

**THE INFLUENCE OF SKILLS ON THE INTENTION TO ADOPT ELECTRONIC
LEARNING IN UNIVERSITY INSTITUTIONS IN TANZANIA**

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ABSTRACT

eLearning comprises the use of electronic technology to deliver an innovative teaching and learning method that is well-designed, learner-centric, interactive, and provides a supported learning environment to everyone, regardless of location or time. The adoption of eLearning had a varying trend from the point of view of individuals to societies, and even across nations. However, skills had been singled as one of the important components in the adoption, use or continuance of using eLearning systems. This study aimed at examining the influence of Skills on the intention to adopt eLearning in university institutions in Tanzania. The study involved the Open University of Tanzania (OUT) and the Hubert Kairuki Memorial University (HKMU). Furthermore, the study using an electronic web-based survey, quantitative data were collected from a total of 371 respondents, sampled using simple random, purposive, stratified, and proportional sampling techniques. Whereas, academic staff, students, and Information and Communication Technology (ICT) staff were all involved. The study used IBM SPSS Version 22 and SPSS Amos Version 23 with Structural Equation Modeling, to analyze the collected data using Descriptive Statistics, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA). The findings indicated that Skills had positive and statistically significant influence on the intention to adopt eLearning in university institutions in Tanzania. Moreover, further results revealed that Skills accounted for 50 percent toward the intention to adopt eLearning systems. As a result of these findings, the study acclaims that, the Skills variable be added to the Theory of Planned Behaviour (TPB) as one of the independent variables, in explaining adoption, use or continue using eLearning systems, especially, in the context of the developing countries, particularly Tanzania. The study's results, further recommend additional research in different contexts, examining the influence of skills to the intention to adopt, use or continuing using eLearning systems in which the new TPB model in which skills would be included as one of the independent variables.

Keywords: University Institutions, eLearning, Adoption, eLearning Adoption, Behavioural Intention, Skills, TPB, SEM, EFA, CFA.

1. INTRODUCTION

eLearning has been popular in education undertakings, especially in tertiary institutions, and had attracted higher numbers of students enrolment rates, and is characterized by being effective, efficient and innovative in teaching and learning processes, with enhanced access and acquisition to the learning contents without the limitations of location and time. In this context, eLearning had

been commended as a catalyst of effective teaching and learning processes especially in tertiary education delivery (Lwoga & Komba, 2015; Masele & Malunde, 2017; Jaiyeoba & Iloanya, 2019; Porto, 2020; Almas *et al.*, 2021).

There are studies, for instance, those by Mahali *et al.* (2019); Ray *et al.* (2020); Ngafeeson & Gautam (2021); Masilo *et al.* (2021) provided empirical evidence that despite of, the varsity adoption, usage, or continuing usage of eLearning systems, there have been varying levels of usage across organisations, societies, nations or regions, for instance, 99 percent of the United States' higher learning institutions had adopted Learning Management Systems (LMS), whereas, 83 percent of students had adopted some type of LMS. The United Kingdom, for instance, had an adoption rate of 95 percent, while, India expected to attain an adoption of about 9.6 million by 2021. The developing countries, in particular, had as low adoption rate as 28.8 percent.

Further, empirical evidences about the adoption, usage, or continuing usage of eLearning systems among academicians and students in Tanzania revealed 16 percent of awareness, 15 percent of attitude, 17 percent of accessibility, whereas, 26 percent was recorded for availability, these indicated that in every aspect (i.e. awareness, attitude, accessibility, and or, availability), the record was less than the threshold of 50 percent (Kisanjara *et al.*, 2019). Additionally, there had been lack of motivation, confidence, or skills toward adoption, usage and continuing usage of eLearning systems to lecturers and students, as evidenced by delays of students in completion of their studies, as well as, the inability of lecturers to harmonize their course materials in Moodle (Ndonje, 2013; Ndibalema, 2014; Olutola, & Olatoye, 2015; Salleh, & Laxman, 2015; Mutisya & Makokha, 2016).

Skills required for eLearning systems adoption, is defined by Liesa-Orús, *et al.* (2020) as an individual's knowledge, competencies, talents, capabilities, and strategies toward the use of eLearning systems. Various studies, for instance, that of Busagala and Kawono (2013); Kisanga & Ireson (2014, July); Ndibalema (2014); Mwakyusa & Mwalyagile (2016); Lashayo & Md Johar (2017); Al-araibi *et al.* (2019); Soobramoney & Heukelman (2019, March); Makhaya & Ogange (2019); Soobramoney & Heukelman (2019, March); Alharbi & Sandhu (2019); Jere (2020); Khan & Salah (2020); Nwagwu (2020); Mbowa & Lazarus (2020); Almas *et al.* (2021); Ferede *et al.* (2021); Garad *et al.* (2021) recognized Skills as one of the most critical factors, not only, in the adoption or deployment of new technology or an ICT system, but also, in using or continuance using the same in teaching or learning processes.

As a result of this, the researcher for this study, was inspired to conduct an online web-based survey study, aiming at examining the influence of skills toward the intention to adopt eLearning in university institutions in Tanzania. On the basis of this research, only one hypothesis, was developed which stated as “*Skills have significant positive influence on the intention to adopt eLearning in university institutions in Tanzania*”

2. RESEARCH METHODOLOGY

This study was a result of a larger study which aimed at investigating the determinants of eLearning adoption in university institutions in Tanzania using culture as the moderating role. In that study, two theories were adopted, namely, the Theory of Planned Behavior (TPB) and Hofstede's Theory of Cultural Dimensions.

Seven variables were utilized in that study, five of the variables (i.e., Attitude, Subjective Norms, Perceived Behavioural Control, Behavioural Intention, and the actual behaviour, in this case,

eLearning Adoption) were adopted from TPB, while, Individualism/Collectivism which was utilized as the moderating variable, was adopted from the Hofstede's Theory of Cultural Dimensions. For the case of variables from TPB model, three of the variables, namely, Attitude, Subjective Norms, and Perceived Behavioral Control were utilized as independent variables, Behavioral Intention as the mediating variable, whereas, eLearning Adoption as the dependent variable. In addition, the assessment of the relevant literature led to the inclusion of the Skills as the independent variable.

This study, therefore, was an online web-based survey study, which aimed at examining the influence of skills on the intention to adopt eLearning in university institutions in Tanzania. The study collected data using a 5-point Likert Scale questionnaire and it incorporated two variables, one variable, namely, Behavioural Intention adopted from TPB (Ajzen, 1985; Bradley, 2012; Miles, 2021), and the second variable, namely, Skills which was adopted from extensive literature review.

Due to the nature of this study, the researcher adopted a positivism research philosophy in which TPB model was utilized, and so, the researcher aimed at replicating the observable findings as recommended by Antwi & Hamza (2015). Additionally, positivism is a suitable epistemology for the adoption or deployment of ICT systems, since it accounts for about 90.4% of (Korpelainen, 2011). Furthermore, the study incorporated suggestions from Kothari (2004); Bhattacharjee (2012) and Saunders *et al.* (2012), who proposed the use of a quantitative technique in deductive research that tries to test theoretical hypotheses and analyzes current empirical data statistically to establish the significance of a link between variables. Additionally, this study used a testing-hypothesis or explanatory research design, in which tools or instruments (such a questionnaire) developed and tested in other contexts were used in this study to see if they could produce the same results as suggested by Kothari (2004).

3. DATA COLLECTION, ANALYSIS AND THE FINDINGS

3.1. Data collection and preparation

Before the exercise of data collection was undertaken, the researcher carried out a pilot study using a web-based survey which involved a total of 35 participants involving close friends who were students, academics and ICT technical staff from the two participating universities (i.e., OUT and HKMU), whereas, only 21 participants managed to complete the survey. This exercise was performed based on Saunders *et al.* (2012) recommendations on the need for questionnaire pre-tests using members of the respondent's immediate family and social circle when there is a limited amount of time available.

After the actual data collection was performed, the researcher first examined outliers and removed all respondents whose data deviated abnormally from the expected values, as the results, only a total of 371 respondents which was about 95.4 per cent of the calculated minimum sample of 389 respondents who met the study's minimum requirements and qualified to be forwarded to the data analysis.

3.2. Testing SEM assumptions

Before the researcher undertook the data analysis exercise, first the data were coded and thereafter the researcher tested the SEM assumptions.

Testing the normality assumption, the researcher utilized two methods, whereas, in both, IBM SPSS version 22 was employed. In the first method, the researcher developed the normal

distribution table and examined the kurtosis and skewness values. The results indicated that the values were within range (i.e., greater or equal to -2 and less or equal to 2), as recommended by Hair *et al.* (2010). In the second method, the researcher developed and examined the histogram, which also revealed that, the collected data were approximately normal.

Testing linearity assumption was undertaken using the analysis of the graphs, drawn using IBM SPSS version 22, in which, linear correlation was observed between the two variables (i.e., skills and the intention to adopt eLearning). The results indicated that, the relationship between the two variables was approximately linear.

The researcher tested homoscedasticity using two different methods through IBM SPSS version 22. First, correlation analysis was used by the researcher, in which, both standardized and unstandardized coefficients were established and the T-Values and P-Values were all computed. The researcher's second method was a graphic one, that involved creating and analyzing scatter plots as recommended by Hair *et al.* (2010) and Aljandali (2017). In both methods, homoscedasticity assumption was met.

To test for multicollinearity assumption, two methods were utilized. First, the researcher used SPSS Amos version 23 to run a Confirmatory Factors Analysis (CFA) to determine both the correlation among the independent variables and the significance of their paths. Second method the researcher utilized IBM SPSS Version 22 to determine the variance inflation factors (VIF) and tolerance value, to determine whether or not the values fell within the recommended thresholds. In both methods, the multicollinearity assumption was also met.

3.3. Factor Analysis

The researcher utilized IBM SPSS version 22 to carry out Exploratory Factor Analysis (EFA), whereas, Confirmatory Factor Analysis (CFA) was undertaken using IBM SPSS Amos version 23 in the process to test the hypothesis.

3.4.1. Exploratory Factor Analysis

The Exploratory Factor Analysis (EFA) which is a multivariate statistical technique, that describes the underlying structure of a large number of variables, and finds the relationships between those variables (Hair, *et al.*, 2014). The EFA was designed to ensure that, each item was correctly loaded into a corresponding factor, hence, producing accurate results in the model's overall analysis. In this investigation, the researcher employed various criteria, such as, the Eigenvalue criterion, scree test criterion which uses scree plots, factors with a minimum number of three items criterion, double loading, and factor loading criterion. These were the criteria recommended by Hair *et al.* (2010) to be taken into consideration when selecting factors to retain or drop after the EFA output. A single run of the Exploratory Factor Analysis (EFA) was carried out by employing primary axis factoring extraction in conjunction with Oblimin Rotation. The researcher decided to employ oblique rotation, rather than the other methods of rotation because it is more appropriate for determining correlation variables (Hair *et al.*, 2010).

The researcher utilized IBM SPSS version 22 to carry out EFA process, in which, a total of nineteen (19) different indicators that were obtained from the study instrument were taken into consideration. Furthermore, the researcher utilized the four criteria (i.e., Eigenvalue criterion, scree test criterion which used scree plots, factors with a minimum number of three items criterion, and factor loading criterion) to decide which factors to retain or drop after the EFA output. The researcher decided to use all of these distinct criteria, to choose the final set of factors, to remove

any potential weaknesses that could arise as a result of using just one criterion (Yong and Pearce, 2013), see Table 1 for details.

Table 1: Measurement of items or indicators of the variables before EFA and CFA

Construct	No. of items	Measurement item or indicator	Measurement	Sources
Skills (SK)	12	SK1= Electronic gadgets	Five-point scale 1= Strongly Disagree 3= Don't know 5=Strongly Agree	Kihoza (2016); Meerza (2014); Rastogi & Malhotra (2013); Petko (2012); Ndibalema (2014)
		SK2=Storage devices		
		SK3=File management		
		SK4=Online storage		
		SK5=Office applications packages		
		SK6=Online library		
		SK7=e-mail communication		
		SK8=Online resources		
		SK9=Video streaming		
		SK10=Video communication		
		SK11=Creative applications		
		SK12=Computer maintenance		
Behavioural Intention (BI)	7	BI1=Future Expectations	Five-point scale 1= Strongly Disagree 3= Don't know 5=Strongly Agree	Nyasulu & Dominic (2019); Ndubisi (2004, July); Tarhini (2013)
		BI2=Given a chance		
		BI3=Future expectation		
		BI4=Frequently		
		BI5=Routinely		
		BI6=Recommending		
		BI7=Learning		

Source: Literature review, 2022

After the analysis, a total of five (5) factors were eliminated for various reasons. One indicator, “BI5” exhibited double loadings, two indicators, “BI1” and “BI2” loaded in the wrong factor, also two indicators, “SK1” and “SK6” had factor loadings below a threshold of 0.4, and so, there all dropped. Therefore, a total of fourteen (14) indicators, eight (8) indicators from the Skills variable and four (4) indicators from the Behavioural Intention were retained, and these are the ones that were forwarded to the Confirmatory Factor Analysis (CFA).

3.4.2. Confirmatory Factor Analysis

The Confirmatory Factor Analysis (CFA), which is a multivariate statistical technique applied to examine how effectively the measured variables speak to many different structures, is also utilized to analyze the hypothetical constructs by surveying the error variances, covariance, and loadings of the measures (Hooper *et al.*, 2008). Initially, before CFA was undertaken, EFA was employed to evaluate whether or not the original variables were structured in a manner that reflected another latent variable. Nonetheless, the goal at this stage was to confirm and validate a view about how the original variables are ordered in a particular way ready to utilize the CFA. To carry out CFA, a measurement model needed to be developed to quantify the correlations between unobserved variables and the errors that are associated with them (Hair *et al.*, 2010). Consequently, in this

section, hypothesized models of two factors (i.e., Skills and Behavioural Intention) as used in the conceptual framework were described and illustrated, as well as, their corresponding measurement models for the variables.

The researcher applied multiple criteria to evaluate the model's congruence with the empirical data as recommended by Schreiber *et al.* (2006). Furthermore, Schermelleh-Engel *et al.* (2003) proposed some criteria for guiding the process of model modification to maximize the fitness of the model. One of the criteria utilized in this study regarding model fitness was the standardized regression weights values that were greater than 0.5, followed by the modification indices that indicate strong covariance among measurement errors, together with the standardized residual covariances greater than 2.0 between measured variables or indicators. Low factor loadings could be the result of a wide variety of factors or, and conditions, including the presence of ambiguous statements, sensitive statements, and statements with multiple possible interpretations (Awang, 2011).

Researchers, such as Hair *et al.* (2010) and Schermelleh-Engel *et al.* (2003), provided a variety of guidelines concerning the estimation of the model's fit. Some of these guidelines focus on the size of the sample, statistical significance, type of data, number of observed variables, and complexity of the model. Other guidelines focus on the complexity of the model. In addition to this, they attempted to divide the fit indices into three distinct categories, which they referred to as the absolute fit indices, the incremental fit indices, and the parsimonious fit indices. Parsimony fit measures are improved by either a better fit or a simpler model, wherein, a simpler model is one with fewer estimated parameter paths. Incremental fit indices differ from absolute fit indices, in that, they evaluate how well the estimated model fits in comparison to, some alternative baseline models. Absolute fit indices, on the other hand, evaluate how well the estimated model fits in isolation.

While the absolute fit indices include the chi-square, CMIN/df, Root Mean Square Residual (RMR), Goodness of Fit Index (GFI), Standardized Root Mean Square Residual (SRMR), and The Root Mean Square Error of Approximation (RMSEA), the Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI), are the components that make up the incremental fit indices, whereas, the Parsimony Normed Fit Index (PNFI) and Adjusted Goodness of Fit Index (AGFI) are the components that make up the parsimonious fit indices (Hair *et al.*, 2010).

As suggested by Hair *et al.* (2010) and Schermelleh-Engel *et al.* (2003), the researcher utilized variations of the stated goodness of fit indices, with varying combinations from each category to ensure the optimum model fit. The parameters were estimated using the Maximum Likelihood Estimation (MLE) technique in IBM Amos version 23. MLE is a valuable estimation method when the normality assumption has been fulfilled, and it is frequently used because it is efficient, flexible, and free of bias, which ultimately, results in the best model fit. When the normality assumption has been met, MLE is a useful estimation approach. In conjunction with the P-value, the ratio of chi-square (CMIN) to the degree of freedom (DF), also known as (CMIN/DF), was used to assess the statistical significance of the associations underlying a particular model.

Hair *et al.* (2010); Hoe (2008) and Schermelleh-Engel *et al.* (2003) provided descriptions of the indices differently, for instance, the goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) is proportional to the fraction of variance obtained from the estimated population covariance. CFI, for instance, is the ratio of the targeted model discrepancies to the independent

model discrepancy, typically, it compares the current model to others. Additionally, the badness of fit metric, also known as Root Mean Square Error of Approximation (RMSEA), is used to evaluate the appropriate number of observed variables and the size of the sample needed by the model. This means, a high RMSEA value in this case, denotes that, the model is not well-fitted. As well, The Tucker-Lewis Fit Index (TLI) often compares the null's normed chi-square values, to the specified model, and in some cases, it takes the model's complexity into account.

During CFA, a total of fourteen (14) indicators were subjected for analysis, whereas, only two indicators, “SK2” and “SK3”, were eliminated due to having the standardized residual covariances greater than threshold of 2.0.

3.4. Descriptive statistics

In this study, only one hypothesized relationship was established, which stated, “Skills have significant positive influence on the intention to adopt eLearning in university institutions in Tanzania”.

Before testing the hypothesis, the researcher began with the descriptive statistics, to determine the contribution of each indicator to its respective variable, in this case, Skills and Behavioural Intention variables using the retained twelve (12) indicators that were established after running both EFA and CFA are as described below.

3.4.1. Descriptive statistics of Skills

Table 2, displays descriptive statistics used to determine the contribution of each indicator to the Skills variable.

Table 2: Descriptive statistics of Skills.

Indicator	N	Minimum	Maximum	Mean	Std. Deviation
SK4	371	4	5	4.25	.434
SK5	371	4	5	4.25	.434
SK7	371	3	5	4.26	.506
SK8	371	3	5	4.24	.458
SK9	371	4	5	4.25	.434
SK10	371	4	5	4.26	.441
SK11	371	4	5	4.25	.434
SK12	371	4	5	4.25	.434
Valid N (listwise)	371				

Source: *Field Data, 2022.*

The results of the analysis, which are presented in Table 2, show that nearly all eight indicators had an approximately equal impact on Skills toward the intention to adopt eLearning, with SK7 and SK10 each having slightly higher impact, with a mean value of 4.26, whereas, SK8 had the lowest impact with a read of 4.25. The greater the value (or proximity to 5.0) of the indicators, the

greater the effect on Skills toward individual' intention.

3.4.2. Descriptive statistics of Behavioural Intention

Table 3, displays descriptive statistics used to determine the contribution of each indicator to the Behavioural Intention variable.

Table 3: Descriptive statistics of Behavioural Intention.

Indicator	N	Minimum	Maximum	Mean	Std. Deviation
BI3	371	3	5	4.20	.522
BI4	371	3	5	4.22	.495
BI6	371	3	5	4.22	.483
BI7	371	3	5	4.30	.497
Valid N (listwise)	371				

Source: Field Data, 2022.

According to the study's findings, which are shown in Table 3, all four indicators had essentially the same influence on individuals' intention toward eLearning Adoption, with BI7 having the slightest influence (i.e., mean values of 4.30) and BI3 having the least influence (i.e., mean value of 4.20). The impact on the Behavioural Intention is greater the higher the value (or closer to 5.0) of the indicators.

3.5. Final CFA measurement model

The researcher had to develop a measurement model using SPSS Amos version 23's Confirmatory Factor Analysis (CFA) to determine whether it was compatible with the collected data.

The researcher, thereafter, developed a CFA measurement model, at first, the model did not fit well the collected data, as recommended by Awang (2011) and Hair *et al.* (2010), despite the model's over identified status, because some of the indices deviated from the suggested threshold. The model was then modified using the recommended modification indices, in which, the researcher drew five (5) covariances among the error terms (i.e., e2<—>e3; e4<—>e5; e1<—>e6; e7<—>e8; and e10<—>e12).

The final model fit estimation was then undertaken and model fit indices read as follows: CMIN/DF=2.217; CMIN=179.549; DF=39; P-Value =0.000; RMSEA=0.057; SRMR=0.0407; GFI=0.943; AGFI=0.915; NFI=0.972; RFI=0.964; IFI=0.985; TLI=0.980; and CFI=0.985. Therefore, with these indices, the results indicated that the model was approximately a good fit. Moreover, given that the regression weights of each path in the model, fell within the range suggested by Hox and Bechger (2014) that, the relationship or path with a -1.96 > C.R. > 1.96, and a P-Value < 0.05 were considered statistically significant. Table 4 summarizes the path regression weights for the final CFA measurement model.

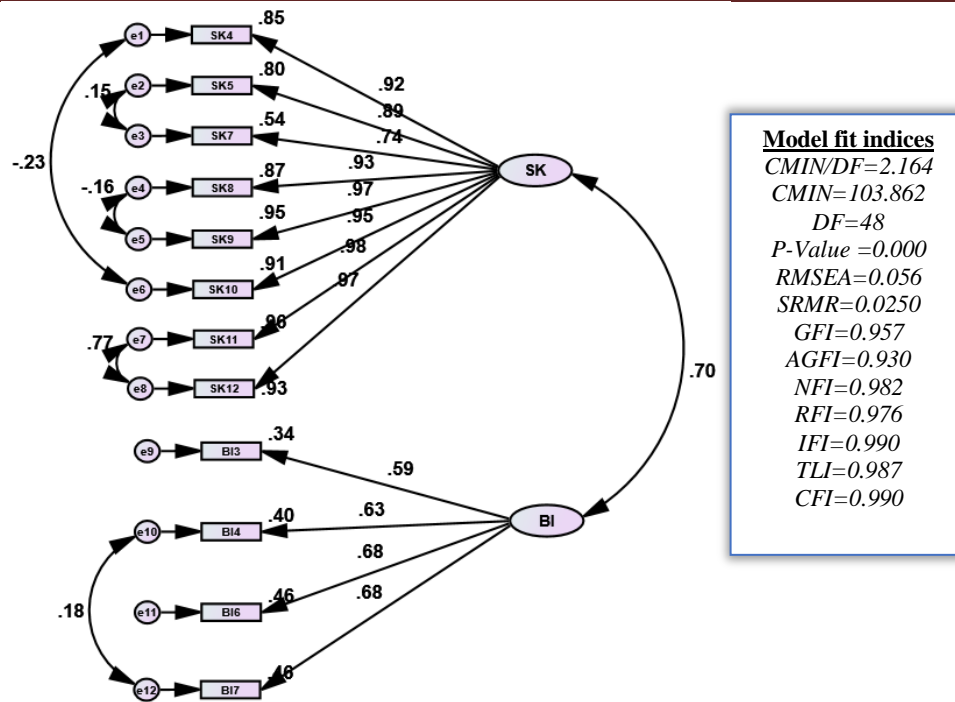


Figure 1: Full standardized CFA measurement model

Source: Field Data, 2022

Table 4: Regression estimates of the CFA measurement model

Path	Unstandardized					Standardized Estimate
	Estimate	S.E.	C.R.	P	Label	
SK4 <— SK	1.000					.923
SK5 <— SK	.968	.033	29.303	***	par_1	.894
SK7 <— SK	.931	.049	18.982	***	par_2	.738
SK8 <— SK	1.063	.032	33.248	***	par_3	.930
SK9 <— SK	1.055	.026	39.932	***	par_4	.974
SK10 <— SK	1.049	.032	32.865	***	par_5	.952
SK11 <— SK	1.061	.026	41.040	***	par_6	.980
SK12 <— SK	1.045	.027	38.289	***	par_7	.965
BI3 <— BI	1.000					.586
BI4 <— BI	1.023	.120	8.518	***	par_8	.631
BI6 <— BI	1.072	.119	9.042	***	par_9	.677
BI7 <— BI	1.102	.124	8.866	***	par_10	.677

Source: Field Data, 2022.

3.6. CFA structure model for the influence of skills on the intention to adopt eLearning in university institutions in Tanzania

In order to test the hypothesis, the researcher developed a CFA hypothesized model (see Figure 2), analysed the standardized regression coefficients, P-Value, C.R, and R² values, and then concluded on whether or not, the collected data supported the hypothesis.

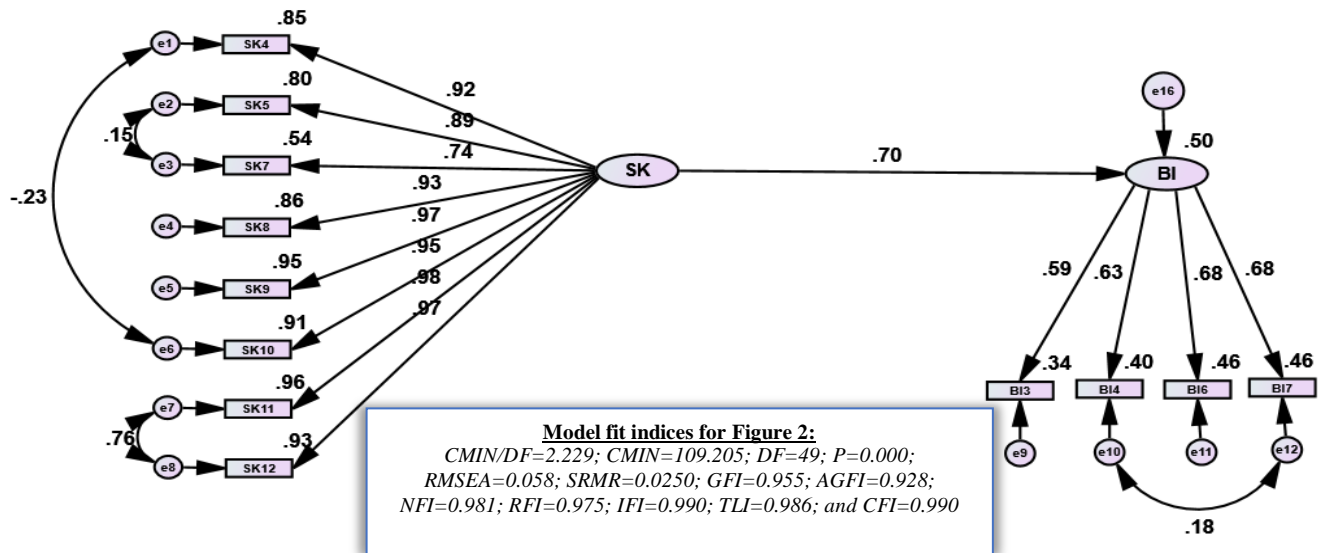


Figure 2: Standardized CFA hypothesized model on the influence of skills on the intention to adopt eLearning in university institutions in Tanzania

Source: Field Data, 2022.

The CFA hypothesized model on the influence of skills on the intention to adopt eLearning in university institutions in Tanzania, was developed using SPSS Amos version 23. Before the researcher determined the statistical significance of the path between Skills and the Behavioural Intention, the model was first tested to determine whether the hypothesized model fitted the collected data using model fit indices thresholds as recommended by Awang (2011) and Hair *et al.* (2010).

The researcher, then, developed a CFA hypothesized model, at first, the model did not fit well the collected data, as recommended by Awang (2011) and Hair *et al.* (2010), despite the model's over identified status, since, some of the indices deviated from the recommended thresholds. The model was then modified using the recommended modification indices, for that case, the researcher drew five covariances among the error terms between the two variables (i.e., Skills and BI). For the case of Skills variable, three covariances between the error terms (i.e., e1<—>e5; e2<—>e3; and e7<—>e8) were determined, while, for the case of Behavioural Intention variable, only one covariance was drawn between the two error terms (i.e., e10<—>e12).

The final model fit estimation was then undertaken and model fit indices read as follows: CMIN/DF=2.229; CMIN=109.205; DF=49; P =0.000; RMSEA=0.058; SRMR=0.0250; GFI=0.955; AGFI=0.928; NFI=0.981; RFI=0.975; IFI=0.990; TLI=0.986; and CFI=0.990.

Therefore, with these indices, the results indicated that the model was approximately a good fit. In order to test the hypothesis, which states that "Skills have significant positive influence on the intention to adopt eLearning in university institutions in Tanzania," The path coefficients were also examined using maximum likelihood estimates, specifically, the standardized estimates, the P-Value, the C.R and the R², as shown in the regression estimates of the final CFA structure (or hypothesized) model in Table 5 and path coefficient from Skills to Behavioural Intention, as illustrated in Figure 2 and Table 5.

Table 5: Regression estimates for the influence of skills on the intention to adopt eLearning

Path	Unstandardized					Standardized Estimate	Results
	Estimate	S.E.	C.R.	P	Label		
BI ← Skills	.537	.058	9.294	***	H11	.705	Supported
SK4 ← SK	1.000					.924	Supported
SK5 ← SK	.968	.033	29.280	***	par_1	.894	Supported
SK7 ← SK	.932	.049	19.002	***	par_2	.738	Supported
SK8 ← SK	1.059	.032	32.870	***	par_3	.927	Supported
SK9 ← SK	1.053	.027	39.634	***	par_4	.972	Supported
SK10 ← SK	1.049	.032	32.854	***	par_5	.953	Supported
SK11 ← SK	1.062	.026	41.151	***	par_6	.981	Supported
SK12 ← SK	1.046	.027	38.377	***	par_7	.966	Supported

Source: Field Data, 2022

A positive path coefficient (γ) of 0.705 indicates that Skills exhibited positive and significant influence to the intention to adopt eLearning in university institutions in Tanzania, this is due to the fact that the regression weight corresponded well to the recommended path coefficient (γ) of at least 0.2, in order for the path to be statistically significant and be considered significant and meaningful for discussion (Hoe, 2008). Therefore, in this study, the standardized path coefficient of 0.709 was within the recommended range. More analysis was done in a study based on fundamental principles to determine the influence of skills on the intention to adopt eLearning in university institutions in Tanzania. As shown in Table 5, the study produced a critical ratio (C. R) value of 9.322 and a P-Value= 0.000. The results fell within the range suggested by Hox and Bechger (2014), that the relationship with a $-1.96 > C.R. > 1.96$ and a P-Value < 0.05 was considered to be significant. Further results showed that 50 percent of the variance could be accounted (or explained) by skills for the intention to adopt eLearning.

Therefore, these findings supported the hypothesis, and demonstrated that skills exhibited positive and statistically significant influence on the intention to adopt eLearning in university institutions in Tanzania.

4.DISCUSSIONS OF THE MAIN FINDINGS

The collected results that were compared and contrasted with the empirical findings that were given by other specialists from around the world, who are relevant to the issue that was being studied. The objective of this study was to examine the influence of skills on the intention to adopt eLearning in university institutions in Tanzania, whereas, its hypothesis stated as, “skills have

significant positive influence on the intention to adopt eLearning in university institutions in Tanzania”. The findings of this study, however, supported the hypothesis, and demonstrated that skills exhibited positive and statistically significant influence on the intention to adopt eLearning in university institutions in Tanzania.

This study's findings were consistent with those of Al-araibi *et al.* (2019); Mwakyusa & Mwalyagile (2016); Kisanga & Ireson (2015); Mahali *et al.* (2019); Ghasia *et al.* (2020); Innocent & Masue (2020); Rudhumbu (2020); and Ferede *et al.* (2022), who also found that, skills had significant positive influence on the intention or behavioural intention to adopt, use, or continue using eLearning systems. Furthermore, this study found that skills can influence the intention to adopt, use, or continue using eLearning systems through the use of online storage; office application programs; e-mail communications between students and teachers, or among teachers or students themselves; accessing online resources; the use of both video communication and streaming programs; using creative applications; and installing, maintaining, and troubleshooting computer software and hardware. However, the results of this study did not corroborate those of Soriano and Oducado (2021), who discovered that ICT Skills had no effect on the intention to adopt, use, or continue using eLearning systems.

5.CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

5.1. Conclusions

The conclusion of this study is based on an analysis of the influence of skills on the intention to adopt eLearning in university institutions in Tanzania. This study hypothesized skills as a latent independent variable that influence the intention to adopt eLearning, using the Theory of Planned Behaviour (TPB). Based on the data analysis, it was validated and confirmed that the hypothesized skills variable influenced the intention to adopt eLearning in university institutions in Tanzania, meaning that, having more positive skills toward eLearning was a significant predictor of individuals' decision to adopt, use, or continue using eLearning systems. Therefore, the study suggested that Skills variable be included in the TPB model as one of its independent variables, along with Attitude, Perceived Behavioural Control, and Subjective norms, mediated by the Behavioural Intention toward the adoption, use, or continuation of using an eLearning system in the context of developing countries, the case of university institutions in Tanzania.

Furthermore, the findings of this study revealed that TPB is the most significant theory for explaining and predicting individuals' decisions regarding the adoption, usage, or continue using eLearning systems. As a result, the findings of this study provided evidence that the TPB was correct in its predictions.

5.2. Study implications

The implications that could be inferred from the research's findings, analyses, and conclusions are presented in this section. The implications are divided into three different categories: theoretical, and practical implications, as well as contextual implications. The study's theoretical implications included how it updated previous studies' methodologies and theories on eLearning adoption and how it affected people's decisions to adopt, use, or keep using eLearning systems. The practical implications focused on advice for academics, ICT professionals, students, systems developers, policy implementers, and other information systems stakeholders. The contextual implications

mainly aimed at motivating users of eLearning systems to pay attention to the factors that influence people's decision to adopt, use, or keep using an eLearning system.

5.2.1. Theoretical implications

In their articles, Crane, *et al.* (2016) discussed what constitutes a theoretical contribution and the significance of adding to any appropriate theory. The article further revealed that, the study shouldn't focus solely on explaining a single phenomenon or case, but rather, should serve as a comprehensive tool for disseminating knowledge about a wider range of phenomena; thus, the greater the breadth of phenomena considered, the greater the theoretical contribution. Additionally, Whetten (1981) outlined a number of tactics for advancing the field, on what constitutes a theoretical contribution. One of these tactics involved analyzing the effects of the proposed model's exclusion or inclusion of a specific factor on the established relationships between variables. This was one of the tactics used to advance the cause.

The inclusion of the Skills variable as one of the independent variables in the TPB model was one of the study's major theoretical contributions. The results showed that Skills have a significant positive influence on the intention to adopt eLearning in university institutions in Tanzania. These findings support the inclusion of Skills in the TPB model, which makes a significant theoretical contribution to the theory and the academic community at large.

5.2.2. Practical implications

The findings of this study revealed that, ICT skills had positive and statistically significant influence on the intention to adopt, use, or continue using eLearning in university institutions in Tanzania. Therefore, greater emphasis should be to impart appropriate ICT skills needed for eLearning, such skills include, fundamental ICT skills, advanced ICT skills, basics of eLearning systems, instructional materials design, multimedia skills, presentation skills, skills for using the internet, soft skills for using electronic devices, online facilitation skills, skills for accessing online libraries, etc.

5.2.3. Contextual implications

Researchers, academics, and policymakers from all over the world had given considerable thought the adoption of online education in postsecondary education. During COVID-19 pandemic, for instance, which resulted in the closure of numerous educational institutions and the imposition of lockdowns, hindered people's ability to seek education, by preventing them from relocating. In this particular instance, distance education, in particular electronic learning, was the most promising means to deliver teaching and learning, in particular for tertiary education.

The findings of this study have also been found to have relevance within the context of Tanzania. This is due to the fact that eLearning practices are common in Tanzanian educational institutions, particularly universities; one piece of evidence supporting this assertion is the availability of a guideline for blended and online modes of education. This study therefore offered an understanding of the influence of skills on the intention to adopt eLearning in university institutions in Tanzania. Therefore, the study contributes new insights to the existing body of literature about the influence of skills toward the intention to adopt eLearning in university institutions in the context of Tanzania. In addition, the earlier researches conducted, there were limited information that considered Skills as among the independent variables in the TPB model.

As a result of this, new knowledge is revealed, which could then be used as a source of reference by a variety of academics.

5.3. Recommendations

This study offered an insightful and clear analysis of the influence of skills on the intention to adopt eLearning in university institutions in Tanzania. In addition, the research has shed light on the importance of skills toward the intention to adopt eLearning, also, the study has expanded to the body of knowledge on how individuals' intentions to adopt, use, or maintain their use of an eLearning system could be improved through imparting ICT skills.

5.3.1. Recommendations for further studies

The study concluded that, Skills variable could be added to the Theory of Planned Behaviour (TPB) as one of the independent variables, along with Attitude, Perceived Behavioural Control, and Subjective norms, on the intention toward the adoption, use, or continuation of using an eLearning system in the context of developing countries. As a result of these findings, this research suggests conducting additional study in different contexts, examining the influence of skills to the intention to adopt, use or continuing using eLearning systems in which the new TPB model including skills as one of the independent variables.

In addition, the scope of this study included university institutions that are regulated by the Tanzania Commission for Universities (TCU). The findings of this study, therefore, suggest that additional research of a similar nature could be conducted in order to determine the influence of skills toward adoption, using, or continue using eLearning systems to the higher learning institutions in Tanzania regulated by the National Council for Technical and Vocational Education Training (NACTVET).

In addition, because the study sampled only two university institutions, namely the Open University of Tanzania (OUT) and Hubert Kairuki Memorial University (HKMU), this research suggests that, similar study be expanded to include more universities in order to examine the influence of skills on the intention to adopt, use, or continue using eLearning systems based on the same model.

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