

COVID-19 and Higher Education Institution Operation: Unpacking the Potential of Higher Education through Acceptance of Online Learning.

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Abstract

This paper focused on analyzing the acceptance of online learning for unpacking the potential of higher education during COVID-19 lock down. Quantitative data was collected using questionnaire to a total sample of 258 respondents of a higher education institution. Systematic Sampling was used to pick a sample of students and academic staff where questionnaire was used to collect data for statistical analysis. Documentary review was used to get data to support and interpret findings from survey questionnaire.

Data analysis using SEM revealed that usefulness and easiness of technology tend to influence the acceptance of using online learning method among students and academic staff of higher education. The significance influence of usefulness is explained by the fact that online learning is compatible to higher education environment which offer virtual learning and offer class to the students all the time while the easiness was found to be significant by the fact that online technology is ease to learn, ease to use and ease to access in higher education institution. It is concluded that for the higher education community to accept online learning the technology should offer perceived benefit in terms of compatibility, virtual class, class should be available all the time and the technology should be simple and affordable. Addition, it is concluded that the technology should be easy to use, learn and access by the community of higher education institutions for them to accept it. This study recommends that the education institutions should design and implement the online learning system which is compatible, easy to use, easy to learn, easy to access, and simple and affordable for every member of the institution to unpack the COVID-19 Crisis. On the other hand, this paper recommends that training should be conducted to higher education institution communities in order to educate them and create the awareness of the usefulness and easiness of online learning for them to unpack the COVID-19 Crisis.

Keywords: low case, comma, paper template, abstract, keywords, introduction (up to 5)

1. Introduction

Worldwide, higher educational institutions are based only on traditional methods of learning, which are set up face-to-face lectures in a classroom. Although many higher education institutions have implemented online facilities, still a lot of them are stuck with old procedures. The sudden outbreak of COVID-19 pandemic shook the entire world of higher education institutions. As argued by Dhawan (2020) that lock down of higher education institutions and social distancing have frozen the operation of higher education institutions. To address COVID-19 challenge, scholars worldwide have evidenced the acceptance of online learning as a major solution to unlocking the operation of the higher education institution in time of COVID-19 pandemic diseases. Notably Shahzad et al. (2020) commented that due to COVID-19 outbreak universities were closed and locked down; most teachers and students are happy by the shift to online learning to exploit the potential of university education in Malaysia. On the other hand, Ali (2020) advocates that in these unprecedented times of COVID-19, higher education institutions worldwide are moving more and more towards online learning to unpack the locked education system. Hence online learning is considered more important to unpack the potential of education in a locked education system due to COVID-19 pandemic diseases.

To realize the importance of online learning in addressing COVID-19 outbreak, various policy

initiatives are being launched by governments across the world to continue teaching activities so as to contain the coronavirus. Notably, the government of China initiated a Suspending Classes without Stopping Learning policy to see that learning was not compromised at any time during COVID-19 pandemic lockdown (Zhang et al., 2020).

In spite of the effort to unlock the education system in higher education institutions through online education, there is ambiguity and disagreement about what to teach, how to teach, the workload of teachers and students, the teaching environment, and the implications for education equity. This is because the online learning system has come as a mergence strategy to unlock the higher education institution while staff and students of this institution are locked out from the institution. Al-Adwan et al. (2013) argued that many higher education institutions that offer online learning services encounter various difficulties in terms of adopting successful strategies including the acceptance and effectiveness of delivering courses at the beginning. Hence students' involvement and acceptance must be considered; otherwise online learning systems will most likely fail. This paper filled the gap by analyzing the acceptance of technology in Tanzania private universities.

2. Literature Review

2.1 Theoretical Literature Review

Technology Acceptance Model (TAM) was used in this paper to inform about the constructs understudy. TAM originated from Theory of Reasoned Action (TRA) by replacing TRA's attitude beliefs with the two technology acceptance measures namely perceived usefulness and perceived ease of use and by ignoring subjective norm constructs of TRA (Davis, 1989). Due to the dominant impact of perceived usefulness and perceived ease in acceptance of technology, this theory has become one of the most cited theories in the area of acceptance of online technology among users. Notably, Baki et al. (2018) found these constructs to be dominant and most cited. On the other hand, Perceived usefulness (PU) referring to the degree to which a person believes that using a particular system would enhance his/her job performance; and Perceived ease of use (PEOU) referring to the degree to which a person believes that using a particular system would be effort free (Davis, 1989). According to Davis (1989) and Davis et al. (1989) in explaining TAM, perceived usefulness (PU) and perceived ease of use (PEOU) influence one's attitude toward one's intention to accept technology. The goal of TAM is to provide an explanation of the determinants of computer technology acceptance that is general. Therefore, in this paper, this theory will help to inform and to provide further analysis on the influence of usefulness and ease of use on acceptance of online learning among students and academic staff in higher education institutions.

2.2 Empirical Literature Review

2.2.1 The Influence of Usefulness on Acceptance of Online Learning

Abdullah and Ward (2016) carried out a study on identifying the most commonly used external factors of Technology Acceptance Model (TAM) in the context of e-learning acceptance. Findings indicated that Perceived Ease of Use (PEOU) and Perceived Usefulness are the predictors of e-learning. On the other hand, Budu et al. (2018) carried out a study on E-learning Systems Usage among Tertiary Education Institutions in Ghana. Findings using Partial Least Squares Structural Equation Modeling revealed that perceived usefulness influenced individual's behavioral intentions to utilize E-learning systems. These findings from the empirical evidence

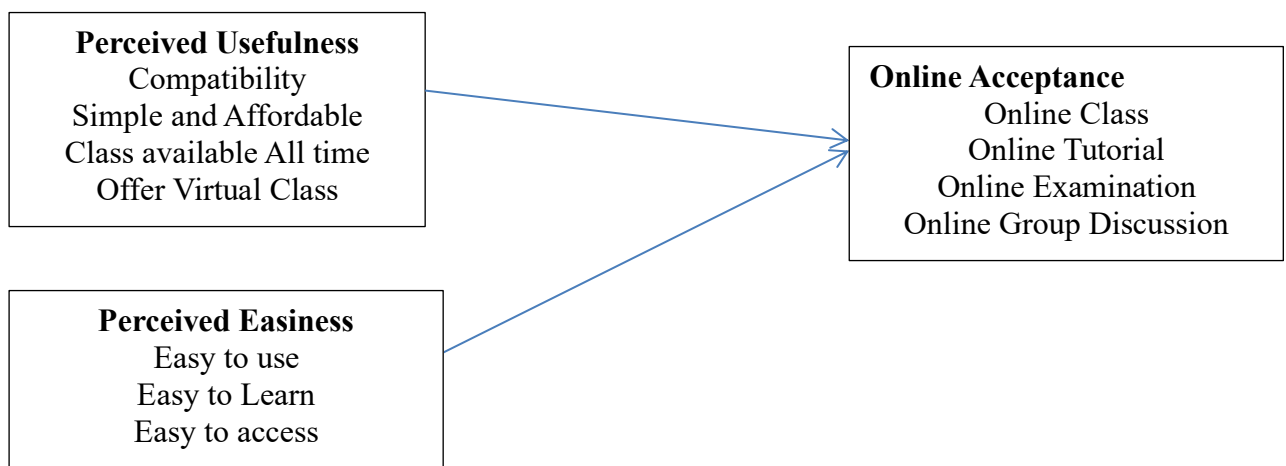
have posited a hypothesis that: *Perceived usefulness has positive and significant influence on acceptance of online learning by higher education institutions.*

2.2.2 The Influence of Perceived Easiness on Acceptance of Online Learning

Abdullah and Ward (2016) carried out a study on identify the most commonly used factors in the context of e-learning acceptance. Findings indicated that Perceived Ease of Use (PEOU) is a predictor of e-learning acceptance. On the other hand, Abdullah and Toykan (2018) carried out a study on successful e-learning services acceptance. Findings confirm the importance of perceived ease of use Successful E-Learning Services acceptance. Moreover, Budu et al. (2018) carried out a study on e-learning systems usage among tertiary education institutions in Ghana. Findings using Partial Least Squares Structural Equation Modeling reveled that perceived ease of use influenced individual's behavioral intentions to accept e-learning systems. These findings from the empirical evidence have posited a hypothesis that: *Perceived easiness has positive and significant influence on acceptance of online learning by higher education institution.*

2.3 Conceptual Framework

The conceptual framework depicts the hypothetical influence of perceived usefulness and perceived easiness on acceptance of online learning as shown in Figure 2.



Source: Developed by author based on literature review (2020)

3. Research Method

3.1 Research Paradigm

This paper used a positivism paradigm set of assumptions to understand the reality and acquire knowledge on acceptance of online learning to unpack the COVID-19 crisis. Saunders et al. (2012) advocate that the positivism paradigm asserts that real events can be observed empirically and theoretically, and explained with statistical logical analysis. In this paper, empirical evidence and theories from different contexts were used in understanding the reality and in guiding knowledge acquisition about acceptance of online learning methods in higher education institutions. Hence the positivism paradigm was used to capture statistical data and in testing hypotheses on the influence of usefulness and easiness of technology on acceptance of online learning.

3.2 Study Area

The study was conducted in Tanzania's private higher education sector. The private sector was selected because they suffered a lot during COVID-19 lockdown due to the fact that their operation depends on fees that students pay while they are in the study at their institution. The higher education institution has been in operation for a long time and started implementation of the online learning method to address the lockdown challenge which affected institution operation during the pick of COVID-19. Therefore collecting data from this population helped to come up with valid evidence.

3.3 Targeted Population

The population of this study was the higher education community of students and academic staff. This population was considered important because most students were affected by the decision to shift from face-to-face learning methods to online methods while they were at home. Academic staff also were important to evolve in this study as they were the one to accept the new life of lecturing in online methods. Hence this population of the higher education community was considered to be potential in studying the acceptance of online learning to curb the lockdown and flees of the higher education operation.

3.4 Sampling Technique

Systematic sampling method was used with n^{th} term of 2 to pick the sample of 258 respondents of the higher education students and academic staff. The data collector seated at the main entrance of the institution applying systematic sampling by picking the respondent who was appeared at the value of n^{th} term which was 2. The suitability of using systematic sampling was observed as a sampling technique which was used to reduce biases of a sample by avoiding selection of homogenous sample.

3.5 Validity and Reliability

In this paper, content validity was ensured by conducting a pilot study before the main survey in order ensure that all content targeted to be included in the questionnaire are observed by few respondents and are included before the actual data collection. This means that the pilot study assisted to refine and strengthen the questionnaire to include contextual issues. On the other hand, construct validity was also conducted to ensure that those unobserved variables which do not fit well from the model are all eliminated from the model. Figure 4.1 shows the unobserved variable which fitted well to the model while the following unobserved variables were eliminated from the model during factor analysis due to the fact that they did not perform well to the model: UF4, UF6, ES2, AC1 and AC4.

Apart from that, predictive validity was assessed during data analysis using KMO, Bartlett's Test and total variance of the model using exploratory factor analysis. The results are presented in Table 4.2 and Table 4.3. For confirmatory factor analysis, the predictive validity is presented using CFI, GFI, AGFI and RMSEA as presented in Figure 4.1. Reliability test was done using Cronbach's alpha, the findings are presented in Table 3.1 below.

Table 3.1

Observed Variable	Unobserved Variable	Cronbach p-value	Remarks
Acceptance	Online tutorial, Online Class	0.820	Accepted

Usefulness	Compatibility, Class Available all times, Simple and affordable technology, Offer virtual class	0.712	Accepted
Easiness	Ease to learn, ease to use, ease to access	0.806	Accepted

3.6 Data Collection Tools

In this particular paper, a structured questionnaire was used for data collection in order to collect data which are suitable for statistical analysis. Roopa and Rani (2012) advocated that for positivism studies, questionnaires are considered useful as they offer a chance to collect highly structured data suitable for statistical analysis. While the current study was dominated by questionnaires, documentary review techniques were also employed in this study to strengthen and give evidence of the data gathered in a study. As argued by Saunders et al. (2012) that documentary review method supports the viewpoints or arguments of an academic work, and also it brings up some issues not noted by other techniques. The current study used a documentary review method of data collection to provide more evidence of the finding from the questionnaire and in providing more interpretation of the data collected using the questionnaire.

3.7 Data Analysis

This paper has two hypothesis designed with observed and unobserved variables. Structural Equation Modeling was used as multivariate data analysis technique for arranging a large amount of complex information that is observed and unobserved variables into a simplified visible form. As argued by Hox and Bechger (2012) that the use of multivariate data analysis in research helps a researcher to arrange a large amount of complex information into a simplified visible form. The current study had complex model composed of complex structure of constructs and their underlying indicator variables collected from large sample of more than 258 respondents, hence the use of SEM was considered important. Besides this characteristics cover all multivariate data analysis techniques such as regression method, Hox (2008) argued that SEM surpasses traditional regression models by including multiple independent and dependent variables with multiple indicators variable to test associated hypotheses about relationships among observed and latent variables. The current study model was designed to capture both observed and latent variables to explain the acceptance of online learning method. This kind of conceptual framework setting is aligned with the use of SEM and has put SEM to be very powerful data analysis technique in the current study.

4. Findings and Discussions

4.1 Validity Test

4.1.1 Construct Validity

Exploratory factor analysis was conducted to ensure that each observed variable is aligned to their underlined unobserved variable. Four unobserved variables out of fifteen were removed from the model in the fact that they did not perform well to the model while ten unobserved variables were retained to the model. Table 4.1 presents those items remaining in the model.

Table 4.1 Rotated Component Matrix^a

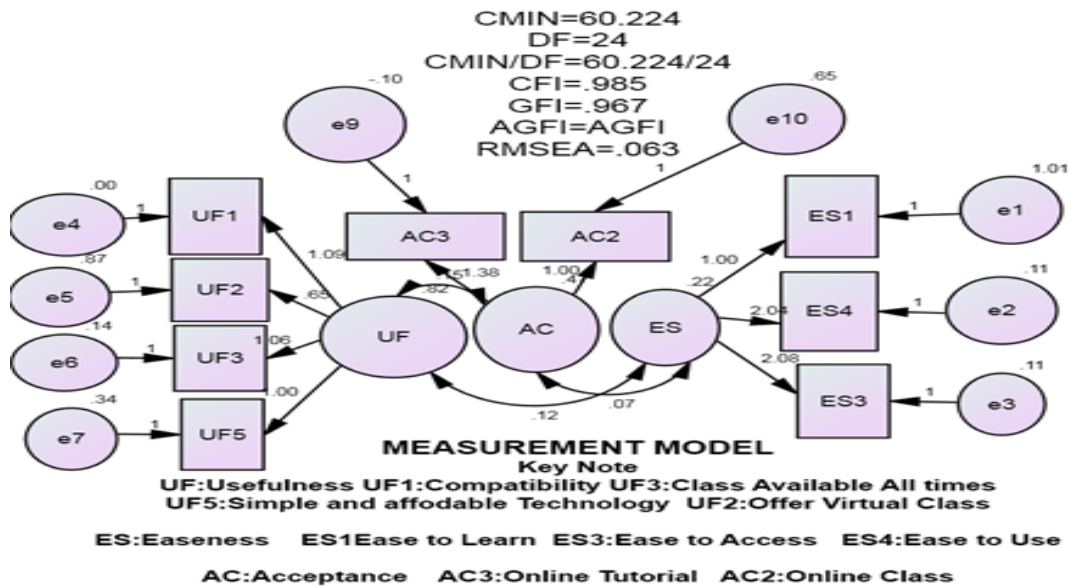
Observed Variables	Component of the Model		
	Usefulness	Easiness	Acceptance
UF1	.953		
UF3	.937		
UF5	.888		
UF2	.600		
ES4		.918	
ES3		.909	
ES1		.627	
AC3			.896
AC2			.869
AC4			.643
Initial Eigenvalues	4.000	1.832	1.581
% of Variance	40.002	18.322	15.811

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

After exploratory factor analysis, then confirmatory factor analysis was carried out to further assess if the observed variable is aligned to their underlined unobserved variable by accounting the measurement error. Confirmatory factor analysis tends to account for measurement error compared to EFA and that is why it was necessary to carry out confirmatory factor analysis. Figure 4.1 indicates the results of confirmatory factor analysis where all model fit indices have achieved the recommended value. Only one unobserved variable AC4 was removed for the model to fit well.



4.1.2 Predictive Validity

Predictive validity was assessed using various techniques as explained below. Kaiser-Meyer-Olkin Measure of Sampling Adequacy was used to measure sample adequacy, the p-value which is greater than 0.6 in Table 4.2 indicates that the sample was adequate for factor analysis. On the other hand, in Table 4.2 Bartlett's Test of Sphericity produced a p-value of 0.00 which is significant that components correlate well for EFA to be conducted.

Table 4.2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742
Approx. Chi-Square		2570.293
Bartlett's Test of Sphericity	Df	45
	Sig.	.000

The total variance was further assessed and the results are displayed in Table 4.3 which indicate that the model performed well by accounting a total variance of 74.135%.

Table 4.3 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.000	40.002	40.002	4.000	40.002	40.002	3.059	30.594	30.594
2	1.832	18.322	58.324	1.832	18.322	58.324	2.296	22.962	53.556
3	1.581	15.811	74.135	1.581	15.811	74.135	2.058	20.579	74.135
4	.752	7.517	81.651						
5	.632	6.323	87.975						
6	.556	5.559	93.534						
7	.269	2.691	96.225						
8	.213	2.134	98.358						
9	.103	1.026	99.384						
10	.062	.616	100.000						

Extraction Method: Principal Component Analysis.

4.2 Structural Model and Path analysis

4.2.1 Structural Model

After confirmatory factor analysis, the measurement model was converted to a structure model in order to enable testing of the hypothesis formulated. The structural model is presented below in Figure 4.2 to assess the strength of the hypothesis formulated.

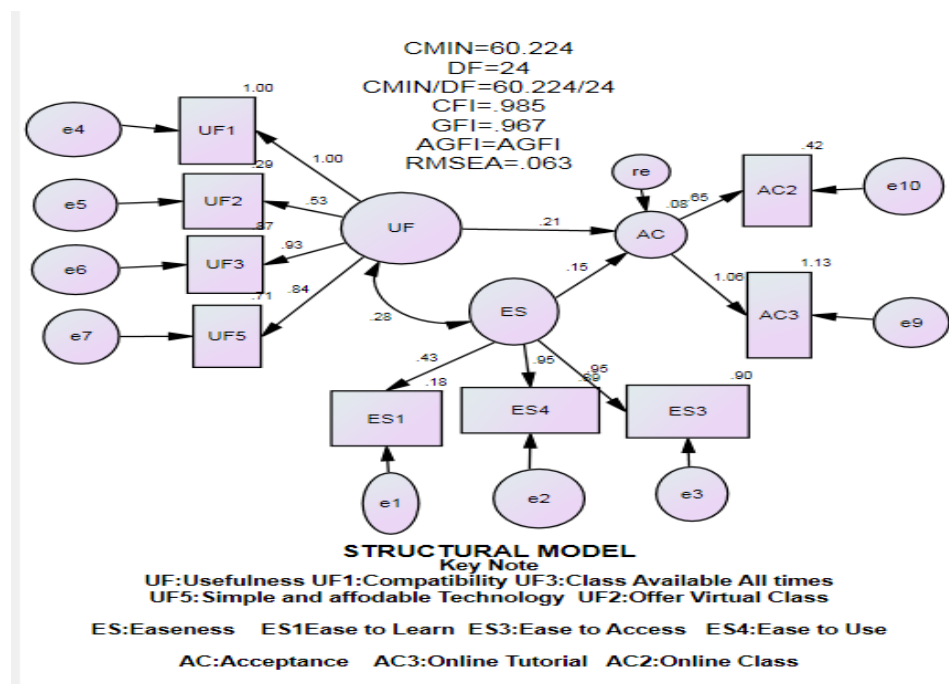


Figure 4.2 STRUCTURAL MODEL

4.3.2 Path Analysis and hypothesis testing

Table 4.4 indicates the influence of perceived usefulness on online learning acceptance using the path UF and AC to test the hypothesis which state that: *Perceived usefulness has positive and significant influence on acceptance of online learning by higher education institutions.*

Table 4.4 Path analysis for perceived usefulness on online learning acceptance

Relationship			Estimate	S.E.	C.R.	P	S.R.W	REMARKS
AC	<---	UF	.157	.050	3.115	.002	0.208	ACCEPTED
AC2	<---	AC	1.000					
AC3	<---	AC	1.377	.280	4.911	***		
UF5	<---	UF	1.000					
UF3	<---	UF	1.061	.041	25.882	***		
UF2	<---	UF	.653	.057	11.422	***		
UF1	<---	UF	1.089	.038	28.481	***		

The results from Table 4.4 using standardized regression weight (S.R.W) revealed that the path from UF to AC is positive while critical ration (C.R) of the path from UF to AC indicated that the path is significant. Hence this finding signify that *Perceived usefulness has positive and significant influence on acceptance of online learning by higher education institution*

On the other hand, Table 4.5 indicates the influence of perceived easiness on online learning acceptance using the path ES to AC to test the hypothesis which state that: *Perceived easiness has positive and significant influence on acceptance of online learning by higher education institutions.*

Table 4.5 Path analysis for perceived easiness on online learning acceptance

Relationship			Estimate	S.E.	C.R.	P	S.R.W	REMARKS
AC	<---	ES	.214	.088	2.419	.016	0.148	ACCEPTED
ES1	<---	ES	1.000					
ES4	<---	ES	2.043	.235	8.689	***		
ES3	<---	ES	2.079	.240	8.673	***		
AC2	<---	AC	1.000					
AC3	<---	AC	1.377	.280	4.911	***		

The results from table 4.5 using standardized regression weight (S.R.W) revealed that the path from ES to AC is positive while critical ration (C.R) of the path from ES to AC indicated that

the path is significant. Hence this finding signify that *Perceived easiness has positive and significant influence on acceptance of online learning by higher education institution*

This study hypothesized the influence of usefulness and easiness on online learning acceptance in higher learning institutions. The findings predicted well that usefulness and easiness have positive and significant influence on online learning acceptance in higher learning institutions. The findings aligned with the technological acceptance model by providing support that usefulness and easiness have positive and significant influence on online learning acceptance. These imply that the theory and mode from other contexts can be used to explain acceptance of technology in one context to another. Namisiko et al. (2014) found and concluded that perceived usefulness of online learning by Students and Perceived Ease of Use of online learning by students is significantly predicting acceptance of online learning. This implies that perceived usefulness and Perceived Ease of Use serve as a basis for educational institutions seeking to accept and implement eLearning in developing countries. In the current study the possible explanation to why usefulness is significantly influencing acceptance of online learning is explained by compatibility of technology to fit the learners' learning environment and the availability of class all the time more specific in this time of COVID-19 Pandemic diseases. In addition, the influence of easiness on online learning acceptance is explained by the fact that online learning is easy to learn, easy to use and easy to access. This implies that for higher education institutions to accept online learning it is required to design an online learning which is easy to use, easy to learn and easy to access for the purpose of addressing the challenge facing education institutions in this time of COVID-19 outbreak. This implication support the argument made by

Al-alak and Alnawas (2011) that there is a positive relationship between perceived usefulness, perceived ease of use and intention to accept online learning in higher education institutions. They further added that electronic media such as computer video conferencing, audio, internet, interactive TV and satellite as medium to conduct online learning, has fueled the opportunity to introduce a new learning environment and scenarios to potential benefiter.

5. Conclusion

This chapter concluded that when higher education institutions accept online learning, they should ensure that the online system of learning is easy to use, easy to learn and easy to access. Addition the users should see the opportunity that users from higher education are exploring. This led to the general conclusion that usefulness and easiness of technology have positive and significant influence on acceptance of online among higher education institutions in this time of COVID-19. Therefore, to unlock the education institution which is locked by the government to prevent the spread of coronavirus, the institutions of education should ensure that the online learning system is useful and easy.

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