Applying the Technology Acceptance Model in a Study of the Factors Affecting Intention to Use Facebook in Education of the Thai University Students

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ABSTRACT

Facebook becomes an important part in communication for both social and academic worlds. Teachers may be likely to adopt a technology like Facebook as a way to facilitate communication with students. Students are much more open to the possibility of using Facebook and similar technologies to support their classroom work while instructors are more likely to use "traditional" technologies such as email. The paper concluded that only *perceived computer self-efficacy* was found to be a significant determinant of users 's *attitude towards usage* of Facebook of university students in Thailand. Nevertheless, the researchers did not find relationships between *perspective on Facebook in education, perceived usefulness,* and *perceived ease of use* toward intention to use of the site.

Keywords: Technology Acceptance Model, Facebook, Educational Technology, Thai, Intention to Use

1. INTRODUCTION

Boyd and Ellison explain that social networking sites (SNS) are web-based services that people can create a public or semi-public profile within a bounded system, search for a list of other users with whom they share connection, and view their list of connections and those made by others within the system [25]. Furthermore, SNS would include profiles in which users may present themselves to get in exchange with other users. Profiles commonly include personal information like the user´s name, gender, hometown, group affiliations, interests, occupation, personal statements, favorite music, books or movies [26]. "Whether or not social networking sites (SNS) like Facebook is useful for education?" This

question should still be controversial. Although there are many SNSs such as myspace, Twitter, and Instagram, facebook is the most popular SNS in Thailand [27]. Moreover, the site is one of the latest examples of communications technologies that has been widely-adopted by students and potentially become a valuable resource to support their educational communications and collaborations with instructors. In the US, comparisons of instructor and student responses indicate that students are much more likely than instructors to use Facebook. Most interestingly, students are much more open to the possibility of using Facebook and similar technologies to support their classroom work while instructors are more likely to use "traditional" technologies such as email. Moreover, instructors tend to prohibit classroom uses of technologies that are frequently used by students especially the use of SNS like Facebook [1]. In Malaysia, Facebook (FB) is currently considered as the most popular platform for online social networking among university students. A survey of 300 undergraduate students at Universiti Sains Malaysia (USM), Penang was found that the students believed FB could be utilized as an online the findings on students' willingness to integrate technologies found that "… 54% (of institutions) reported that (teacher) candidates' lack of interest was not at all a barrier, and 41% reported it as a barrier to a minor extent" (p. 11). In sum, students are willing; faculty members are not.

When it comes to the fastest-growing and most popular of the Internet-based technologies especially SNSs such as Facebook with young people, there are several reasons to believe this adoption trend among higher education faculty would be different from the past. One feature of SNSs such as Facebook is that they function primarily as communication tools and instructors may view them as akin to email, a technology in which most of them already use. A great deal of communication between students and teachers about courses already goes on via email. Teachers may be likely to adopt a technology if they perceive it as a way to facilitate communication with students. A second aspect is the social perspective. Teachers who see teaching as establishing a relationship with students may view "Facebook-like technologies as an efficient, even business-like way to accomplish that connection" [5]. Many teachers have their own Facebook pages and actively seek to link with their students. This modeling may help persuade teachers that SNSs of this kind are a practical solution to teachers' need to keep in close contact with students [5].

In Thailand, several researchers conducted research to investigate Facebook using behaviors and their impacts on the lifestyles of people studying at Chiang Mai University. The researchers found that the impacts on the learning performances of the students were 1) having less time for exam preparation, 2) no chance to review any lesson already learned, 3) playing Facebook in classes, 4) an inability to hand in their assignments on time, and 5) failure to do as good work as expected [6]. Last but not least, based on the technology acceptance model (TAM), scarce research has directly examined power relations between TAM and Facebook's intention usage, therefore, this research attempts to explore such a power of prediction of perspective on Facebook in education, perceived usefulness, perceived ease of use, and perceived computer self-efficacy toward intention to use of university students.

environment to facilitate the learning of English. However, teachers or language instructors had to integrate FB as an educational project with predetermined learning objectives and outcomes for the learning experience to be meaningful [2].

Although higher education institutions had a well-established trend toward non-adoption of new technologies, the movement toward hybrid and online instructions has altered this picture in recent years, since most institutions currently offer at least some online courses [3]. Many higher education faculty members remain laggards when it comes to adopting technology innovations. For example, a recent report [4] on educational technology use in teacher education programs by the National Center for Education Statistics in the US concluded that faculty member reluctance remains a major barrier to effective integration of technologies in teacher preparation. Some 73% said faculty members' lack of interest was an impediment; about a quarter said it was a moderate to major issue. On the contrary,

2. LITERATURE REVIEW

SNSs began in 1997 with the launch of SixDegrees.com. The site gave abilities for users to create profiles, listed their Friends and surfed the Friends list [7]. After that time, SNSs have hit the mainstream with a great impact. MySpace and Facebook have become very popular as Vincci Kwong (2007) says, "Both MySpace and Facebook are social networking websites that provide personalized and interactive services based on users' interest and activities on the web" (p.1) [5, 8]. Facebook is one of the most widely-accepted SNSs for college students and was by far the one website that helped "tip" SNSs into the mainstream culture. "MySpace launched in 2003 and built up an audience for the SNSs that followed" [5, 7, 8].

In early 2004, Facebook was created. Mark Zuckerberg started Facebook, while he was a student at Harvard in 2004 at the age of 23. The general concept was to digitize the legendary (Harvard) freshman-year 'facebook,' and allow students not only to look at one another's photos but also to flirt, network, [and] interact. At first,

Facebook.com was limited to college students at Harvard with a university email address. Later, the Facebook phenomenon spread like virus when opened up to all college students. When Facebook opened its doors to people outside the university network, with over 350 million subscribers worldwide (according to Facebook.com statistics retrieved in March, 2010), Facebook, now has a diverse community of users at all levels of education and areas of society, including companies and universities [7, 8].

The growing popularity of SNSs indicates that social communications can become a contributor to successful learning. Interaction in online courses identifying five components (socially designed interaction, instructionally-designed interaction, interactivity affordances of technology, student engagement, and instructor engagement) has been recognized as a key indicator of quality in online courses. The social and interactive nature of SNSs presents "the intriguing possibility that by enhancing social interactions with and among students through the use of an SNS such as Facebook, instructors can increase the overall quality of engagement in a given instructional setting and, thus, create a more effective learning environment. SNSs also provide easily-measured evidence of both student and instructor interaction" [9].

In Thailand, a research showed that the students already knew and used Facebook. Notebooks, netbooks or Ipads were used to access this social network service. Moreover, Facebook was assessed around 1 to 3 times per day on average. Each time took 31 minutes to 1 hour. Totally, it was used 1.01 to 3.00 hours per day. The students began playing Facebook from 06.01 to 08.00 pm until 10.01 to 12.00 pm. The most favorite activities on Facebook done by the students included 1) viewing photos of their friends, 2) chatting with their friends, 3) reading their friends' profiles or messages, 4) writing or changing their statuses, and 5) giving their opinions on others' photos or statements. The impacts on the daily lives of the students were 1) sleeping and waking up later than usual, 2) performing fewer other activities, 3) becoming more isolated, 4) having headaches and body pains from spending too long time continuously playing facebook, and 5) taking less exercise [6]

An extended Information Systems (IS)' theory of the Technology Acceptance Model (TAM) was adopted to explain the mechanism by which social media marketing influenced attitudes toward Facebook event pages. Several researchers found that users' emotions exhibited on the Facebook event page did have a significant impact on the perceived usefulness and perceived ease of use, and perceived enjoyment of such social media marketing. However, only the last construct significantly influences users' attitudes and intentions toward an event. Implications and insights were provided to event practitioners and were discussed accordingly [10].

To understand event fans' acceptance process of Facebook event page, several authors identified the TAM [11] as the theoretical foundation. It is a widely used theoretical model to explain potential users' behavioral intentions to access a technology or a new system [12]. TAM is based on the well-known Theory of Reasoned Action (TRA) [13] that attempted to explain how individuals construct behaviors. The original TAM proposes that perceived ease of use (PEOU) and perceived usefulness (PU) impact users' behavioral intentions (BI) toward accepting a new technology or a system. Davis (1989) defined perceived usefulness as "the degree to which a person believes that using a particular system will enhance his or her job performance". He also defined perceived ease of use as "the degree to which a person believes that using a particular system will be free of effort." Both perceived ease of use and perceived usefulness have a strong positive influence on the acceptance of the technology [11].

Based on TAM with the flow theory, this study presented three types of interaction factors, learner-system interaction, instructor-learner interaction, and learner-learner interaction to construct an extended TAM to explore nurses' intention to use the e-learning systems. The results showed that flow had significant effects on *perceived usefulness* and *perceived ease of use*, and *perceived ease of use* had a significant effect on *perceived usefulness*. The effects of flow, *perceived usefulness*, and *perceived ease of use* on *intention to use* were significant [14]. Chong studied a two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption and found that *perceived usefulness* had significant influence on consumers' m-commerce *adoption intentions* [15]. Moreover, several researchers guided by TAM and reactance theory sought to study the determinants of college students' adoption of mobile-based text alert short message service (SMS). The findings showed that the probability adoption the text alert SMS was not directly increased by *perceived ease of use* and *perceived usefulness* of the service, but was indirectly affected by the two antecedents through ones' *attitude toward the use* of SMS [16]. Escobar-Rodriguez and Monge-Lozano attempted to understand the factors impacting the intention to use Moodle, which would allow them to determine which actions might be carried out to boost its use by University students in order to improve both their skills and grades. They found that *perceived usefulness* for professors, *perceived compatibility* with student tasks, and training did provide specific insight on the adoption of Moodle by business administration students

Additionally, the original technology acceptance model was expanded with learner related variables such as perceived self-efficacy. "Students with higher learning self-efficacy would tend to use more sophisticated self-regulated learning strategies" such as planning, monitoring, or help seeking [17]. According to Bandura, "self-efficacy" is defined as "one's beliefs and expectations regarding one's ability to perform a task required to achieve specific outcomes" [18]. Students' self-efficacy was found to have an indirect positive effect on students' overall course management systems use via students' perceptions [19]. Researchers revealed that students with higher self-efficacy tended to have better information searching strategies [20]. Liang and Wu's study illustrated that nurses' self-efficacy plays an essential role in their motivation toward e-learning [21]. Self-efficacy can influence performance expectations and performance expectations also influence behavior [22]. Thus, we hypothesize, *perspective on Facebook in education, perceived usefulness, perceived ease of use, and perceived computer self-efficacy* have the power to predict *intention to use* Facebook of university students

3. RESEARCH METHODOLOGY AND FINDINGS

The target population was undergraduate students enrolling in Bachelor of Business Administration majoring in business computer, marketing, and management in the university in Thailand.

A survey questionnaire assessing the constructs in the current study was developed from published scales of previous research as stated in the literature review. All of the scales were measured on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The survey was collected from October to November 2012. A total of 57 self-administrated questionnaires were distributed to all students in the class and 57 usable surveys were returned giving an overall response rate of 100%. The response rate was more than 50%, mainly due to the fact that the instructor collected questionnaires right after the respondents completed the forms in the classes. The sample was females (72%) more than male (28%). The students' ages vary between 19-22 years old. In this study, the psychometric properties of the instrument were used for checking reliability and constructing validity. The alpha coefficients of the reliability analysis ranged from 0.70 to 0.77 indicating that all of the scales were acceptable [23]. Construct validity was assessed by principal component analysis. The analysis produced four components. All results and multiple regression analysis are reported in the table below.

Table 1: Multiple Regression Results – Part 1

De. Var.: *IntentionToUse* (Mean = 3.37, S.D. = .61, C. A. = .77), **r** = .58, $\mathbf{R^2}$ = .34					
Ind. Var.	**Hypo - these s**	**Mean**	**S.D.**	**C. Alpha**	**β**
Perspective on FB in edu.	*H*	*3.78*	*.62*	*.70*	*.247*
P. Usefulness		*3.27*	*.72*	*.75*	*-.028*
P. Ease of use		*3.06*	*.68*	*.71*	*.172*
Sellf Efficacy		*3.36*	*.60*	*.77*	*.309**

P < 0.05, N = 57

Table 2: Multiple Regression Results – Part 2

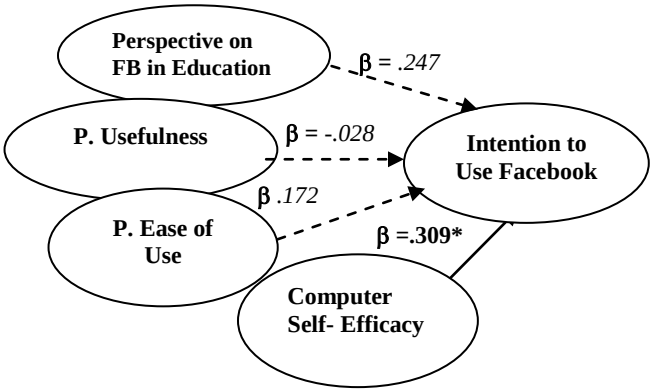
De. Var.: *IntentionToUse* (Mean = 3.37, S.D. = .61, C. A. = .77), **r** = .58, $\mathbf{R^2}$ = .34				
Ind. Var.	**t**	**Sig.**	**Support**	**VIF**
Perspective on FB in edu.	*1.838*	*.072*	*No*	*1.420*
P. Usefulness	*-.221*	*.826*	*No*	*1.222*
P. Ease of use	*1.266*	*.211*	*No*	*1.441*
Sellf Efficacy	*2.026*	*0.48*	*Yes*	*1.828*

P < 0.05, N = 57

Only computer self-efficacy was found to be a significant determinant of users' attitude towards usage of Facebook, explaining 34% of the total variance. The relative strength of their explanatory power; however, was different. Computer self-efficacy (β= 0.309) was significant predictor of user's attitude towards the use of Facebook. One group of researchers indicates that the multicollinearity problem becomes too serious when a VIF value is equal to or higher than four [24]. For this study, VIF values are acceptable for all items studied. Overall, the results indicated a statistically significant linear relationship between the constructs with a p-value less than 0.05. There was a positive association between the students' attitude towards Facebook usage and computer self-efficacy.. Hence, a part of hypothesis (H) was supported. The regression analysis for identifying

the relationships between independent and dependent variables were shown in figure below.

Figure 1: conceptual model of students' intention to use Facebook



Note: Significant paths ($p<.05$) between constructs were reported with standardized beta weights.

4. CONCLUSION AND RECOMMENDATION

Facebook becomes an important part in communication for both social and academic worlds. Teachers may be likely to adopt a technology like Facebook as a way to facilitate communication with students. Disadvantages and advantages of Facebook were explored. Students are much more open to the possibility of using Facebook and similar technologies to support their classroom work while instructors are more likely to use "traditional" technologies such as email. The site may be used as a primary communication tool similar to email. Furthermore, many teachers may actively seek to link with their students. This modeling may help persuade teachers that SNSs of this kind are a practical solution to teachers' need to keep in close contact with students. The researchers found that only perceived computer self-efficacy significantly positively related to intention to use Facebook of the university students. This result is similar to research by Tsai and Tsai (2003), Liang & Wu (2010), and Wu et al. (2010) that perceived computer self-efficacy significantly influence intention to use [20-22] Facebook of the university students. Nevertheless, Thai students do not perceived Facebook in terms of perspective in education, perceived usefulness, and perceived ease of use. It is possible that the educator reluctance remains a major barrier to effective integration of Facebook technologies in teacher preparation. Moreover, the results of this study confirm that Thai students were 1) having less time for exam preparation, 2) no chance to review any lesson already learned, 3) playing Facebook in classes, 4) an inability to hand in their assignments on time, and 5) failure to do as good work as expected [6]. Last but not least, university executives, IT trainers, software vendors should be aware that the successful intention to use of SNSs in education should start with informing of usefulness and ease of use of the sites like Facebook for learning or teaching environment. However, there are several limitations to this research. Since this is the preliminary findings, the sample size of the research may be relatively small. Then, there should be the need for additional research incorporating larger sample size. Future research may involve respondents from various universities. Other potential measurement variables such as cultural aspects or emotional aspects may be added for further studies.

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