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BARRIERS TO E-LEARNING IN DEVELOPING COUNTRIES: A COMPARATIVE STUDY

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ABSTRACT

Technology and its applications have given tertiary-organizations a better operating system to broaden their education, learning anywhere and at any time made flexible with adoption of technology that is globally accepted. Several studies investigated factors hindering, influencing or significant to technology acceptance. Unfortunately, comparing technology acceptance in terms of two or more developing countries seems not fully investigated, especially in the area of learning via web in the developing countries, rather than developed countries. This study employed technology acceptance model (TAM) to compare the factors affecting e-learning among the Nigeria and Philippines students, modules/part-time students in universities approved for specified technology considered as the unit of analysis. AMOS-SPSS utilized to the analyse sum of 1306 responses for the two counties. Hypothesized; electric supply, technical resources, ease to use and perceived usefulness on e-learning supported, 69% and 80% variance explained of the study achieved. Although, electric supply regressed on perceived ease not supported. Thus, recommended the replication of this study to increase the generalizability of achieved results.

KEYWORDS: *Technology Acceptance Model, AMOS-SPSS, Online Learning, Nigeria, Philippines*

1. INTRODUCTION

Adopters of this technology can learn effortlessly both at home and place of work provided there are resources. Education via web broadens acquaintance and that increases learners' confidence. Ehlers [1] documented the fact that web- learning comes as an extraordinary option to a regular sort of learning which has becoming out-dated. E-learning has pressured of comfort-ability and cost relatively considered globally [2]; [3]; [4]. Ellis[5] students' experiences of e-learning in higher education, the ecology of sustainable innovation found significant to this study.

Nigeria was eight position and the Philippines placed the position twelve among top 20 countries with high growth percentage usage of internet [6], showing that both countries have reliable accessibility to the utilization of internet [7]; [8], [9]; [10].

Despite, National University Commission (NUC) of Nigeria supports on acceptance of online learning, students in Nigeria still ignoring advantages of acquiring education online learning technology[11]. In 2002, the Commission on Higher Education in the Philippines (CHED) supported Open Learning and Distance Education (OLDE) in accordance with the pertinent provisions of Republic Act (RA) No.7722, otherwise known as the "Higher Education Act of 1994 (CHED Series)

Similarly, year 2012, Commission on Higher Education, issued memorandum of order under number 46 to promote the adoption of learner-centered learning in the Philippines. This initiative seems promising but issues arise on the readiness of universities and colleges towards embracing this change. The adoption of technology in the country seems at level of its infancy; therefore, shifting to e-learning education platforms could be seen as its planning stages as at that time [12].

Lim [13] the study of exploring educational platforms and community behaviour to support

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learning initiative in the Philippines, the study stated different educational technologies that currently in adoption some part of Asia and America, the study recommended online learning over traditional mode of study for learners, especially working class. Reviewed publications support the need to investigate why studentss in the Philippines and Nigeria not accepting technology. This study focuses on the factors affecting the acceptance of web- learning among the studentss in the Philippines and Nigeria. The conceptual framework for this study based on technology acceptance model.

2. RELATED LITERATURES

TAM established that acceptance of technology could base on usefulness and ease of use, Davis [14] defined perceived usefulness as the extent someone can use a system to enhance his or her job performance, ease of use as the extent someone feel that system is not complicated to use. Attitude defined as the extent to someone has optimistic/pessimistic assessment towards a technology usage. Behavioral intention measures strength of individual's intention to perform a specific [14].

Several studies had focused on testing the strength and power of the instruments established by Davis et al[15], TAM has been widely validated by several social sciences study's authors included [16]; [17]; [18], In the area of e- learning [16]; [17]), aspect of technology acceptance based on trust [19]; [20]. TAM integrated towards structural modelling technology acceptance [21], [22]; [23].

Song [24] intent to accept technology, adopted the TAM to suggest serious a conceptual model for understanding self-directed learning in online environments. Loiacono [25] combined TAM and TRA to achieve instruments that may be accustomed to assess consumers' awareness of online businesses.

Additionally, [26] a study on e-learning for Philippines, stated some administrative facts hindering adoption of the technology and ignore the aspects of the students, Arinto [27] found consistent. 16] [28] study predicting behavioural anticipation to online acceptance adopted TAM in direction of the study's objectives.

Mtebe [29] investigating students' intention towards acceptance and use of compatible mobile for electronic learning in higher education in East part of Africa adopted TAM and revealed that added facilitating condition factor in the model has impact towards intent to embrace specific technology. Furthermore, [30] claimed that power supply has a greater influence towards any technology; the study also supported the robustness of TAM

Obasike [31] study on the electronic resources is a big challenge hindering the academic libraries in Nigeria, the study extended TAM and justified that factors such as level of power supply, ability to perceived ease of use, related technical resources required future validation.

Pena-Bandalaria [32] study that centered on trends, directions and challenges of e-learning education in the Philippines, suggested the e-learning management systems could serve as a significant mechanism to ensure standard quality education. [33], towards identifying readiness tools for Higher Education quality, e-learning suggested as one of the means to achieve quality education, Doculan [12] was found consistent. These studies also recommended the trainings, technical use of tools, and usefulness recognition of technology and time management. However, the studies ignore the impact of electric supply on distance learning education.

Garcia [34] concluded that e-learning has an edge in academic performance. The study supported the significant of TAM and suggested the importance of technical support in the realm of e-learning in the context of the Philippines.

Supportively, several studies validated and foretell precise strength of TAM features besides other technology factors within similar concepts and considered ideal in the middle of other theories of technology acceptance [21]; [17]; [19], Garcia [34]. This particular study hypothesized that power supply has significant impacts on perceived ease of use towards e-learning in the context of Nigeria and Philippines part-time students. Most of the reviewed studies centered on adoption of TAM in the developed countries. Also, comparative studies in terms of e-learning acceptance in developing countries seem limited.

Nevertheless, this particular study compares the robustness of TAM factors together with extension of technical resources and power supply towards e-learning acceptance in the context of Nigeria and the Philippines. However, the hypothetical comparison framework for this study the relationship based on TAM is illustrated in figure 1.

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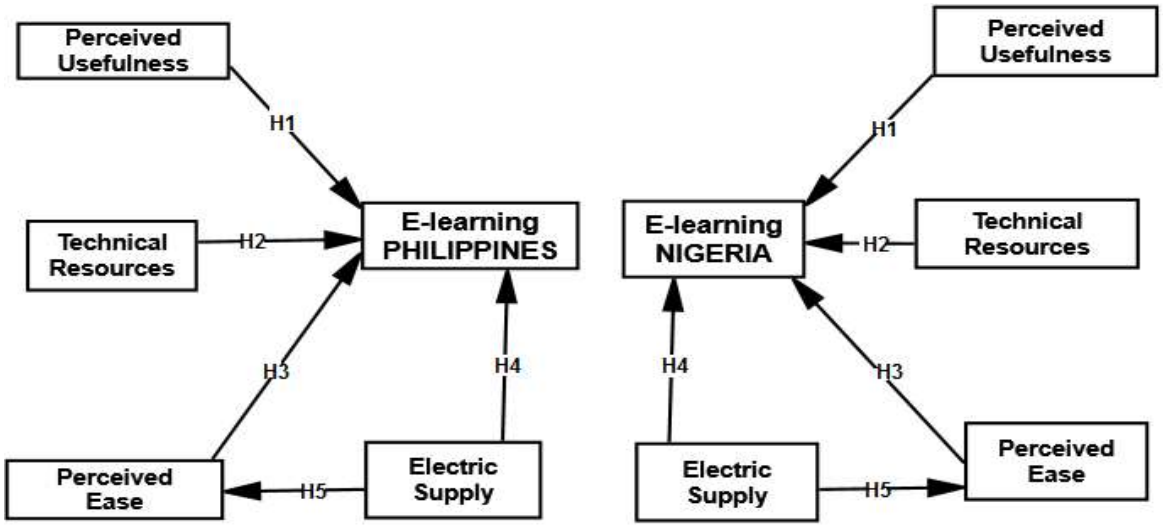

Figure 1: Philippines and Nigeria Hypothetical Framework

Furthermore, hypothetical statements of this study based on the extended TAM presented as demonstrated in the figure 1 of this study. H1: lack of ability to perceive usefulness may be a barrier to e-learning acceptance in the Philippines and Nigeria, H2: lack of technical resources may be a barrier to e-learning acceptance in the Philippines and Nigeria, H3: lack of ability to perceive ease of use may be a barrier to e-learning acceptance in the Philippines and Nigeria, H4: electric supply may be a barrier to e-learning acceptance in the Philippines and Nigeria, and H5: lack of electric supply may a barrier to e-learning acceptance in the Philippines and Nigeria.

Conclusively, these hypotheses were based on established previous studies technology acceptance. Most of the studies justified the relationship among the attributes any technology model. This particular study actually proposed to extend the TAM with technical resources and impact of electric supply power constructs towards e-learning acceptance in two developing countries context.

3. METHODOLOGY

This is a quantitative study where questionnaire considered as the instrument, regression weights and squared multiple correlations in AMOS employed to predict barriers to learning via web among Philippines and Nigeria students. Furthermore, the questionnaire foundation was based on publications related to technology acceptance and interviews with twelve students at University of Lagos, Nigeria, and fifteen students at the Asian Institute for Distance Education, Philippines.

However, students at the University of Lagos, University of Ibadan, Lagos State University and the Covenant University, Nigeria considered as the unit of analysis in the case of Nigeria model in this study. Meanwhile, the suggested licensed universities for study in the Philippine students as the unit of analysis included the Asian Institute for Distance Education, University of the Philippines Open University and Amable Mendoza Aguiliuz University Online Education operating in the Philippines.

Baker [35] study stated that an interview about an honorifics thesis or academic researches, might need to interview at least more than twenty people, the number of people interviewed in this current study justified, the process expected to help in developing the questionnaire towards the objectives of this current study. This study reviewed involved publications within two decades in discipline of social science and technology management. Nevertheless, the theoretical framework established within the range of 1989 to 2018 publications to figure the assumption for this study.

Development of instruments for e-learning acceptance in this study generated from TAM and related studies on technology acceptance [21]; [17]; [19], [34]. First parts of the questionnaire focus on collecting respondents profile demographics and their knowledge usage of computer packages. Second part technology factors [21]; [17]; [19], [34].

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A five-point Likert scale options (range from 1 as strongly disagree to 5 as strongly agree) to measure all the factors adopted [36].

A pilot examination conducted prior to the final questionnaire administration. This was done to ascertain clarity of the questionnaire. A sum of one-hundred and ten questionnaires administered at the countries aforementioned, fifty questionnaires distributed at the National Open University, Nigeria and sixty at the Philippines Open University, for the pilot assumptions. The expected time to complete the generated questionnaires was 10 to 15 minutes, both time and clarity confirmed by the pilot respondents considered in this study.

The pilot examination involved a total number of forty-two and forty questionnaires returned from Nigeria and Philippines respondents respectively. The forty-two and forty respondents suggested for this pilot examination in both countries excluded in final survey. The internal consistency for these forty-two and forty respondents ran in SPSS 22.0 for windows differently. Cronbach's alpha coefficient results of forty-two and forty respondents from Nigeria and the Philippines indicated in the table 1 of this study respectively.

Table 1: Pilot Study Ccronbach's Alpha Coefficients

n/s	Variables	Items	Nigeria (N=42)	Philippines (N=40)
1	Perceived usefulness	6	0.837	0.877
2	Technical resources	6	0.826	0.802
3	Perceived ease of use	5	0.895	0.794
4	Electric supply	6	0.884	0.733
5	E-learning	5	0.893	0.847

Cronbach's alpha coefficients for each constructs in both countries reported greater than 0.70, simply interpreted that measurement items are reliable. Thus, suggested that the instrument can be adopted for main survey.

An even distribution a total of 800 questionnaires to students at University of Lagos, Lagos State University, Covenant University and University of Ibadan in Nigeria. Similarly, an even distribution of questionnaires that amounted to a total number of 600 distributed to higher education learners in Philippines at Asia Institute for Distance Education, Philippines Open University and Amable Mendoza Aguiliuz University. A total number of 1400 questionnaires in both countries, 1306 returned which indicated that 93 percent of questionnaires returned, distribution details reported in the subsequent section of this study.

A principal factor analysis using varmax rotation performed, inspection of the correlation matrix showed that all above 0.5, the Kaiser-Meyer-Oklin achieved with 0.818 and significant at 0.000 in the Nigeria context, and the Philippines constructs reported 0.843 Kaiser-Meyer-Oklin at significant 0.000 [37] [38]. Discriminant validity assumption and the outliers test justified using SPSS.

Extraction method employed on principal component and the rotation converged in 7 iterations, factor loadings accomplished as all loaded at expected column, the assumption reported all AVE above .5, composite reliability and all cronbach's alpha of .7 above achieved [39] recommendations, p-values significant < .05 and square multiple weights (R^2) to explain the variance of the models adopted [39]; [40]. [41]; [42].

Furthermore, the two suggested models for Nigeria and the Philippines structured with the aids of IBM SPSS statistics 22 (AMOS-SPSS). The analysis and details shall be presented in the subsequent section.

4. ANALYSIS AND FINDINGS

4.1 Data Processing and Analysis

4.1.1 *Data Processing report*

Further analysis, distribution details reported based a total number of 1306 returned from 1400 questionnaires. 800 questionnaires distributed in Nigeria and 730 returned, and total number of 600 questionnaires distributed in the Philippines and 576 returned. This implied that over 91% questionnaires returned in Nigeria and 96% from the Philippines. Thus, distribution of the questionnaires and location presents in table 2 of this study.

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Table 2: Distribution of the Questionnaires and Location

QUESTIONNAIRE SURVEY IN NIGERIA		
Questionnaires	Universities in Nigeria	Returned
Distributed 200	University of Lagos	179
Distributed 200	Lagos State University	186
Distributed 200	Covenant University (Ogun State)	191
Distributed 200	University of Ibadan	174
Total of 800 Questionnaires Distributed		***Total Returned = 730***
QUESTIONNAIRE SURVEY IN THE PHILIPPINES		
Questionnaires	Universities in the Philippines	Returned
Distributed 200	Asian Institute for Distance Education	190
Distributed 200	University of the Philippine Open University	192
Distributed 200	Amable Mendoza Aguiliuz University Online Education	194
Total of 600 Questionnaires Distributed		***Total Returned = 576***
Total of 1400 Questionnaires Distributed (Nigeria and Philippines)		**Total Returned = 1306**

After removal of 80 and 65 outliers' in the case of Nigeria and Philippines respectively, a total number of 650 cases for Nigeria and 511 cases for Philippines considered in modeling of this study. Information of the respondents and awareness about the technology reported.

4.1.2 Demographics

Table 3: demographic details reports that male donated with round-off 59%, in Nigeria and 61% in the Philippines. Ages 20-30 occupied 51% in the Philippines and Age range of 31-40 occupied 53% in Nigeria, students seems to prefer part-time mode of study, modular mode 88% prefer modular mode. And in the Philippines 67% chose part time mode of study over modular.

The percentage number of students with the degree certificates indicated 48% in the case of Nigeria and 67% noted in the case of the Philippines. Students with master certificate noted in this study were 39% out of 650 case of Nigeria and 27% out of 511 in the case of the Philippines.

Furthermore, doctorate certificate indicated 48% in the case of Nigeria and 67% noted in the case of the Philippines. Students with master certificate noted in this study was 39% of 650, and 27% of 511 noted in the Philippines. This study also noticed that there is regular electric supply in the Philippines compared to Nigeria situation. The students investigated in this study confirmed their awareness about on-line education. Doctorate and master holders seems lower, most claimed no time due to their employment. The curiosity remains same, if they are aware of online education, why not claiming that? This study justified that Nigerians power supply low compared to Philippines indicated in the table 3 of this study.

4.1.3 Exploratory Factor Analysis Report

The exploratory factor analysis (EFA): explored and provides information about the numbers of factors required to represent the data. In EFA, all measured variables are related to the latent variables. Thus, assumptions about validity of instruments used justified in Table 4 KMO and Bartlett's Test reports for Nigeria and the Philippines, each EFA ran separately.

Table 3: Demographic of Nigeria and Philippines Respondents

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Factors	Categories	Frequency (Total N=1161)			
		Nigeria (N= 650)		*Philippines (N= 511)*	
Gender	Male	384	59%	199	39%
	Female	266	41%	312	61%
Age	20-30	266	41%	261	51%
	31-40	345	53%	179	35%
	45-50 above	39	06%	71	14%
Mode of study	Modules	78	12%	169	33%
	Part-time	572	88%	342	67%
Certificate	Degree	312	48%	337	65%
	Master	256	39%	139	27%
	Doctorate	82	13%	29	06%
Have regular electricity?	Yes	78	12%	506	99%
	No	572	88%	5	01%
Aware of full On-line education in your country?	Yes	565	87%	501	98%
	No	85	13%	10	02%

Table 4 KMO and Bartlett's Test reports

KMO and Bartlett's Test		
	Nigeria	***Philippines***
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.812	.828
Bartlett's Test of Sphericity Significant @ 0.05.	.000	.000

Kaiser-Meyer-Olkin (KMO) test of sample adequacy achieved (0.812) for Nigeria and (0.828) for the Philippines. As aforementioned that normality tests shall be performed to justify a normal distribution of the data-set. The normality of the data-set of this study based on the Kurtosis and Skewness statistics (Hair et al., 2012; Sheridan et al., 2006). Skewness and kurtosis z-value, Skewness and kurtosis should be ±1.96 and Shapiro-Wilk test p-value should above 0.05. Although, perfectly data unexpected, but achieved 80% of the Skewness z-values are above ±1.96 which acceptable for further analysis for both countries in this study (Hair et al., 2012). Further, deleted observed outliers 27 and 21 in Nigeria and the Philippines respectively.

4.1.4. Discriminant validity

The assumption performed with the use of SPSS discriminant properties. Table 5, Tests of Equality of Group Means and Pooled within Groups Matrices justified the significance of the instruments.

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Table 5: Discriminant Validity (Nigeria and Philippines)

Equality of Group Means (Nigeria)					
	Wilks' Lambda	***F***	***df1***	***df2***	***Sig.***
Perceived usefulness	.751	107.83	1	623	.000
Technical resources	.960	13.40	1	623	.000
Perceived ease of use	.810	76.36	1	623	.000
Electric supply	.883	43.05	1	623	.000
E-learning	.788	147.54	1	623	.000

Pooled Within-Groups Matrices (Nigeria)						
		Usefulness	***Technical resources***	***Ease of use***	***Electric supply***	***E-learning***
Correlation	Usefulness	1.000	.729	.701	.679	.644
	Technical resources	.731	1.000	.659	.641	.637
	Ease of use	.694	.659	1.000	.550	.543
	Trust	.680	.640	.652	1.000	.536
	E-learning	.644	.585	.551	.546	1.000

Equality of Group Means (Philippines)					
	Wilks' Lambda	***F***	***df1***	***df2***	***Sig.***
Perceived usefulness	.751	107.83	1	493	.000
Technical resources	.960	13.40	1	493	.000
Perceived ease of use	.810	76.36	1	493	.000
Electric supply	.883	43.05	1	493	.000
E-learning	.788	147.54	1	493	.000

Pooled Within-Groups Matrices (Philippines)						
		Usefulness	***Technical resources***	***Ease of use***	***Electric supply***	***E-learning***
Correlation	***Usefulness***	1.000	.817	.699	.687	.684
	Technical resources	.828	1.000	.685	.621	.618
	Ease of use	.794	.759	1.000	.619	.614
	Trust	.691	.678	.665	1.000	.594
	E-learning	.676	.663	.651	.569	1.000

The discriminant validity performed suggested removal of 26 cases among the Nigerian respondents and 17 cases among the Philippines respondents. Thus,

4.1.5. Components factor analysis

Factor analysis considered very important in the studies related to structural equation modeling (Sheridan et al., 2006; and Kline, 2012). Factor loadings of the items examined, the specification of these factors based on principal components and rotation method at the factor loading greater than 0.6 considered for this current study. A total number of 6 items that failed to meet acceptable levels of an FA <0.60 or loaded in another column from the total of 28 items in the case of Nigeria and 4 items in the case of the Philippines deleted. FA< 0.6 is from perceived ease of use, e-learning and technical resources. Table 5 illustrated construct reliability and validity.

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Table 5: Average Variance Extracted and Composite Reliability

CONSTRUCTS	NIGERIA			PHILIPPINES		
	Cronbach's Alpha	AVE	Composite	Cronbach's Alpha	AVE	Composite
Perceived usefulness	.891	.738	.818	.873	.827	.873
Technical resources	.867	.785	.842	.856	.726	.811
Perceived ease of use	.898	.666	.878	.876	.795	.894
Electric supply	.839	.675	.892	.869	.783	.831
E-learning	.877	.825	.849	.894	.781	.817

The average variance extracted, composite reliability and cronbach's alpha justified suitable for each country in the table 5 of this study. All average variance extracted threshold of 0.5 composite reliability above 0.6 and cronbach's alpha above 0.7 achieved in this study. The specified constructs analysed with adoption of AMOS after measurement model quality criteria achieved with the utilization of SPSS.

4.1.6. Model Structuring

The five structured namely perceived usefulness, technical resources, perceived ease of use, and electric supply paths on e-learning structured. The data sets for Nigeria and Philippines specified differently in the AMOS respectively. A variance explained of 80% round off for Philippines and 69% for Nigeria in this concluded study, about barriers to learning via web in developing countries. The finding of this study found consistent with [17].

Paths coefficients in this study reported the factors that might affect acceptance of e-learning in developing countries such as Nigeria and Philippines. The suggested factors included perceived usefulness, technical resources, perceived ease of use and electric power supply.

All suggested regressed paths supported in the case of Nigeria and Philippines expect electric supply path on perceived ease in the case of the Philippines, reasons shall be provided in the discussion part of this study.

However, results reported based on hypothetical framework. Thus, reported hypothesis one, lack of ability to perceive usefulness may be a barrier to learning via web in the Philippines (β = 0.338) and Nigeria (β = 0.194) supported, hypothesis two, lack of technical resources may be a barrier to learning via web in the Philippines (β=0.291) and Nigeria (β=0.244) supported in both countries, hypothesis three, lack of ability to perceive ease of use may be a barrier to learning via web in the Philippines (β=0.275) and Nigeria (β=0.296) supported in both mentioned countries, hypothesis four, lack of electric supply may be a barrier to learning via web in the Philippines (β=0.022) not supported in the Philippines and Nigeria (β=0.381) this was supported in the case of Nigeria.

Additionally, hypothesis five, lack of electric supply may a barrier to learning via web in the Philippines (β=0.271) and Nigeria (β=0.197) supported in both compared countries mentioned in this study.

Conclusively, this is a variance structural equation modelling study where measurement items converted to factors (observed variables) for each constructs. Thus, variance explain above 40% suggested appropriate and path coefficients significant should be less than <0.05. However, all path coefficients for this study supported justified at p-values < 0.003, a round off of 80% variance explained of the observed factors that could impede learning via web in the case of the Philippines and 69% achieved in the case of Nigeria. Summary of the analysis presented in the table 6 of this study.

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Table 6: Path Coefficients Summary

Philippines Paths constructs and Beta View Text			Beta		Supported?	
			PH	NG	Philippines	Nigeria
E-learning	<	Perceived Usefulness	β=0.338,	β=0.194	Yes	Yes
E-learning	<	Perceived Ease	β=0.275	β=0.296	Yes	Yes
E-learning	<	Electric Supply	β=0.271	β=0.197	Yes	Yes
E-learning	<	Technical Resources	β=0.291	β=0.244	Yes	Yes
Perceived Ease	<	Electric Supply	β=0.022	β=0.381	No	Yes
Squared multiple correlations(R^2)					***79.7%***	***69.1%***

Furthermore, regression weights and squared multiple correlations estimates viewed from the AMOS was also summarized towards generalizability of observed factors that could impede learning via web in the developing countries such as Philippines and Nigeria. Nevertheless, lack of electric supply path on perceived ease of use not supported on the Philippines model and it was removed. Figure 2 presented the final absolute inner path coefficients and the R-squares of the structured model for both countries.

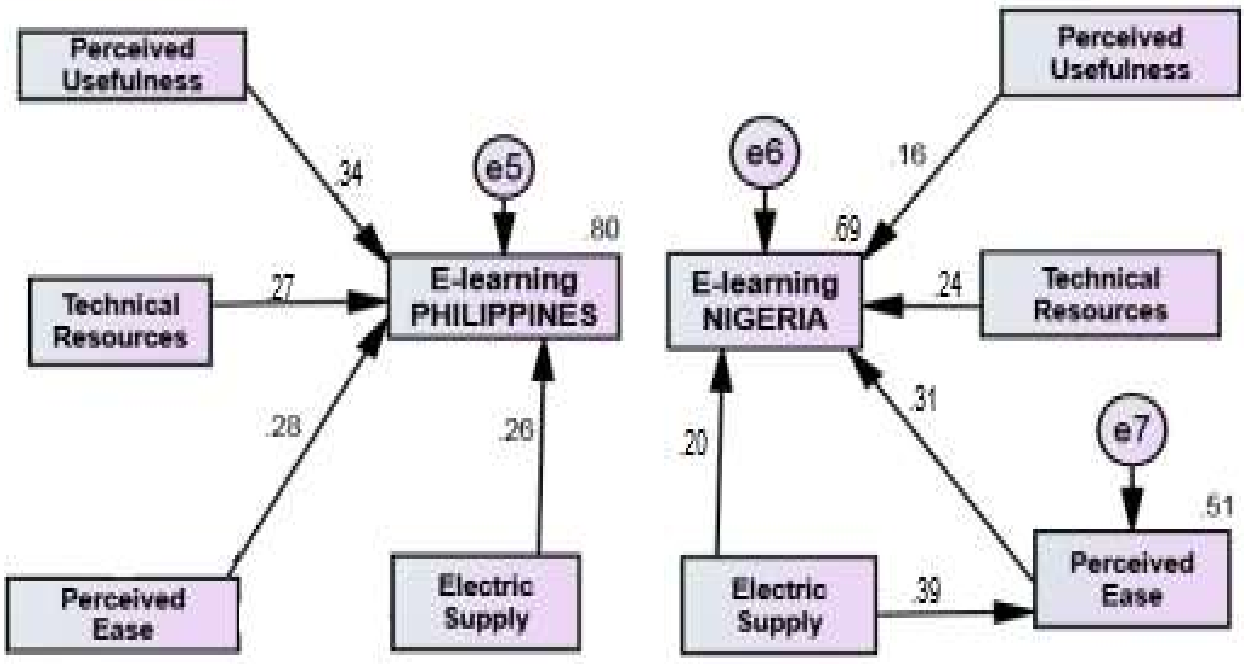

Figure 2: Final Inner Path Coefficients and the R-Squares of the Structured Models for both Countries.

Conclusively, the final structured models indicated that electronic mode of learning in Nigeria could only be meaningful if problem of power supply and other suggested factors could be handled properly, while, electric supply is not an issue why learning via web is not adopted fully in the case of the Philippines. Next section highlights the research pros and cons in the relationship to findings and previous studies reviewed.

4.1.7 Research Pros and Cons Justification

An intensive comprehension of the specific circumstances and the prerequisites are profoundly expected to improve and completely understood the selection of e-learning.

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Scholastically, this work has brought about a methodology at distinguishing unpredictable and dubious developing information of e-learning. A comparing technology acceptance in two developing countries suggested limited, making a new connection among constructs by contrasting interoperability is a methodology to recognize the multifaceted nature of e-learning situations. This is accomplished by proposing a procedure where by TAM was used by its segments definitions and implications.

Furthermore, attributes, target goals are then indicated and perfect matches were discovered, these newly concluded study can be reasonably demonstrated into utilizing another hypothetical model for testing. This finished up concept stressed on utilization of eLearning. Also emphasized that acknowledgment of innovation will be helpful in time management of the users. In any case, earlier investigations disregard the effect of electric supply on e- learning environments while this study, electric supply is noteworthy. This study stressed how power supply impacts perceived ease of use towards e-learning with regards to two developing nations.

4.1.8 Research Differences to Prior Studies

Earlier studies approved and predict exact quality of TAM other than other technology factors inside comparative ideas and thought amidst different hypotheses of e-learning acceptance. It likewise looked at the strength of TAM factors together with augmentation of technical resources and power supply towards e-learning acceptance with regards to two developing nations .Thus this examination unequivocally bolstered the thought. It very well may be comprehended from the work that there are many prerequisites for the appropriate systems that can be connected for e-learning activities. However, there are four constructs for TAM to distinguish barriers to e-learning of two developing nations and endeavored to clarify the way toward embracing e-learning; they are not ready to achieve a typical accord.

Furthermore, analysis on barriers technology to acceptance mentioned countries possibly maybe absolutely filled. Implementations of e-learning are profoundly fruitful in developed nations hence not useful to the overall public. A large portion of the explored study fixated on adoption of TAM in the developed nations. Likewise, a comparative study as far as the e-learning acceptance in developing nations appears ignored.

Various studies showed that e-learning played a significant role not only in academic setting but in business and information systems. Furthermore, studies also manifested investigated of the external limits and internal points of interest of how e-learning can effectively function in the teaching and learning process, thus contributing to a globally and technologically responsive learners. Moreover, the discussions and implementation, recommendations presented in the next section of this study.

6. DISCUSSIONS AND RECOMMENDATION

This is a comparison study on factors affecting an e-learning acceptance model in developing countries, TAM as a solid foundation of technology acceptance adopted. Plainly, the findings of this study suggested that electronic learning acceptance could be affected by technical resources and inability in perception ease to use and electric supply. This on-going study also point out that availability of power supply will increase perceptions of ease use of the system in the case of Nigeria in this study, based on the assumption of this study technical resources could be effectively use to influence the e-learning in Nigeria.

The Nigeria and the Philippines respondents justified the perception of usefulness; technical resources and inability in perception ease to use affect the acceptance of the technology. An improved electric supply could be an instrument to encourage e-learning, perception towards ease to use, technical resources and usefulness reckoning on power supply Nigeria.

Also, technology acceptance readiness and the infrastructural in the both developing countries investigated in this study, supported the significant of TAM towards elucidating e-learning acceptance in approved aforementioned universities in Nigeria and the Philippines.

Implications of the findings in this concluded study expected to help the Commission for Higher Education in both mentioned countries identified the major aspect of infrastructural facilities actually needed to justified huge investment on technology. If aspect electric power supply could be improved, developing country like Nigeria possibly will attach value technology.

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Implication of this concluded study to the Republic of the Philippines, if the Commission for Higher Education could emphasize more on usage of technology for educational purposes and approve more universities to offer e-learning. However, government should support in directing more fund to improve technological infrastructures in both public and private universities. Thus, highlights the limitations and assumptions to this study.

5. LIMITATIONS AND ASSUMPTIONS

In this concluded study, an attempt has been to develop an extensive framework, adopted dependable and valid measures of technology acceptance factors, and analyse the data making use of effective tools and suggested statistical methods. In addition, an objective has been chosen that maximizes the generalizability and transferability of findings. As with studies, advisable to acknowledge and comprehend the limits associated, the areas described subsequently.

This concluded study was considered a cross-sectional survey towards investigating the impact of electric power supply in the relationship with TAM, at targeted time and using a cross-sectional survey design may possibly not permit the understanding associated with the casual implications among constructs in this study, this may limit the generalizability of study since casual implications may not be drawn. Thus, longitudinal study might be more reliable, diffusion of technology towards the particular desirability of behaviour tends to be developed over time [36].

Another likely limitation observed in this concluded study, some items in the research survey may differ in wording of those employed for measuring principally in the constructs by other researchers. In fact, some items in the questionnaire were revised to ensure they were valid to use within the context of e-learning acceptance. Thus, future study may adapt original source. The sample size adopted in this study seems not enough to measure the large population and circumstances about e-learning acceptance in the two developing countries used for this study, thus, assumed generalizability may be affected.

Restrictions of the study might be tracked towards sixty-one percent female in the Philippines and forty-one respondents in Nigeria, this might prejudice end result in term of gender reference, also using the part-time university students in developing countries might affect generalizability of this study. Some of the mentioned permitted universities for e-learning within Philippines and Nigeria encountered crisis, some northern part of Nigeria say no to the western education, massive questionnaire survey suggest hindered. Similarly, due to economic and political challenges at the southern part region of the Philippines, respondents reluctantly completed the questionnaires during the survey. As a result, re-validation of this study using private universities student as targeted respondents with exclusion these regions suggested in the future study.

This study presented why high rate of part-time studies in the midst of the respondents in the permitted universities. This study discretionary predetermined call for potential rationale why learners value part-time mode of study over e-learning, also suggested power supply as an arbitrator towards direction of online learning in Nigeria, moreover, it would be great commitment if the National Universities Commission of Nigeria and Commission on Higher Education of the Philippines approve other universities for e-learning in other part of the country. Hopefully this study's suggestion might justified the direction of the huge investment on technology and infrastructural by both the Federal government of Nigeria and Democratic government of the Philippines. Future replications of this study for developing countries most especially African and Asian countries.

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