

FACTORS INFLUENCING ACCEPTANCE AND GRATIFICATION OF SOCIAL MEDIA USE FOR LEARNING: A STRUCTURAL EQUATION MODELING APPROACH

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Abstract

This study developed and validated social media acceptance and gratification model for learning. The justification for this study was hinged on the unproductive use of social media among students of higher institutions of learning in and whether it will be adopted as a learning medium. A cross-sectional survey method was used to prosecute the study. The study sample consisted of 248 undergraduate students. To achieve the objective of the study, a proposed model was developed through the following theories. Factors from technology acceptance model were extended with compatibility from innovation diffusion theory and gratification model. The instrument used for gathering the data of study was adapted and modified and thus subjected to validity and reliability check appropriately. The data of the study was subjected to Structural Equation Modeling analysis with AMOS 22 version. The data of the study supported the proposed acceptance and gratification model of the study. The theoretical and practical implication of the study were reported, the result of the study confirms the reliability and validity of the model for explaining social media acceptance and gratification for learning among Nigerian undergraduate students. The study reported the implication of these findings to social media system developers and stakeholders in education.

Keywords: Social media, Technology acceptance model, Innovation diffusion theory, Gratification model, Structural equation Modeling

Introduction

There is growing concern on the need to shift how teaching and learning is conducted in the recent time. Thus, educators are encouraged to employ innovative means of implementing the school curriculum in a way that meet the need of the present

generation of students. In particular, there is significant increase in exploring educational usefulness of social media (SM) as a learning platform. Therefore, taking advantage of social media platform for teaching becomes imperative, in fact, some universities are creating awareness and offering access to SM to be utilized as e-learning tools. Most of these schools use the platform for posting course materials, content and a means of interaction among the students and the instructors. Unfortunately, however, many students do not use the platform for learning as expected (Pituch & Lee, 2018). Buttressing this finding, Tan, Shao and Yu (2019) study on factors influencing engineering students use of social media for learning in China reported that few success was recorded in the use of social media in engineering education and that the approach has not been well accepted among the students. In fact, it was reported that students were dropping-out from the programme and some of those that remain are not well active in the learning process as expected. According to Echeng and Usoro (2014), there is little empirical study that examined use of web 2.0 technology in teaching and learning in Nigeria. The few study reported that the tools is sparingly used for academic purposes.

The study listed five reasons as impediment to social media use in Nigeria higher education, among such factors are personality characteristics, lack of facilities, motivation and lack of computer expertise (Anunobi & Ogbona, 2018). The impediment arising from the listed factors is in various degrees, while some is amenable to immediate solution, some of the factors need further understanding and empirical research in order to ascertain their degree of influence and their antecedent for holistic solution. There could be limited study on factors influencing acceptance of social media for learning in the cultural setting of this study, but there are other studies from other setting that have addressed issue bordering on gauging acceptance of social media for learning. Among such studies include Al-Rahim, Othman and Musa (2013) study on use of technology acceptance model to measure use of social media for collaborating learning in Malaysia; Tan, Shao and Yu (2019) study on factors influencing engineering students use of social media for learning in China; Elkaseh, Wong and Fung (2016) study the influence of ease of use and usefulness of social media for e-learning in Libyan; Echeng and Usoro (2014) study acceptance and current level of use of web 2.0 technologies for learning in higher education in Scotland and Nigeria. Also Al-Ammary, J. H., Al-Sherooqi, A. K., and Al-Sherooqi, H. K (2014) conducted a study on acceptance of social networking as a learning tool among higher education students in Bahrain. All the findings emanated from the aforementioned studies seem overlapping and as such; the finding cannot be generalized because they are all case specific. More importantly, all these studies explore different variables and study social media acceptance from difference theoretical perspective.

Research Model and Hypotheses

The conceptual model of the study was developed from technology acceptance model, innovation diffusion theory, social and technology satisfaction model of (Davis, 1989; Rogers, 2008; Shittu, 2011; Islam, 2011 & 2014). The variables in the conceptual model (fig 1) include the followings: perceived usefulness, perceived ease of use, compatibility, subjective norm, gratification, behavioural intention and acceptance to use social media

for

learning.

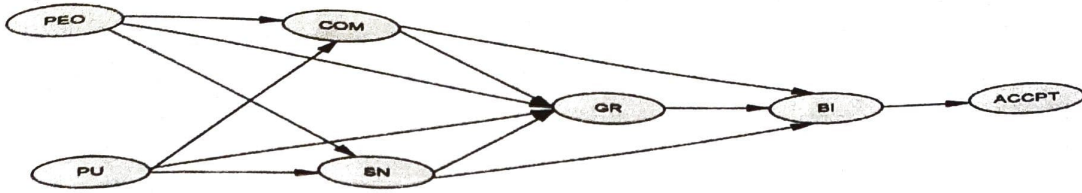


Fig 1: Conceptual framework of the Study

Perceived Usefulness and Ease of Use

Davis (1986) has observed that users' motivation to accept information system can be predicted by perceived usefulness (PU) and ease of use (EOU) and that the two variables will together influence such individual intention. Al-Rahim et al. (2012) supporting this view, reported that PU and EOU are beliefs that influence Malaysia students' intention to use social media as a learning platform, Also, it was reported that EOU will have a positive impact on PU. Similarly, the study of Tan et al, (2014) on factors influencing engineering students' use of social media for learning in China, concluded that PU and EOU statistically and positively influence engineering students' intention to use social media. The study also showed that EOU has positive effects on PU. Grosseck (2009) also reported that use of web 2.0 based applications for learning in higher education will depend majorly on student perception of its ease of use and its usefulness for learning. In fact, Usluel and Mazan (2009) reported that student preparedness to use web 2.0 tools for learning can be influenced by their perception of ease of use of social media. Other salient factor influencing user behavior towards technology acceptance can be located in subjective norm (Ajzen & Fishbein, 1980)

Subjective Norm

Subjective norm according to Ajzen and Fishbein [1980] refers to the perception whether people important to the individual think a behavior should be performed or not. Venkatesh and Davis (2000) in their extended of technology acceptance model concluded that subjective norm is also an important factor that influence behavioural intention of user's. Similarly, Van and Schepers (2008) study on Chinese student acceptance of virtual learning environment submitted that subjective norm has positive influence on students' intention towards use of virtual learning environment. Thus, using social media for learning can be liken to learning in a virtual environment and research evidence showed that students learn effectively when the medium is compatible to their experience (Shittu et al. 2011).

Compatibility

Compatibility is defined as the degree to which innovation is regarded as being consistent with the potential of end users' existing value, prior experience and needs (Rogers, 1995; Lee, Hsieh & Hsu, 2011). The study of Agarwal and Prasad (1999) revealed that there is positive relationship between an individual's prior compatible experiences and acceptance of new technology. The study also found out that prior experience with any similar technologies would correlate positively with belief of ease of use. Similarly, Chang and Tung (2008) study also showed that compatibility was a strong determinant of perceived usefulness and behavioural intention. Lee et al. (2011) confirmed the positive and direct influence of compatibility on perceived usefulness, conversely, the study showed a negative influence of compatibility on perceived ease of use. Lee et al. study further revealed a positive effect of compatibility on behavioural intention. Arising from literature we propose the following alternate hypotheses based on the model of the study in (Figure 1).

Hypotheses of the Study

- H1: Perceived usefulness will have positive direct influence on behavioural intention towards social media use for learning
- H2: Perceived usefulness will have positive direct influence on gratification of social media use for learning
- H3: Perceived usefulness will have positive direct influence on compatibility towards social media use for learning
- H4: Perceived usefulness will have positive direct influence on acceptance of social media use for learning
- H5: Perceived ease of use will have positive direct influence on subjective norm of students toward social media for learning
- H6: Perceived ease of use will have positive direct influence on compatibility toward social media use for learning
- H7: Perceived ease of use will have positive direct influence on gratification of social media use for learning
- H8: Perceived ease of use will have positive direct influence on intention to use social media for learning
- H9: Subjective norm will have positive direct influence on behavioural intention towards social media use for learning
- H10: Subjective norm will have positive direct influence on acceptance of social media use for learning
- H11: Subjective norm will have positive direct influence on gratification of social media use for learning
- H12: Compatibility will positively influence on student subjective norm towards use of social media for learning

H13: Compatibility will positively influence on students' gratification of social media use for learning

H14: Gratification will positively influence acceptance of social media use for learning.

H15: Intention of students will positively influence their acceptance of social media use for learning.

Research Methodology

The study adopted a cross-sectional survey design method because it is considered appropriate for model development and testing of theories (Elkaseh, Wong, & Fung, 2016). The participants of the study comprised 248 undergraduate students in some selected universities in Nigeria. Among the participants, 118 representing 47.6% were male, while 130 representing 52.4% were females. The participants were at various levels of study, 21(8.5%) were at 100level, 46(18.5%) were at 200level, 74(28.8%) were at 300level, 97(39.1%) were at 400level, while 10(4.0%) were at 500level respectively. The total sample was found to be adequate for the study as recommended by (Hair, Black, Babin & Anderson 2010; Islam, 2016). The participants were purposively sampled for the study.

Research Instrument

The study used questionnaire as instrument for data collection. The instrument consisted of 8 sections. The first section consisted of items about participants' demography information, such as, information on gender, level of study and the type of social media they mostly used. The second section of the instrument consisted of variables of the study [Perceived usefulness, Ease of use, Gratification, Compatibility, Intention, Subjective norm and Acceptance of social media for learning], each of these variables were measured with 7,5,7,7,6,5 and 10 indicators respectively. In all, both exogenous and endogenous variables were measured with 42 items. The options on the instrument was 5 point Likert scale of [1 Strongly Disagree to 5 Strongly Agree]. All the items were adapted from the previous study and modified for the purpose of this study.

Reliability and Validity of the Instrument

The reliability and validity of the instrument was computed with SPSS 22.0 software. To establish the validity of the instrument, confirmatory factor analysis [CFA] was computed so as to ascertain the psychometric properties of the instrument of the study. CFA was equally used to determine the factorial structure of the measurement model. In fact, 42 indicators were specified to load only on the main factors of interest of the study. On inspection of the factor loading, some items were found to cross-load, as such, the cross-loaded items were expunged leaving the remaining items of the study to 35.

Also, computation of inter-correlation between the variable were found to be positive and significant which indicated that the variables were free from multi-collinearity. The Kaiser-Mayer-Olkin inspection of sampling adequacy was .91 which is above the recommended value of .6 (Teo & Koh, 2010) demonstrating the appropriateness of the data for CFA. The Bartlett's Test of Sphericity was 7704.894 and statistically significant

($P = .000$), indicating that there is satisfactory correlation between the parameters. The seven component of the study was obtained through Varimax Rotation with 68.12% of total variance explained which indicated that the items were suitable to measure students' adoption and gratification in using social media for learning. It was also observed that the first value has the greater Eigen-value of 34.05, while the remaining components have the following Eigen value: 7.64, 6.44, 4.14, 3.43, 2.92 and 2.38 respectively. An inspection on the rotated component matrix revealed a loading on seven valid factors. The first component was represented with 8 indicators [AC5, AC7, AC8, AC6, AC9, AC10, AC4, AC2] the loading on these indicators were between .61 and .79. The second component was represented with 6 indicators [GR4, GR6, GR5, GR3, GR1, GR2], with loading ranging between .47 and .79. The third components was represented with 6 indicators [CMP5, CMP6, CMP4, CMP7, CMP3, CMP2], with loading ranging between .45 and .73. The fourth component was represented with 5 indicators [PU3, PU1, PU4, PU6, PU7], with loading ranging between .58 and .81. The sixth component was represented with 5 indicators [INT4, INT3, INT2, INT5, INT6], with loading ranging between .51 and .73. The seventh and the last component was represented with 3 indicators [SN3, SN2, SN4], with loading ranging between .61 and .79.

Correlation Analysis of all the Latent Constructs of the Study

The correlation analysis was computed for all the latent constructs. Inspection of the output in Table 4 indicated that all the constructs were significantly correlated with other at 0.01 level of significant. The correlation among the construct were between ranges of .391 to .703 as shown in Table 1.

Table 1: Correlations among the Seven Latent Variables

		PUSE	COMPAT	SUBN	PEOUSE	INTENT	GRATIF	ACCEPT
PUSE	Pearson Correlation	1						
	N	248						
COMPAT	Pearson Correlation	.607**	1					
	N	248	248					
BN	Pearson Correlation	.403**	.506**	1				
	N	248	248	248				
PEOUSE	Pearson Correlation	.399**	.477**	.662**	1			
	N	248	248	248	248			
INTENT	Pearson Correlation	.418**	.463**	.647**	.681**	1		
	N	248	248	248	248	248		
GRATIF	Pearson Correlation	.382**	.520**	.583**	.586**	.703**	1	
	N	248	248	248	248	248	248	
ACCEPT	Pearson Correlation	.401**	.391**	.440**	.440**	.567**	.622**	1
	N	248	248	248	248	248	248	248

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

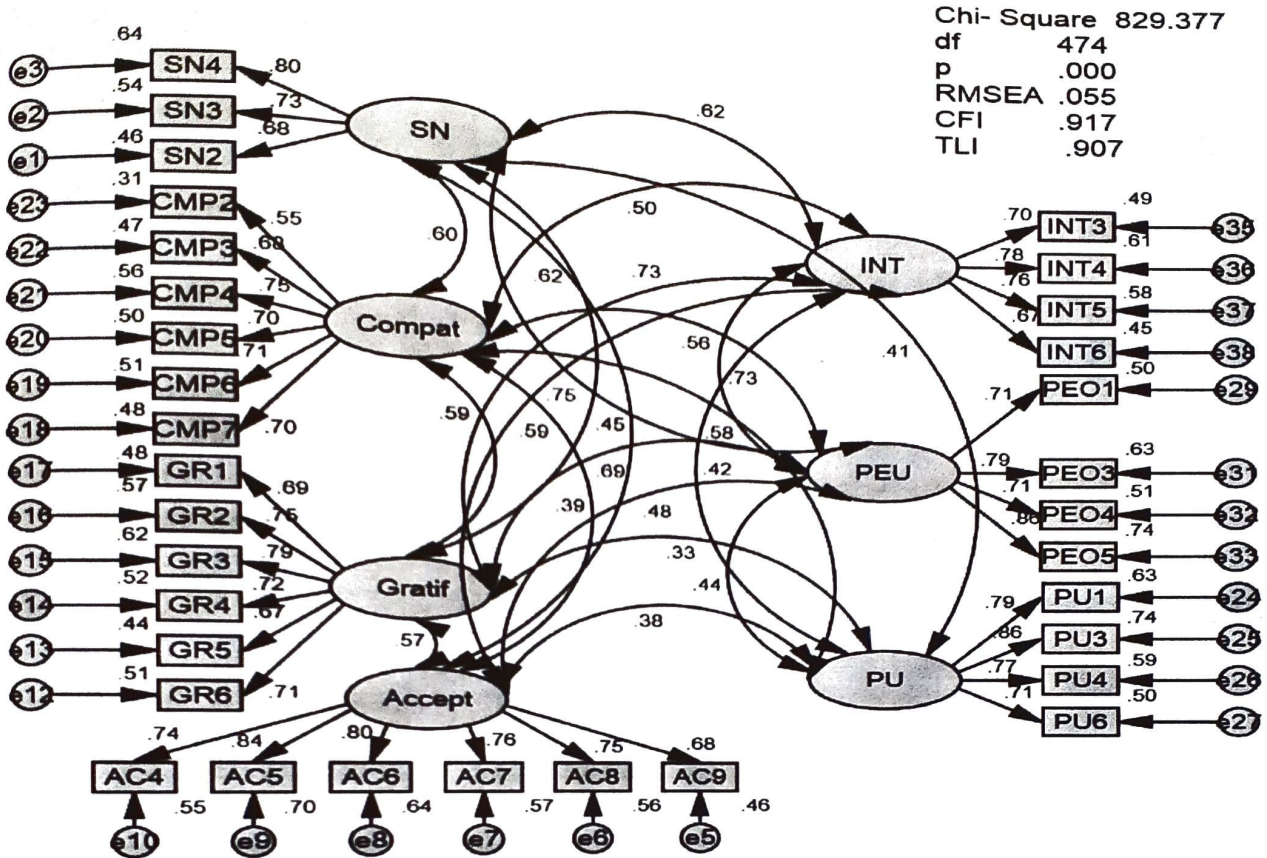


Figure 2: Structural Equation Modeling Analysis

Figure2: The hypothesized latent factors CFA for acceptance of Social Media for learning

Note: Accept= Acceptance to use social media for learning; Gratif= Gratification; Compat= Compatibility; SN= Subjective Norm; INT= Intention to use; PU= Perceived Usefulness; PEU= Perceived ease of use

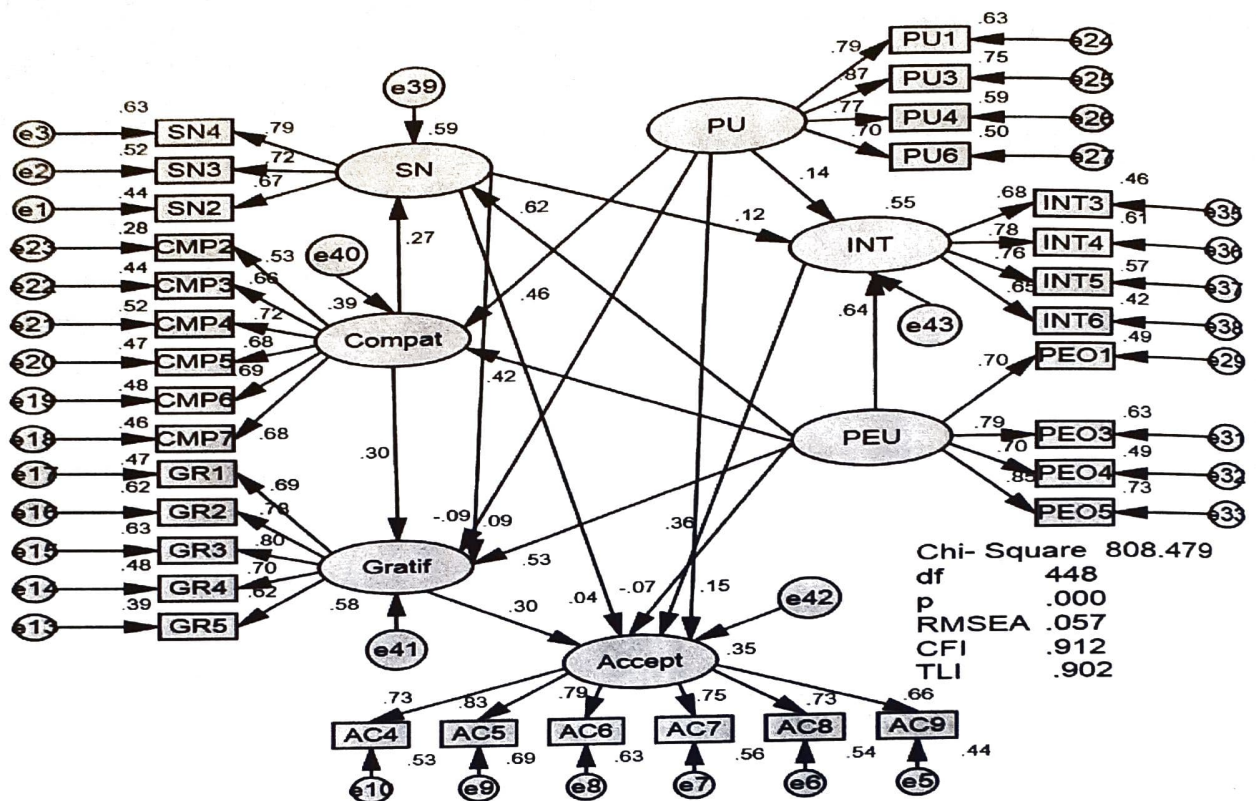


Figure 3: Revised Modeling

Figure 3 provided result of the hypothesized model. The result demonstrated that the data fit the model specified for the study. The result showed the following fit indices (Chi-Square= 808.479, df= 448, P < .000, RMSEA= .057, CFI= .912 and TLI= .902) all the fit indices have met the recommended threshold of acceptable fit. Generally, most path coefficient yielded statistical significant critical ratio, with exception of few parameters that were not supported (SN→ ACCEPT, SN→GRATIF, and PEU→ACCEPT). Beside these three parameters, all other parameter estimated was statistically, positively and significantly supported. Though, the practical importance of the effect size was not the same in term of strength which range between small, medium and large effect size [.04, to .64] (Cohen, 1988).

In addition, out of the 16 hypotheses proposed for the study, 14 were significantly and positively supported, while 2 showed a negative sign, therefore not supported. Specifically, the path between (SN→GRATIF) revealed a negative effect size of -.09 and (PEU→ACCEPT) revealed a negative effect size of -.07 respectively. The result of the study showed that PU significantly influenced BINT, GRATIF, COMPT, and

ACCEPT, therefore the hypotheses (1,2,3, and 4) were supported. Also, PEU significantly influence GRATIF, BINT, SN and COMPT, therefore the hypotheses (5, 6, 7, and 8) were supported. Moreover, COMPT significantly influence SN and GRATIF and therefore the hypotheses (12, and 13) were supported. Also, SN significantly influence BINT, ACCEPT and GRATIF, therefore hypotheses (9, 10, 11) were supported. Similarly, GRATIF positively influenced ACCEPT, and also BINT positively influences ACCEPT, therefore the hypotheses (14, 15) were supported by SEM analysis, indicating the robustness and reliability of the proposed model for explaining students' behaviour towards social media use for learning. In this study perceived ease of use demonstrated a high effect size on behavioural intention and on subjective norm respectively.

On the model specified for the study, there are five endogenous variables. The endogenous variable SN was found to be practically and significantly determined by two variables COMPT ($\beta = .27$, $P < 0.01$) and PEU ($\beta = .62$, $P < 0.01$). The combined effect accounted for by the two variables resulting in R^2 of .59, which means that COMPT and PEU jointly accounted for 59% of the variance in SN. Also, COMPT was found to be statistically determined by two variables PU ($\beta = .46$, $P < 0.01$) and PEU ($\beta = .42$, $P < 0.01$). The combined effect accounted for by the two variables resulting in R^2 of .39, which means that PU and PEU accounted for 39% of variance in COMPT. In this regards, PEU and PU jointly have a combined variance on compatibility. GRATIF was also found to be statistically determined by COMPT ($\beta = .30$, $P < 0.01$), PU ($\beta = .09$, $P < 0.05$), and PEU ($\beta = .53$, $P < 0.01$) resulting in R^2 of .58 indicating 58% of the variance in GRATIF can be explained by the three variables [COMPT, PU, and PEU]. INT was also found to be positively determined by PU ($\beta = .14$, $P < 0.01$), SN ($\beta = .12$, $P < 0.01$), and PEU ($\beta = .64$, $P < 0.01$) resulting in R^2 of .55 indicating 55% of the variance in INT can be explained by three variables [PU, SN, and PEU]. Lastly, ACCEPT was found to be statistically determined by GRATIF ($\beta = .30$, $P < 0.01$), SN ($\beta = .04$, $P < 0.05$), PU ($\beta = .15$, $P < 0.01$), and INT ($\beta = .36$, $P < 0.01$) resulting in R^2 of .35 indicating 35% of the variance in ACCEPT can be explained by four variables [GRATIF, SN, PU, and INT] respectively. With these findings, social media acceptance and gratification model demonstrated high predictive strength in explaining students' acceptance and gratification of social media for learning.

Discussion and Conclusion

This study was carried out to develop and validate social media acceptance and gratification model. A proposed framework was developed by extending technology acceptance model with variable from innovation diffusion theory and technology adoption and gratification model. To fit the proposed model, undergraduate students from some selected universities in Nigeria were used as sample of the study. The data collected supported the extended framework earlier proposed. In fact, five endogenous variables of the study were statistically supported. The results of this study have both practical and theoretical implications. The theoretical implication of the study can be located in some of the positive influence that was recorded among the factors proposed. The first hypothesis of the study that stated perceived usefulness will positively influence behavioural intention stand validated. This finding supported Al-Rahim et al. (2013); Tan et al. (2014); Al-Ammary et al. (2014) findings that reported a significant

influence of PU on students behavioural intention towards social media use for learning. The second hypothesis that stated perceived usefulness will positively influence student gratification of social media use for learning revealed a positive but a weak effect size. This finding is at variance with Islam (2016) that reported a strong influence of PU on gratification. The reason for this finding cannot be far away from student long standing use of social media for communication and interaction. The third hypothesis that stated perceived usefulness will positively influence compatibility towards social media use stand validated. This finding was in agreement with Agarwal and Presad (1999) finding that revealed a positive relationship between compatibility and acceptance of new innovation for learning. The fourth hypothesis that stated perceived usefulness will positively influence acceptance of social media also stand validated. This finding was incongruent with Al-Rahim et al. (2012), Tan et al. (2014) and Ong & Lai (2006) that earlier reported significant effect of perceived usefulness on acceptance of information system. Finding from this study also validated the fifth hypothesis that stated perceived ease of usefulness will positively influence student subjective norm. The finding was consistence with Davis (1989) that explains how strong the external influence of other are on individual belief system. This finding supported Ali-Tarhini, Hone and Liu (2013) finding that revealed the significant influence of perceived ease use on subjective norm on usage of web-based learning system. The sixth, seven and eight hypotheses that perceived ease use will positively influence compatibility, gratification and student behavioural intention were all supported. In fact the effect size of PEU on these variables was strong, this was in agreement with Davis (1989, 2001) finding, it also validated Al-Ammary et al. (2014) finding, it also supported Islam [2011] finding that revealed a significant influence of PEU on gratification and student behavioural intentions, while the present study indicated a very strong influence of PEU on behavioural intention, there was a little difference in what is obtained in this study in terms of the strength of the effect size compare to the finding of Islam (2016) that recorded a high effect size. This difference could be as a result of the phenomenon being look at and the differences in the setting of the studies.

Similarly, hypotheses nine, ten and eleven that stated subjective norm will positively influence behavioural intention, acceptance and gratification of social media indicated a weak influence on behavioural intention and acceptance of social media for learning, while the influence of SN on gratification indicated a negative influence. This finding showed that the influence of other can shaped user subjective probability towards use of social media for learning. Also, the influence of other that is important indicated a small effect on acceptance, while the influence of others has nothing to do with user satisfaction towards social media use for learning. This finding could be attributed to students' familiarity with social media platform, this could account for while the influence of those important to them is less important to induce their acceptance and negative influence recorded in this study. Perhaps, other factors could influence student satisfaction toward social media use for learning. Other related factors that could account for this result can be traced to absent or superficial use of social media for learning related activities.

Furthermore, hypotheses twelve and thirteen that stated compatibility will positively influence subjective norm and gratification of social media for learning was statistically

supported. Also, hypothesis fourteen that stated gratification will positively influence acceptance of social media for learning stand validated. The finding supported William, Philips and Lange [1994] position that gratification is more suitable for understanding behavioural intention will positively influence acceptance of social media for learning was validated. The study was in agreement with Wang and Wang (2009) findings on the positive influence of behavioural intention of user towards web based learning system. The finding equally supported Farahat (2012) finding that revealed the positive influence of behavioural intention on acceptance decision.

From practical perspectives, the finding of this study can help social media developer, educators and all stakeholders in education industry in Nigeria to understand what can motivate adoption and continuous acceptance of social media for teaching and learning related activities. The study has established that acceptance to use social media for learning is more of function of satisfaction derive by the students, it also a function of perceived usefulness and behavioural intention towards use though, the degree of influence of these three variables varies in practical terms. In fact, satisfaction which is gratification of use is more significant than the remaining variables. The study also established that subjective probability of using social media for learning, which is located in behavioural intention is influenced by perceived ease of use and perceived usefulness and the influence of perceived ease of use is stronger than the usefulness. The study further revealed that ease of use and usefulness have a strong influence on compatibility, by implication, for the students to accept social media being compatible to their learning need, issue of usefulness and ease of use will be a salient determinant. The study also showed that subjective norm does not influence acceptance, therefore, the influence of those important to the students would not in any way induce their acceptance of social media for learning. Furtherance to that, the study also showed that perceived ease of use does not influence acceptance of social media for learning among the students. The study also showed that perceived usefulness had weak influence on gratification of social media for learning.

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