

Investigating students' attitude and intention to use Social software in higher institution of learning in Malaysia

BY

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Abstract

Social software usage is growing at an exponential rate among the present generation of students. Yet, there is paucity of empirical study to understand the determinant of its use in the present setting of this study. This study therefore investigates factors that predict student's attitude and intention to use this internet base software. A survey research was conducted among students of higher institution of learning. A hypothesized model was developed through Technology acceptance theory of Davis (1986), from where hypotheses were postulated for the study. Structural equation modeling was used to ascertain the goodness of fit of the model of the study and to analysis all the hypotheses postulated therein. The findings of the study revealed that all the independent variable of the study (perceived usefulness, subjective norm, and perceived ease of use) predict the attitude of students toward social software adoption. Similarly, attitude was found to be the stronger predictor of students' intention to use social software, and perceived usefulness was found to be the stronger predictor of students' attitude to SNS. The data of the study fitted the model hypothesized for the study with goodness of fit indices of the model was above the acceptable value of 0.90. The invariance analysis between the genders was found to be statistically insignificant.

Keywords: Social software, Technology acceptance model, Principal component analysis

Introduction

The influence of emerging technology in the present information driven society cannot be overemphasized. The evolution of it has not only cause a fundamental change in the way we perceive and posit solutions to our problems, but its pervasiveness has significantly influenced all realm of human activities, education inclusive (Albirini, 2007).

The most recent emerging technology “web 2.0” and the social software has become a tool in the hand of the present generation of students. This emerging tool is greatly altering how students communicate locally and globally among their peers. According to Villano (2006), the social software exists in a wide range of forms and flavors. It can be as simple as students exchanging instant messaging (IM) or e-mail with a friend, or a one to many tool such as a wiki, blog and face book.

‘ In the technological arena, we are witnessing the rapid proliferation of technologies which are less about narrowcasting to individuals, than the creation of communities and resources in which individuals come together to learn, collaborate and build knowledge (social software) Owen, Grant, Sayers & Facer 2006 ’

The term social software came into use in 2002 and is generally attributed that the term emanated from Clay Shirky. He is a writer and a teacher on the social implications of internet technology. According to Shirky social software is software that supports group interaction (Shirky, 2005).

It is not only supporting social interaction, but it allow for feedback, conversation and networking. It also endow with flexibility and modularity that enable collaboration. It is a process in which the information and media organized is share by individual, and combined or built to create new form, concept, ideas, and services (Downes, 2005). Many current social software uses in the present day according to Mcloughin and Lee (2007) includes flickr and YouTube use in sharing photos and videos with both “real world” and “virtual friend”. Other social networking sites like MySpace, face book and Friendster allow users to build online identity by customizing their personal profiles with a range of multimedia elements, as well as interacting with existing contacts and establishing relationship. The concept of social software according to (Wikipedia, 2007) includes the followings:

- . Internet Messaging
- . Text chat
- . Internet
- . Blogs
- . Weblogs
- . Wikis
- . Social network search engines
- . Social guides

- . Social bookmarking
- . Social libraries
- . Peer-to-peer social network

The word social software refers to the scope of application, which enables social connections, groups' interactions, shared web spaces for collaboration, and information exchange in web based environments. The term of social software is the major component of web 2.0 (Bragg, 2005).

The present generation of students has being found to be net savvy, this explains why they were tagged digital native or net student, because little can they do without searching the web. Students no longer use the web to obtain information but instead create information and share it with other. They are seen to use web 2.0 applications such as wikis, social networking, social bookmarking and blogs on a regular basis (Harthorne and Ajjan, 2009; Pen, 2007). Social software like other information system is software that is gaining popularity among the present generation of students. Its vogue of usage is creating a great concern among researchers in information system field. Yet, there is few study conducted on social software phenomenon. This study aim at investigating student's attitude and their intention to social software use in higher institution of learning using one of the higher institutions of learning in Malaysia as a case study. The purpose of the study is to understand the underline factors that predict students' attitude and intention to use social software. Therefore, the study is conceptualized based on Davis acceptance of information theory.

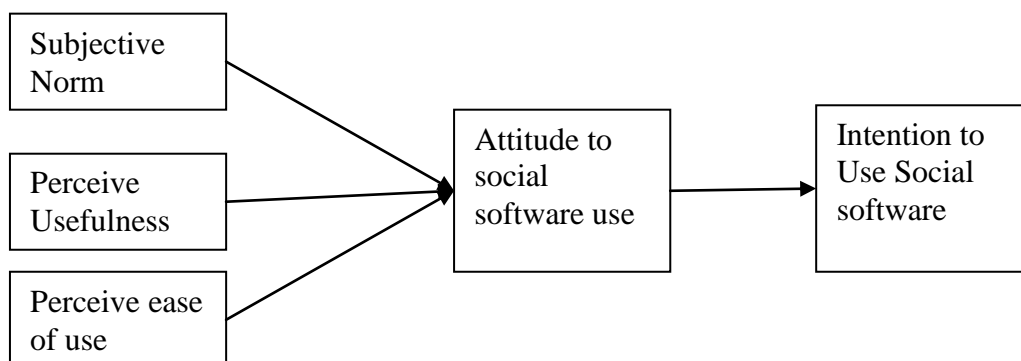


Fig 1: Theoretical Model of Study

Technology Acceptance Model is an information systems theory that models how users come to accept and use a computer based technology. The model was developed by Davis (1986) to explain computer usage behavior. The model suggested that when users are presented with a new software package, a number of factors influence their decision about how and when they will use it (Masrom and Hussein, 2008). Though there are other model that can equally be used to predict and explain why users accept or reject an information system, this model include *Rogers' diffusion of innovations theory* (Rogers' 2003) and *Concerns Based Adoption Model* (Hall, 1979) as well as *Social Influence theory* (Kelman, 1958). However, some of this theories and model appear to be complex, while TAM was simple and robust enough as a model (Venkatesh & Davis, 2000., Ahmad, T. B. T., Basha, K. M., Marzuki, A. M., Hisham, N. A. & Sahari, A, 2010) Therefore, in this study technology acceptance theory was use to explain students' attitude on social software use.

Behavioral Intention

Masrom and Hussein (2008), define behavioral intention as a measure of the strength of one intention to perform a specific behavior especially the use of an information system. Hartshorne and Ajjan (2009), explain that behavioral intention is the most important predictor of actual behavior when the user has form a stable intention to take a specific intention.

Subjective Norm

Subjective norms explain how the behavior of an individual is influence or change based on how other important people to him/her think he/she should behave. Fishbein & Ajzen, (1975) define subjective norm as the person's perception that most people who are important to him think he should or should not perform the behavior in question.

Perceived Usefulness

Perceived usefulness is define as the extent to which an individual feels that the adoption of technology would enhance his/her performance (Davis, 1989). In this study perceived usefulness is define as the extent to which student attitude predict their intention to use social software.

Perceived ease of use

Perceived ease of use is the degree to which an individual believe using a particular system will not pose any difficulty for him/her (Davis, 1989). In this study perceived ease of use is define as the extent to which students behavioral attitude predict their intention to use social software

Review of Literature

Studies has been conducted to understand what influence people to use emerging technology with technology acceptance model developed by (Davies, 1986). The model has been extensively used to predict user acceptance of an information system. According to Davis (1989), technology acceptance model was use to verified that perceived ease of use and perceived usefulness of an information system determine the behavioral intention of the user to use a system. In a study conducted to determine the adoption of an electronic collaboration (e-collaboration) technology, the result of the study shows that perceived ease of use of e-collaboration technology has a positive impact on perceived usefulness. Perceived usefulness has a significant effect on system usage and use of the system positively influences individual performance (Masrom and Hussein, 2008). In another study conducted by Ndubisi and Jantan (2003), using technology acceptance model to evaluate information system usage in Malaysia small and medium sized firms. The findings of this study confirm what the earlier finding of Masrom and Hussein reported on what determine the adoption of electronic collaboration, except that the study show that usage of information system by Malaysian firms is driven directly by perception of the system's usefulness, acquired computing skills and technical backing provided by system designers or vendor and indirectly by ease of use. In a study of adoption of technology conducted by Rogers (2003), the finding shows that the higher the perceived usefulness, ease of use, and compatibility, the more positive the attitude toward using technology is expected to be. Hartshorne and Ajjan (2009), examining student decision to adopt web 2.0 technology: theory and empirical tests, the findings revealed that behavioral intention was a strong determinant of actual behavior or usage of web 2.0. The result also revealed that perceived usefulness, ease of use, and compatibility of web 2.0 are key determinants of subject's attitude to use web 2.0 technologies.

Research Questions:

The study is design to answer the following questions:

1. What are the factors that strongly predict students' attitude and intention to use social software?
2. Does the data fit the model of this study?
3. Does the structural equation model invariant across gender?

Based on the above questions the following hypotheses were postulated

Research Hypotheses:

1. Perceived usefulness will strongly predict students' attitude to use social software
2. Subjective norm will strongly predict students' attitude to use social software
3. Perceived ease of use will strongly predict students' attitude to use social software
4. Students attitude will strongly predict their intention to use social software
5. The structural equation model will be invariance across the gender

Research Methodology

The study investigates student's attitude and their intention to social software use, in higher institution of learning. A survey study was conducted, which involved students from various faculties at one of the public university in Malaysia. Purposive sampling technique was used to determine the sample size used for the study. The sample included the undergraduate and postgraduate students. A total of 92 male students (61%) and 58 female students representing (39%) participated

in the study. One hundred and twenty five undergraduate (83%) and twenty-five postgraduate (17%) from various faculties of the university were used as sample for the study. On the respondent age, students within the age range of 19-24 years representing 83% and those within the age range of 25 years and above (17%) were the respondents of the study. Two hundred questionnaires were administered and one hundred and fifty one representing 76% were returned and found to be useable for the study. The items in the questionnaires were divided into five parts. The first part demands for student's demography data and the second to the last part were items that try to understand student attitudes, behavioral intention, subjective norm, perceived usefulness and perceived ease of use. In all, twenty-one (21) items construct were use. The items were adapted from Masrom and Hussein (2008) book on user acceptance of information technology. The items were modified for the present study. Two experts in measurement and evaluation and instructional technology field carry out face validity of the items. The construct validity of the research instrument was examined with factor analysis, the KMO was .865, the total variance explains was 70.3% and the total reliability was 0.81, the reliability was determined with values of Cronbach's alpha. The factor analysis revealed that the items were clustered and the Cronbach's alpha obtain on all the items were 0.87, 0.77, 0.86, 0.70, and 0.88 for attitude, subjective norm, behavioral intention, perceived usefulness and perceived ease of use respectively. On the frequency of use of social software, ninety percent (90%) indicated to use over two hours in a day on social software, while the remaining ten percent (10%) indicated to use one hour or less at least every day on social software. All demographic response were subjected to descriptive analysis, structural equation model was used to analyzed the hypotheses postulated for the study and to determined if the data collected fit the model of the study. The reliability coefficients and the respondent profile are illustrated in Table1&2 below.

Table 1:. Cronbach Alpha Reliability Coefficients

Construct (Items)	Cronbach Alpha
Attitude (4)	0.87
Subjective norm (5)	0.77
Behavioral Intention (4)	0.86

Perceived Usefulness (5)	0.70
Perceived Ease of Use (3)	0.88
Overall (21)	0.90

Table 2: Profile of the respondents

			%
Gender	Female:	58	39
	Male:	92	61
Levels of Study	Undergraduate:	125	83
	Postgraduate:	25	17
Age of Respondents	19-24 Years		83
	25 Years above		17
Frequency of use of Social software	2 Hours and above		90
	1 Hour and less		10

Table 3: Measurement of the variable of the research model

Measure	Mean	Std.	Alpha
ATT1: I like to use social software	4.14	.91	.87
ATT2: I feel that connecting with friends and schoolmates through social software is good	4.24	.88	
ATT3: I like to engage myself with friends and people on social software	3.88	.99	
ATT4: I think it is good to subscribe to social software to connect and interact with people	4.05	.91	
SNR1: Most people who are important to me expect me to use social software	3.66	.98	.77
SNR2: Most of my friends believe using social software is a wise decision	3.75	.84	
SNR3: Most people who are important to me expect me to interact with them on social software	3.54	.95	
SNR4: Most of my classmates believe that using social software to share ideas will enhance our academic knowledge	3.57	1.09	
SNR5: Most of my classmates believe that using social software to	3.50	1.08	.86

	share ideas meant that one is sociable			
	BHI1: I intend to use social software frequently to interact with friends and other people	3.82	.89	
	BHI2: I intend to know more friends with social software	3.65	1.11	
	BHI3: I will continue to use social software because of its benefits	3.91	.78	
	BHI4: I would recommend social software to my friends and classmates	3.91	.87	
1	PEU1: Social software will enable me to connect with all my old friends	4.08	.92	.69
	PEU2: Social software will improve my writing skill	3.36	1.14	
	PEU3: Social software will enable me to make new friends	3.85	.86	
	PEU4: Social software will enable me to share my thoughts and ideas with my friends and other people	4.08	.76	
	PEU5: Social software will improve my social skill	3.92	.80	
	POU1: I find social software easy to use	4.04	.76	.88
	POU2: It is easy to navigate on social software window	4.05	.74	
	POU3: It is easy to post my profile on the net with social software	4.02	.81	

Measurement model

Both convergent and discriminant validity were examined. Convergent validity is the degree to which all the items converge on a specific component, in doing this, composite reliability and the average variance explain were computed. Discriminant validity is the degree to which measure of two constructs are empirically distinct (Bagozzi et al. 1990, Shen et al 2009). According to Hair et al (1998) a composite reliability of 0.70 or above and an average variance extracted of more than 0.50 are deem acceptable (Fornell and larcker 1981). The normality of the items was also examined to ascertain if they were normally distributed with skewness and kurtosis statistic. As it is shown in Table 4 and 5 below, all constructs exhibit satisfactorily discriminant and convergent validity.

Table 4: Mean, Standard deviation and Normal distribution of selected variables

Items	Mean Statistic	Standard Statistic	Skewness Statistic	Kurtosis Statistic
Att 1	4.13	.914	-1.222	1.668

Att 2	4.24	.885	-1.600	3.347
Att 3	3.87	-.995	-.936	.729
Att 4	4.05	-.908	-1.352	2.558
Snr 1	3.66	.979	-.486	-.029
Snr 2	3.75	.840	-.944	1.378
Snr 3	3.54	.957	-.679	.385
Pou 1	4.05	.764	-.726	.617
Pou 2	4.05	.751	-.459	-.072
Pou 3	4.02	.812	-.945	1.671
Bhi 1	3.81	.897	-.802	.547
Bhi 2	3.66	1.113	-.563	-.444
Bhi 3	3.92	.788	-.522	.085
Peu 1	3.85	.867	-.645	-.051
Peu 2	4.09	.769	-.963	1.730

Note that the following items Snr 4, Bhi 4, Peu 1, and Peu 2 have been excluded for the final structural equation model due to high modification

Table 5: Convergent and Discriminant Validity

Items	FL	AVE	CR
Att 2	0.863		
Att 4	0.839		
Att 1	0.792		
Att 3	0.776	0.677	.874
Snr 2	0.870		
Snr 3	0.858		
Snr 1	0.725	0.673	.788
Pou 3	0.862		
Pou 2	0.829		
Pou 1	0.807	0.694	.870
Bhi 2	0.853		
Bhi 1	0.725		
Bhi 3	0.647	0.558	.856

Peu 4	0.788		
Peu 23	0.683	0.544	.715

Note= P<0.01,FL: Factor loading extracted with PCA using direct Obliming, CR: Composite Reliability, AVE: Average variance explain Both CR and AVE have satisfied the rule of thumb that required CR to be above 0.70 and AVE to be above 0.50 (Fornell and larcker 1981).

Adequacy of the casual structure of the model

Below is the summary of the result of structural equation model of the study. The confirmatory modeling was consistent with the data collected from the study. RMSEA=.078: ILI= .928; CFI=.927; P=000. All the measures are within the acceptable values indicating good model fit (Arbucke & Wothke, 1999; Byrne, 2001; Bollen, 1989; Masrom & Hussein, 2008). The good fit of the model provide answer to the second question of the study.

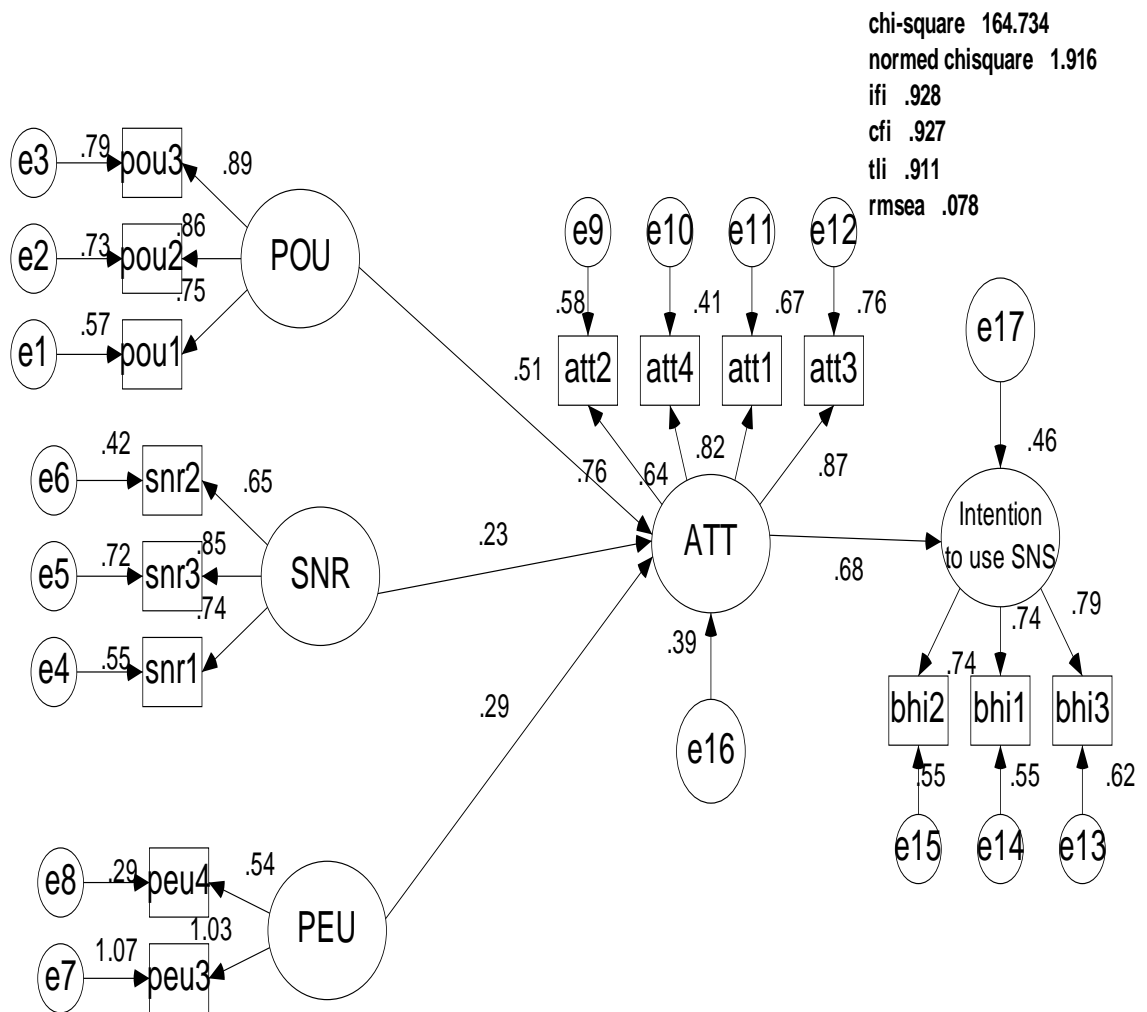


Figure 1: Standardized coefficients of the hypothesized model of study

The result supported all the hypotheses of the study. Perceived usefulness was found to predicted student attitude ($\beta=0.29$, $p<0.05$). Subjective norm positively predicted student attitude ($\beta= 0.23$, $p<0.05$). And perceived ease of use also predicted students attitude ($\beta=0.51$, $p<0.05$). Lastly, students attitude was found to be the stronger predictor of students intention to use social software ($\beta=0.68$, $p<0.001$). The combine effect of perceive ease of use, subjective norm, and perceive usefulness on attitude to social networking use is 0.39%, while the total combine effect on intention to use social networking software is 0.46%. In summary, all the hypotheses of the study were adequately supported. However, perceived usefulness positively predict students’ attitude to use social software than student’s subjective norm and the perceived ease of use of SNS

Standardized Regression Weights: (Group number 1 - Default model)

			estimate
ATT	<---	POU	.506
ATT	<---	SNR	.227
ATT	<---	PEU	.288
Intention_to use SNS	<---	ATT	.676
pou1	<---	POU	.753
pou2	<---	POU	.856
pou3	<---	POU	<u>.889</u>
snr1	<---	SNR	.739
snr3	<---	SNR	.849
snr2	<---	SNR	.650
peu3	<---	PEU	1.034
peu4	<---	PEU	.542
att2	<---	ATT	.765
att4	<---	ATT	.642
att1	<---	ATT	.819
att3	<---	ATT	.870
bhi3	<---	Intention_to use SNS	.789
bhi1	<---	Intention_to use SNS	.740
bhi2	<---	Intention_to use SNS	.743

Testing for structural invariance across the gender of study

To test for invariance across the sample of this study, the structural model was estimated simultaneously across male and female without any constraint.

In accomplishing this, separate structural path were estimated for each group and from which the goodness indices of each group were observed based on the baseline set in (fig 2). The sample used involved (n1=92) male and (n2= 58) female. For both group the goodness fit indices were statistically significant, though there is slight change in value for the two groups. The goodness fit indices for male group revealed Chi-square value of 183.251, RMSEA=.082, IFI=.915, CFI=.901 (fig,3), while the fit indices for female revealed Chi-square value of 188.088, RMSEA=.085, IFI=.910,

CFI=.909 (fig,4) respectively. However, the non-equivalent of the pattern of factor loading could be traced to non-equivalent of the sample of the two groups, as it was noted that the path analysis of the two groups was found to be almost the same in term of strength. In conclusion, the visual inspection showed that the hypothesized model were equally in term of fit for the two groups with insignificant difference in structural path where the male group has higher value than the female group in regression path. In conclusion, taking into cognizance the different in sample size between the two groups as reflected in the final value the finding indicated that the hypothesized model similarly fit the two groups, the good-of-fit of the two group was encouraging, because it met the threshold of .90 (Saahari, Hisham, Suryani & Marzuki, 2004).

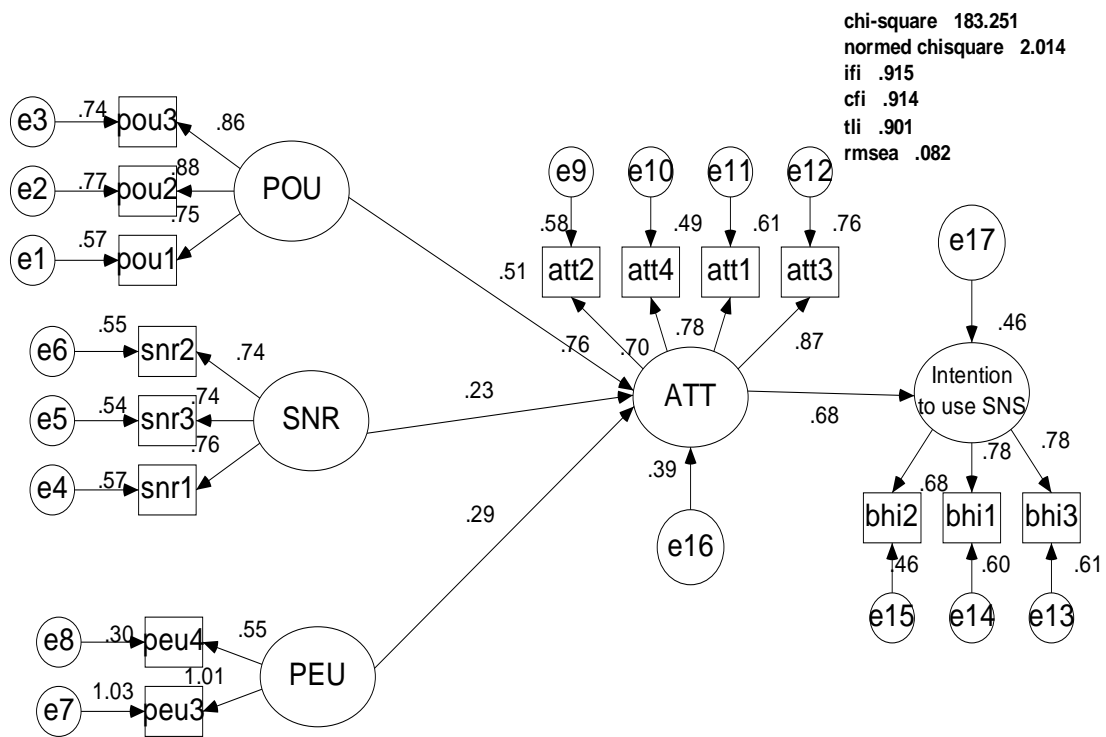


Fig 3: Standardized coefficients of the hypothesized model of study male Group

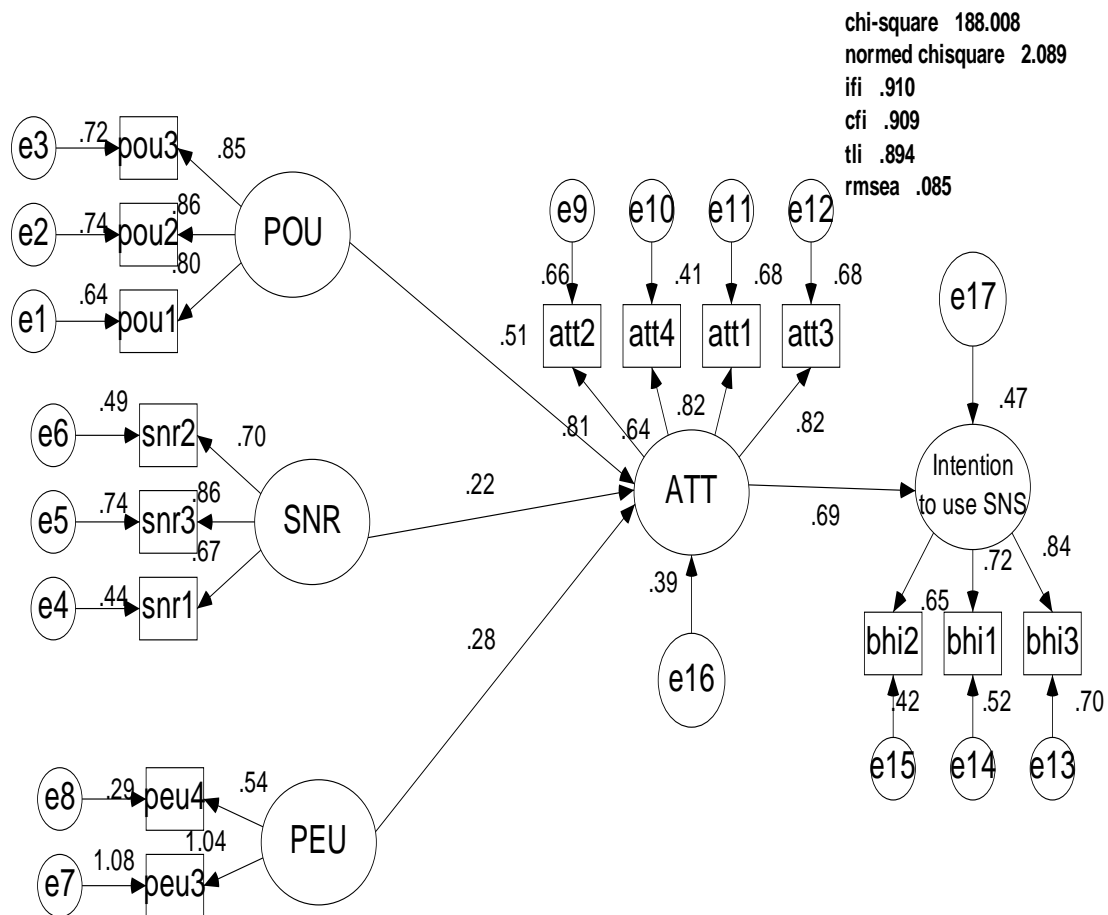


Fig 4: Standardized coefficients of the hypothesized model of study Female Group

Discussion

The findings from the present study on students' attitude to social software usage have made a confirmatory revelation to previous study that has similar bearing to technology use and adoption. This study revealed that perceive ease of use is the stronger predictor of student attitude to the use of social software than perceived usefulness and subjective norms, while student attitude was stronger in determining intention to use SNS. This finding confirm the finding of Davis (1989), which asserted that perceived ease of use of a system has an effect on its perceived usefulness and the behavioural intention of the users. The finding also concord with Hartshorne & Ajjan (2009), findings of student decision to adopt web 2.0 technology that perceived usefulness, ease of use, and compatibility are important predictor to student's attitude to use web 2.0. The present finding shows that attitude is the strong predictor of student's use of social software, the finding was in agreement with

Hartshorne and Ajjan finding, which conclude that attitude is the strongest determinant of student behavioural intention to the use of web 2.0.

Conclusion and Recommendation

The findings from the survey of students' attitude on the use of social software has once again shed light to the reasons that people advance for their use of technology. The study has a practical implication to educators and system developers. The study have not been able to explore all the issues that borders on social software usage by students in higher institutions of learning, while the study is just one among several study that can be conducted to explain the rational for student acceptance of the use of social software. In the light of this, there are other expected areas of study, which this present study does not cover. This includes area like probing to know what benefit can the student put it use to aside mere interaction. Investigating faculty perception on the need to integrate the use of social software for instructional delivery purposes is an imperative study to conduct; examining of demographic data, such as student age, gender, and other variables information like student academic performance (CGP); and the effect of hour of use of social software on student general performance. Future study should also address effective method of using the social software to support student learning. In the mean time, this study has contributed in determine the factors that influence students attitude to social software use. This is a step in acknowledging the ubiquitous of a medium that attract much of student attention aside their study. Coming up with a way of taking advantage of this software to support learning will serve the entire education system a positive gain than allow it to take advantage of our student since they have choose to make it a medium of interaction among themselves.

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