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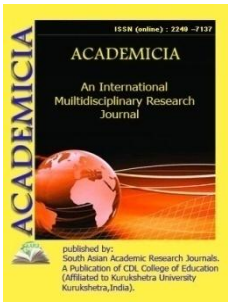

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ACCEPTABILITY AND CHALLENGES OF ONLINE HIGHER EDUCATION IN THE COVID-19 ERA IN ZAMBIA

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ABSTRACT

The aim of this study was to evaluate the acceptability of online education to students in higher learning institutions in Zambia. The emergence of coronavirus disease 2019 (COVID-19) forced the education system world-wide to adopt online education immediately. An online survey was conducted amongst the students at ZCAS and ZCAS University in Lusaka, Zambia. A randomly selected sample of 542 students participated in the online survey. Firstly, a descriptive statistical analysis of the responses was conducted in which frequencies were tabulated; thereafter, cross tabulations which produced chi-square value testing for significance and analysis of variances were run. The main findings of the study are that female students were more receptive of online education than their male counterparts, while postgraduate students embraced online education better that undergraduate students. However, the mode of study i.e. whether full time, part time or distance education, and the type of programme i.e. whether academic or professional had no significant influence on acceptability of online education. With respect to the challenges associated with online education, the study found that cost of data bundles and internet speed were the most significant hindrances to learners' accessibility to online education. These and several other factors resulted in learners' overall dissatisfaction with online education. The findings of this study can be used in designing strategies for online education in Zambia and across the world. The main recommendations are that universities should implement initiatives to motivate male learners to adopt online education, and reduce students' cost of access to their online learning platforms.

KEYWORDS: *COVID-19, Higher Education, Lockdown, Online Education, ZCAS University.*

1. INTRODUCTION

The aim of this study was to evaluate the acceptability of online education to students in higher learning institutions in Zambia. Accordingly, we conducted an online survey of students studying professional courses at the Zambia Centre for Accountancy Studies (ZCAS) and their ZCAS University academic counterparts. Although Mukwena and Sinkala (2020) investigated the impact of COVID-19 on universities in Zambia, their study focused on public universities. By carrying out a comparative study of ZCAS University (a private university) and ZCAS (a public institution that offers tuition for professional programmes), our study is significant because we address two main issues. Firstly, we evaluate whether there are differences in students' perception of online education between private and public higher education institutions and, secondly how students studying academic degrees perceive online education compared to those undertaking professional courses.

In order to enhance teaching and learning in online education, universities need to tailor their offerings to address specific attitudes of students. This requires a detailed understanding of students' preferences. Therefore, the overarching question we set ourselves to guide this study was: *To what extent do gender, mode of study, type of learning programme and level of study affect acceptability of online education in higher education in Zambia?* For example, do female students respond the same way to online learning as their male counterparts? How about students studying on different modes of study such as full time, part time and distance education? Is online education equally acceptable to students taking degree programmes as those studying professional courses? Similarly, is online education more attractive to undergraduate students compared to postgraduate students?

ZCAS was established by an Act of Parliament, ZCAS Act No. 1 of 1989, to train professional accountants, improve the standing of the accountancy profession in Zambia, and provide advisory and consulting services in finance, accountancy as well as related matters (*ZCAS Act*, 1989). ZCAS offers tuition to students undertaking courses in professional programmes such as the Association of Business Executives (ABE), Association of Chartered Certified Accountants (ACCA), Chartered Institute of Management Accountants (CIMA), Chartered Institute of Marketing (CIM), Chartered Institute of Procurement and Supply (CIPS), NCC Education and the Zambia Institute of Chartered Accountants (ZICA) (Zambia Centre for Accountancy Studies, 2020).

In 2016, ZCAS registered a wholly owned private university, ZCAS University, with the Higher Education Authority in order to award degree qualifications (Higher Education Authority, 2021). The University offers undergraduate and postgraduate degree programmes in accountancy, finance, ICT, marketing, business administration, supply chain management and other business-related fields (ZCAS University, 2020).

On 18th March 2020 the Government of the Republic of Zambia closed all schools, colleges and universities in the country to prevent the further spread of the coronavirus disease 2019 (COVID-19). The closure was indefinite and with effect from 20th March 2020. In response to the closure of learning institutions, ZCAS and ZCAS University decided to switch all full time, part time and distance education students to online teaching and learning. The main platforms used for

online learning included Zoom and WizIq. A training session for lecturers, most of whom were already familiar with these platforms, was immediately carried out and the institutions commenced online classes within one week of the official closure of learning institutions.

In order to determine students' experiences with online education at ZCAS and ZCAS University during the COVID-19 pandemic, we conducted an online survey at the end of the first semester of 2020 i.e. in June and July 2020. Our findings indicate that female learners had a higher uptake of online education than male students, while postgraduate students embraced online education better that undergraduate students. However, the mode of study i.e. whether full time, part time or distance education, and the type of programme i.e. whether academic or professional had no significant influence on acceptability of online education.

With respect to engagement in online education, the cost of date bundles and internet speed adversely affected learners' ability to participate. These factors, together with several others, could have contributed to the overall student dissatisfaction with online education.

We organise the remainder of the paper as follows. Section 2 provides a brief review of the prior literature, while a description of the methodology and dataset is provided in Section 3. We discuss our empirical results in Section 4 and offer concluding remarks in Section 5.

2. LITERATURE SURVEY

Abdullah and Ward (2016) developed a General Extended Technology Acceptance Model for

E-Learning (GETAMEL) which suggests external factors that affect students' adoption of e-learning. The five factors they identified as having a significant effect on students' perceived ease of use (PEOU) and perceived usefulness (PU) of e-learning are Self-Efficacy, Subjective Norm, Perceived Enjoyment, Computer Anxiety and Experience. PEOU and PU of e-learning affect students' attitude towards online education, and subsequently their intention to use and actual use of e-learning. We have used the GETAMEL model in our review of the literature to identify challenges of adopting online education in higher education.

2.1 CHALLENGES OF ONLINE EDUCATION

In a study of 424 universities from around the world, Marinoni *et al*. (2020) found that only 29% of the African universities that responded to the survey had replaced classroom teaching by online education at the time. The other regions in the world had performed far much better in this area with 85% of European respondents having switched to online education, the Americans were at 72% and, Asia and Pacific at 60%. The most common hindrances to switching to online teaching and learning were inadequate technical infrastructure, lack of skills in delivering online education, and the overbearing demands in specific fields of study, particularly those that require students to undertake practical activities in laboratories or workshops as part of their training.

Elsewhere in Africa, internet connectivity and inadequate infrastructure have been identified as the prominent hindrances to online education, particularly in rural settings (Kajiita, Nomngcoyiya and Kang'ethe, 2020; Mukwena and Sinkala, 2020; Okereke *et al.*, 2020; Rahali *et al.*, 2020). Other deterrents to online education in Africa include lack of electricity (Kajiita, Nomngcoyiya and Kang'ethe, 2020), absence of student-student interaction and student-teacher engagement (Okereke *et al*., 2020), lack of self-discipline (Mukwena and Sinkala, 2020; Rahali *et al.*, 2020), high cost of data bundles (Agormedah *et al.*, 2020; Kajiita, Nomngcoyiya and

Kang'ethe, 2020; Motala and Menon, 2020), living conditions unsuitable for studying (Kajiita, Nomngcoyiya and Kang'ethe, 2020; Motala and Menon, 2020), lack of online pedagogical skills (Agormedah *et al.*, 2020; Kajiita, Nomngcoyiya and Kang'ethe, 2020; Marinoni, Land and Jensen, 2020) and inadequate orientation of students in the use of online learning platforms (Agormedah *et al.*, 2020).

Most of the challenges that adversely affect online education as outlined above are also evident in other parts of the world, particularly in the less developed countries. For example, internet connectivity for online education is problematic in India (Bisht, Jasola and Bisht, 2020; Mishra, Gupta and Shree, 2020), Austria (Ebner *et al*., 2020), China (Chang and Fang, 2020; Xiong, Mok and Jiang, 2020), Malaysia (Chung, Mohamed Noor and Mathew, 2020a; Chung, Subramaniam and Dass, 2020b), Indonesia (Ginting *et al.*, 2020) and Nepal (Gautam & Gautam, 2021; Gupta *et al*., 2020). Other deterrents to online education around the globe include inadequate interaction with fellow students and faculty members (Chung, Subramaniam and Dass, 2020b; Bisht, Jasola and Bisht, 2020; Ebner *et al.*, 2020; Gupta *et al.*, 2020; Mishra, Gupta and Shree, 2020), passive student participation in learning (Chang & Fang, 2020; Chung *et al*., 2020b), and the home environment not being conducive for online learning (Gupta *et al.*, 2020; Mishra, Gupta and Shree, 2020; Wu *et al.*, 2020; Xiong, Mok and Jiang, 2020).

2.2 ENABLERS OF ONLINE EDUCATION

Alshaher (2013) adapted the McKinsey 7S model framework for e-learning system readiness assessment in higher education. The model has since been used in empirical research (Ebner *et al.*, 2020). We use this model (which presents the seven "S"s as strategy, structure, systems, style/culture, staff, skills, and shared value) to identify factors that facilitate online education in higher education.

Bhowmik and Bhattacharya (2021) categorized factors that influence online education in higher education into three groups namely, student related, lecturer related and institutional related factors. Boredom and frustration were the most influential students' related factors, whereas lack of immediate feedback was the most profound lecturer related factor. With respect to institutional related factors, infrastructure and suitable online examination design were the prominent factors that affect online learning.

The student related factors seem to hinge on attitude and motivation of students (Lukong *et al*., 2020; Zia, 2020) and degree of interaction with peers and lecturers (Lukong *et al*., 2020; Xiong *et al*., 2020). Lecturer related factors hinge on teaching strategy/style (Chang & Fang, 2020; Kajiita *et al*., 2020; Zia, 2020), training for online delivery (Chang & Fang, 2020; Chung *et al*., 2020a; Xiong *et al*., 2020), curriculum tailored for online delivery (Zia, 2020), and attitude towards online education (Kajiita *et al*., 2020; Zia, 2020). Institutional factors are characterized by virtual platform functionality (Chang & Fang, 2020; Gupta *et al*., 2020; Marinoni *et al*., 2020), institutional policy for online delivery (Chang and Fang, 2020), and software and hardware support (Chang & Fang, 2020; Gautam & Gautam, 2021; Kajiita *et al*., 2020; Marinoni *et al*., 2020; Xiong *et al*., 2020; Zia, 2020)

2.3 SATISFACTION WITH ONLINE EDUCATION

Our survey of the literature has revealed that gender plays a significant role in satisfaction with online education. Most of the studies reviewed suggest that female students accepted online

education more easily than male students. Studies carried out by Bisht *et al*. (2020), Chung *et al*. (2020b) and Shahzad *et al*. (2020) that involved a total of 1,110 students in India and Malaysia, for example, found that female students embraced online education more readily than their male counterparts. On the other hand, Rakhmanov and Dane (2020) found that female students recorded higher depression and alexithymia scores than male students. In terms of readiness for online learning, Chung *et al*. (2020b) concluded that female students were readier for online education than males. Bhowmik and Bhattacharya (2021) and Chung *et al*. (2020a) did not find gender as a significant factor in students' perception of online learning and readiness for online education respectively.

With respect to the level of study, degree students reported greater satisfaction with online learning and had better learning experiences compared to diploma students (Chung, Subramaniam and Dass, 2020b). Similarly, Gautam and Gautam (2021) found that postgraduate students had more effective online learning experiences than undergraduate students.

Bhowmik and Bhattacharya (2021) investigated the role of locality (i.e. whether dwelling in rural or urban settings) on students' perception of online learning. Their study found no significant difference in perception of online learning among rural, semi-urban and urban students.

Despite the differences in acceptability of online education described above, most of the studies carried out in the COVID-19 era indicate low levels of satisfaction with online education. For example, Xiong *et al*. (2020) concluded that only 27% of the surveyed students were satisfied with online learning, while Gupta *et al*. (2020) found that 76.9% of the surveyed students felt that the online class was distracting. Similarly, Slamet *et al*. (2021) concluded that students and lecturers found online learning materials less effective, student participation average, participants bored with online learning, and online lecture implementation less effective. This study also found that online dissertation supervision was not effective, while online assessment was less effective. On the same hand, a survey of 399 students in Malaysia revealed that more than half of the respondents did not want to continue with online learning in the next semester (Chung *et al*., 2020b), suggesting high levels of dissatisfaction.

However, in Bangladesh, Biswas *et al*. (2020) found that students had positive perception of mobile learning. Gautam and Gautam (2021) also reached similar conclusions in their study of Nepal students' perception of online education in the COVID-19 era.

3. DATA AND METHODOLOGY

We collected data for this study from a Google Docs online questionnaire that was availed to all students at ZCAS and ZCAS University through the virtual learning environment (VLE). A message was sent to all students through the VLE urging them to provide feedback about their experiences with online education since the COVID-19 induced lockdown that prevented in-person learning and teaching. 688 students out of a population of about 2,700 completed the online questionnaire. We consider this response to be adequate because using Yamane's (1967, 886) highly recognised formula for determining sample size, an appropriate sample, n, would be $n = \frac{2,700}{1+2,700\,(0.05)^2} = 348$.

The main research question we set out to answer in this study was: *To what extent do gender, mode of study, type of learning programme and level of study affect acceptability of online*

education in higher education in Zambia? To answer this question, we used SPSS's cross tabulations, chi-square tests and analysis of variance (ANOVA) to analyse the data.

4. EMPIRICAL RESULTS

We imported the questionnaire responses from Google Docs into an Excel spreadsheet for data cleaning. After data cleaning, we remained with 542 usable questionnaire responses, that is, 472 for ZCAS University students (student population: 2,174) and 70 for ZCAS professional students (student population: 547).

4.1 DESCRIPTIVE STATISTICS

In order to determine internal consistency of the survey questionnaire, we generated the Cronbach's alpha coefficient after importing the data into SPSS. The Cronbach's alpha coefficient obtained for the data was 0.733 as can be seen from Table 1 below. The coefficient is higher than the recommended minimum of 0.7, suggesting that our data collection instrument was reliable.

TABLE 1 CRONBACH RESULTS FROM SPSS

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	542	100.0
	Excluded[a]	0	.0
	Total	542	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.733	7

We present descriptive statistics in Tables 1 – 4 below. Table 2 below shows that majority of students (87.1%) who responded to the questionnaire are enrolled on academic programmes. This reflects the overall student population in the two institutions as the ratio of academic to professional students from the Student Information System is 85:15 (Edurole, 2021).

TABLE 2 STUDENTS BY TYPE OF LEARNING PROGRAMME

Type of Programme

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Academic programme	472	87.1	87.1	87.1
	Prefesional Programme	70	12.9	12.9	100.0
	Total	542	100.0	100.0	

In terms of gender, there was an equal number of respondents. As can be seen from Table 3 below, 50% (271) of the respondents were female and exactly the same number were male. This statistic mirrors the population statistics as information from the Student Information Systems shows that the split between male and female students is roughly 50:50 (Edurole, 2021).

With regard to mode of study, learning programmes are offered on three modes of study. Some students study on a full-time basis, which means they engage with their lecturers during normal

working hours from 08:00 hrs to 17:00 hrs. Part time or evening students have classes from 17:30 hrs to 20:00 hrs. The third mode of study is referred to as distance learning, where in-person classes were available for two weeks within the semester.

TABLE 3 SEX OF RESPONDENTS

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	271	50.0	50.0	50.0
	Male	271	50.0	50.0	100.0
	Total	542	100.0	100.0	

From our survey, it can be noted from Table 4 below that most of the respondents were full time students (55.4%), followed by distance learning students (31%). Part time students accounted for the remainder.

TABLE 4 MODE OF STUDY

Mode of study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full time	300	55.4	55.8	55.8
	Part time	70	12.9	13.0	68.8
	Distance	168	31.0	31.2	100.0
	Total	538	99.3	100.0	
Missing	4	4	.7		
Total		542	100.0		

The above scenario basically depicted the structure of the institutions as regards mode of study. Statistics from the Student Information System show that most of the students were full-time, quite a good number were on Distance and fewer were on part time (Edurole, 2021).

4.2 GENDER AND ONLINE EDUCATION

A cross tabulation was undertaken to ascertain whether there was any significant relationship between gender and acceptability of online education as per research question. Results from the cross-tabulation analysis are shown in the Table 5 below.

With respect to the question on how often the respondents attended live online lectures, 63.8% of female student always attended the live online lectures while 55.6% did so most of the time. On the other hand, only 36.3% of the male students always attended live online lectures, while 44.4% did so most of the time. There was a higher proportion of males (66.7%) who never attended the live online classes compared to only 33.3% of females. From these results, we can safely conclude that there was a significant relationship between gender and live online class attendance.

TABLE 5 SEX VERSUS LIVE ONLINE LECTURE ATTENDANCE CROSS TABULATION

Sex * Live Online Lecture Attendance Crosstabulation

			Live Online Lecture Attendance					
			Always	Most of the time	Often	Rarely	Never	Total
Sex	Female	Count	51	85	66	60	9	271
		Expected Count	40.0	76.5	67.0	74.0	13.5	271.0
		% within Live Online Lecture Attendance	63.8%	55.6%	49.3%	40.5%	33.3%	50.0%
	Male	Count	29	68	68	88	18	271
		Expected Count	40.0	76.5	67.0	74.0	13.5	271.0
		% within Live Online Lecture Attendance	36.3%	44.4%	50.7%	59.5%	66.7%	50.0%
Total		Count	80	153	134	148	27	542
		Expected Count	80.0	153.0	134.0	148.0	27.0	542.0
		% within Live Online Lecture Attendance	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.266[a]	4	.003
Likelihood Ratio	16.439	4	.002
Linear-by-Linear Association	16.181	1	.000
N of Valid Cases	542		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 13.50.

Furthermore, the chi-square p-value of 0.03 associated with the cross tabulation, is less than 0.05, which means that gender is significant. This finding is in line with many other studies which have revealed that female students accepted online education more readily than their male counterparts (Chung, Subramaniam and Dass, 2020b; Bisht, Jasola and Bisht, 2020; Shahzad *et al.*, 2020). A possible explanation for this finding is that in general, women spend more time on social media than males (Comscore Inc., 2021). They are therefore, more tech-savvy and readier to use their time online for studies than male students.

4.3 MODE OF STUDY AND ONLINE EDUCATION

The other research question was to assess whether the mode of study the students were enrolled on (i.e. full time, part time or distance learning) had any significant relationship with adoption of online learning. We ran a cross tabulation between mode of study and online lecturer engagement. It can be noted from Table 6 below that there was no significant difference between the expected values and the observed values within a cross tabulation of mode of study and online lecturer engagement. This suggests a normal tendency with regards to online lecturer engagement and mode of study. It really did not matter what mode of study a student was enrolled on; the way learners studying on full time, part time and distance education engaged with their lecturers online was the similar.

TABLE 6 MODE OF STUDY VERSUS ONLINE LECTURER ENGAGEMENT CROSS TABULATION

Mode of study * Online lecturer engagement Crosstabulation

			Online lecturer engagement					
			Always	Most of the time	Often	Rarely	Never	Total
Mode of study	Full time	Count	15	60	83	104	38	300
		Expected Count	15.1	54.6	89.2	107.6	33.5	300.0
		% within Online lecturer engagement	55.6%	61.2%	51.9%	53.9%	63.3%	55.8%
	Part time	Count	3	12	20	28	7	70
		Expected Count	3.5	12.8	20.8	25.1	7.8	70.0
		% within Online lecturer engagement	11.1%	12.2%	12.5%	14.5%	11.7%	13.0%
	Distance	Count	9	26	57	61	15	168
		Expected Count	8.4	30.6	50.0	60.3	18.7	168.0
		% within Online lecturer engagement	33.3%	26.5%	35.6%	31.6%	25.0%	31.2%
Total		Count	27	98	160	193	60	538
		Expected Count	27.0	98.0	160.0	193.0	60.0	538.0
		% within Online lecturer engagement	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.739[a]	8	.785
Likelihood Ratio	4.753	8	.784
Linear-by-Linear Association	.026	1	.873
N of Valid Cases	538		

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 3.51.

The chi-square p-value of 0.785 associated with the cross tabulation confirms that there was no significant relationship between mode of study and online lecturer engagement as it was greater than 0.05. This could be attributed to the fact that all students at ZCAS and ZCAS University have equal access to online resources and facilities regardless of their mode of study.

4.4 TYPE OF PROGRAMME AND ONLINE EDUCATION

The third research question was to establish whether the type of programme pursued (i.e. academic or professional) had a significant relationship with acceptability of online education. Academic programmes lead to the award of a degree from a university, while professional qualifications are awarded by professional bodies such as ACCA, CIMA, CIPS etc. We ran a cross tabulation between type of programme and online lecture attendance. The results in Table 7 below show no major differences between the expected values and the observed values. This implies that the responses obtained were as expected, signifying no significant relationship. It really did not matter what type of programme the respondents were doing – their online lecture attendance was basically the same. The chi-square p-value of 0.289 which is above 0.05 confirms no significant relationship between type of programme and live online lecture attendance.

Furthermore, we ran an analysis of variance (ANOVA) test on whether there was any significant difference in the means of professional and academic students who were attending online classes. The results are shown in Table 8 below.

TABLE 7 TYPE OF PROGRAMME VERSUS LIVE ONLINE LECTURE ATTENDANCE

Type of Programme * Live Online Lecture Attendance Crosstabulation

			Live Online Lecture Attendance					
			Always	Most of the time	Often	Rarely	Never	Total
Type of Programme	Academic programme	Count	66	135	121	129	21	472
		Expected Count	69.7	133.2	116.7	128.9	23.5	472.0
		% within Live Online Lecture Attendance	82.5%	88.2%	90.3%	87.2%	77.8%	87.1%
	Prefesional Programme	Count	14	18	13	19	6	70
		Expected Count	10.3	19.8	17.3	19.1	3.5	70.0
		% within Live Online Lecture Attendance	17.5%	11.8%	9.7%	12.8%	22.2%	12.9%
Total		Count	80	153	134	148	27	542
		Expected Count	80.0	153.0	134.0	148.0	27.0	542.0
		% within Live Online Lecture Attendance	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.986[a]	4	.289
Likelihood Ratio	4.648	4	.325
Linear-by-Linear Association	.006	1	.941
N of Valid Cases	542		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.49.

As can be seen above, the means of online class attendance for academic programme was 2.80 and that of professional program was 2.79, implying that there no significant difference between the two groups of students, and the ANOVA significance value of 0.941 confirms this. This result is as expected because ZCAS and ZCAS University do not segregate access to online resources and facilities between the two groups of students.

TABLE 8 ANOVA

Report

Onlineattendance

Type of Programme	Mean	N	Std. Deviation
Academic programme	2.80	472	1.122
Prefesional Programme	2.79	70	1.284
Total	2.80	542	1.143

ANOVA

Onlineattendance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.007	1	.007	.006	.941
Within Groups	706.260	540	1.308		
Total	706.268	541			

4.5 PROGRAMME LEVEL AND ONLINE EDUCATION

We further investigated whether there was a significant difference in acceptability of online education between undergraduate and postgraduate students. Accordingly, we compared the two

group means based on their attendance of live online classes. A total of 472 students from academic programmes responded to the questionnaire, out of which 419 were undergraduate students and 53 were postgraduate students as can be seen from Table 9 below.

Table 9 shows the mean against each programme level of online class attendance as 2.84 and 2.49 for undergraduate and postgraduate students respectively. As can be seen, the means were different; we therefore set out to analyse the levels of association which can be noted in the cross tabulation in Table 10 below.

TABLE 9 MEAN OF PROGRAMME LEVEL AGAINST ONLINE CLASS ATTENDANCE

Report

Onlineattendance

Programme level	Mean	N	Std. Deviation
Undergraduate	2.84	419	1.130
Postgraduate	2.49	53	1.012
Total	2.80	472	1.122

We note from Table 10 below that, proportionately, more postgraduate students (58.5%) attended live online classes either all the time or most of the time, compared to 40.5% of undergraduate students who did so.

TABLE 10 CROSS TABULATION OF PROGRAMME LEVEL AND LIVE ONLINE CLASS ATTENDANCE

Programme level * Live Online Lecture Attendance Crosstabulation

			Live Online Lecture Attendance					
			Always	Most of the time	Often	Rarely	Never	Total
Programme level	Undergraduate	Count	58	112	111	117	21	419
		Expected Count	58.6	119.8	107.4	114.5	18.6	419.0
		% within Programme level	13.8%	26.7%	26.5%	27.9%	5.0%	100.0%
	Postgraduate	Count	8	23	10	12	0	53
		Expected Count	7.4	15.2	13.6	14.5	2.4	53.0
		% within Programme level	15.1%	43.4%	18.9%	22.6%	0.0%	100.0%
Total		Count	66	135	121	129	21	472
		Expected Count	66.0	135.0	121.0	129.0	21.0	472.0
		% within Programme level	14.0%	28.6%	25.6%	27.3%	4.4%	100.0%

We further carried out an ANOVA test, results of which are shown in Table 11 below. The significance value of 0.035, which is less than 0.05, denotes that there is a significant relationship between programme level and online education. Postgraduate students engaged more in online education than undergraduate students. This finding buttress other studies such as Chung, Subramaniam and Dass (2020b) and Gautam and Gautam (2021) in which researchers concluded that students pursuing higher level learning programmes accepted online education

readier that their counterparts on lower level programmes. We attribute our study's finding to the fact that postgraduate students, most of whom are in employment, have more resources and greater access to the internet than undergraduate students, and can therefore easily adopt online education.

TABLE 11 ANOVA TABLE FOR ONLINE CLASS ATTENDANCE AND PROGRAMME LEVEL

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Onlineattendance * Programme level	Between Groups	(Combined)	5.592	1	5.592	4.478	.035
	Within Groups		586.883	470	1.249		
	Total		592.475	471			

4.6 FACTORS THAT INFLUENCED PROVISION OF ONLINE EDUCATION

The study also went further to ascertain to what extent certain suggested variables impacted on online education. Respondents were required to rate how factors such as internet speed, cost of bundles, platform unavailability, how user friendly the platforms were, delayed feedback, out-dated materials, lack of training to use platform and lack of interaction with lecturers impacted acceptability of online education. A 5-point Likert scale statement analysis was conducted based on the standard interval table shown in Table 12 below.

TABLE 12 INTERVAL SCALE TABLE FOR 5 RESPONSE LIKERT STATEMENTS

	Scale	Interval Length	Lower Limit	Upper Limit
Always	1	0.8	1	1.8
Most of the time	2	0.8	1.8	2.6
Often	3	0.8	2.6	3.4
Rarely	4	0.8	3.4	4.2
Never	5	0.8	4.2	5

TABLE 13 DESCRIPTIVE STATISTICS ON LIKERT STATEMENTS

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Internet speed	542	1	5	2.47	1.128
Cost of bundles	542	1	5	2.29	1.336
Platform unavailability	542	1	5	3.36	1.149
Platform not user friendly	542	1	5	3.55	1.222
Delayed feedback	542	1	5	3.15	1.162
Outdated materials	542	1	5	3.85	1.155
Not trained to use the platform	542	1	5	3.61	1.330
Lack of interaction with lecturers	542	1	5	3.14	1.312
Valid N (listwise)	542				

From Table 13, our interest was to determine how the mean against each statement compared with the standard interval table given in Table 12. From this comparison, we note that internet speed and cost of data bundles adversely affected students' online education most of the time. Platform not being available, delayed feedback and lack of engagement with lecturers online often adversely affected students also. Out-dated materials on the platforms, lack of training to use the platform and platform not being user friendly rarely affected students' online education.

Table 14 below indicates percentage responses on the given statements. We can conclude from the responses that 60.7% of the respondents indicated that cost of data bundles adversely affected their online education either always or most of the time, while 56.1% of the respondents said the same regarding internet speed. Therefore, cost of data bundles and internet speed were the major factors that adversely affected students' engagement in online education. This finding is in line with what the literature suggested. Lack of financial resources (Agormedah *et al.*, 2020; Kajiita, Nomngcoyiya and Kang'ethe, 2020; Motala and Menon, 2020) and unstable internet (Kajiita, Nomngcoyiya and Kang'ethe, 2020; Mukwena and Sinkala, 2020; Okereke *et al.*, 2020; Rahali *et al.*, 2020) have been identified as hindrances to online education elsewhere, particularly in less developed countries.

TABLE 14 RESPONSES ON FACTORS THAT AFFECTED LEARNER ONLINE EDUCATION

	Always (%)	Most of the time (%)	Often (%)	Rarely (%)	Never (%)	Total (%)
Cost of Bundles	40.6	20.1	16.6	14.9	7.7	100
Internet Speed	22.5	33.6	22.0	18.6	3.3	100
Platform Unavailable	7.2	17.9	21.8	38.2	14.9	100
Platform not user friendly	7.9	13.1	19.9	33.8	25.3	100
Delayed Feedback	10.1	18.5	29.2	30.3	12	100
Out-dated Materials	5.4	10.0	13.5	37.1	34.1	100
Not trained to use the platform	10.9	10.7	17.5	27.9	33.0	100

4.7 OVERALL SATISFACTION WITH ONLINE EDUCATION

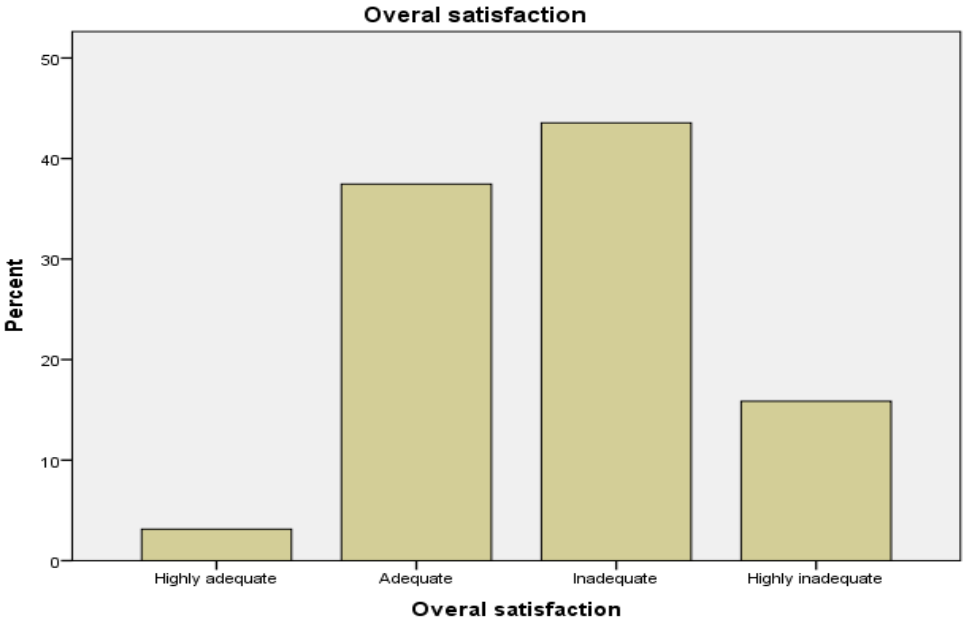
Lastly, respondents were asked to rate how satisfied they were with online education overall. The majority of the respondents (59.4%) indicated that they were not satisfied with online education as shown in Table 15 and Figure 1 below.

TABLE 12 OVERALL SATISFACTION WITH ONLINE PLATFORMS

Overal satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly adequate	17	3.1	3.1	3.1
	Adequate	203	37.5	37.5	40.6
	Inadequate	236	43.5	43.5	84.1
	Highly inadequate	86	15.9	15.9	100.0
	Total	542	100.0	100.0	

Figure 1 Overall Satisfaction of online platforms



This finding echoes many other studies on student satisfaction with online education. As our literature review has revealed, many researchers have found that overall, majority of the students are dissatisfied with online education (Chung, Subramaniam and Dass, 2020b; Gupta *et al.*, 2020; Xiong, Mok and Jiang, 2020; Slamet *et al.*, 2021). The overall lack of satisfaction with online education can be attributed to inability to participate in online classes due to financial constraints and poor internet speed.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The conclusions from this study were that gender was significant in influencing acceptability of online education. Results indicated that majority of the female learners (63.8%) always attended online classes compared to only 36.3% of the males. Mode of study had no significant relationship with online lecturer engagement as indicated by a Pearson chi-square p-value of 0.785 which is way above 0.05.

This study further set to ascertain whether the type of program i.e. academic or professional had any significant relationship with online education. Going by the ANOVA test that was conducted, there was no significant difference in the mean of academic respondents who attended online classes (2.80) and that of professional students which was 2.79. Both academic and professional students engaged in online classes in the same way.

With respect to the level of study, we found, like many other researchers, that postgraduate students adopted online education better that undergraduate students. We think that postgraduate students adopt online education easier than their undergraduate counterparts because they have greater access to resources.

In terms of factors which influenced students' acceptability of online education, the Likert scale showed that cost of data bundles and internet speed were the greatest hindrances to student's online education. Overall, majority of the students were dissatisfied with online education.

5.2 RECOMMENDATIONS

The first recommendation from this study is that universities should implement strategies to motivate male students to embrace online education. For example, faculties could offer tutorials to male students on how to use online platforms.

Secondly, higher education institutions (HEIs) should facilitate student access to online teaching and learning in ways that are affordable to their students. For example, HEIs could negotiate with internet service providers to zero-rate student access to their learning platforms to reduce the prohibitive cost of date bundles for students.

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