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The Level of Students' Self-Efficacy on E-Learning at Post-COVID-19 Pandemic: Case Study of Rongo University-Kenya

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Abstract COVID-19 contributed a significant portion of the global burden of the killer diseases. The global spread of COVID-19 required not only national-level responses but also active compliance with individual-level prevention measures outside and within the institutions of higher learning. In this context, self-efficacy means individuals' confidence and certainty in their ability to successfully perform specific IT related tasks in response to e-learning after COVID-19 Pandemic. This study investigated the level of students' self-efficacy on E- learning at Post-COVID-19 Pandemic: Case study of Rongo University-Kenya. The results may guide the University policymakers to focus on increasing the awareness and knowledge of lecturers through conducting training programs on how to use the e-learning system, because the lecturers have an important role in guiding and motivating the students to use the e-learning systems, which in turn affects the teaching performance and students' self-efficiency in using the ICT gadgets in online classes. The University management should effect changes in learning as well as improving on pedagogical strategies to accommodate needs of different students with varied potentialities in e-learning platforms to promote their confidence level. This could be done through organized trainings and workshops in small manageable clusters, promoting self-efficacy programs on ICT use and ensuring successful address and implementation of issues raised by the concerned students during the learning process.

Keywords Students' Self-Efficacy, E-Learning, Pandemic, COVID-19

1. Research Question

What is the level of Students Self-Efficacy on E-Learning after the COVID-19 Pandemic?

2. Research Methodology

This study was a descriptive cross-sectional in nature. Convenience samples of 96 Rongo University students were recruited. The COVID-19 SSE questionnaire was administered to the sampled students.

3. Introduction

Following the emergence of the COVID-19 pandemic, education shifted to e-learning and students' personal and professional way of learning has drastically been altered. University lecturers and students have juggled a number of professional and personal changes as a result of this transition. The drastic changes positioned most students to be familiar with using social media platforms while lacking the ability to use technical resources or software for educational purposes. The platform of E-Learning Environments (ELE) became very instrumental in giving learners access to educational resources, connecting students with lecturers and facilitating distance lessons. The selection and the overall impact of ELE crucially depend on lecturers' pedagogical and technological readiness and on students' digital competences and hands on experience (accessibility of the internet and availability of appropriate ICT tools are preconditions to this). The choice of the teaching mode appropriately depends on the degree of uniformity and ICT investment a particular University intends to guarantee across different faculties or schools. Various types of E-Learning exist, from basic content repositories, to scaffold curriculum-aligned repositories, to synchronous and asynchronous platforms offering a wide range of tools and services especially within the Library or ICT platforms set for both the staff and the students. Different models should be tested in different contexts and the selection should be based on an accurate analysis of the relative pros and cons of each ELE if the whole process is hoped to be successful and of importance to students during and after the surge of

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COVID-19 Pandemic.

According to Shigemuraet al., (2020); and WHO, (2019), in December 2019 a highly infectious disease, caused by a new coronavirus (the Severe Acute Respiratory Syndrome Coronavirus 2; SARS-CoV-2) was officially reported in Wuhan, China, and speedily spread outside China in the first months of 2020. The disease was called Coronavirus Disease 19 (COVID-19) and was declared a pandemic by the World Health Organization on March 11, 2020 (WHO, 2020). In Kenya, COVID-19 was first reported on March 13, 2020 and schools were abruptly shut and they remained closed for several months, with learners in most learning levels forced to repeat their 2020 school year in 2021. This affected over 18 million children in Kenya including Universities and middle level colleges. The emergence of this virus to a greater degree hindered Kenya's Vision 2030 National Development Goals which try to achieve quality education for every child. During the pandemic most learning institutions resorted to online teaching and both students and lecturers were trained on technical components of using IT to effectively carry on with virtual classes. The insight of this paper dwelt on the confidence level of the University students in applying IT related tasks on e-learning after COVID-19 Pandemic.

4. Literature Review

Student Self-Efficacy on E-Learning after COVID-19 Pandemic

Amir, Tanti, Maharani, Wimardhani, Julia, Sulijaya and Puspitawati (2020) did a study on student perspective of classroom and distance learning during COVID-19 pandemic in the undergraduate dental study program at the Universitas of Indonesia. This study found out that the COVID-19 pandemic brought the unprecedented universities' facilities closure and this affected millions of students globally. The study documented that student's attitude and acceptance toward e-learning became more positive and favorable. According to Rivers (2021), e-learning specialists needed to base their technological solutions and interests on well-researched pedagogical principles with sound theoretical rationale used to direct and moderate the use of technology.Yokoyama (2019) also stated that since a familiarity with online learning devices may affect the relationship between academic self-efficacy (ASE) and academic performance in e-learning settings, those who are not good at using online learning devices may not achieve high enough academic success in an e-learning setting. Second, since task values are closely related to the relationship between ASE and academic performance, students, teachers and parents may need to choose the e-learning software they believe will have the most valuable content and/or tasks for students. The choice on the software made by individual students would build on their confidence level and urge to learn and be conversant with the whole process.

Heaperman and Sudweeks (2002) did a study on Achieving self-efficacy in the virtual learning environment. The study outlined that self-efficacy in the VLE will leave the mature student better equipped to deal with technology generally and specifically for the purposes of sustained lifelong learning. The study however, proposed changes in learning as well as pedagogical strategies to accommodate the specific needs of students. Karademas and Thomadakis (2021) equally did a study on the efficacy of online learning during the general lockdown in Kenya and 358 individuals (239 females) participated (mean age = 36.89; SD = 12.15). The study suggested a potential adaptation-promoting synergy between pandemic-related self-efficacy and a more positive representation of COVID-19, as far as psychological distress is concerned. This according to the study would enable the students to synchronize the proposed virtual learning strategies for prosperity.

A study done by Maheshwari (2021) found that students' satisfaction with the e-learning experience is influenced by e-learning self-efficacy. This study revealed that the three domains of learning i.e. cognitive, affective and psychomotor played salient roles in student satisfaction during the emergency shift to remote learning owing to the COVID-19 pandemic. Bellato (2020) concluded that requests that people adhere to government regulations, especially during localized lockdowns, should specifically target individuals' internal motivation to act, avoiding a diffusion of responsibility. Hussain, Mkpojiogu and Ezekwudo (2021) equally added from their scholarly work that the major causes of students' low academic self-efficacy are: lack of confidence with 22.73% and others include: low self-esteem (21.05%) and inferiority complex (10.53%). Also the review was able to show the three most important factors necessary for improving the academic self-efficacy of students using mobile educational apps included: teachers' message (21.05%) and success and failure of others (15.79%). With the inception of mobile applications in schools, teaching and learning have been of great difference.

A research done by Peechapol, Na-Songkhla, Sujiva and Luangsodsai (2018) revealed that various factors improved self-efficacy and provided evidence of significant sources of self-efficacy in the context of online learning. The study noted that Self-efficacy is the key to success in all activities including online learning. In carrying out research on Self-Efficacy on the Coronavirus Disease-2019 (COVID-19) by Dadfar (2021), a convenience sample of Iranian medical students was recruited in July 2020. The sample size was calculated using Cochran's formula. The COVID-19SES was administered to 130 students who were resident in three student dormitories at the Iran University of Medical Sciences. The study provides evidence for the usefulness of the COVID-19SES for assessing self-efficacy in Iranian students and in non-clinical settings. Twenty-four students (36.4%) reported low COVID-19 self-efficacy, and education is necessary to promote self-efficacy in health-related matters. Findings provided evidence for self-efficacy promotion programs and successful

implementation of preventive health behavior programs during the COVID-19 pandemic.

Alemany-Arrebola, Rojas-Ruiz, Granda-Vera and Mingorance-Estrada (2020) examined the influence of COVID-19 on the perception of academic self-efficacy, state anxiety, and trait anxiety in college students. The findings revealed that the study could cause an increase in stress due to the uncertainty caused by this time of change. This research analyses the relationship between perceived self-efficacy in the confinement period and the level of trait anxiety (TA) and state anxiety (SA) during COVID-19. The results indicated that there was an inversely proportional relationship between anxiety and self-efficacy; men showed the highest perception of self-efficacy, while women had higher scores in TA and SA; the latter was accentuated in cases when a relative died.

Ritchie, Cervone and Sharpe (2020) acknowledged the goals and self-efficacy beliefs during the initial COVID-19 lockdown. The study demonstrated a significant drop in self-efficacy beliefs from before to during the pandemic with a large effect based on whether people thought they could still achieve their goal under current conditions. The study analysis of verbal self-efficacy reports mirrored the numerical results, showing significant differences between pre COVID-19 and current self-efficacy beliefs for achieving valued projects. Cadapan, Tindowen, Mendezabal and Quilang (2022) in their study showed that students had a high level of self-efficacy when it comes to online learning during the COVID-19 period. Despite their struggles and challenges in the online classroom, particularly in social interactions and communication with their classmates and teachers, they were eager to complete their respective degrees since they were confident in their learning management system's use. Dash, Akmal, Mehta and Chakraborty (2022) however stated that user satisfaction enhances user intention during this period which then mediated the relationship between self-efficacy, interaction, and user intention. Choice according to this study moderated the relationship between interaction and user intention. Enjoyment moderated the relationship between e-learning contents and user intention. The study under pinned the fact that stakeholders must enhance the required infrastructure and resources to help the stakeholders adapt to the e-learning mode smoothly and for prosperity.

5. Results, Findings and Discussions of the Study

Return Rate and Demographic Information

The study sought to explore the demographic information of the respondents. The demographic information investigated includes the students' gender and age. This information was considered important for the purpose of generalization of the results of the survey. Table 1 shows the demographics of the respondents of the study.

Table 1. Demographic Information (n=101)

	Variable	Frequency	Percentage
Gender	Male	57	56.4
	Female	44	43.6
	Total	101	
Age	Below 20 Years	19	18.8
	20-25 Years	65	64.4
	Above 25 Years	17	16.8

As indicated in Table 1, majority (64.4%). of the respondents are in the age group of 20 – 25 years. This somewhat confirms the fact that in Kenyan Universities majority students are admitted at above 19 years. As for gender, male respondents (56.4%) dominated female respondents (43.6%). This is also supports the fact that there is generally disparity in among gender in University education with dominant gender being males.

Internal Reliability of the Scales

The internal reliability of the instrument used for the research study was determined by estimating Cronbach's alpha of the students' questionnaires. Cronbach's Alpha is expressed as a number between 0 and 1 such that the closer the Cronbach's Alpha Coefficient is to 1, the higher the internal consistency and reliability. Whereas there is no absolute rule for internal consistency as argued by Oso and Onen (2014), the alpha values between 0.8 and 0.9 are considered as Excellent; between 0.7 and 0.8 as Good; between 0.6 and 0.7 as Acceptable; between 0.5 and 0.6 as Questionable; below 0.5 as Unacceptable and alpha values exceeding 0.90 are indicative of redundancy of items. The reliability for multi-item opinion items were computed separately for each of the sub-scales in the student questionnaires and the coefficient alpha of these variables reported in Table 2.

Table 2. Reliability Statistics for the Construct of the Student Questionnaire

Sub-scale	Cronbach's alpha	Cronbach's alpha based on standardized items	Number of items
Self-efficacy level	0.821	0.823	15

Table 2 indicate that all the sub-scales attained the recommended level of internal consistency of reliability considering the Cronbach's alpha values are ranging from a low of 0.731 to a high of 0.822. This confirms that the questionnaires had adequate reliability for the study with all the items hanging out well with others in each of the sub-scales.

Content Validity

Although the questionnaires were subjected to scrutiny by experts in the faculty to ensure face validity, an internal validity of the constructs was tested by subjecting the students' survey data to suitability tests using the Kaiser-Meyer-Oklin measure of sampling adequacy (KMO

Index) and the Bartlett's Test of Sphericity, as explained by Gravetter and Wallnau (2000). In this regard, the internal validity of the questionnaire's data set for analysis was assessed for each sub-scale and the results were summarized as in Table 3.

Table 3. KMO and Bartlett's Test

Sub-scale	Kaiser-Meyer-Oklin (KMO index)	Bartlett's Test for Sphericity		
		Approx. Chi-Square	df	Sig.
Self-efficacy on EL skills	.782	412.268	105	.0001

Source: Survey data (2021)

The results of validity analysis established that all items were correlated with at least one other item above the correlation value set at 0.3 and the Kaiser-Meyer-Olkin measure of sampling adequacy value was .782 which was greater than the recommended value of 0.6 (Field, 2010). Likewise, the Table 3 confirmed the significance of the factor analysis based on Bartlett's test of Sphericity for the subscales as; $\chi 2$ (105) = 412.268, p = .0001; $\chi 2$ (45) = 305.667, p < .001; and $\chi 2$ (45) = 210.281, p = .0002.This suggests that the Bartlett's test for Sphericity were highly significant (p< .05) for all the sub-scale of the questionnaire, confirming that the questionnaires were of adequate internal validity.

Student Self-Efficacy and Engagement in E-Learning

The objective of the study sought to explore how students rate their own levels of self-efficacy in skills needed to use an E-learning after the COVID-19 period. A Likert scaled itemed questionnaire whose items gauged the respondents' level of self-efficacy in skills of e-learning was administered to sampled University students. Using the rating scale from strongly disagree (1) to strongly agree (5) the sampled students rated the items based the level agreement by the respondents. Their responses were presented in frequencies, percentages, means and standard deviations as summarized in Table 4.

Students Level of Self-Efficacy

The findings of the study revealed that, in general, the students rated their own levels of self-efficacy in skills needed to use an e-learning environment after the COVID-19, as above average. This was reflected by an overall mean rating of 3.78 (SD=1.25) in the scale of 1 to 5. This suggests that although many of the students who were surveyed have fairly strong belief in their capacity to use e- learning, others agreed that they still lacked appropriate skills to confidently use e-learning after the COVID-19. This implied that some of the students accepted that they lacked confidence in the ability to exert control over their own motivation, behavior, and social environment with regard to e-learning. However, the study has revealed that the level of self-efficacy beliefs varied among the students.

For instance, the students' response on their confidence in individualized learning process indicate that although 24 (23.8%) of them agreed and 55 (54.8%) strongly agreed that they have confidence in individualized learning process that takes into consideration their level of competence, individual student still needed different learning styles, some 13 (12.8%) of them either disagreed or strongly disagreed that they have confidence in individualized learning process. Their confidence level after the experience with COVID-19 in the individualized learning process was rated at 4.13 with a standard deviation of 1.22. However, 9 (8.9%) of the surveyed students remained undecided on the matter. Equally, their confidence in the use of software to do new things on a computer was rated at 3.57 (SD=1.28), with 12 (11.9%) of the respondents strongly disagreeing, 10 (9.9%) disagreeing, 10 (9.9%) being undecided and 68 (67.4%) of them either agreeing or strongly agreeing that they have confidence in using software to learn how to do new things on a computer. This suggests that whereas many of the students have adequate self-confidence in individualized learning process and in using software to learn how to do new things on a computer, a respectable proportion of the students lack confidence in these areas, which are key aspects of virtual learning after COVID-19 Scourge.

On the same vein, when the study sought to find out whether the students are confident to carry out learning even if they are physically separated from the teachers, the results show that the students' level of confidence was just about average (M=3.20; SD=1.41), with 16 (15.8%) of the respondents strongly agreeing and 22 (21.8%) others agreeing that they have no confidence in learning without teachers being physically present. Just slightly more than a half 53 (52.5%) of the surveyed students alluded that they have confidence in carrying out learning activities even if they are physically separated from their teachers, but some 10 (9.9%) of them remained elusive on this matter.

It also emerged that students are very confident in certain aspects of the use of computer and its applications. For instance, knowing how to download files from the internet attracted confidence level of 4.04 (SD=1.08), with 40 (39.6%) of the sampled students agreeing and 40 (39.6%) others strongly agreeing that they know how to download files from the internet. Suffice, about a tenth 10 (9.9%) of the sampled students confirmed that they do not know how to download files from the internet and 11 (10.9%) others were non-committal on their ability to download files from the internet. Equally, the study findings indicate that whereas a significant majority of 79 students translating to close to four fifth 78.2% of respondents alluded that they know how to read an internet addresses, but some 10 (9.9%) of them accepted that they lack confidence in reading internet addresses and another 12 (11.9%) of them were not sure of their ability to reading internet addresses. This item attracted response rate of 4.07 with a standard deviation of 1.07, suggesting that although many of the respondents alluded that they have confidence in using internet appropriately, a sizeable proportion of the students do not have appropriate confidence in reading internet addresses.

Table 4. Students Level of Self-Efficacy on E-learning Platform

NO	ITEM	1	2	3	4	5	MEAN	ST.DEV
1	Individualized learning process that takes into consideration my level of competence, individual needs, and different learning styles	7 (6.9%)	6 (5.9%)	9 (8.9%)	24 (23.8%)	55 (54.8%)	4.13	1.22
2	Using software to learn how to do new things on a computer.	12 (11.9%)	10 (9.9%)	10 (9.9%)	44 (43.6%)	24 (23.8%)	3.57	1.28
3	Carrying out learning activities even if I am physically separated from the teacher.	16 (15.8%)	22 (21.8%)	10 (9.9%)	32 (31.7%)	21 (20.8%)	3.20	1.41
4	Knowing how to download files from the Internet.	5 (5.0%)	5 (5.0%)	11 (10.9%)	40 (39.6%)	40 (39.6%)	4.04	1.08
5	Knowing how to read an Internet address	4 (4.0%)	6 (5.9%)	12 (11.9%)	36 (35.6%)	43 (42.6%)	4.07	1.07
6	Level of confidence in setting up an electronic mail (email) account on the Internet.	7 (6.9%)	7 (6.9%)	15 (14.9%)	34 (33.7%)	38 (37.6%)	3.88	1.19
7	Knowing how to send attachments to others over the Internet.	10 (9.9%)	3 (3.0%)	12 (11.9%)	45 (44.6%)	31 (30.7%)	3.83	1.19
8	Knowing how to maintain personal information on the Internet.	7 (6.9%)	6 (5.9%)	12 (11.9%)	35 (34.7%)	41 (40.6%)	3.96	1.83
9	Using the menu options from within a software program.	10 (9.9%)	17 (16.9%)	17 (16.9%)	34 (33.7%)	23 (22.8%)	3.43	1.28
10	Installing a software program correctly	11 (10.9%)	9 (8.9%)	27 (26.9%)	31 (30.7%)	23 (22.8%)	3.46	1.25
11	Understanding typical computer words for hardware, such as plug and-play (pnp) devices.	11 (10.9%)	11 (10.9%)	22 (21.8%)	29 (28.7%)	28 (27.7%)	3.51	1.30
12	Using an Internet browser (such as Internet Explorer) to access the World Wide Web (WWW).	5 (5.0%)	13 (12.9%)	10 (9.9%)	40 (39.6%)	33 (32.7%)	3.82	1.17
13	Responding to a dialog box within a software program.	10 (9.9%)	17 (16.9%)	25 (24.8%)	33 (32.7%)	16 (15.8%)	3.28	1.21
14	Using a computer mouse to point or click on the computer screen.	3 (3.0%)	9 (8.9%)	6 (5.9%)	28 (27.7%)	55 (54.5%)	4.22	1.09
15	Using a search engine (such as Google) to find information on the Internet.	6 (5.9%)	5 (5.0%)	6 (5.9%)	23 (22.8%)	61 (60.4%)	4.27	1.16
Overall rating of student self-efficacy and their perception on virtual learning							3.78	1.25

On setting of an electronic email accounts, the survey results established a confidence level of 3.88 (SD=1.19). This was mirrored by the fact that while 38 (37.6%) of the surveyed students strongly agreed that they have confidence and a further 34 (33.7%) of them agreed that they have confidence in setting up an electronic mail (email) account on the Internet, 14 (13.8%) of them accepted that they lack confidence. In addition, 15 (14.9%) others were not sure whether or not they have enough confidence to set up an electronic mail (email) account on the Internet. Similarly, at a confidence rate of 3.83 (SD=1.19) about three out of every four 76 (75.3%) of the surveyed students were in agreement that they know how to send attachments to others over the Internet. However, 12 (11.9%) of them remained non-committal on the matter, but 13 (12.9%) of accepted that they lack confidence on how to send attachments to others over the Internet.

Likewise, the results of the survey show that although majority of the sampled students know how to maintain personal information on the Internet, some of them do not know how to maintain personal information on the Internet. This was reflected by a mean confidence rate of 3.96 (SD=1.83), with 7 (6.9%) of the respondents strongly disagreeing, 6 (5.9%) disagreeing, 12 (11.9%) being undecided and 76 (75.3% of them either agreeing or strongly agreeing that they have confidence in using the menu options from within a software program. The findings affirmed the argument by Okello (2021) that universities need to focus on instilling the culture of virtual systems among students through training courses about the usefulness of virtual systems and developing their IT skills to increase confidence level of learners in using the IT systems.

On the flip flop, it emerged that a respectable proportion of the sampled students accepted that they have no confidence in installing a software program correctly. This was reflected by a confidence rating of 3.46 (SD=1.25), with close to a fifth 20 (19.8%) of the students who took part in the survey who accepted that they do not know how to install a software program correctly. Nonetheless, 31 (30.7%) of the respondents agreed and 23 (22.8%) other strongly agreed that they know how to install software programs correctly, but 27 (26.9%) were undecided. Similarly, understanding

typical computer words for hardware, such as plug and-play (PnP) devices was rated at 3.51 (SD=1.30), with 22(21.8%) of the respondents confirming that they in fact have no confidence in this area. Only 28 (27.7%) of the surveyed students strongly agreed and 29 (28.7%) others agreed that they have enough understanding on typical computer words for hardware, such as plug and-play (PnP) devices, but 22 (21.8%) were not sure on their ability to understand computer words for hardware.

The use of internet browsers attracted confidence level of 3.82 with a standard deviation of 1.17. This was mirrored by 40 (39.6%) of the respondents who agreed and 33 (32.7%) others who strongly agreed that they have confidence in using an Internet browser (such as Internet Explorer) to access the World Wide Web (WWW). However, 10 (9.9%) of them remained undecided, but some 18 (17.9%) of the respondents confirmed that they lack confidence in using an Internet browser (such as Internet Explorer) to access the World Wide Web (WWW).

On the contrary, it emerged that response to a dialog box within a software program by the students is relatively low. This was indicated by a mean rating of 3.28 (SD=1.21), with more than a quarter 27 (26.7%) of the sampled students agreeing that they have no confidence in responding to a dialog box within a software program. In addition, 25 (24.8%) of the survey students remained non-committal on their ability to respond to a dialog box within a software program. Only 33 (32.7%) and 16 (15.8%) of the respondents alluded that they were confident and very confident, respectively, that they can effectively respond to a dialog box within a software program.

What came out clearly from the results of the survey is that although a significant majority of the students have confidence in the use of computer mouse (M=4.22; SD=1.09) and in the use of a search engine (M=4.27; SD=1.16), some of the students still have difficulties in these aspect of online programme. For instance, 12 (11.9%) of students who took part in the survey accepted that they lack confidence in using a computer mouse to point or click on the computer screen. Likewise, 11 (10.9%) of them confirmed that they lack confidence in using a search engine (such as Google) to find information on the Internet. This suggests that in as much as many of the students can benefit in the virtual learning after COVID-19, some of them have low self-efficacy and lack perquisite confidence to fully benefit from virtual learning after COVID-19 scourge.

Influence of Students' Level of Self-Efficacy on Participation/Engagement in EL

The correlation between students' level of self-efficacy and participation in E-Learning was determined to address the research question. The overarching correlation question was: What is the relationship between students' level of self-efficacy and participation in E- Learning among University students after the period of COVID-19? The relationship between the two variables was calculated as the Pearson correlation coefficient. The variables were computed from frequency of responses and converted into continuous scale, where high scale ratings implied high perceived level of self-efficacy and participation in E-Learning and vice-versa. The significant level (p-value) was set at .05, such that if the p-value was less than 0.05, the null hypothesis would be rejected and conclusion reached that a significant difference does exist. If the p-value was larger than 0.05, it would be concluded that a significant difference does not exists. The two assumptions of correlation analyses to be satisfied prior to the calculation of r-value (Variables are normally distributed and scores for the variables are independent of each other) were ensured. Table 5 displays the Pearson correlation coefficient between the variables for self-efficacy and participation in E-Learning.

Table 5. Correlation between Self-Efficacy and Participation in E-Learning

		Self-Efficacy	Participation in E-Learning
Self-Efficacy	Pearson Correlation	1	.531**
	Sig. (2-tailed)		.000
	N	100	100
Participation in E- Learning	Pearson Correlation	.531**	1
	Sig. (2-tailed)	.000	
	N	100	100

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

The correlation between students' self-efficacy and participation in e-learning was found tobe significant (p<.001), r(101) = .53. The findings showed some strong significant relationship between self-efficacy and participation in e- learning among the University students given that r>.5 and p<.01. Consequently, the null hypothesis was rejected and alternate hypothesis was supported. Thus it was concluded that there is a strong positive relationship between self-efficacy and students' participation in e-learning. Further, regression analysis was conducted to find out the degree of influence of students' self-efficacy on students' participation in e- learning. Table 6 shows summary of regression analysis results.

Table 6 shows that self-efficacy in skills explains 27.5% (Adjusted R Square = .275) of the variance in students' participation in E-learning. Further, a simple regression Analysis of Variance (ANOVA), as explained by Tabachnick and Fidell (2007), was used to interpret whether self-efficacy in skills is a predictor of students' participation in E-learning. ANOVA which hypothesized that the R in the population equals 0 revealed that the model was statistically significant, F (1, 98) = 38.496, p<.001. This suggests that self-efficacy in skills is a significant predictor of participation in E-learning among university students. However, Beta value of .531 indicates that when the level of self-efficacy in skills is increased by one standard deviation, the students' participation in E-learning would improve by .531 standard deviations and vice versa.

Table 6. Regression of Self-Efficacy on Participation in E-Learning

	B	Std. Error	Beta	t	Sig.
(Constant)	.883	.314		2.816	.006
Self-efficacy	.509	.082	.531	6.204	.000
Adjusted R^2	.275				
F-ratio	38.496***	df1=1 df2=98			

Key: * p < .05 ** p < .01 ***p<.001

Further, the a regression equations were extracted from Table 5 to help predict the influence of self-efficacy in skills on University students' participation in E-learning. The study was guided by a general regression prediction model as follows: $Y = \beta 0+\beta_1 X_1+ \varepsilon$

Where; Y= Participation in E-learning; X_1= Self-efficacy in skills and ε being error term.

Thus, the predicated optimum level of students' participation in e-learning among University students after COVID-19 pandemic given students' level of self-efficacy was represented by:

$$\mathbf{Y=.883units + 0.509X_1 \textit{units} + error}$$

From the model, for each one unit increase in the level of self-efficacy of skills, there is a resultant rise in the level students' participation in E-learning by 0.509 units. In general, the model was adequate enough to predict the level of students' participation in E-learning among the University students after COVID-19 period. The model was statistically significant $F(1, 98) = 38.496$, p <.001, Adjusted R^2 =.275.

6. Students Demographic Characteristics and Participation in E-Learning

Students' Gender on Participation in E- Learning

An independent-samples t-test was conducted to compare the students' participation in E- learning scores for males and females. The analysis helped to establish whether there is a significant difference in the mean participation in E-learning scores for males and females. Gender, being independent variable was categorical (males/females) and participation in E-learning scores, being dependent variable, continuous variable t-test was the appropriate. Using Levene's test, assumption of equal variance was not violated (p>.05) as required for an independent t-test. Table 7 shows the summary of an Independent sample t-test results.

Table 7. Independent sample t-test – Gender on Participation in E-Learning

Gender	N	Mean	SD	SE	Mean Diff.	SE	p-value	T
Female	44	2.6909	0.9828	0.14817	-0.17751	0.13584	0.249	-1.307
Male	57	2.8684	0.2613	0.03461				

The results of the survey revealed that although male students had a relatively higher scores in participation in E-learning than their female counterparts after COVID-19, there was no statistically significant difference in scores for males (M=2.87, SD=0.26) and females [M=2.69, SD=0.98; t(99)= -1.307, p=.194]. Further, the magnitude of the differences in the means was established to be very small (eta squared=.02), confirming that the difference is not significant.

7. Conclusions

The objective of the study sought to explore how students rate their own levels of self-efficacy in skills needed to use E- learning after the COVID-19 pandemic. The findings implied that some of the students accepted that they lack confidence in the ability to exert control over their own motivation, behavior, and social environment with regard to E- learning after the COVID-19 pandemic. Causes of low self-esteem after COVID-19 are lack of confidence, low self-esteem and inferiority complex. The study concluded that University management should be more focused in increasing the capacity building programs through ICT skill based trainings on how to use the e-learning system, both to the lecturers and students. The University curriculum developers should effect changes in learning process with an aim to improving on pedagogical strategies to accommodate needs of different students with varied potentialities in e-learning platforms to promote their confidence level. The instructors should also ensuring successful address and implementation of issues raised by the concerned students during the learning process.

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