

# Factors Positively Predicting E-Learning Effectiveness by Using Facebook in Higher Education

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**Abstract**— The purpose of this study is to investigate factors positively affecting the use of social networking site (SNS) like Facebook in higher education. Perspectives on Facebook in education, motivational goals for SNS usage, social interaction ties, and image outcome expectations can positively predict e - learning effectiveness of the students in higher education. The 177 usable survey questionnaires were received from the students of business computer, marketing, and management courses in a private university in Thailand during September to October of 2012-2015. The data was analyzed using Multiple Regression Analysis, found that perspectives on Facebook in education ( $\beta = 0.285$ ), social interaction ties ( $\beta = 0.204$ ), and image outcome expectations ( $\beta = 0.195$ ) had positive influence on e – learning effectiveness at statistical significant level of .05, explaining 39% of the influence towards e – learning effectiveness of the students. However, motivational goals for SNS usage had no positive influence on e – learning effectiveness.

**Keywords**— Positive education motivation.

## I. INTRODUCTION

Over the last decade, the rise of social media has been affected various areas such as work, politics, communications, heaths, communities, or entertainment (Perrin, 2015). The most popular social networks worldwide in 2015 were Facebook, YouTube, and Twitter. While there had been around 2 billion active social media users in 2015 (Bullas, 2015), Internet users who actively had used Facebook were around 40%, YouTube were around 22%, and Twitter were around 21% (Chaffey, 2016). Amongst the several forms of social media, Facebook is one of the most popular and fastest growing, from 1.06 billion monthly active users in 2013 (Tam, 2013) to 1.55 billion in 2016 (statista.com, 2016) showing an enormous increase of users in just two years. Facebook is primarily used as a tool to search for friends and connect with others (Boyd & Ellison, 2007).

Most importantly, Facebook is likely to be found to be more and more helpful in the higher education setting, especially with students, as it allows them to be connected and form groups with their friends online (Park, Kee, & Valenzuela, 2009), and being part of a generation where the relationship between interpersonal and electronic elements is increasingly blurred (Dyson, Vickers, Turtle, Cowan, & Tassone, 2015). A research from Oman indicated that collaboration is the most important predictor of Facebook adoption for academic purposes followed by resource sharing, perceived enjoyment, social influence, and perceived usefulness (Sharma, Joshi, & Sharma, 2016). However, several empirical studies tried to investigate the effect of using SNS in the class with some results suggesting negative

relationship between usage and class performances. For example, students reported that social networking had a negative impact on their social interactions, emotional health and work completion. Especially, younger participants reported greater negative effects of social networking on work completion. Students also revealed that social networking can be addictive, distractive, and a threat to their privacy (Kitsantas, Dabbagh, Chirinos, & Fake, 2016). Moreover, researchers in Italy elaborated that the use of social media were for personal use rather than for professional use. They also showed that prior experience with e - learning or blended learning was greatly associated with social media use (Manca & Ranieri, 2016).

In Thailand, the number one social networking site has been Facebook with approximately 37 million users in 2015, the ninth largest users on the world (Leesa-Nguansuk, 2015). An investigation conducted by the research firm eMarketer (2015) revealed that Thais spent more time (57.7 minutes) on social media per day than their counterparts from the Philippines (45.6 minutes), Malaysia (43.2), Vietnam (33.3 minutes) and Singapore (26.6 minutes). They spent an average of 2.35 hours per day on Facebook, 1.5 times higher than watching TV (Leesa-Nguansuk, 2015). This suggests that Facebook has played important roles in Thai societies.

Many researchers in Thailand have found positive effect of Facebook in Education. For example, Waiyahong revealed that the students in Mahasarakham University were satisfied to know and talk to other students studying the same subjects or having similar questions. When they had any inquiries or would like to update information, they would read wall posts of their lecturers and curriculums to check news, announcements and assignments. Moreover, they used chat function to communicate or ask their lecturers or friends their

questions (Waiyahong, 2014). Moreover, English grammar was worth promoting for discussion on Facebook. The students had positive attitudes toward using Facebook as a tool of learning grammar and writing (Suthiwartnarueput & Wasanasomsithi, 2012). However, faculty members argued that if barriers to social media were controlled, the social media could prove as an effective tool for hospitality and tourism teaching and learning, particularly in developing countries. It could bridge the digital divide between higher education institutions and their new generation of digital native students. It could be further developed as a proper platform to bridge the digital divide between developed and developing countries as well (Sobaih, Moustafa, Ghandfroush, & Khan, 2016).

The purpose of this study is to investigate factors affecting the use of social networking site (SNS) like Facebook in higher education in a private university located Thailand. The hypothesis of the research is that perspectives on Facebook in education, motivational goals for using SNS usage, social interaction ties, and image outcome expectations can positively predict e - learning effectiveness of the students in higher education.

## II. LITERATURE REVIEW

Social media has become a common tool for people to interact, exchange information, and facilitate social relationship to each other (Yang & Brown, 2015). As summarized by the Matrix of OSN and Social Technology (Hamid, Chang, & Kurnia, 2009), the online social media usage takes on many forms such blogs, wikis like Wikipedia, photo sharing like Flickr, video sharing like Youtube, podcasting, social bookmarking, online discussion board, instant messaging like Yahoo, Messenger, Google and social network sites like Facebook and Twitter. A survey conducted in the US revealed that 65% of Americans use SNS such as Facebook (Perrin, 2015). In the same study, Perrin (2015) also found that college or university level students tended to use more SNS (70%) than their high school or less counterparts (54%). In Thailand, one of the most popular SNS is Facebook, with the Thais spending close to an hour a day for it. The widespread use of SNS in the higher education setting may imply that universities need to adapt to this technological trend to facilitate an effectiveness of e - learning that could be influenced by (1) perspectives on Facebook in education, (2) motivational goals for SNS usage, (3) social interaction ties, and (4) image outcome.

### A. Perspectives on Facebook in Education

An empirical study have found that amongst SNS, the fastest-growing and most widely used technology by young people has been Facebook as it has been considered as the primary communicational tool for them (Park et al., 2009; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). Roblyer et al., (2010) revealed in their study that both college level students and faculty members used Facebook for personal or educational purposes, albeit the former was most likely than the latter to use Facebook significantly to support classroom

work. Given the popularity of Facebook among students, it was justifiable to state that lecturers took advantage of its application in disseminating class information and communicating with their students (Rosmala, 2012), a task that may be challenging for faculty members since most of them still preferred the traditional technology such as email (Perrin, 2015; Roblyer et al., 2010) as they were not very keen in adapting to newer technologies (Allen & Seaman, 2008). Nevertheless, instructors who were more open to change and utilize Facebook as a tool of communication or information sharing viewed Facebook as an effective way to establish connection with their students to have higher overall quality of commitment in classroom setting (Roblyer et al., 2010). Students and faculty members have used Facebook for social engagement, communication, speed of feedback and relation building (Sobaih et al., 2016). However, security and privacy of Facebook users may be at risk because of the ease to keep track of people's online activities (Sobaih et al., 2016).

### B. Motivational Goals for Using SNS

Motivation involves a conscious decision to perform one or more activities with greater effort than one performs other activities competing for attention (Cook & Hunsaker, 2001). This definition of motivation contains three elements: (1) some need, motive, or goal that triggers action, (2) a selection process that directs the choice of actions, and (3) a level of effort intensity that is applied to a chosen action. In essence, motivation governs behavior selection, direction and level of effort to perform a task (Cook & Hunsaker, 2001). Manca & Ranieri revealed that Facebook and Twitter were mainly used to increase students' motivation and involvement (Manca & Ranieri, 2016). While higher education institutions have tried to test new practices or improve the quality of their teaching (Manca & Ranieri, 2016) such as organizing communities of practices (CoP) on teaching for lecturers, the use of social media may prepare lectures to support collaborative work among students and lecturers, in particular through Facebook. Applying these to SNS usage, a study conducted using a sample of 402 SNS users revealed that enjoyment is the most influential factor in people's continued use of SNS, followed by number of peers, and usefulness (Lin & Lu, 2011). This suggests that motivational goals that result to positive feelings such as enjoyment, connectivity with others, and usefulness of the system are sub-facets of the overall motivational goals for using SNS and these goals may lead to an increase e - learning effectiveness.

### C. Social Interaction Ties

The life course theory emphasized the interdependence of human lives and the ways in which people were reciprocally connected on several levels (Elder, 1985). The interdependency of lives could be seen in social exchanges, tangible or intangible, and rewarding or costly, between at least two persons with the main purpose of maximizing benefits and minimizing costs (Blau, 1964), resulting to a certain social behavior dependent on the result of the exchange process (Blau, 1964; Cropanzano & Mitchell, 2005). SNS has changed the way relationships have been formed or

abandoned. As young adults studying at colleges or universities, the desire to create a new networks was a need rather than a want especially in the academic setting as college life has needed more information sharing, mutual learning, discussion, and collaboration behavior to succeed (Huang, Lin, & Lin, 2009) resulting to a social interaction ties that have to be maintained as to avoid the loss of social capital. Positive relations have been formed by support, endorsement and friendship and thus, created a network of well-connected users whereas negative relations have been a result of opposition, distrust and avoidance creating disconnected networks (Kaur & Singh, 2015). Thus, the use of Facebook is a way of college students to maintain social interaction ties to their classmates and instructors, and stronger interaction ties between them led to a better e – learning effectiveness.

#### D. Image Outcome Expectations

Image outcome expectations were related to expectations of change in image, status or reputation related to sending message (Compeau & Higgins, 1999; Huang, Lin, & Lin, 2009). Image outcome expectations would pass messages along by Facebook to others in order to improve the image of the senders within the receivers, improve the receivers' recognition of the senders, help the senders to make friends with the receivers, and build up the senders' reputation with the receivers (Huang et al., 2009). Expected performance outcomes were positive when students believed that their innovative behavior would bring performance improvement for their studies. Impressions or image were important antecedents of students' behavior because impressions influenced others' reactions and perceptions. So, students may engage in innovative behaviors to improve their images (Cingöz & Akdoğan, 2011; Yuan & Woodman, 2010). Therefore, better image outcome expectations among students and teachers led to a better e – learning effectiveness.

#### E. E – Learning Effectiveness

E – learning effectiveness has been related to self-perception about the influence of spending time on e – learning on their grades and about their own feelings (Cuadrado-Garcia, Ruiz-Molina, & Montoro-Pons, 2010). E – learning effectiveness were measured by several questionnaires. For instance, students believed e – learning could assist learning efficiency, performance, and motivation (Liaw, 2009; Novo-Corti, Varela-Candamio, & Ramil-Díaz, 2013). Then, perspectives on Facebook in education, motivational goals for using SNS usage, social interaction ties, and image outcome expectations can positively predict e – learning effectiveness of the students in higher education.

### III. RESEARCH METHODOLOGY AND FINDINGS

The target population were undergraduate students enrolling in business computer course, marketing course, and management course in a private university in Thailand during September to October of 2012-2015, which were around 600 students. 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 sample size of this research was calculate from 40 pilot questionnaire using G\*power version 3.1.9.2, created by Cohen and approved by several researchers (Cohen, 1977; Erdfelder, Faul, & Buchner, 1996; Wiratchai, 2012) with the Power ( $1 - \beta$ ) of 0.59, Alpha ( $\alpha$ ) of 0.41, Number of Test Predictor of 4, Effect Size of 0.0093 (Calculated by Partial  $R^2$  of 0.0092). Then, the result showed that the minimum number of the total sample size was 166 (Cohen, 1977). Thus, 177 sets of questionnaire had been collected. In this study, the psychometric properties of the instrument were utilized for checking reliability and construct validity. The Cronbach's Alpha values of all variables were between 0.74 to 0.90, which were exceed 0.65 (Nunnally, 1978), indicating that all of the scales were acceptable. Then, the analysis using descriptive statistic consisted of frequencies, percentages, means, standard deviations was implemented. The hypothesis testing was tested using Multiple Regression Analysis to analyze the influence of independent variables toward dependent variable. All results and multiple regression analysis are reported in the table below

TABLE I. Multiple regression analysis' results.

<b>Dependent Variable:</b> E – Learning Effectiveness (mean = 3.40, S.D. = 0.85, Cronbach Alpha = 0.89, $r = .625$ , $R^2 = .390$ )					
<b>Independent Variables</b>	<b>Mean</b>	<b>S.D.</b>	<b><math>\beta</math></b>	<b>Sig.</b>	<b>VIF</b>
Perspectives on Facebook in Education	3.67	.66	.285*	.000	1.584
Motivational Goals for SNS Usage	3.65	.85	.100	.180	1.532
Social Interaction Ties	3.70	.85	.204*	.008	1.635
Image Outcome Expectations	3.61	.69	.195*	.012	1.660

\*Statistical significant level of .05,  $N = 177$

The results showed that the respondents mostly were males (52%) at the age of 18-22 years old while 48% of them were females, studying in computer business, marketing, and management courses at a private university in Bangkok, Thailand. Most of them were freshmen with the grade point averages of around 2-2.99, while “1” was the lowest and “4” was the highest. Most of them used notebook computers at home. Only the perspectives on Facebook in education with beta coefficient of .285, social interaction ties with beta coefficient of .204, image outcome expectations with beta coefficient of .195 were found to be significant determinants of users' e – learning effectiveness, explaining around 39% toward users' e – learning effectiveness at .05 statistical significant level. However, motivational goals for SNS usage had no positive effect towards users' e – learning effectiveness. Variance inflation factors (VIF) are below 10, therefore, there were no multicollinearity (Cohen, 1977; O'Brien, 2007). The standard error was  $\pm 0.330$  using the following equation and figure.



$$Y \text{ (E - Learning Effectiveness)} = 0.330 + 0.285 \text{ (Perspectives On Facebook In Education)} + 0.204 \text{ (Social Interaction Ties)} + .0195 \text{ (Image Outcome Expectations)}$$

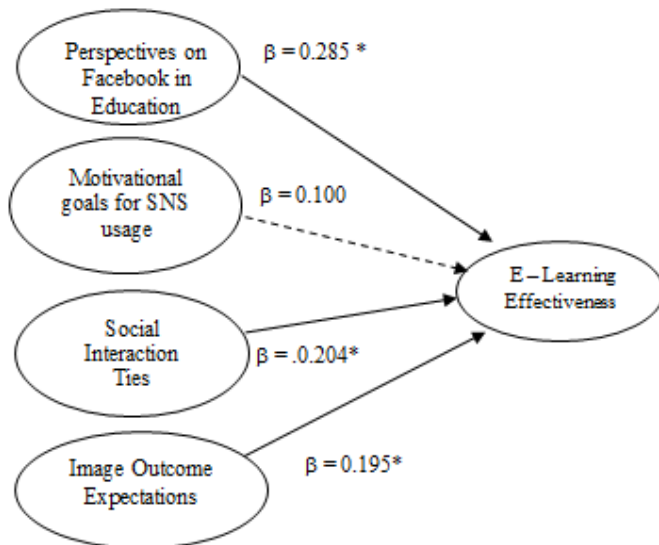


Fig. 1. The conceptual model of the factors positively influencing e - learning effectiveness by using Facebook in higher education.

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

#### IV. CONCLUSIONS AND RECOMMENDATIONS

Facebook becomes more and more important part in both social communication and academic world. The hypothesis of the research was that perspectives on Facebook in education, motivational goals for SNS usage, social interaction ties, and image outcome expectations can positively predict e - learning effectiveness of the students in higher education. The researchers revealed that perspectives on Facebook in education ( $\beta = 0.285$ ), social interaction ties ( $\beta = 0.204$ ), and image outcome expectations ( $\beta = 0.195$ ) had positive influence on e - learning effectiveness at statistical significant level of .05. On the other hand, motivational goals for SNS usage had no positive influence on e - learning effectiveness.

The results of this research supported the previous researches of Perrin (2015), Roblyer et al. (2010), and Sobaih et al. (2016) that both college level students and faculty members used Facebook for personal or educational purposes. Instructors who were more open to change and utilize Facebook as a tool of communication or information sharing viewed Facebook as an effective way to establish connection with their students even if security and privacy of Facebook users could be at risk because of the ease to keep track of people's online activities (Perrin, 2015; Roblyer et al., 2010; Sobaih et al., 2016). Moreover, SNS has changed the way young adults studying at universities create networks in the academic setting for information sharing, mutual learning, discussion, and collaboration as social interaction ties (Huang, Lin, & Lin, 2009). Positive social interaction ties have been formed by supporting friendship and creating networks of well-connected users whereas negative social interaction ties

have been a result of opposition, distrust and avoidance creating disconnected networks (Kaur & Singh, 2015). Last but not least, image outcome expectations would pass messages along by Facebook to others in order to improve the image of the senders within the receivers, improve the receivers' recognition of the senders, help the senders to make friends with the receivers, and build up the senders' reputation with the receivers (Huang et al., 2009). Impressions or image were important antecedents of students' behavior because impressions influenced others' reactions and perceptions. So, students may engage in innovative behaviors to improve their images (Cingöz & Akdoğan, 2011; Yuan & Woodman, 2010). Then, only perspectives on Facebook in education, social interaction ties, and image outcome expectations can positively predict e - learning effectiveness of the students in higher education.

Research recommendations for business benefits stating that perspectives on Facebook in education, social interaction ties, and image outcome expectations had impact on e - learning effectiveness of the students in higher education. Therefore, SNS especially Facebook creators should first aim to create features which would support academic settings such as "classrooms on Facebook", "Facebook for education", contact my teachers/ students, or "my classroom" features. SNS along with Facebook developers should allow social interaction ties among students and teachers such as publish and private communication features. SNS especially Facebook creators should acknowledge that image outcome expectations among students and teachers need to be carefully designed since senders and receivers care for their images presenting in the system.

For academic benefits, theories and knowledges on Facebook in education, social interaction ties, and image outcome expectations, and e - learning effectiveness had been expanded. Future research includes data collection in other private and publish universities should be implemented in order to compare the results. Cultural dimensions can be factors to expand the conceptual framework as well.

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