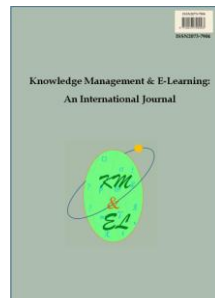# Knowledge Management & E-Learning

Factors determining learners' acceptance of Facebook in a higher education classroom

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Abstract: Online social networks have become popular tools for facilitating social connections and communication in the world society. The literature demonstrates clear benefits of social networks in encouraging informal learning, linking learners, and enhancing classroom experiences. The main goal of this paper is to find antecedents and consequences of the adoption of Facebook in the classroom of a university in Thailand. The findings revealed that students' perceived usefulness and ease of use and instructor characteristics significantly drive students' intention to adopt Facebook.

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1. Introduction

Social influence through online systems has a crucial effect on people's behavior, ranging from information dissemination to the adoption of notions (Bakshy, Rosenn, Marlow, & Adamic, 2012). A social network is a structure that enables people to easily connect, socialize, and share resources (Newman & Park, 2003). Facebook is the most popular social network, with more than 900 million users in 2013. It comprises several features, namely status updates, wall, pokes, news feeds, photos, events, groups, etc., and also fulfills the uses and gratifications of users in terms of social connections, shared identities, content, social investigations, social network surfing, and status updating (Joinson, 2008). After Web 2.0 and social networks experienced a boom, e-learning management systems and platforms have been implemented for communicating, collaborating, and sharing knowledge (Downes, 2005; Chatti, Jarke, & Frosch-Wilke, 2007; del Val, Campos, & Garaizar, 2010). Features of Web 2.0 have been adapted for use in the creation of collaborative and adaptive learning platforms for lifelong learning in organizations; for example, features for collaborative knowledge capturing, sharing, networking, and community building; features for personal social networks that enable people to build

new relationships and to join learning communities based on their preferences, etc. (Klamma et al., 2007). A distinctive benefit of social networks in schools is the creation of informal learning (Potter, 2006). Informal learning is out-of-classroom settings with specific purposes rather than examinations or formal approaches. Social networks also allow people to take part in a community of interests, to support friends in academic practices, to bond with peers, and to establish extra-class collaborations between educators and learners (Griffith & Liyanage, 2008). Online social network systems are good educational learning tools because many students already have accounts and the systems are free and ready to use (Towner, VanHorn, & Parker, 2007).

The following research on Facebook has affirmed its success: Facebook adoption as computer-mediated communications for Penn State librarians and university students (Mack, Behler, Roberts, & Rimland, 2007); Facebook adoption in educational usage (Mazman & Usluel, 2009; Mazman & Usluel, 2012); factors driving the We-intention, which is a student's commitment to participating in joint actions, to use Facebook (Cheung, Chiu, & Lee, 2010); barriers to adopting Facebook of Information Systems and Computer Science lecturers in South Africa, the United States of America, Canada, the United Kingdom, and Australia (Visagie & de Villiers, 2010); and Facebook's influence on the perceived attitudes of high school students and the frequency of grade checks (Nakahara, 2012).

Online learning in higher education classrooms consists of three main components: systems, lecturers, and students. The success of online learning requires support from these elements. However, none of the previous research has looked at the antecedents of Facebook adoption in higher education in terms of these three dimensions. In addition, Olaniran, Rodriguez, and Williams (2010) emphasize developers and organizations to address cross-cultural dimensions when designing and implementing web-based instruction and technology innovation. Therefore, this research aims to extend past investigations by combining the technology acceptance model (TAM) (perceived usefulness and perceived ease of use) and the model of DeLone and McLean (intention to use and net benefits) with the educator factor (instructor characteristics) and learner factors (student characteristics and past behavior), in order to compare the effects of those factors and to guide educators of higher educational institutions on how to effectively build classroom communities, based on a Thai case study.

2. Antecedents and consequences of the intention to use Facebook in a classroom

2.1. Perceived usefulness and intention to use

The technology acceptance model (TAM) is one of the established theories of information systems. TAM specifies two important factors determining an intention to accept technology, which are perceived usefulness and perceived ease of use (Davis, 1989). TAM has been changed over time to TAM3 (Venkatesh & Bala, 2008). In its current form, it describes factors driving perceived ease of use and perceived usefulness in a workplace setting. Perceived usefulness is the most important factor driving the behavioral intention of the whole period of information technology usage and has been confirmed as a predictor of Facebook adoption in an educational setting (Mazman & Usluel, 2010). It positively affects the intention to use social networks sites in general contexts (Sledgianowski & Kulviwat, 2008). Therefore, the following hypothesis is proposed:

H1: Perceived usefulness positively affects the intention to use Facebook.

2.2. Perceived ease of use and intention to use

Perceived ease of use is an important determinant of the intention to apply many information systems. According to TAM3, it is considered to be a vital factor with regard to information technology acceptance in the workplace, especially during the early adoption stage (Venkatesh & Bala, 2008). Similar to perceived usefulness, perceived ease of use has a strong positive influence on the intention to adopt social network sites (Sledgianowski & Kulviwat, 2008). Moreover, it positively affects Facebook acceptance in educational environments (Mazman & Usluel, 2010). Therefore, the following hypothesis is proposed:

H2: Perceived ease of use positively affects the intention to use Facebook.

2.3. Instructor characteristics and intention to use

Instructor characteristics are attitudes towards, and the control of, technology and teaching styles. This work applies the definition of instructor characteristics of Selim (2007). Volery and Lord (2000) emphasize that instructor characteristics, in terms of attitudes towards students, instructors' technical competence and classroom interactions, are key success factors in regard to e-learning. Educators' attitudes towards the technology and their teaching styles also play a vital role in the success of e-learning (Selim, 2007). Teachers can effectively describe contents by using humor, stories, enthusiasm, and self-disclosure in teaching processes (Mazer, Murphy, & Simonds, 2007). Bhuasiri, Xaymoungkhoun, Zo, Rho, and Ciganek (2012) indicate that instructors' characteristics are one of the critical success factors affecting e-learning systems in developing countries. Siritongthaworn, Krairit, Dimmitt, and Paul (2006) also identified the instructor as the main driver of the e-learning success in Thai universities. Therefore, the following hypothesis is proposed:

H3: Instructor characteristics positively affect the intention to use Facebook.

2.4. Student characteristics and intention to use

Learning styles are important in Web-based environment. It affects learners' navigation behavior in using an educational hypermedia system (Bousbia, Rebai, Labat, & Balla, 2010). The learning styles of students also impact their learning and attitudes in introductory economic courses. Collaborative students prefer classes with collaboration, participation, and discussion from as many students as possible. Independent students favor participating in discussions on course content while dependent students like lecture-based learning and prefer to receive instructions from teachers (Charkins, O'Toole, & Wetzel, 1985). Students need teachers to fulfill their various needs (Hativa & Birenbaum, 2000); for instance, those who have their own goals or motives do not prefer information transmitted by teachers; those who aim for a high GPA favor teachers who enable them to achieve their goals with the least effort; those with high intrinsic goal motives and low extrinsic goal motives like teachers who place high demands on them, such as challenging their critical thinking capacity, requiring them to invest more effort in learning, etc. Andersson and Grönlund (2009) indicate that addressing the differences in individual characteristics is one of the major challenges for e-learning in developing countries. Learners' characteristics are also emphasized as a key success factor with regard to e-learning in developing countries by Bhuasiri et al. (2012). Diaz and Cartnal

(1999) focused on different learners' styles in online distance learning and on-campus learning. The findings showed that distance learners prefer independent learning styles. Learners who embrace independent and self-paced instructions choose an online class. Dependent students who prefer close guidance would rather attend classes on campus than classes in a distance learning system. Siritongthaworn, Krairit, Dimmitt, and Paul (2006) also confirmed that a student's preference for instructor-led learning is an obstacle to e-learning success in Thai universities. Most successful online students (with grades better than 'C') are independent learners (Diaz, 2000). Therefore, the following hypothesis is proposed:

H4: Student characteristics (Dependent) negatively affect the intention to use Facebook.

H5: Student characteristics (Collaborative) positively affect the intention to use Facebook.

H6: Student characteristics (Independent) positively affect the intention to use Facebook.

2.5. Past behavior and intention to use

Past behavior and habits are constructs affecting intentions and behavior in the extended theory of planned behavior (TPB) (Conner & Armitage, 1998). Direct behavioral experience positively affects attitude-behavior consistency (Regan & Fazio, 1977; Fazio & Zanna, 1978). Eagly and Chaiken (1993) emphasize that knowledge from past experience or past behavior can shape the intention to adopt systems. In addition, the level of exposure necessary to get more experience in a system may increase the level of the intention to adopt it. Past experience with other systems or receiving more support with regard to a new system may decrease employees' or managers' resistance to a new system (Lim, 2002). Therefore, the following hypothesis is proposed:

H7: Past behavior positively affects the intention to use Facebook.

2.6. Intention to use and net benefits

The model of DeLone and McLean is widely applied to guide information system success. The D&M IS success model indicates three important aspects: information quality, system quality, and service quality. These quality aspects drive the intention to use and the satisfaction of users, and thus build net benefits (DeLone & McLean, 2003). Holsapple and Lee-Post (2006) studied e-learning success based on the model of DeLone and McLean. Achievement in regard to an e-learning system was assessed by its total benefits. Fifty-six percent of students confirmed that Facebook is a useful tool for class-related collaboration activities in order to contact their peers about questions, assignments, to take lecture notes, to set up group meetings, to form study groups, etc. (Towner, VanHorn, & Parker, 2007). The advantages of connecting learners in collaborative learning environments through Facebook were also described by Selwyn (2007). In addition, social interaction activities from collaborative learning can increase learners' motivation and decrease their feelings of isolation in online courses (Engle, 2006). Therefore, the following hypothesis is proposed:

H8: Intention to use Facebook positively affects net benefits.

3. Research design and method

3.1. Participants and procedure

Paper-based survey questionnaires using convenience sampling were applied to test the proposed model. The respondents were undergraduate students of the Thammasat Business School, Thammasat University in Bangkok, Thailand. These students take courses that are mainly conducted on campus. The students were required to use a course Facebook group as an enhanced tool for communication and collaboration. Courses were composed of six management information systems courses, four financial courses, and three accounting courses. Each course applied the course Facebook group as a complementary tool to communicate with students, to provide necessary resources, to give necessary information, and to assign online class participation. Five hundred and ten paper questionnaires were delivered. Two hundred and forty questionnaires were received (a response rate of 47 percent). Sixteen questionnaires were removed because of missing answers. Two hundred and twenty four paper questionnaires were then processed.

3.2. Measurement

The questionnaire, as shown in the Appendix, comprises two sections: opinions and respondents' usage behavior with regard to the course Facebook group along with his/her personal information and usage behavior of his/her own Facebook. A total of 35 questions were used to obtain information on the independent variables (perceived usefulness, perceived ease of use, and instructor characteristics), intention to use Facebook, and the dependent variable (net benefits). Respondents were asked to rate their opinions on the question "What do you think about the following statements?" using a Likert scale, ranging from 1 - strongly disagree to 5 - strongly agree. Information on Student characteristics, frequently-used Facebook features, devices normally used, and gender was gathered using nominal scales (yes/no). Student characteristic variables were later transformed into dummy variables. Information on past behavior of Facebook adoption was collected using a ratio scale (months). Literature sources and sample questions for the development of survey instruments are shown in Table 1.

Table 1
Literature sources of measurement development

Constructs	Items	Sources
Perceived Usefulness	USEF1-USEF4	(Venkatesh & Bala, 2008)
Perceived Ease of Use	EASE1-EASE4	(Venkatesh & Bala, 2008)
Instructor Characteristics	INCH1-INCH4	(Selim, 2007)
Student Characteristics (Dependent)	STCH1	(Charkins, O'Toole, & Wetzel, 1985)
Student Characteristics (Collaborative)	STCH2	(Charkins, O'Toole, & Wetzel, 1985)
Student Characteristics (Independent)	STCH3	(Charkins, O'Toole, & Wetzel, 1985)
Past Behavior	PAST	(Conner & Armitage, 1998)
Intention to Use	INTU1-INTU3	(Venkatesh & Bala, 2008; Holsapple & Lee-Post, 2006)
Net Benefits	NB1-NB4	(Holsapple & Lee-Post, 2006)

3.3. Reliability assessment and factor analysis

Cronbach's alpha for each construct was calculated to test the reliability of all items. All alphas of the five factors were relatively high (between 0.844 and 0.895), as shown in Table 2(a) – 2(c). Thus, the items for each construct have good internal consistency. Convergence validity and discriminant validity were explored using factor analysis. Principal axis with varimax rotation was used to investigate constructs and their related items. Convergence validity was achieved by setting the cut-off point of factor loadings at greater than 0.5. Discriminant validity was examined by checking whether items were attached with the correct factor rather than other factors. Five factors with eigenvalues greater than one were extracted as shown in Table 2(a) –2(c).

Table 2
Factor analysis and Cronbach's alpha analysis results

(a)	Factor 1	Factor 2	Factor 3	Cronbach's alpha
USEF1	0.804			
USEF2	0.788			0.895
USEF3	0.741			
USEF4	0.779			
EASE1		0.662		
EASE2		0.837		0.869
EASE3		0.669		
EASE4		0.750		
INCH1			0.685	
INCH2			0.765	0.844
INCH3			0.775	
INCH4			0.645	
% of Variance	22.756	21.511	19.935	
Cumulative %	22.756	44.267	64.202	

(b)	Factor 1	Cronbach's alpha
INTU1	0.804	
INTU 2	0.788	0.853
INTU 3	0.741	
Cumulative %	78.279	

(c)	Factor 1	Cronbach's alpha
NB1	0.885	
NB2	0.877	0.869
NB3	0.855	
NB 4	0.730	
Cumulative %	70.415	

4. Findings

Firstly, the measurement instruments were examined for construct reliability and construct validity as shown in section 3.3. Respondents' demographics were then analysed using descriptive statistics. Finally, all hypotheses were tested using simple and multiple regressions.

4.1. Demographic analysis

Respondents' answers were summed and percentages were calculated using descriptive statistics. Details of the analysis are shown in Table 3. The majority of respondents were female. The most frequently used features of the course Facebook group were walls, discussion boards, photos, and videos in descending order. Some students accessed the course Facebook group only by reading and not by posting or commenting. Most of them used Facebook approximately 1-5 times per day or less than one time per day. The main devices used to access Facebook were their personal laptops, PCs, mobile phones, and public school computers or computers at internet cafes.

Table 3
Facebook usage behavior and profiles of respondents

Variable	Frequency	Percentage
Gender		
Male	80	35.7
Female	*143*	*63.8*
Most Frequently Used Feature of the Course Facebook group		
Wall	*110*	*49.11*
Discussion Board	60	26.79
Photos	25	11.16
Videos	3	1.34
Links	0	0
Events	0	0
Never Posts or Comments	20	8.93
Average Frequency of Using His/ Her Own Facebook page (Times/ Day)		
Less than 1	99	44.2
1 – 5	*117*	*52.2*
6 – 10	7	3.1
More than 10	1	0.45
Main Access Equipment		
Personal Notebook Computer	*120*	*53.6*
Personal Desktop Computer	56	25
Mobile Phone	26	11.6
Public School Computer/ Internet Café	12	5.4
Others	0	0

4.2. Testing of hypotheses

Multiple regression analysis and simple regression analysis were used to determine the relationship between the antecedents and consequences of the intention to adopt Facebook. Tolerance and Variance Inflation Factor (VIF) were applied to diagnose collinearity. Tolerance value less than 0.2/ 0.1 and VIF more than 10 show multicollinearity problems (O'Brien, 2007). All factors had tolerance values greater than 0.4 and more than half of them had tolerance values greater than 0.8. Moreover, the VIFs of all constructs were less than 2.1, indicating no multicollenearity problems. The results of multiple regressions and simple regressions led to the acceptance of four of the eight hypotheses. There were positively significant relationships between perceived usefulness, perceived ease of use, instructor characteristics and the intention to use the course Facebook group. Squared multiple correlation coefficients (R2) of the antecedents of the intention to use the course Facebook group were 60.3 percent, indicating that adoption factors accounted for 60.3 percent of the intention to use the Facebook group in higher education. There was also a positively significant relationship between the intention to use the course Facebook group and net benefits. Intention to use explained the net benefits at the level of 46.2 percent (R2 = 0.462). Important antecedents of the course Facebook group acceptance were perceived usefulness (b = 0.529, p = 0.000), perceived ease of use (b = 0.429, p = 0.000), and instructor characteristics (b = 0.251, p = 0.000). Fig. 1 shows the summary model of the antecedents and consequences of Facebook's adoption in the higher education classroom.
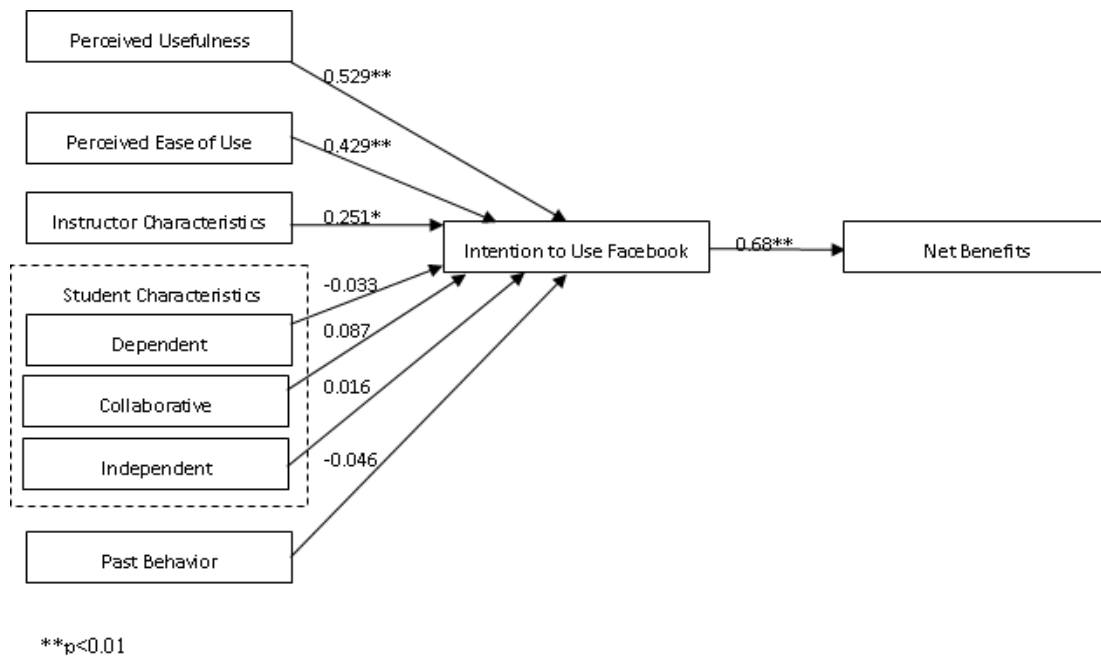
Fig. 1. The final model

5. Discussions

The results of this study confirm the importance of TAM constructs: perceived usefulness and perceived ease of use, and the importance of DeLone and McLean's model of net

benefits. Course Facebook groups enabled students to acquire shared resources from both their teachers and classmates, to greet classmates and teachers on special occasions, to ask for solutions to homework/assignments, or to make comments or express feelings that they were too shy to share in the classroom. According to these benefits, perceived usefulness was the most influential factor that encouraged students to use the course Facebook group. The second most influential factor was perceived ease of use. Due to the fact that the respondents were from various fields of study with different levels of computer skills, the ease of use of the Facebook interface was crucial for the acceptance of the course Facebook group. Some students did not previously have their own Facebook memberships and signed up for Facebook only to access the course Facebook group. Thus, ease of use of the selected tools was important for students who were not familiar with the tools. Instructor characteristics were the least influential factor. Although the educator factor had the least influence, the instructor is vital because he or she selects the social media for teaching, emphasizes the benefits gained from applying social media, and encourages learners to adopt social media efficiently and effectively. Instructor characteristics, in terms of enhancing students' collaboration, paying attention to students, focusing on teaching, and promoting participations in the course Facebook group, are necessary to increase tool usage.

In conclusion, perceived usefulness and perceived ease of use is supported by Holotescu and Grosseck (2012), who found that social media can decrease the cost of communication. Social media are accessible and easy to use. The importance of TAM constructs is also supported by the researcher's previous study on Edmodo adoption in education (Thongmak, 2013). A comparison of Facebook to Edmodo in that study indicated that the former is much more suitable for higher education than the latter due to its ease of access, stability, and performance (from seven respondents), its ease of use and familiarity (from 15 respondents), its convenience (from seven respondents), its superior features, e.g., private messages, notification alerts, etc. (from eight respondents), and its popularity with a number of subscribed users and students (from 28 respondents). Functionality in terms of user-to-user relations, messaging, groups, discussions, resource sharing, managing events, and collaborative content production and usability in terms of easy to use and clear and simplified user interface are also confirmed to be aspects increasing students' motivation for study orientated social network site usage (Silius et al., 2010).

Two factors, i.e., students' characteristics and their past behaviors, are not supported. Learning styles of students was rejected, supported by the prior study which indicates that there is no statistical support regarding the relationship between learning preferences/learning types and the success of online or face-to-face courses (Neuhauser, 2002). Hunt, Thomas, and Eagle (2002) also found no correlations between the collaborative style, dependent learning, independent learning, and technology-based modes, likely due to the lack of customized activities in the course Facebook group; for example, emphasizing resource sharing for dependent learners, highlighting student interactions for collaborative learners, or focusing on the implementation of students' ideas for independent learners; thus, the three types of learning styles were rejected. Past behavior is also not supported. However, this is consistent with the research result of Ouellette and Wood (1998). They specified that past behavior is a weak determinant of future behavior in a domain with unstable contexts. Stable context is an environment in which activities are presented regularly on a daily or weekly basis. Activities in the course Facebook group of one classroom differed from those of other classrooms because of diverse needs, different objectives, and various instructor styles; thus, the contexts in the course Facebook groups were quite unstable.

6. Additional suggestions from undergraduate students

An open-ended question further asked students in one MIS class through the course Facebook group "What else do you want teachers to use Facebook for in education?". Seventeen females and twelve males answered the question. According to Mazman and Usluel (2010), educational usage of Facebook consists of communication, collaborations, and material and resource sharing.

In terms of communication about technology topics, three students suggested that teachers teach new technologies via Facebook, allow students to share their opinions or review new technologies or digital products, or encourage students to study information systems or information technology fields. This is supported by facebook as an excellent way to motivate learners to share ideas and thoughts (Chartrand, 2012), the advantage of social media in terms of facilitating learning through personal learning networks/environments (Holotescu & Grosseck, 2012), the guidance to encourage students to use technology in their learning (Osa et al., 2012), using Virtual Space to engage and to entertain students as part of learning processes (Hellwege & Robertson, 2012), and learning from events, e.g., micro blogging streams (Danciua & Grosseck, 2011).

In terms of communication about miscellaneous topics, three students suggested that teachers post interesting knowledge, teach ethics topics and suitable language usage, give advice regarding privacy concerns, and make suggestions regarding time allocation and management. This is supported by the changing role of teaching (Danciua & Grosseck, 2011) and using social network sites to motivate students to learn English (Turkmen, 2012). Four students suggested using Facebook to instantly update news or post interesting links for other persons.

In terms of communicating with teachers or peers, fifteen students suggested using Facebook as a communication tool to answer questions about lessons, to share opinions about class, to give extra coaching, and to exchange knowledge with classmates after class. This is supported by the advantage of social media in terms of engaging, enriching, and empowering students' interactions and participation and establishing relationships and conversations (Holotescu & Grosseck, 2012), the use of technology to provide feedback (Hellwege & Robertson, 2012), and the changing role of teaching in terms of collaborative learning-by-doing and peer learning (Danciua & Grosseck, 2011). Five students also suggested that teachers use Facebook to communicate class schedules, timetable changes, or information about makeup classes.

In terms of collaborations on homework or assignments, nine students suggested that teachers assign exercises or homework, post old examination questions online, grade and receive assignments via Facebook, post questionnaires about students' interests online, ask for students' opinions, and hold contests about teaching topics. These suggestions conform to the advantage of social media in terms of collaborative participation (Holotescu & Grosseck, 2012), promoting learning among students by computer delivery of instructions and online homework (Osa et al., 2012), encouraging students to use technology in their learning by assigning projects that involve the use of technology (Osa et al., 2012), student achievement benefits from integrating traditional and technological assignment completion (Chimo, 2012), and the changing role of teaching in setting various types of online projects (Danciua & Grosseck, 2011).

In terms of sharing class materials and resources, two students preferred teachers to share files, course materials, or post essential links. This is supported by the provision of online course materials to encourage students to use technology in their learning (Osa

et al., 2012), the benefit of social networks in education in terms of the ease in which multimedia can be linked, shared and consumed (Weber, 2012), and the way to publish and share e-resources (Hellwege & Robertson, 2012).

7.   Conclusion and future research

In addition to the adoption of social networks for entertainment, socialization, and marketing, social networks can also be used as a tool for higher education. Social networks have several advantages due to their rationality and cost-effectiveness. In higher educational settings, social networks can be effective means for communication, collaboration, and resource sharing. This research explored the acceptance of social networks in higher education using Facebook as a case study. Five factors from TAM, D&M and literature reviews were used as antecedents of the intention to use Facebook in education. Questionnaires were used to obtain information on the relevance of those factors with regard to the intention to use social networks and the consequence of the intention to use networks on net benefits. The findings indicate that three of seven factors in two viewpoints, i.e., perception and instructor, were accepted as Facebook adoption drivers.

Facebook was firstly developed to serve university students and it is still used by many university students. The results of this study can be used both by Facebook developers to add more features to support education and by educators who plan to use Facebook or other similar social network systems in their classes. In summation, to successfully implement Facebook in education, instructors should firstly emphasize both the direct benefit of acquiring resources and the indirect benefit of connecting classmates and instructors easily. Secondly, SNSs with friendly user-interface designs should be chosen. Facebook is strongly recommended because of its popularity among youths, its ease of use, and its faster development of new features. Teachers can also make it easier for students to use the tool by providing adequate technical support, giving them training on how to use the tool, and providing clear instructions (Osa et al., 2012). Lastly, instructors should provide more resources such as voice clips, examples of completed cases, old examination papers, teaching slides, lecture notes, etc., in the course Facebook group to make the perceived net benefits become real. In addition, they should encourage more student participation, especially the participation of shy students who are typically less involved in offline classes. Since De Smedt, Cranmer, and Burn (2006) found that passive retrieval of information is a more popular internet-based activity among young people than actively creating content, instructors should encourage students to create more content in terms of giving their opinions, sharing knowledge, and exchanging ideas for completing assignments, etc. Because walls and discussion boards are popular services from students' viewpoints, teachers should use them to build good teacher-student and student-student relationships, to provide easily noticed information, or to provide short answers. Discussion boards or notes can be helpful in giving assignments or homework or extensively explaining information to students, and getting their feedback. Other Facebook features could also be applied, such as using photos or videos to present past activities, posting useful links for students, creating events to notify students about class activities or providing information on updated timetables, etc. All information and resources should be fresh. Also, students' questions should be responded to promptly to make the course Facebook group active and to demonstrate teachers' commitment to students.

These research results are based on the adoption of a course Facebook groups in a specific time and environment. Thus, further research should be carried out in different

environments or other countries to allow for a comparison of results. Suggestions from undergraduate students should be explored quantitatively. More factors concerned with instructors and students such as teaching styles, introversion and extraversion dimensions, etc., should be investigated in order to obtain a deeper understanding of other aspects of educators and learners.

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Appendix

Questionnaires

What is your opinion on following issues about opinions of using the course Facebook group?

1 = Strongly Disagree to 5 = Strongly Agree

Perceived Usefulness:
Using the course Facebook group improves my performance in studying this course.
Using the course Facebook group enhances my understanding in the course contents.
Using the course Facebook group is useful.
I find the course Facebook group useful for me.
Perceived Ease of Use:
I do not require a lot of time to learn how to use the system for the course Facebook group.
Using the course Facebook group is easy for me.
I find it easy to get the course Facebook group to do what I want it to do e.g. posting pictures, posting videos, giving some comments, etc.
I can use the course Facebook group as an expert can do.
Instructor Characteristics:
The instructor always encourages students to participate in the class.
The instructor has a genuine interest in students e.g. giving suggestions, answering questions, etc.
The instructor is enthusiastic about teaching in the class.
The instructor promotes classroom interaction.
Intention to Use:
Assuming I had access to the course Facebook group, I will use it.
I intend to use the course Facebook group.
I will use the course Facebook group in the next 1-2 weeks.
Net Benefits:
I gained more understanding of the course principles after using the course Facebook group.
The course Facebook group allows me to study topics that I was interested, in any free time.
After using the course Facebook group, it reduces the time to communicate outside the classroom such as asking/ answering questions with teachers or other students.
My studying performance is better after using the course Facebook group to read contents, to discuss with peers, to access course's resources, etc.

Student Characteristics:

Please choose the description of learning style, which is closest to your own type?

I prefer a straightforward lecture without term papers, but if a term paper is to be assigned, I like the topic to be assigned by the teacher, with fairly detailed instructions.
I prefer a discussion class with as much student interaction as possible. I like group projects and collective assignments, such as case studies.
I prefer to have some role in determining the content and structure of the course. If a paper is to be assigned, I like to choose my own topic instead of having the teacher assign a specific topic.

Past Behavior:

On average, how long have you used Facebook, both your own Facebook page and the course Facebook group? (months)

Demographics:

Gender:

Male	Female

Please choose the most frequently used feature of the course Facebook group.

Wall	Photos	Links	Never Posts or Comments
Discussion Board	Videos	Events	

Average Frequency of Using Your Own Facebook Page (Times/ Day):

On average, how many times per month that you use your own Facebook page?

Main devices to access Facebook:

Personal Notebook Computer	Public School Computer/ Internet Café
Personal Desktop Computer	Others
Mobile Phone	