratings on their knowledge assignment, quizzes, discussion forums, choice, attendance, book, file and folder. Moderate knowledge was noted on Big blue button, Data base, Page, EBSCO Library, glossary, H5P, Workshop, while least knowledge was noted on SCORM Package and ProQuest. The rating followed similar trend on the skills and utilization. That means that there is a relationship between knowledge, skills and utilization. This is logical and consistent because where there is limited knowledge on activities and resources, skills and their utilization would lack. Regarding attitude, the study established there is a positive attitude of eLearning as a medium of instruction. There was a significant difference between the faculty and students on utilization of eLearning resources. The rest of the variables i.e. knowledge, skills and attitude were found not to be significant. This means students utilized more the eLearning resources but levels of knowledge, skills and attitude were similar between student and faculty. There was a significant different among the different age group of users about knowledge, skill and utilization of eLearning platform activities and resources. Younger users therefore demonstrated more knowledge, skill and utilization of the eLearning resources than older users. This is logical given that younger generation are considered digital natives compared with the older generation. No significant difference was noted for gender, year of study and residential status. A positive and strong significant relationship was established between utilization of eLearning resources and knowledge and skills. The relationship was however weak for attitude. Skills was established to be the best predictor of the utilization of eLearning resources and the greatest challenges that faculty and students experienced in the utilization of the eLearning platform was infrastructure, knowledge and skills.

Recommendations

From the major findings and conclusions, UEAB OdeL department should organize seminars to equip faculty and staff on the knowledge of the following tools; Page, Data base, Big blue button, EBSCO Library glossary, - with more emphasis on the Workshop and H5P tools. Further, conduct workshops to improve the skills of faculty in the use of the following eLearning resources; Data base, Choice, EBSCO Library, External Tool, feedback, Glossary, Workshop, Survey, Wiki and IMS Package; paying more attention to H5P, SCORM package and ProQuest. The faculty should be encouraged to increase their utilization of resources on the eLearning platform, particularly the use of Database, External Tool, Big Blue Button, Glossary, Label, Wiki, EBSCO Library, Workshop, IMS Package with a focus on SCORM Package, ProQuest, H5P tools which were highly underutilized. There is also need to pay more attention to faculty and students over 36 years,

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particularly to improve their skills and knowledge. Finally, the university should invest more on the eLearning infrastructure, so that more resources can be integrated on the eLearning platform.

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