Undergraduate Students' Attitudes towards Elearning during the COVID-19 Pandemic: A Case Study of the University of Kabianga, Kenya

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ABSTRACT

The unprecedented outbreak of the COVID-19 pandemic greatly disrupted education systems worldwide. To mitigate the spread of the virus and ensure continuity of learning, universities were compelled to rapidly transition from traditional face-to-face instruction to eLearning. This abrupt shift presented numerous challenges, especially for students who were inadequately prepared for virtual learning environments. While a few students were already familiar with eLearning platforms and adapted with relative ease, many others encountered difficulties and exhibited resistance toward the new mode of instruction. This case study, conducted at the University of Kabianga, explored undergraduate students' attitudes towards eLearning during the COVID-19 pandemic, focusing on their experiences with the sudden transition from in-person to online learning. Data was collected from 376 undergraduate students using a web-based, 5-point Likert scale questionnaire. Content validity of the instrument was ensured through expert review, and a pilot test yielded a Cronbach's Alpha reliability coefficient of 0.84, confirming the instrument's internal consistency. Data was analyzed using descriptive statistics (frequencies and means) and inferential statistics (ANOVA) with SPSS version 25.0. The findings revealed that while students generally perceived the quality of instruction to be sustained, there was a noticeable decline in their engagement and academic performance during the period of online learning. The study recommends targeted training and support for both students and instructors to improve the effectiveness and acceptance of eLearning, particularly during crisis-induced transitions.

Keywords: Undergraduate students, Attitudes, eLearning, COVID-19 pandemic

INTRODUCTION

The outbreak of the COVID-19 pandemic in early 2020 triggered a global public health emergency that profoundly disrupted nearly all sectors of society, with the education sector being among the hardest hit. To curb the spread of the virus, governments worldwide implemented lockdowns, school closures, and social distancing measures, forcing educational institutions to suspend in-person learning (UNESCO, 2020). In response, universities globally adopted Emergency Remote Teaching and Learning (ERTL) strategies to ensure academic continuity. A key strategy among these was the shift to eLearning platforms as an alternative to traditional face-to-face instruction (Hodges et al., 2020).

eLearning is defined as the delivery of education through electronic means, including the use of internet-enabled devices such as computers, tablets, and smartphones (Dhawan, 2020; Moore et al., 2011). It encompasses synchronous and asynchronous learning modes and can utilize various platforms such as Learning Management Systems (LMS), video conferencing tools, and mobile applications (Al-Fraihat et al., 2020). While eLearning offers numerous advantages, including flexibility, accessibility, and cost-effectiveness, the abrupt transition caused by the pandemic presented substantial challenges, particularly in developing countries. Among these challenges were inadequate digital infrastructure, unreliable internet access, lack of digital literacy, and unprepared instructional systems (Adedoyin & Soykan, 2020; Onyema et al., 2020).

In the Kenyan context, the transition to eLearning was uneven and often uncoordinated. Many universities, including the University of Kabianga, were ill-equipped to support full-scale digital instruction. Limited access to devices, unaffordable internet costs, and unfavorable home environments further complicated the shift for students especially those from rural or low-income backgrounds (Nganga & Mbugua, 2021). Despite the Kenyan government's efforts to promote digital learning through platforms like Google Classroom, Moodle, and Zoom, disparities in technological readiness and training among faculty and students hindered it's successful adoption.

A critical factor influencing the success of eLearning implementation is students' attitudes. According to the Technology Acceptance Model (TAM), perceived usefulness and perceived ease of use are the primary determinants of a user's willingness to adopt new technologies (Davis, 1989). Positive attitudes toward eLearning have been linked to higher engagement, motivation, and academic performance, while negative attitudes may result in resistance, disengagement, and poor outcomes (Zhang & Bhattacharyya, 2020; Sánchez & Hueros, 2010).

Several studies have explored students' experiences with online learning during the pandemic. For instance, Coman et al. (2020) reported that Romanian university students appreciated the convenience of eLearning but expressed concerns about reduced interaction and focus. In Indonesia, Agung et al. (2020) found that students struggled with limited digital literacy and unstable internet connectivity. In Africa, and Kenya in particular, students faced additional barriers such as unreliable electricity, lack of access to learning devices, and poor home learning conditions, all of which negatively affected attitudes toward online learning (Sintema, 2020; Murage, 2021). Locally, studies by Otieno and Nyamboga (2020) and Nganga and Mbugua (2021) reveal that while some Kenyan students adapted positively to eLearning particularly those in urban areas with better infrastructure, many others perceived the transition as stressful and unsustainable due to limited training, support, and connectivity.

Although there is a growing body of literature examining eLearning during COVID-19, limited empirical research has been conducted on students' attitudes in Public Universities in Kenya. Most existing studies focus on institutional readiness or are anecdotal in nature, with minimal attention paid to students' perceptions, challenges, and suggestions. This study addresses that gap by investigating the attitudes of undergraduate students at the University of Kabianga toward eLearning during the COVID-19 pandemic. The study also explores the students' demographic factors, experiences, and recommendations, offering insights that may inform institutional and national strategies for more effective and inclusive digital learning during future disruptions.

Objectives of the Study

The following objectives guided the study:

i. To find out the demographic profiles of the undergraduate students in terms of gender, age, School/programme, year of study, mode of study, socioeconomic status, level of training on eLearning use, and preferred eLearning platforms

ii. To evaluate the level of students' attitude of online learning during the COVID-19 pandemic

iii. To assess the students' suggestions on improvement of eLearning to help achieve the intended Learning Outcomes in their respective courses during the COVID-19 pandemic

Research questions

The study attempts to provide answers to the following research questions:

i. What are the demographic profiles of the undergraduate students in terms of gender, age, School/programme, year of study, mode of study, socioeconomic status, level of training on eLearning use, and preferred eLearning platforms?

ii.   What is the level of University of Kabianga undergraduate students' personal attitudes towards eLearning during the COVID-19 pandemic?

iii.   What are the students' suggestions on improvement of eLearning to help achieve the intended Learning Outcomes in their respective courses during the COVID-19 pandemic?

Hypothesis of Study

The following hypotheses were formulated to guide the study:

Ho1: There is no significant difference between male and female students' attitude towards eLearning during the COVID-19 pandemic

Ho2: There is no significant difference between the levels of study of the student teachers' attitude towards eLearning during the COVID-19 pandemic

Ho3: There is no significant difference between the programme/course of study of the student teachers' attitude towards eLearning during the COVID-19 pandemic

METHODOLOGY

Research Design

This study employed a descriptive survey research design, which is effective for collecting information about individuals' perceptions, opinions, and attitudes in a systematic manner (Creswell & Creswell, 2018). The design was appropriate because it allowed the researcher to gather quantifiable data regarding students' attitudes towards eLearning during the COVID-19 pandemic.

Target Population

The target population consisted of all undergraduate students at the University of Kabianga, drawn from various academic programmes across different years of study. The university had a total of approximately 5,200 undergraduate students enrolled during the academic year of the study.

Sample Size and Sampling Technique

Using Yamane's formula (1967) for determining sample size from a finite population:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size

N = population size (5,200)

e = margin of error (0.05)

$$n = \frac{5200}{1 + 5200(0.05)^2} = \frac{5200}{1+13} = \frac{5200}{14} \approx 371$$

To increase reliability, a sample of 376 students was selected.

Sampling Technique

The study employed stratified random sampling, ensuring that students from all years of study and academic Schools (faculties) were proportionally represented. Each stratum (School) was sampled based on its share of the total population. Simple random sampling was then used to select students within each stratum.
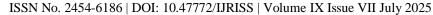
Table 1: Sample Distribution by School

School/Faculty	Population	Sample Size
School of Education Arts & Social Sciences	1,400	101
School of Science and Technology	900	65
School of Business and Economics	1,200	87
School of Health Sciences	1,000	72
School of Agricultural Sciences and Natural Resources	700	51
Total	**5,200**	**376**

Instrumentation

The research instrument was a structured, web-based questionnaire designed by the researcher based on existing literature on eLearning attitudes (Selwyn, 2007; Adedoyin & Soykan, 2020). It consisted of three sections:

i.   Section A: Demographic data (e.g., gender, age, year of study, School, socioeconomic background, access to technology)

ii. Section B: Attitudinal items (15 Likert-scale items ranging from 1 = Strongly Disagree to 5 = Strongly Agree)

iii. Section C: Open-ended questions on suggestions for improving eLearning

Validity and Reliability of the Instrument

Content validity was ensured through expert reviews by three experienced university lecturers in Educational Technology. The instrument was also reviewed to ensure it aligned with the objectives of the study. Pilot testing was conducted with 30 students (excluded from the final sample) to refine clarity, phrasing, and functionality. The internal consistency of the attitudinal scale was assessed using Cronbach's Alpha:

Parameter	Cronbach's Alpha
Attitudes Toward eLearning	0.861

According to George and Mallery (2003), a reliability coefficient above 0.70 and above is considered good. Therefore, the instrument was deemed reliable.

Data Collection Procedure

Due to COVID-19 restrictions, the questionnaire was administered via Google Forms, and the link was shared to students through class WhatsApp groups and the university's eLearning portal. Data collection took three weeks, with regular reminders issued to maximize response rates. Participation was voluntary, and informed consent was obtained from all respondents.

Data Analysis

The quantitative data were cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 25.0. The following techniques were employed:

i.   Descriptive statistics: frequencies, percentages, means, and standard deviations to summarize responses.

ii. Inferential statistics: One-way ANOVA to test differences in attitude across year of study and academic programme while Independent samples t-test for gender comparison. Post-hoc Tukey tests where significant ANOVA results were found

iii. Qualitative responses (from open-ended questions): were analyzed thematically to highlight suggestions for improving eLearning.

RESULTS AND DISCUSSION

This section discusses and interprets the results of the study using the data collected from the 376 undergraduate students at the University of Kabianga. The analysis includes demographic information, descriptive statistics of students' attitudes towards eLearning and inference statistics on the differences among faculties, gender, and year of study. The discussion further locates the findings in relation to the extant literature and theoretical background, noting positive sense-making as well as key challenges students met in doing online learning due to the COVID-19 overhaul of eLearning.

Students' Demographic Profile

To place the findings in perspective, demographic information was obtained to describe undergraduate students who were included in the study. The variables analyzed were gender, year of study, and faculty. This information sheds light on the heterogeneity of the sample, which partially accounts for differences in perceptions towards eLearning. Table 1 provides a summary of the demographic profile of the respondents.

Table 1: Demographic Profile of Respondents (n = 376)

Category	Sub-category	Frequency (n)	Percentage (%)
Gender	Male	203	54.0
	Female	173	46.0
Age Range	20–24 years	256	68.1
	Others	120	31.9
Year of Study	First-Year	90	23.9
	Second-Year	109	29.0
	Third-Year	102	27.1
	Fourth-Year	75	20.0
Mode of Study	Full-Time	331	88.0
	Part-Time	45	12.0
eLearning Training	Received Training	135	35.9
	No Training	241	64.1
Preferred Platform	Google Classroom	196	52.1
	Zoom	113	30.1
	Moodle	67	17.8

The demographic profile of the respondents offers valuable insight into the context in which eLearning was received. The sample comprised a balanced gender distribution (54% male, 46% female) and a majority age group of 20–24 years, typical of undergraduate populations. Only 35.9% of the students had received formal training in eLearning while majority 64.1% had not received training on eLearning. Google Classroom was the preferred platform for eLearning 52.1% followed by Zoom 30.1% and finally Moodle with 17.8%.

These factors collectively influenced students' attitudes. Limited training and financial constraints likely contributed to challenges in adapting to online platforms. For example, students from low-income households may have lacked reliable devices or internet connectivity, reinforcing barriers to engagement. Similarly, younger or less experienced students (mainly first-years) may have struggled more with the abrupt transition to virtual learning environments compared to their senior counterparts. Overall, the demographic composition highlighted key equity issues and gaps in preparedness that impacted the effectiveness and perception of eLearning during the pandemic period.

Students' Attitudes Towards eLearning During the COVID-19 Pandemic

To evaluate students' attitudes, a 5-point Likert scale instrument was used, measuring agreement with various statements regarding accessibility, ease of use, satisfaction, engagement, and academic performance under eLearning conditions. The overall mean score across all items was 3.13, indicating a neutral attitude towards

eLearning during the pandemic. The analysis of individual items revealed mixed perceptions as shown in Table 2.

Table 2: Summary of Mean Attitude Scores on Key eLearning Aspects (n = 376)

Attitude Indicator	Mean	Interpretation
eLearning is easy to use	3.42	Moderately Positive
I felt motivated to attend online classes	2.75	Negative
I had access to reliable internet and devices	2.84	Negative
I was able to understand course content online	3.10	Neutral
eLearning platforms were user-friendly	3.45	Moderately Positive
Online learning saved time and costs	3.58	Positive
I actively participated in online discussions	2.70	Negative
I received timely feedback from instructors	2.98	Neutral
Overall satisfaction with online learning	3.12	Neutral
eLearning ensured learning continuity	4.01	Positive
I was confident using online learning tools	3.12	Neutral
My performance improved through eLearning	2.92	Neutral to Negative
The quality of teaching was maintained	3.35	Moderately Positive
eLearning platforms provided adequate interaction	2.48	Negative
Overall	**3.13**	**Neutral**

Students' Suggestions on Improving eLearning

In response to the third objective, the study gathered qualitative and quantitative data on students' recommendations for improving the eLearning experience during the COVID-19 pandemic. Analysis of open-ended survey responses and descriptive statistics revealed several recurring themes:

i. Enhanced Instructor Training and Engagement

Many students suggested that lecturers should undergo specialized training on eLearning delivery tools and methods. Participants indicated that some instructors lacked technical competence, resulting in ineffective content delivery and poor engagement. This aligns with findings by Tadesse and Muluye (2020), who emphasized the role of instructor digital fluency in facilitating meaningful online interactions.

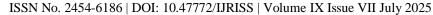### ii. Affordable and Reliable Internet Access

A majority of students (especially from low socioeconomic backgrounds) advocated for subsidized data bundles or free institutional Wi-Fi. Unstable internet and high connectivity costs were major barriers to attending live sessions and accessing learning materials. This challenge is echoed in Onyema et al. (2020), who noted that digital divide issues significantly hinder equitable participation in remote education.

iii. Recorded Lectures and Flexible Scheduling

Students preferred recorded lectures that could be accessed asynchronously. This was especially important for those sharing devices or experiencing inconsistent power supply. Flexibility in submission deadlines and class schedules was also suggested to accommodate students' varied learning environments at home.

iv. Increased Interactivity and Feedback

Several respondents requested more interactive content, including use of discussion forums, quizzes, breakout groups, and real-time Q&A sessions. They also recommended timely feedback on assignments and greater lecturer presence during online learning. Interactivity has been widely shown to enhance learner motivation and academic performance (Almahasees et al., 2021).

v. Standardization and Improvement of Platforms

Students reported varied experiences depending on the eLearning platform used. They recommended the university standardize the use of more user-friendly platforms (e.g., Google Classroom) and ensure all courses are equally accessible. Technical issues with some platforms such as Moodle were cited as a barrier to learning. Table 3 gives examples of suggestions for improving eLearning given by students.

Table 3: Summary of Students' Suggestions for Improving eLearning

Theme	Sample Suggestions from Students
Instructor Training	"Lecturers should be trained in using online platforms effectively."
Internet & Devices	"Provide free data or support for internet access through subsidy."
Recorded Content & Flexibility	"Record lectures so we can watch later when we have time or network."
More Interactivity	"Use breakout sessions and quizzes to make lessons more interactive."
Platform Consistency	"Use a single, simple platform that we can all access easily."

These suggestions underscore the need for institutions to adopt a student-centered approach when designing and implementing eLearning strategies particularly during emergency transitions like those experienced during the COVID-19 pandemic.

Hypothesis Testing

To test the formulated hypotheses, inferential statistics were conducted using Independent Samples t-test (for gender differences) and One-Way ANOVA (for year of study and programme differences). The significance level was set at $\alpha = 0.05$. The findings of this study highlight significant demographic and academic variables that influenced undergraduate students' attitudes toward eLearning during the COVID-19 pandemic.

Gender and Attitudes Towards eLearning

Hypothesis 1 (Ho1) of the study stated that there is no significant difference between male and female students' attitude towards eLearning during the COVID-19 pandemic. An independent samples t-test was performed to determine whether gender significantly influenced students' attitudes towards eLearning. The results of this test are presented in Table 4.

Table 4: Independent Samples t-test for Gender Differences in Attitudes

Gender	N	Mean Attitude Score	SD	t	df	p-value
Male	203	3.18	0.72	2.13	374	0.034*
Female	173	2.98	0.69			

Since $p = 0.034 < 0.05$, the null hypothesis is rejected, indicating a statistically significant difference in attitude between male and female students. Males demonstrated a slightly more positive attitude towards eLearning compared to females. This may be attributed to varying confidence levels in using technology, as supported by Almahasees et al. (2021).

The independent samples t-test revealed a statistically significant difference in attitudes between male and female students, with males exhibiting slightly more positive attitudes. This is consistent with previous studies which suggest that male students often report greater confidence and familiarity with digital technologies compared to their female counterparts (Almahasees, Mohsen, & Amin, 2021; Kebritchi, Lipschuetz, & Santiague, 2017). Sociocultural factors and disparities in early exposure to technology may partially explain these differences.

The significant gender difference in eLearning attitudes where male students reported more positive experiences aligns with studies in Sub-Saharan Africa indicating a digital gender divide. According to Onyema et al. (2020), male students in many African contexts tend to have greater exposure to ICT resources due to

sociocultural norms, financial autonomy, and earlier access to digital tools. In Kenya, the Communications Authority (2021) noted that women and girls often face systemic barriers to digital inclusion, including cost, safety, and limited digital literacy.

Educational institutions and government agencies such as the Ministry of ICT and the Ministry of Education should collaborate to implement gender-responsive digital literacy programs. These programs can target female learners through subsidized internet bundles, access to affordable digital devices, and safe digital learning environments. Universities should also ensure that gender is mainstreamed in their digital inclusion policies and monitor participation metrics by gender in virtual platforms.

Year of Study and Attitudes Towards eLearning

Hypothesis 2 (Ho2) of the study states that there is no significant difference between the level of study of the student teachers' attitude towards eLearning during the COVID-19 pandemic. A one-way ANOVA was used to assess whether the year of study significantly affected students' attitudes. Table 5 shows the results of this analysis.

Table 5: ANOVA for Year of Study and Attitude Towards eLearning

Source	SS	df	MS	F	p-value
Between Groups	3.21	3	1.07	3.58	0.012*
Within Groups	111.99	372	0.30		
Total	115.20	375			

Since $p = 0.012 < 0.05$, the null hypothesis is rejected. This suggests a significant difference in attitudes based on the year of study. Post hoc analysis (Tukey's HSD) indicated that third- and fourth-year students held more favorable attitudes compared to first-year students, possibly due to more academic maturity and familiarity with institutional systems (Daniel, 2020).

Findings also showed that senior students (third and fourth years) had more positive attitudes towards eLearning than first-year students. Senior students likely had more developed academic discipline, self-regulation, and familiarity with university systems. This is consistent with Tadesse and Muluye (2020), who emphasized that learners with more experience are better equipped to manage the demands of asynchronous and blended learning environments.

There is a clear need for tiered eLearning orientation programs, where first-year students undergo structured training in digital literacy, time management, and navigation of university learning management systems (LMS). The Commission for University Education (CUE) in Kenya can mandate such orientation programs as part of national quality standards for digital learning.

Programme of Study and Attitudes

Hypothesis 3 (Ho3) of the study stated that there is no significant difference between the programme/course of study of the student teachers' attitude towards eLearning during the COVID-19 pandemic. One-way ANOVA was conducted to assess if students' programmes (e.g., Education, Business, ICT, Agriculture) had any significant influence. Table 6 gives the ANOVA results.

Table 6: ANOVA for Programme of Study and Attitude Towards eLearning

Source	SS	df	MS	F	p-value
Between Groups	2.74	4	0.685	2.09	0.082
Within Groups	112.46	371	0.303		
Total	115.20	375			

Since $p = 0.082 > 0.05$, the null hypothesis is accepted, indicating no statistically significant difference in students' attitudes based on their programme of study. This implies that regardless of the course enrolled, students faced similar experiences and challenges with eLearning.

Interestingly, the programme of study did not have a statistically significant effect on students' attitudes towards eLearning. This implies a relatively uniform perception of online learning across different academic disciplines. This uniformity may stem from the fact that all students faced similar institutional and infrastructural limitations during the pandemic, regardless of their specific fields. Daniel (2020) emphasized that in emergency remote teaching situations, the broader institutional response often outweighs disciplinary variations in shaping learner experiences.

Lack of significant differences in attitudes across various academic programmes suggests a level of uniformity in both the challenges and opportunities experienced across disciplines. This contrasts with studies in Europe and Asia (e.g., Adedoyin & Soykan, 2020) where students in ICT-heavy disciplines (like Computer Science or Engineering) reported greater ease and satisfaction with eLearning than those in more practical or experiential programs (like Agriculture or Education). In the Kenyan context, this convergence might be attributed to the emergency nature of the transition to eLearning, which exposed infrastructural gaps across all faculties. The sudden shift left lecturers and learners across departments grappling with similar technological, pedagogical, and motivational challenges.

Universities should adopt contextualized eLearning pedagogy tailored to each academic program, particularly those requiring hands-on experience. The Ministry of Education and the Kenya Institute of Curriculum Development (KICD) should work with institutions to develop digital simulation tools and virtual laboratories that replicate practical learning across diverse fields.

Summary of Major Findings

i. Attitudes toward eLearning were generally moderate, with many students expressing concern about reduced engagement and increased difficulty in accessing course content.
ii. Female and male students showed no significant difference in their attitudes towards eLearning ($p > 0.05$).
iii. Year of study $p = 0.012 < 0.05$, the null hypothesis is rejected. This suggests a significant difference in attitudes based on the year of study.
iv. Programme of study enrolled $p = 0.082 > 0.05$, the null hypothesis is accepted, indicating no statistically significant difference in students' attitudes based on their programme of study.
v. Students suggested improvements in training, internet connectivity, and lecturer preparedness to enhance eLearning effectiveness.

CONCLUSION

The study concluded that while students at the University of Kabianga generally accepted eLearning as a necessary alternative during the COVID-19 pandemic, challenges such as low interaction, limited infrastructure, and inadequate digital literacy hindered optimal adoption. Gender did not significantly affect attitudes, but senior students adapted better, likely due to their academic experience.

The analysis of gender, year of study, and programme of study reveals nuanced influences on students' attitudes toward eLearning, with broader implications for education policy and institutional practice in Kenya. While gender and academic seniority significantly affect attitudes, program-specific differences appear less critical suggesting that cross-cutting structural and pedagogical reforms are necessary for effective digital transformation. By institutionalizing digital preparedness, ensuring equitable infrastructure, and mainstreaming inclusive policies, Kenya can transform its higher education system into one that is resilient, inclusive, and capable of thriving in both normal and emergency contexts.

These findings suggest that while students generally adapted to online learning, targeted interventions are necessary to address specific gaps. For instance, female and first-year students may benefit from mentorship and digital literacy training to boost confidence and engagement. Institutions should also consider developing year-specific support structures and ensuring consistent quality in eLearning across all departments.

Additionally, the study reinforces the need for gender-sensitive and inclusive digital education strategies, particularly in contexts where technology access and usage are unevenly distributed (Onyema et al., 2020).

Proactive training for both students and lecturers on effective use of digital tools is essential to improve the overall learning experience in future disruptions.

RECOMMENDATIONS

i.   **Capacity building**: Universities should provide training for both students and lecturers on effective use of eLearning platforms.
ii. **Infrastructure enhancement**: Investment in affordable, reliable internet access and digital devices is necessary to bridge the digital divide.
iii. **Curriculum redesign**: Content should be tailored for online delivery, with emphasis on interactive, learner-centered methodologies.
iv. **Policy implication**: Policymakers should consider developing national frameworks that support blended learning as a resilient strategy for future educational disruptions.
v.   **Further research**: A longitudinal study could investigate how student attitudes evolve with sustained use of eLearning platforms post-pandemic.

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