Social Media in E-Learning: An Empirical Analysis among Students and Academicians

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Abstract— **This study investigated the factors that might affect the use of social media in e-learning, particularly targeting the use of Facebook, Twitter and YouTube. Questionnaire design was based on Push-Pull-Mooring framework, and distributed to students and academicians in local universities (N = 455). Five significant predictors were found, *viz.* E-learning Perception, Convenience, Academic Reasons, Ease of Use and Social Networking. A further analysis revealed younger respondents were more enthusiastic in using social media in e-learning, particularly for Academic Reasons, Social Networking and Ease of Use. The findings indicate that students and academicians are open to the idea of using social media in e-learning, more apparent among the younger ones. It is believed that integration of social media in e-learning will enhance communication and collaboration among students and academicians.**

Keywords-social media; e-learning; student-academician;age;

I. INTRODUCTION

Web 2.0 technologies such as blogs, twitter, social network sites (SNSs) are known to enhance e-learning systems. Today many academicians are using Web 2.0 technologies, drawing upon their ability to assist in creating, collaborating and sharing content. Though Web 2.0 tools are many, SNSs such as Facebook and Twitter remain to be popular. SNSs are "web-based services that allow individuals to create profiles and manage a list of other users with whom they share a connection [1].

The reactions of using SNSs in education are mixed. For example, researchers who explored the use of Facebook in education found majority of the students enjoyed interacting with their educators on Facebook [2] and enjoyed getting references and answers to research-related questions via Facebook [3]. On the other hand, some academicians also fear that SNS tools might compromise and disrupt students' learning as the students might experience anxiety or feel uncomfortable with the idea of having their lecturers on their SNS, issues of privacy and also security [4]. In fact, some academicians also feel that SNSs are more appropriate to be used for socializing and hence, they do not serve an academic purpose [2 and 5].

The current study aims to identify the factors that affect the use of social media in e-learning in tertiary institutions. Additionally, it also aims to assess if age affects the use of social media in e-learning. Therefore, the two main research questions addressed in this paper are:

RQ1: What are the factors that affect the use of social media in e-learning?

RQ2: Does age affect the use of social media in e-learning?

II. SOCIAL MEDIA AND E-LEARNING

Social media became popular with the introduction of Facebook and MySpace. Today Facebook is the most popular SNS, with an approximate number of active members of 800 million. According to [6], at least 46.9% of the Malaysian populace has an active Facebook account and Malaysians also have the highest average number of friends (233) on social sites than any other nation. Facebook provides an avenue for academicians and students to post threaded discussions on academic-related material and activities. These discussions can be initiated by either the academician, or students. In addition, academician and students can also form a network, and thus gain insight into each other's interests and doings. This could foster greater solidarity in the class [7].

Studies have shown students share educational knowledge via Facebook. For instance, 60% of students claimed to use social networks to discuss educational topics, and 50% said they discuss schoolwork matters in [3]. Extreme use of Facebook combined with learner's feeling of social belonging makes them perform better academically. SNS such as Facebook is also believed to help student's social skills, resolve conflicts and improve reading and writing skills [8]. It is also believed that by improving social interactions with and among students using SNSs, academicians can enhance the level of engagement and interaction, and as such create an efficient learning atmosphere [3]. Facebook allow students to glimpse academicians' profiles containing personal information, interests, background, and friends, which can enhance student motivation, affective learning, and teaching environment [9].

Another popular SNS is Twitter, which is a platform used by microbloggers. Twitter is rated top in the 100 most influential e-learning tools in the world with YouTube being in the second position. As of February 2012, Twitter has about 462 million registered users with more than 100 million active users, producing more than 200 million tweets every day and managing over 1.6 billion search queries in a single day [10].

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Twitter allows interactive collaboration and flexibility as it provides the opportunity to be connected to other user's process by discussing, reading, commenting, or improving it [11]. Twitter provides instant feedback, therefore, it can be used as an interface for students to voice their opinions and suggestions related to academic matters [12]. Twitter enables an immense amount of interactivity, enriching the sessions in which it occurs [13]. Another vital role of Twitter is its ability to link to blog posts, spread recent news, links to Facebook, and allows easy interaction [11]. However, studies have also suggested that older academicians might perceive tweeting students as an indication of their distraction from the doings at the front of the room [14]. But millennial students often feel most engaged when they simultaneously receive information of a variety of types from multiple sources.

Finally, YouTube has changed the internet world with its simplification approach of sharing videos. It provides users with flexible and versatile way of getting academic materials on their computers and other devices. According to [6], 51% of Malaysians possessed an active YouTube channel and estimated that at least 80% of Malaysians' internet users stream online video content. Tutorial lectures in a form of video clip can be uploaded on the YouTube channels by academicians for students to watch, share and express their feelings towards its usefulness [15]. YouTube has a key advantage of delivering learning materials in a more convenient way and helps students get engaged from passive to active learning [15].

III. MATERIALS AND METHODS

A. *Push-Pull-Mooring Framework*

Push-Pull-Mooring (PPM) framework refers to the reasons behind people's movement from one location to another. Push factors are the unenthusiastic factors that forces people to look for alternative somewhere whilst pull factors attract people to the new environment. Mooring factors act as the intermediary factors that encourage or delay migration [16]. Table I provides the operational definitions for all the factors used in the study.

TABLE I. OPERATIONAL DEFINITIONS FOR PUSH-PULL-MOORING FACTORS

Factors	Definitions
Dependent variable	
Teaching & Learning Benefit	The academic benefits gained by students and academicians as a result of using social networks tools [9]
Push factors	
E-learning Perception	Students and academicians perceptions on current e-learning platforms used [9].
Pull factors	
Social Influence	Influence of friends, family and academicians in using social networks in e-learning [17 and 18]
Academic Reasons	Extent of which students and academicians understand that using social networks can improve teaching and learning [18 and 19].
Social Networking	The use of social networks to meet friends, family members, academicians and experts [20].
Convenience	The availability of various social networks in providing social and academic needs [15 and 18].
Ease of use	The degree to which an individual agrees that using a particular system would help reduce a lot of effort [21 and 22].
Mooring factors	
Barriers	The limitations that might prevent one from using social networks in e-learning (e.g. lack of awareness and privacy issues) [16].

B. *Questionnaire*

A 47-item questionnaire assessing demographic information and statements related to using social networks in e-learning was used to collect the relevant data among students and academicians in local universities. The final questionnaire exhibited a high level of internal consistency with a Cronbach value of 0.81.

The questionnaire had of four sections. The respondents were asked to provide their demographic details in section one. The rest of the sections focused on statements related to all the push, pull and mooring factors. These statements were measured using a 5-point Likert scale (1= strong disagreement and 5 = strong agreement). There were a total of 39 statements.

The survey data was collected using an electronic sample survey website (Google docs). The link was sent to the target respondents via e-mails and this exercise took approximately 6 weeks to be completed.

C. *Respondents*

As the study revolves around social networks and e-learning in tertiary institutions, convenience sampling was used to seek respondents from universities and colleges in Malaysia, targeting undergraduates, postgraduates and also academicians. A total of 455 valid responses were collected.

D. *Data analysis*

Statistical Package of the Social Sciences (SPSS) 20.0 was used to analyze the data. To be specific, descriptive statistics such as frequency and mean were used to describe the demographic profiles of the respondents. Stepwise multiple regressions were used to identify the significant predictors for using social media in e-learning. Finally, Multivariate Analysis of Variance (MANOVA) was used to assess the effect of age on social media and e-learning usage perceptions.

IV. RESULTS AND DISCUSSION

A. Demographic Profiles

Table II shows the demographic details of the 455 respondents (200 males and 255 females). The majority of the respondents were students (71.4%) and the remaining were academicians (28.6%). Approximately 48% were between 25 - 39 years old, followed by those below 25 years old (43.7%). Only 8.6% were aged more than 40 years old.

TABLE II. DEMOGRAPHIC DETAILS

Demographics	Categories	Frequency (%)
Gender	Female	255 (56.0%)
	Male	200 (44.0%)
Age	18 – 20	107 (23.5%)
	21 – 24	92 (20.2%)
	25 – 30	124 (27.3%)
	31 – 39	93 (20.4%)
	>40	39 (8.6%)
Status	Academician	130 (28.6%)
	Postgraduate	147 (32.3%)
	Undergraduate	178 (39.1%)

B. Teaching and learningbenefit determinants

Stepwise linear regressions were used to identify the significant determinants for Teaching and Learning Benefit based on the push-pull-mooring factors (Table III).

TABLE III. TEACHING AND LEARNING BENEFIT PREDICTORS

Factors	Beta	*t*-test	*p*-value
E-learning Perception	0.021	5.27	0.002[a]
Convenience	0.000	0.98	0.015[a]
Social Influence	0.012	0.52	0.606
Barriers	0.043	1.08	0.068
Academic Reasons	0.898	22.2	0.000[a]
Ease of Use	0.085	1.84	0.047[a]
Social Networking	0.092	2.65	0.039[a]

a. Significant at $p < 0.05$

E-learning Perception, Convenience, Academic Reasons, Ease of Use and Social Networking were found to be significantly associated with Teaching and Learning Benefit. A higher beta weight (0.898) and *t*-statistics (22.2) for Academic Reasons makes it more influential to Teaching and Learning Benefit than the rest of the significant factors. This is in line with other studies that revealed positive use of social media in e-learning. For example, Munoz and Towner [23] reported Facebook provides instructors opportunities and structures by which students can help and support one another, and hence increase both teacher-student and student-student interactions. Moreover, social media also provides an opportunity for students and academicians to connect and collaborate as opposed to traditional classroom setting [3].

The significant results indicate that the majority of the respondents in this study felt positively about using social media in e-learning. Social media improves communication between students and educators, and hence results in a better teaching and learning environment [22]. In addition, SNSs are highly interactive virtual social networks, providing the users easy mechanisms to search and view any interesting items, etc. Today more students are using social media to socialize with their friends, families and even their lecturers. Dissatisfaction towards current E-learning Perception among students and academicians may suggest that social media can be used to provide a better teaching and learning environment. Academic satisfaction alone might not be enough for students, especially those who suffer from isolation. Social media help such students to have a better interaction between peers and academicians.

Overall, the study found that students and academicians are open to the idea of using social media in e-learning, as they believed that this may enhance interaction between peers and academicians, allows collaboration, provides an avenue to easily search and share academic related materials and also to help maintain or build their social networks. In short, the study believes that there is a great potential in using social media network tools to enhance learning through increased connectivity, personalization and opportunities for networking and collaboration.

C. Effect of age

MANOVA was carried out to examine the effect of age on respondents' perceptions on the use of social media in e-learning. The results are reflected in Table IV below:

TABLE IV. EFFECT OF AGE

Factors	F	*p*
e-Learning Perceptions	.559	.911
Convenience	.355	.701
Academic Reasons	10.859	.000 [a]
Ease of Use	8.229	.000 [a]
Social Networking	5.717	.004 [a]

a. Significant at $p < 0.05$

MANOVA revealed age to significantly affect respondents' perceptions on the use of social media in e-learning for Academic Reasons ($p < 0.001$), Ease of Use ($p < 0.001$) and Social Networking ($p = 0.004$). Post-hoc analyses revealed younger users (less than 20 years old) agreed more to the use of social media for Academic Reasons, Ease of Use and Social Networking than older users (more than 30 years old).

Statistics around the world suggest that the majority of social media users are the young generation. Youth are more open to new ideas and technologies, therefore, this probably explains why the younger users felt more positive about using social media in e-learning. In fact, the younger generation today are considered to be digital natives, or sometimes called ‘‘millennial students’’ [14]. These millennial students have been using or involved with computers from the time they were small, and thus they are more comfortable with computer-based collaborations such as those using social media. This pattern was also observed in other studies, for example, older users (more than 50 years old) were found to be more tentative in their use of newer technologies such as Short Message Service (SMS) and Instant Messaging (IM) [24]. Additionally, Pfeiel et al. [25] performed a content analysis of 6,000 profiles on MySpace, and found their younger users to have far more posts with multimedia such as videos or music. Familiarity with social media therefore results in the younger users to be more agreeable towards Ease of Use compared to the older users.

One of the main motives of using social media is for communication, and this pattern is also profound among the younger population who use social media to keep in touch with families and friends [1, 22 and 25]. For instance, it was found that 72% of college students have a social media profile with 45% of college students using an SNS at least once daily to communicate with family, friends, and even strangers. On the other hand, though the older generation is also using social media, however many prefer using emails to communicate with their friends and families [26]. Older prefer to use social media for community support, and they also prefer to communicate in a written form (email) as it gives them more time to construct and think about what they want to write more thoroughly [27]. This supports our results whereby the younger users agreed more to using social media for Social Networking than the older users.

Finally, a significant effect was also found between the respondents for Academic Reasons, with the younger users being more open to the idea of using social media in e-learning than the older users. The older users may not be comfortable with the idea of using social media in teaching, similar with [2] and [5] whereby instructors felt social media should be used for socializing, and not for academic purposes. It is to note that though the significant difference was noted, but the majority of our respondents agreed that using social media in e-learning would provide immense benefit to the overall teaching and learning activities.

V. CONCLUSION

The study investigated the factors that affect the use of social media in e-learning among students and academicians in tertiary institutions. The framework was based on Push-Pull-Mooring model. Responses from 455 students and academicians were elicited via online questionnaire. Linear regression revealed five significant determinants in using social media in e-learning, that is, E-learning Perception, Ease of Use, Convenience, Academic Reasons and Social Networking. Additionally, it was also found that respondents below the age of 20 are more agreeable to using social media in e-learning than those who are more than 30 years old for Academic Reasons, Ease of Use and also Social Networking. It is believed that the findings in this study can be used to promote the use of social media to improve teaching and learning, and also to further enhance communication and collaboration experiences between students and academicians.

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