



UNDERSTANDING THE ACADEMIC USE OF SOCIAL MEDIA: INTEGRATION OF PERSONALITY WITH TAM

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ABSTRACT

The emergence of Web 2.0 applications has changed the entire landscape of information sharing and empowering every individual to create, access and sharing information through its multiple channels. These applications are generally known as social media or social web and considerably popular among student which assists them in achieving of effective learning. However, students consider this platform as a source of entertainment and use it considerably for their social interactions. This attitude of students has revolutionized these channels into a source of distraction, which diverts their attention from learning and academic achievements. Previous research mainly highlighted its importance to different aspects of human communication and students' academic performance. Anyhow, less effort has been made to understand student academic use of social media and find factors that can improve student online connectivity for academic purposes and to avoid distraction. The purpose of the current study is to understand the student's use of social media for academic purposes, which is the basic step in reducing students' online distraction by integrating their psychological characteristics and beliefs. Data for the current research was collected through a survey from undergraduate students of top five ranking research universities Malaysia. The collected data analyzed with help of SPSS Amos (Version-20) by applying structural equation modeling (SEM) techniques. Technology Acceptance Models [1] and Five Factor Model of personality [2] were used as a theoretical approach, our finding shows that information quality is the most important factor in acceptance of social media for academic purposes. Furthermore, study limitation and future direction are also discussed.

Keywords: *Social media, TAM, Personality, Online Learning, Models Integration*

1. INTRODUCTION

ICT innovations have substantially changed the way people communicate and provided unlimited opportunities for the people to create, interact and share information online [3]. Social media is a new form of communication [4], which is primarily used to share information, bridging communities and transform learning [5] [6] and [7]. There are 3.038 billion active Internet users around the world with 2.126 billion social media penetration while in the context of Malaysia where 66% of population have Internet facility with 56% social media penetration [8]. These statistics are quite distinctive within the context of USA where 92% young go online in their daily life without the help of different electronic devices [9]. Social media are web 2.0 based applications that include of collaborative projects, blogs, content communities, social networking sites and virtual world [10], that

provide highly interactive platforms [11] [12] and [13]. These applications are considerably popular among the generations of Internet users, particularly students and facilitate them in collective learning. This collaborative nature

of social media applications helps students to achieve better academic performance [14].

However, student's uses of these applications are low for academic purposes, which distract them from their effective learning [15] [16] [17] [18] and [19] This platform enhances engagement that promotes student learning [20] which need to encourage them [15]. The rapid growths of ICT are reducing technical hurdles, making applications more advances and feasible economically. Technology acceptance model is considerably popular to predict user acceptance



towards a technology [1] [21] [22] [23] and [13]. Even though, sometimes unsuccessful in predicting the desired behavior even the individuals are high intended and this because of user's personality [24]. User psychological characteristics are very important to understand their online sociability [25] and [3] because human behavior is frequently described through unfair determinism, where behavior is portrayed through internal disposition or through environmental influences [26]. Furthermore, combining personality into the present technology acceptance model would be a useful first step [27]. In order to understand student's use of social media for academic purposes, the current study combined personal characteristic and beliefs in the form of external factors by integrating personality characteristics with the technology acceptance model. The current research is conducted to understand student's use of social media and find factors that can improve their online connectivity for academic purposes.

2. RELATED WORK

Communication is the fundamental necessity of human beings to long stay together in groups and forming communities. Social media is a form of electronic communication link's people effectively with each other [4]. This media consists of a number of online applications, which primarily used to share information with broad range audience. It allows individual, companies, organizations, and government to interact with large widespread population by bridging communities and to transform learning [5] [6] and [7]. These applications consist of variety of communication channels [10] provide highly interactive platforms [11] and [12] and popular among all generations of Internet users [28]. Social media is one of the remarkable technologies among all human inventions [29], and event declared social media as a person of the year in 2006 [30]. Social media is an important part of today culture and helps in producing, distribution and democratization of information [31] [7] [32] and [12].

Students use social media applications in their daily life, which enhance their engagement and help them to access course contents [15]. These applications support student learning that lead to innovations [33] and enhances learning by allowing students to exchange ideas, through interaction, collaboration and discussion [16] [17] and [34]. The acceptances of social media

applications in institutions of higher education are related to accessing of high-quality learning resources, supporting students in finding communication channels, information sources and participation [12]. Social media applications support learning and providing the communication opportunities among students and teachers [32] and [12]. The institutions of higher educations have admitted the potential of these social sites in education, and the trends of these applications are increasing in higher education [31].

However, the extensive use of this social platform can distract students from their learning [15] [16] and [17]). The uses of social media applications are low in academic practice [15] because using these applications can develop multitasking behavior, which has a negative effect on student in terms of their study time, learning outcomes and lower GPA [35]). Students think social media applications as a source of social interaction and entertainment [18]. They use these applications for their social purposes, mainly than academic [19]. Social media applications are widely used among students [20], there are both positive and negative effects with the widespread use of social media [34]. These sites enhance student's engagement, which is an important step for collaborative learning [20] and needs to explore new ways to promote their positive engagement and encourage student's active use of social media for academic purposes [15] and [22].

3. LITERATURE REVIEW

3.1 Percieved Usefulness

Perceived usefulness is the core construct of the technology acceptance models. It is an individual belief that using a particular information system will increase their performance [1] [36] and [37]. Perceived usefulness positively affects technology acceptance and incorporated in unified theory of acceptance and technology use under the name of performance expectancy [21]. Perceived usefulness is an important predictor to adoption of WWW system [38] it has a positive effect on attitude to use Google application for learning [22] and has positive influence on intention to use Web 2.0 websites [23] and [32]. Perceived usefulness is a belief which has a positive effect on intention, if a user believes that using these applications can enhance their performance; they will be more intended [13].

The interactive nature of social media has changed the audience to active users to engage in community. Perceived usefulness is positively affect intention to use social media [39]. However, [40] was found it insignificant in the context of e-learning. Based on the previous literature, therefore, the following hypothesis:

H1: There is a positive relationship between perceived usefulness and intention to use social media for academic purposes.

2.2 Information Quality

Information quality is also recognized as content quality, which means fitness of data and information to use [41] and [42]. Information systems are including of different features, and its successfulness depends upon the certain quality factors. Information quality is the output produced by an information system, and generally evaluated in terms of scope, relevancy, accuracy and timeline [43] and [44]. Social media is a new form of communication and help to share user generated contents. Its users are diverse and consist of people from differing backgrounds, expertise, beliefs, motivations and geographical locations, which result; the quality of UGC varies drastically within range from excellent to abuse and spam [41]. However, finding relevant and quality information is a great challenge [42]. The advent of Web 2.0 platform opened a new opportunity for education. Social media facilitate in online learning and the future of e-learning is social learning [45]. Information quality is a significant predictor in e-learning [46] and [47] and positively affects' user intention [48]). Information professionals are improving information quality of social media. Tools and services are required integrate towards information empowerment that will help students navigate proficiently across collections and platforms [49]. Therefore, based on the previous literature the following hypothesis is proposed:

H2: There is a positive relationship between information quality and intention to use social media for academic purposes.

2.3 Openess To Experience

According to [50] openness to experience is a personality trait that refers to an individual acceptance to learn novelty and change. Those individuals who are high in this trait are curious, intelligent and more inclined to try new things

[51] [52] [53] [54] [27] [3] [25] and [55]. Individuals high in the trait of openness to experience are the heaviest user of social media [25] because of newness of this platform [52]. The use of social media site's increases with the increase in the level of education, individual high in the disposition of openness to experience have positive behavior towards these applications [3] and have positive attitude towards online sociability [51]. However, Tan & Yang found openness to experience with limited impact on application usage [55] while [53] found openness to experience in negative impact with Facebook and positive with twitter and not linked with behavior to disclose self-information online [54]. Based on the previous literature; therefore, the following hypothesis is proposed:

H3: There is a positive relationship between openness to experience and intention to use social media for academic purposes.

2.4 Conscientious

According to [50] conscientiousness is a personality characteristic that refers to individuals who are rule-following, responsible, dependable, detail-oriented, achievement-oriented, like to plan ahead, thorough and persistent. Conscientiousness is a tendency to plan ahead and be diligent and fair [56] [51] [57] [53] [54]; [3] and [55]. The use of social media site's increases with the increase in the level of education, individual high in the disposition of conscientiousness have positive behavior through the use social media [3]. Personality traits and Internet application usage depends upon the characteristics of the applications and generally found to be the heaviest users of online social applications [55]. They have more friends online as compared to individuals low in this domain [57] and avoid using Facebook, however, found to the heaviest use of the twitter [53] and [51]. Conscientiousness people are highly careful, and this behavior of them can see even online. They remain very careful to disclose self-information online [54]. Based on the previous literature; therefore, the following hypothesis is proposed:

H4: There is a positive relationship between conscientiousness and intention to use social media for academic purposes.

4. THEORETICAL FRAMEWORK

This research is based on the technology acceptance model (TAM) and five-factor model of personality (FFM). Technology acceptance model was developed from the theory of reasoned action as a specific way to model user's acceptance or rejection of an information system and describe their behavior towards computer usage. Technology Acceptance Model is basically developed to determine wide-range acceptance to computer technologies (Davis 1989). The theory of reasoned action (TRA) by Fishbein & Ajzen's (1975) and Ajzen's & Fishbein (1980) is widely used for explaining and predicting behavior. TRA assumed that an individual actual behavior is controlled, regulate and direct through their behavioral intention. The motives behind the technology acceptance model were actually that TRA was general in nature and widely applied to predict behavior while TAM is less general and can be applied only for information system or compute usage behavior [1]. Trait approach is important to describe human behavior, because trait approach identified the wide range of behavior, took any given person and placed him or her somewhere along the continuum, we can easily make comparisons across people, provide only a direction for how to change people and more likely to be academic researchers than practicing therapists [58] and [59]. According to the mode, all human personality can be summarized into five broad dimensions regardless of language and culture and describe human personality. The theory based on the big five factors is called the FFM, and these domains are known as openness, conscientiousness, extraversion, agreeableness, and neuroticism [58] and [59].

5. STUDY FRAMEWORK

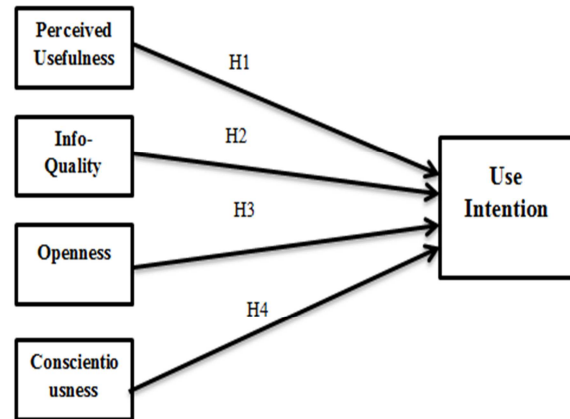


Figure 1: Conceptual Model

6. METHODOLOGY

Data for the current research was collected through a self-administered survey questionnaire form undergraduate students of top ranking five research universities Malaysia. These universities include University Malaya (UM), University Technology Malaysia (UTM), University Sains Malaysia (USM), University Putra Malaysia (UPM) and University Kebangsaan Malaysia (UKM) by using stratified random sampling technique. In addition to demographic characteristics, the questionnaire was consisting of 27 items. Perceived usefulness was measured through six items adapted from [38] [14] and [22] based on [1]. Information quality was measured through six items adapted from [47] and [46]. The personality Characteristics such as openness to experience and conscientiousness was measured by ten and nine items adopted from John and Srivastava (1999) while behavioral intention was measured through six items adapted from [14] and [22] based on [1]. A five-point Likert scale was used from strongly disagree 1 to strongly agree 5. The collected data was analyzed with help of SPSS AMOS version 20 by exercising the statistical techniques of structural equation modeling (SEM).



7. RESULT AND DISCUSSION

7.1 Descriptive Statistics

A total of 461 responses were received among which 388 were included for analysis. The respondent includes of 52.8% male, and 47.2% were female. The data was collected from undergraduate students were 33.5% participants of the survey belong to the age group in the middle of 19 to 20 years. 57.0% participants belong to the age group between 21 to 22 and 9.5% of the participants belong to the age group between 23 to 24 years. Malaysia population is consisting of different ethnic groups, particularly, Malay, Chinese and Indian. The current study reveals ethnic information, where 48.2% participants were Malay, 27.1% respondents were Chinese. 16.5% respondents were Indians, and 32.8% participant were belonging to different international community. Details of demographics information are tabulated in the table one below.

Table 1: Demographic characteristics of the respondents

Variable	Category	Frequency	Percentage
Gender	Male	205	52.8
	Female	183	47.2
Age	19-20	130	33.5

	21-22	221	57.0
	23-24	37	9.5
Ethnicity	Malay	186	48.2
	Chinese	105	27.1
	Indian	64	16.5
	International	32	8.2

7.2 Model Assessment

Structural Equation Modeling (SEM) was employed to test the conceptual model in our research. SEM consists of measurement model and the structural model. However, [60] mentioned that model assessment can be achieved by three approaches: the exploratory factor analysis (EFA) approach, the confirmatory factor analysis (CFA) approach and the hybrid approach. EFA and CFA are different from each other [61] and have importance on their own place. In hybrid approach combines both approaches by starts with EFA and proceeds with CFA for its multiple advantages [60]. In the current study, the hybrid approach was employed. Initially, EFA was performed on the data set to understand the underlined structure and relationship between the variable. Table 2 as shown below represents factor loading from the final rotated component matrix.

Table 2: Rotated Component Matrix (Exploratory Factor Analysis)

	Component 1	Component 2	Component 3	Component 4	Component 5
OPN3	.845				
OPN4	.840				
OPN1	.839				
OPN2	.838				
OPN5	.803				
OPN6	.731				
IQ4		.845			
IQ2		.839			
IQ3		.836			
IQ1		.833			
IQ6		.829			
IQ5		.817			
PU6			.765		
PU5			.762		
PU3			.749		
PU1			.745		
PU4			.742		
PU2			.742		
INT4				.734	
INT6				.731	
INT2				.717	
INT5				.658	
INT3				.652	

INT1				.643	
CON6					.891
CON1					.889
CON3					.878
CON7					.735
CON5					.428

Extraction Method: Principal Component Analysis

7.3 Measurement Model

The initial model produced has χ^2/df above 5, GFI and CFI below the threshold value of .950. However, this recommended that if the Standardized regression weights (S.R.W) values should be above 0.5, Squared multiple correlations (SMCs) should be above the cut off value of 0.5 and standardized residual covariance's (S.R.C) should be above 2.58 or below - 2.58, then the model can be refined [62] and [61]. The following criteria were applied by covariate

and deleting some items sharing high regression weight and high standardized residual covariance. The results from the final CFA were $\chi^2/df = 1.947$; $p = 0.000$; GFI = 0.915, NFI = 0.939; IFI = 0.969; TLI = 0.964; CFI = 0.969; RMSEA = 0.050 as tabulated below suggest that the measurement model is a good fit to the data collected. The table also mentioned constructs internal consistency, the average variance extracted and composite reliability for every construct.

Table 3: Internal Consistency and Convergent validity of the construct measures

Variable	indicators	Factor Loading	Composite Reliability	AVE
Perceived Usefulness	PU1	.72***	0.844	0.520
	PU2	.70***		
	PU3	.77***		
	PU5	.72***		
	PU6	.70***		
Information Quality	IQ2	.84***	0.907	0.709
	IQ3	.86***		
	IQ4	.85***		
	IQ6	.82***		
Use Intention	UI1	.88***	0.933	0.737
	UI2	.87***		
	UI3	.86***		
	UI4	.81***		
	UI5	.87***		
Openness to experience	OPN1	.86***	0.918	0.692
	OPN2	.84***		
	OPN3	.88***		
	OPN4	.81***		
	OPN5	.75***		
Conscientiousness	CON1	.87***	0.920	0.741
	CON2	.90***		
	CON3	.87***		
	CON4	.81***		



The value of AVE for each construct was above the threshold of 0.50 indicates sufficient convergent validity. The Composite Reliability for every construct was higher than 0.80 suggest higher reliability and convergent validity for the measures. For reliability analysis, the Cronbach's Alpha values were calculated for each construct. Alpha values were ranging from 0.857 to 0.922 indicate that high overall internal consistency among the items under each of the constructs.

Table 4: Reliability Analysis results

Constructs	Cronbach's alpha
Perceived Usefulness	0.857
Information Quality	0.881
Openness to Experience	0.918
Conscientiousness	0.901
Use Intention	0.922

Discriminant validity was identified by comparing the AVE with the shared variance of each construct. The AVE of constructs with the square of the correlation estimate extracted was found higher than the squared correlation these founding suggest adequate discriminant validity. The overall measurement model exhibited

sufficient reliability, convergent validity and discriminant validity.

Table 5: Square correlation among the construct measures

	CON	PU	IQ	OPN	UI
CON	0.861				
PU	0.202	0.721			
IQ	0.201	0.263	0.842		
OPN	0.214	0.282	0.270	0.832	
UI	0.390	0.451	0.616	0.506	0.858

7.4 Structural Model

In the second step of structural equation modeling (SEM) structure modeling techniques was applied via AMOS 20 programs. In structure model hypothesis o the proposed model was checked. Finding from the current run displays good fits were $\chi^2/df = 1.047$, $p = 0.000$; $GF I = 0.915$, $NFI = 0.939$; $RFI = 0.929$; $IFI = 0.969$, $TLI = 0.964$; $CFI = 0.969$ and $RMSEA = 0.050$. The overall estimates provide empirical support for the four hypotheses proposed. Results of the hypotheses tested are given as Table 6.

Hypothesis	Path	Standardized Path Coefficient	P level	Hypothesis Supported?
H1	PU → UI	0.214	0.000	Yes
H2	IQ → UI	0.444	0.000	Yes
H2	OPN → UI	0.284	0.000	Yes
H2	CON → UI	0.197	0.200	Yes

Table 6: SEM Hypothesis Testing Results

The main objectives of the current study are to understand students' academic use of social media by integrating personal characteristics such as personality and beliefs from the technology acceptance model. The framework consists of four hypotheses and set out to meet the desired objective. Data was analyzed with SPSS Amos's version 20. Perceived usefulness is the core construct of the technology acceptance model [1] and [21]. Perceived usefulness is an individual belief that using a particular system will improve his or efficiency. The output generated shows that perceived usefulness is significantly influences the intention to use social media for academic

purposes where ($\beta=0.214$, $CR=5.081$ and $p = .000$). These findings from the current study are similar to the findings of [38] [22] ; [23] [32] [13] and [39]. Information quality is also known as content quality and generally defined as fitness of data and information to use [41]. The emergence of Web 2.0 platform has opened new opportunity in education and the future of e-learning is social learning [45]. In the ongoing study Information quality is significantly influences the intention to social media for academic purposes where ($\beta=0.444$, $CR=11.359$ and $p = .000$). These findings are similar to the findings of [46] [47] and [48]. Openness to experience is a personality characteristic refers



to an individual acceptance to learn novelty and change. Individuals high in this trait are curious, intelligent and more inclined to try new things [50]. The emergence of the Internet and the increase of people online connectivity are required to know user's psychological characteristics such as their personality [25]. Findings from the he current study reveals that openness to experience is significantly influences the intention to use social media for academic purposes where ($\beta=.284$, $CR=7.113$ and $p = .000$). These findings are similar to the findings of [25] [52] and [3]. Conscientiousness is a personality a characteristic refers to individuals who are responsible, rule-following, and achievement- oriented. Individuals high in this trait are careful and plan ahead [50]. Conscientiousness is an important factor for user's online engagement [55] and [3]. Findings from the he current study reveals that openness to experience is significantly influences the intention to use social media for academic purposes where ($\beta=.197$, $CR=5.294$ and $p = .000$). These findings are similar to the findings of [3] [55] and [57]. The squared multiple correlation estimations show that this proposed model explained 59.1 percent of variance towards the independent variables.

8. CONCLUSION

The emergence of Web 2.0 based applications have opened new opportunity in education and the future of e-learning is the social learning [45]. However, student's uses of these applications are low for academic purposes, which distract them from their effective learning [15] [16] [17][18] and [19]. This platform enhances engagement that promotes student learning [20] which need to encourage them [15]. Human behavior is frequently described through unfair determinism, where behavior is portrayed through internal disposition or through environmental influences, [26]) while [24] suggest for personality in predicting technology acceptance. This current study integrates some of the influential predictor from these separate thoughts and found to be successful in predicting technology acceptance. UGC is a new form of online contents, and respondents agreed that if information quality is high, it will attract students to use maximum use of social media for learning purposes. Previous research highlighted personal and external characteristics are key determinant with respect to technology acceptance. The current confirmed that perceived

usefulness, information quality, individual openness to experience and conscientiousness are the key predictors to use technology, particularly this new social web for academic purposes. This study collected data from top research universities Malaysia so the results cannot be generalized and suggested for future research with different sample and additional construct to enhance student online connectivity for academic purposes. Furthermore, longitudinal survey, and expert opinion are also suggested for the future research.

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