

FACTORS INFLUENCING THE ACCEPTANCE OF WECHAT AS A LEARNING TOOL AMONG PRE-SERVICE TEACHERS

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Abstract

Mobile learning using Web 2.0 technology like Facebook, WhatsApp and WeChat is becoming more common. There are studies on the acceptance of WeChat in general (Hua, Qi & Zhang, 2013; Xin & Zeng; 2013). However, these studies were not focused specifically on the acceptance of WeChat in learning among pre-service teachers. This study was carried out to investigate the factors influencing the acceptance of 39 pre-service teachers in an institute of teacher education in Sarawak towards the use of WeChat in learning. Data was collected using survey questions based on Technology Acceptance Model (TAM). The findings showed that perceived usefulness (PU) and attitude towards usage (ATU) have the greatest significant influence (BIU is 62% influenced by PU and 63% influenced by ATU respectively) on behavioural intention to use (BIU) WeChat. Perceived ease of use (PEOU) has only minor significant influence (BIU is 20.4% by PEOU) towards using WeChat. These findings indicate that the perceived usefulness of WeChat as a learning tool and a positive attitude (regarding the use of WeChat) among pre-service teachers play a very important role in determining their behavioural intention to use WeChat.

Keywords: Technology Acceptance Model (TAM), WeChat, pre-service teachers

Abstrak

Pembelajaran secara *mobile* menggunakan teknologi Web 2.0 seperti *Facebook*, *WhatsApp* dan *WeChat* merupakan satu fenomena yang lumrah. Walaupun terdapat kajian tentang penerimaan WeChat secara umum (Hua, Qi & Zhang, 2013; Shuo, Xin & Zeng; 2013), namun semua kajian ini adalah tidak berkaitan dengan penerimaan WeChat untuk pembelajaran di kalangan guru praperkhidmatan. Penyelidikan ini dijalankan untuk mengkaji faktor yang mempengaruhi penerimaan WeChat di kalangan 39 orang guru pra perkhidmatan terhadap pembelajaran di sebuah Institut Pendidikan Guru di Sarawak. Data kajian dikutip dengan

menggunakan soal selidik berdasarkan Technology Acceptance Model (TAM). Dapatan kajian menunjukkan *perceived usefulness* (PU) dan *attitude towards usage* (ATU) mempunyai pengaruh yang signifikan (BIU adalah 62% dipengaruhi oleh PU and 63% dipengaruhi oleh ATU) terhadap *behavioural intention to use* (BIU) untuk menggunakan WeChat. *Perceive ease of use* (PEOU) mempunyai pengaruh yang kurang signifikan (BIU adalah 20.4% dipengaruhi oleh PEOU) terhadap penggunaan WeChat. Implikasi dari kajian ini ialah faedah kegunaan WeChat dan sikap yang positif memainkan peranan yang penting dalam menentukan penerimaan WeChat untuk pembelajaran di kalangan guru pra perkhidmatan.

Kata kunci: Technology Acceptance Model (TAM), WeChat, guru praperkhidmatan

INTRODUCTION

The advances of technology have made mobile devices like smart phones, tablet personal computers (PCs) and palm digital assistants (PDAs) more affordable, effective and easy to use (Nassuora, 2012). University students can now access to materials online and collaborate virtually (Nassuora). Mobile devices have also made learning more flexible and portable. Students are able to learn independently at any time, any place and anywhere (Khaddage, Lanham & Zhou, 2009). Ubiquitous learning enables both students and lecturers to communicate even after the formal learning hours (Lam, Wong, Cheng, Ho & Yuen, 2011). Learning with mobile devices will be one of the most effective approaches to deliver higher education resources in the future (El-Hussein & Cronje, 2010). Despite the potential in using mobile devices in future learning, conventional learning in the classroom will continue to exist. Mobile devices will complement the existing learning approaches in terms of accessing and delivering learning resources ubiquitously.

Mobile Learning with Web 2.0 Tools

Currently, Web 2.0 platforms like Facebook groups, Twitter, WhatsApp and WeChat have been popularly used with mobile devices among students themselves as well as between students and lecturers/teachers as a digital communication medium. According to Calvo, Arbiol and Iglesias (2014), each platform has different characteristics that influenced its suitability for learning purposes. It has been found out that WhatsApp has been used naturally in their daily life by both students and lecturers/teachers. Interestingly, WhatsApp seemed to be reported as the first technology that has been used widely in class without the needs to provide any training (Sanjay, 2015). Low cost, simplicity, accessibility, efficiency, and natural language are some of the advantages of WhatsApp over other education technology tools (Church & De Oliveira, 2013). Another Web 2.0 tool that is becoming equally popular and common which functions similarly to WhatsApp is WeChat. This tool can also support ubiquitous learning with mobile text and voice messaging for digital communication. It was first released in January 2011 by Tencent in China and has over 600 million users worldwide in October 2013 (Tan & Rui, 2014). Some studies have been carried out to investigate the effectiveness of using WeChat in learning (Hu, 2014; Huang, Wang, 2013; 2014; Wang, 2014; Xie,

2015). Xie has researched on the suitability of using WeChat in teaching Chinese language. Findings from these research showed that there is an increase in interest among the students towards using WeChat for learning. The research by Wang (2014) indicated that WeChat is a tool that has the characteristics of being portable that enable fast and real-time communication. It is relevant to be used as a tool for teaching foreign languages and helps teacher to monitor students' learning. The study by Hu (2014) has shown that WeChat can help to improve reading skills and inculcate reading habits among the students. It is used as a supplement teaching tool. There are many advantages in learning Hanyu using WeChat (Huang, 2014) and WeChat is a mobile tool that is useful for teaching and learning (Wang, 2013).

Problem Statement

Studies have been carried out on the use of mobile devices in educational environments to facilitate teaching and learning in higher education (Bouhnik & Deshen, 2014; Cavus, 2011). The findings indicated that the advantages of mobile learning like flexibility, mobility and availability (Bouhnik & Deshen, 2014; Buabeng-Andoh, 2012) have facilitated teaching and learning. However, research findings also found some inhibitors like resistance to acceptance and infrastructure shortcomings of the technologies which have inhibited the successful implementation of the technologies in education (Khalid Abdullah, 2009). There are some studies which have been carried out to study the willingness of users to accept and use new mobile technology for learning (Ammar, 2014; Cruz, Boughzala & Assar, 2014; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013). The success of learning with mobile devices will be determined by the acceptance and use of mobile technology (Yousef & Hamideh, 2013). According to Cheon, Lee, Crooks, & Song, (2012), students' perceptions need to be studied first before implementing learning with mobile devices in higher education. A person's perception can be related to the beliefs and attitude towards the acceptance of mobile devices (Khalid Abdullah, 2009). Many overseas studies have been carried out to investigate the effectiveness of using WeChat in teaching and learning (Hu, 2014; Huang, 2014; Wang, 2013; Wang, 2014; Xie, 2015).

There are also studies on the acceptance of WeChat in general (Hua, Qi & Zhang, 2013; Shuo, Xin & Zeng; 2013). However, these studies were not focused specifically on the acceptance of WeChat in teaching and learning. Since using WeChat for learning through a smart phone is a type of mobile learning, therefore it is necessary to conduct research that identifies the factors students consider important in the acceptance of using WeChat for learning. There have been studies being carried out in Malaysia on mobile learning (Mohamed Amin Embi & Norazah Mohd Nordin, 2013). The studies range from investigating the readiness (Afendi Hamat, Mohamed Amin Embi & Haslinda Abu Hassan, 2013; Tan, Ng & Lee, 2013) to the perceptions of mobile learning (Rashidah Rahaman, Parilah Mohd Shah, Sharifah Nor Puteh, Aidah Abdul Karim, Rosseni Din, Juhaidah Abd Aziz & Zamri Mohamad, 2013). Among the many studies being conducted, one of it studied the mobile environment that support teacher training (Sakina Baharom & Raja Maznah Raja Hussain, 2013). However, there is no specific study on the use of WeChat in teaching and learning among pre-service teachers; Thus, it is the interest of this research to study the acceptance of WeChat for learning among pre-service teachers in a Teacher Education Institute (TEI) in Sarawak.

Research Objectives

The main objective of this research is to study the acceptance of using WeChat as a teaching and learning tool based on technology acceptance model (TAM). This study aimed to:

- identify the factors based on TAM that influence pre-service teachers' acceptance of WeChat as a learning tool, and
- investigate the relationship among the factors based on TAM that influence pre-service teachers' acceptance towards using WeChat in learning.

LITERATURE REVIEW

WeChat in Learning

WeChat has the characteristic for ubiquitous learning for almost every student at anytime and anywhere. It provides mobile text and voice messaging communication services developed by Tencent in China, first released in January 2011. The app is available on Android, iPhone, BlackBerry, Windows Phone, Sybian and OS X platforms. The languages it supported include Traditional/simplified Chinese, English, and others. WeChat is supported on Wi-Fi, 2G, 3G and 4G networks. According to Macquarie Securities' estimation in May of 2013, WeChat has owned about 400 million users totally (Sanjay, 2015). WeChat provides multimedia communication with text messaging, hold-to-talk voice messaging, broadcast (one-to-many) messaging, photo/video sharing, location sharing, and contact information exchange. It also supports social networking via shared streaming content feeds and location-based social plug-ins ("Shake", "Look Around", and "Drift Bottle") to chat with and connect with local and international WeChat users. Photos can be taken and embellished with artistic filters, captions, and placed into a personal photo journal for sharing with other users. User data is protected via an on-demand contact list backup and retrieval to/from the cloud. WeChat claims to provide a social networking platform that emphasizes user privacy and fast response performance.

There are studies (Wang, 2014; Xie, 2015; Yaqi, 2014) which have been carried out to study the effectiveness of using WeChat in teaching and learning: Yaqi (2014) carried out an experiment to study the application of WeChat Public Platform to teach Chinese Language. A total of 31 foreign students aged between 18 to 25 years taking the elementary Chinese Language studies at Beijing Language University were involved in the experiment. Learning content in the forms of text, pictures, audios and videos were posted through WeChat. Analysis was done on students' responses towards the learning contents. Based on the analysis and interviewing with the students, it is found that students like to receive learning materials through WeChat. They found that the materials are useful and can help them towards learning Chinese language grammar and conversation. The experiment showed that using WeChat as a teaching and learning tool to help foreign student towards learning Chinese Language has obtained positive results.

Wang (2014) developed a constructivist context-aware WeChat learning environment as a new learning strategy for language teaching and learning in colleges. The new learning strategy was applied on a group of students in Xi'an

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Polytechnic University. The online behaviors, learning motivations and learning achievement of students were analyzed to study the impact of WeChat on college students' English learning. The study showed that WeChat has the characteristics of being portable that enable fast and real-time communication. It is relevant to be used as a tool for teaching foreign languages and helps teacher to monitor students' learning.

WeChat has been used by a Mandarin teacher in Shanghai as a unique way to teach her student communication skills through Miracle Mandarin Program (PR Newswire, 2014). Miracle Mandarin Chinese Language School was founded in 2003. It now has five locations in Shanghai, Beijing and Germany. Over 200 experienced teachers deliver Miracle Mandarin's unique curriculum to thousands of students each year. The name Miracle Mandarin originated when one of the school's first students, a 70-year old retired American executive, declared it a "miracle" that he had not only learned to speak, but also read and write simple sentences after one month's study. Miracle Mandarin's team developed their own curriculum, tools, mobile apps and online learning platform in order to ensure students' success. More information can be found at <http://miraclemandarin.com>.

The Mandarin teacher has seven students from all over the world. Miracle Mandarin's method for teaching Chinese characters focuses on building student confidence and practical abilities. This method emphasizes reading and learning the most common characters so that students quickly begin to recognize characters in context. Using WeChat and the predictive text feature of smart phones goes hand-in-hand with Miracle Mandarin's method, allowing students to use what they've learned to effectively communicate. Among some of the feedback in using WeChat from the students are:

"A useful tool for communication and a great way to practice Chinese Language outside of class that has helped in reading Chinese characters."

A Miracle Mandarin student from the U.S

"A great tool to communicate with Chinese friends."

A Miracle Mandarin student from Mauritius

"A good tool to communicate with my aunty in China."

A Miracle Mandarin student from Australia

According to Miracle Mandarin's co-founder, Emma Wang, students will practice and create a cycle of learning when they can feel comfortable quickly during communication. She attributed the progress of these students in such a short time upon the innovative use of WeChat to best meet the students' needs.

Xie (2015) has researched on the suitability of using WeChat in teaching Chinese language. For example teaching reading, writing and speaking. Others include using WeChat to facilitate group activities among the peers. The study showed that there is an increase in interest among the students towards using WeChat for learning.

In addition to the positive outcomes obtained from the studies on the effectiveness of using WeChat in teaching and learning, it is also important to carry out research to study students' acceptance on the use of WeChat. According to Zhu, Guo and Hu (2012), understanding end-users' acceptance of mobile learning is crucial, because new technological advances cannot enhance performance if they are not accepted by end-users. This is important as acceptance and use of mobile technology will determine the success of learning with mobile devices (Yousef & Hamideh, 2013). Similarly, Cheon et al. (2012) also indicated the needs to study students' perception towards mobile learning before implementation. Many studies have been carried out to study the acceptance of learners towards the use of mobile devices in learning (Chang, Yan & Tseng, 2012; Cruz, Boughzala & Assar, 2014; Iqbal & Qureshi, 2012; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Nassuora, 2013; Mtebe & Raisamo, 2014). There are also studies on the acceptance of WeChat in general (Hua, Qi & Zhang, 2013; Shuo, Xin & Zeng, 2013). However, these studies were not focus specifically on the acceptance of WeChat in learning among pre-service teachers. The following section will review studies that have been carried out to study the acceptance of mobile devices in learning. Based on the reviews, it is proposed to specifically study the acceptance of WeChat among pre-service teachers in this paper.

Learners' Acceptance on Mobile Learning (M-learning)

According to Alsaadat (2009), the use of mobile devices like hand phones, laptops, table personal computer (PC) and Personal Digital Assistants (PDAs) for teaching and learning is called M-learning. Mobile devices are very useful and they offer many advantages in education. Among the advantages are:

- enable interaction among learners and also with the instructor
- enable the easy accommodation of few mobile devices in the classroom due to their small sizes and mobility
- mobile devices with e-books and other digital content are lighter and less bulky than convention school bags
- the use of stylus pen is more intuitive than keyboard and mouse
- students can share their work collaboratively with mobile devices as well as projected their works through infrared function of a PDA or wireless network such as Bluetooth
- the ubiquitous nature of mobile devices made it valuable for work-based training at any place and time
- the cheaper mobile devices is possible to help bridge the digital divide

According to Zhu, Guo and Hu (2012), understanding end-users' acceptance of mobile learning is crucial, because new technological advances cannot enhance performance if they are not accepted by end-users. Thus, the many advantages of M-learning will benefit learners more if the factors that affect the acceptance of the technology can be made known. Many studies have been carried out to study the factors that affect learners' acceptance of M-learning in institution of higher learning (Chang et al., 2012; Cruz, Boughzala & Assar, 2014; Iqbal & Qureshi, 2012; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013). Among the popular models that have been used to carry out technology acceptance are Unified Theory of Acceptance and Use of Technology (UTAUT)

(Venkatesh, Morris, Davis & Davis, 2003) and Technology Acceptance Model (TAM) (Davies, 1989). The outcomes from the research showed that factors like performance expectancy (Cruz, Boughzala & Assar, 2014; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013), effort expectance (Cruz, Boughzala & Assar, 2014; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013), social influence (Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013), facilitating conditions (Iqbal & Qureshi, 2012; Jairak, Praneetpolgrang & Mekhabunchakij, 2009; Mtebe & Raisamo, 2014; Nassuora, 2013), beliefs (Chang et al., 2012; Iqbal & Qureshi, 2012) and attitudes (Chang et al., 2012; Iqbal & Qureshi, 2012) have positive influenced on the acceptance of M-learning. According to Ammar Khader (2014), the level of M-learning acceptance in different countries will vary due to differences in technology awareness level, infrastructure and expertise availability as well as users' willingness to use the technology. It is the interest of this research to study pre-service teachers' acceptance on the use of WeChat in learning at a teacher education institute in Sarawak. A framework based on technology acceptance model will be use in this research.

Technology Acceptance Model

Technology Acceptance Model (TAM) (Davis, 1989) is the most widely used model in the field of technology adoption. The model is used to study what causes user to accept or reject the use of technology. Ibrahim and Jaafar (2011) described that it is used to explain the impact of external variables (objective system design characteristics, training, computer self-efficacy) on internal beliefs (attitude toward use, behavioural intentions and actual system use). Figure 1 shows TAM model indicating the relationship between the different variables.

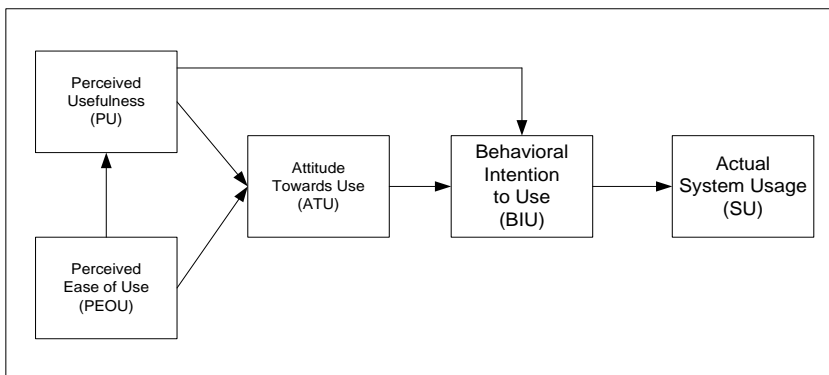


Figure 1. Technology Acceptance Model (TAM) based on Davis (1989)

The two main determinants of TAM are:

- Perceived usefulness (PU) - degree to which a person believes that the use of a particular system may improve his performance; and
- Perceived ease of use (PEOU) - degree to which a person believes that the use of an information system will be free of effort;

PU and PEOU together lead to behavioural intention to use (BIU), and it results in usage behavior that can determine actual system usage (SU). Other determinants of TAM are:

- Behavioral intention to use (BIU) - degree to which an individual has made consciously plans to decide whether to perform a certain future behavior or not;
- Attitude (ATU) - the positive or negative feelings from the person about executing a certain behavior (use the system).

Acceptance of Using WeChat as a Learning Tool: A Model Based on TAM

This study will use a model based on TAM to investigate the acceptance of WeChat among pre-service teachers at a teacher education institute (TEI) in Sarawak. Three additional constructs: Technological Complexity (TC), Computer Self-efficacy (CSE) and Facilitating Conditions (FC) were included to study other factors besides factors based on the conventional TAM that affect the acceptance of technology. Technological Complexity (TC) is referred to as whether users perceive technology as relatively difficult to understand and use (Timothy, 2009). Computer Self-efficacy (CSE) indicates one's judgment of his/her capabilities of organizing and completing courses of action required to achieve specific tasks (Bandura, 1977). Facilitating Conditions (FC) are environmental factors that affect one's desire to perform a task.

Conventional TAM has been used to study many end-user technologies, for example e-mail (Adams, Nelson & Todd, 1992), the World Wide Web (Lederer et al., 2000; Yi and Hwang, 2003), internet banking (Wang et al., 2003), e-commerce (Henderson and Divett, 2003), wireless Internet (Yu, Liu & Yao, 2003) and M-learning (Chang et al., 2012; Iqbal & Qureshi, 2012). It is the interest of this paper to use the extended TAM model to study the acceptance of WeChat among pre-service teachers in learning. The model is shown in Figure 2.

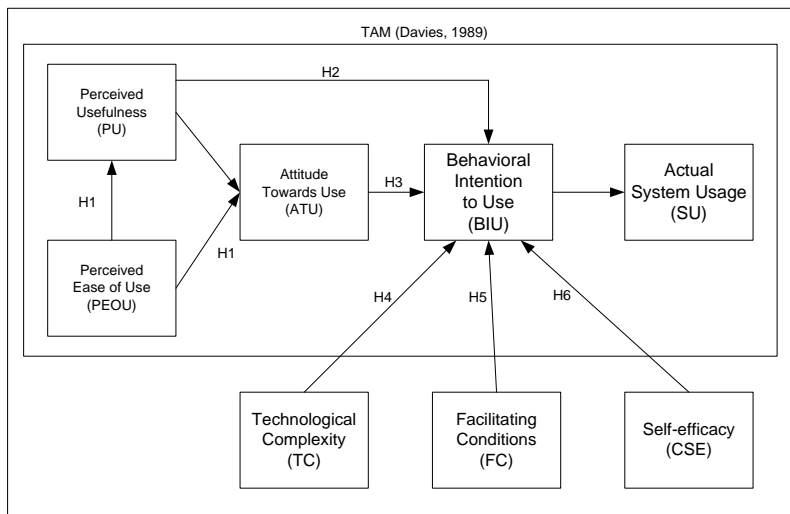


Figure 2. Technology Acceptance Model (TAM) with Three Additional Constructs

In the present study, PU is to investigate pre-service teachers' beliefs as to whether WeChat can improve their learning, while PEOU investigates the degree to which a pre-service teacher believes that the use of WeChat will be free of effort. The perceived usefulness and perceived ease of use determine whether a user will use a technology. If he/she believes that the use will give positive results, then his/her intention to use the technology will be high (Aypay, Çelik, Aypay & Sever, 2012).

Research Model and Hypotheses

Based on the research model in Figure 2, there are eight constructs represented as boxes which were measured as the factors that influence pre-service teachers' behavioural intention to use WeChat. This will gear towards addressing the research question of this study.

- H₁: Perceived ease of use (PEOU) has a positive influence on behavioural intention to use WeChat.
- H₂: Perceived usefulness (PU) has a positive influence on behavioural intention to use WeChat.
- H₃: Attitude towards usage (ATU) has a positive influence on behavioural intention to use WeChat.
- H₄: Technological Complexity (TC) has a positive influence on behavioural intention to use WeChat.
- H₅: Facilitating Conditions (FC) has a positive influence on behavioural intention to use WeChat.
- H₆: Self-efficacy (CSE) has a positive influence on behavioural intention to use WeChat.

RESEARCH METHOD

Participants

A total of 39 pre-service teachers (7 males, 32 females) taking a first degree course in teaching at a TEI in Sarawak participated in this research. These participants were from four different teaching programs: *Program Ijazah Sarjana Muda Perguruan* (PISMP) History, PISMP Mathematics, PISMP English Language and PISMP Chinese Language. They were randomly selected from the first year PISMP degree program students ($N = 39$). The mean age of the participants was 22 years, ($SD = 0.00$). The students have been using WeChat as a learning tool through two courses taught by two different lecturers in the year 2015. Questionnaires were distributed to collect data intended to be used for this research at the end of 2015.

Instrument

The questionnaire used in this research was adapted from the questionnaire used in Juinn, Potamites and Lin's (2012), and Aypay, Çelik, Aypay and Sever's (2012) research. Juinn, Potamites and Lin (2012) studied factors that influence clients of banks in adopting online banking behavior in Taiwan whereas Aypay, Çelik, Aypay and Sever (2012) studied the level of technology acceptance of pre-service teachers in Turkey. In the present study, a total of 34 questions were used for the questionnaire and respondents were required to indicate their degree of

agreement on a 5-point Likert scale, namely 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Disagree. The questionnaire consists of two parts. The first part (consisted of 7 questions) was for obtaining demographic information about the respondents. The second part (consisted of 27 questions) was for measuring the constructs of TAM model with the three additional constructs (Figure 2). The Cronbach's Alpha (Cronbach, 1951) reliability coefficient for the present sample ($N = 39$) is .89, indicating that the instrument has high reliability (Nunnally, 1978).

Data Analysis

The statistical software package SPSS for Windows (version 12.0) was used to carry out correlation analysis of the TAM model with the three additional constructs in this survey. Pearson correlation was computed to measure the linear correlation (dependency) between two variables X and Y. It gives a value between +1 and -1 inclusive where 1 is total positive correlation, 0 is no correlation and -1 is total negative correlation. Besides correlation, linear regression analysis was also computed. It is a kind of structural equation modeling. Linear regression analysis is useful because it works well on small samples and can usually be solved quickly, even when there are many factors and variables.

FINDINGS AND DISCUSSION

Demographic Information

The highest participating percentage of pre-service teachers were in the 18 - 22 years age group (100%). Around 69.2% of them have used computer every day with 100% of them having more than one year of experience in using computer. At least 97.4% of them have been using WeChat for more than a year and 89.7% of them do not have any training in using WeChat for learning. Despite of this, they can still use WeChat as a learning tool when this research was carried out. The demographic information of the respondents is summarized in Table 1.

Table 1

Demographic Information

Variables	Characteristics	%
Gender	Male	18
	Female	82
Age	18-22 years old	100
Education Degree Course	Mathematics	7.7
	History	17.9
	English Language	10.3
	Chinese Language	64.1
Internet use frequency	Every day	69.2
	Almost every day	28.2
	Twice a week	2.6
Experience of computer use	> 1 year	100
How long have you used WeChat?	> 1 year	97.4
How much training did you receive in using WeChat as a learning tool?	None	89.7

Factors that affect the use of WeChat among Pre-service Teachers

Descriptive statistics of TAM constructs (Table 2) show that pre-service teachers strongly agreed ($M = 4.17$) that Perceived Ease of Use (PEOU) is the main factor that will determine their use of WeChat. This means that WeChat is easy for them to use and they do not need much time to learn. They also agreed ($M = 3.72$) that Attitude Towards Computer Use (ATU) helps them to enjoy using WeChat and they will use it actively. Besides, they agreed ($M = 3.69$) that Behavioral Intention to Use (BIU) give them the positive attitude towards using WeChat. The students also agreed ($M = 3.47$) that Perceived Usefulness (PU) help them to see that WeChat is a useful tool to create virtual learning experience. They also see that WeChat will increase the efficiency in learning. The students weakly agreed ($M = 3.27$) that Facilitating Conditions (FC) in which someone is there to help or teach them when needed will help them to use WeChat. They also weakly ($M = 3.14$) agreed that System Usage (SU) and Computer Self-efficacy (CSE) ($M = 3.13$) will affect their acceptance in using WeChat. This means that their prior experience and availability of help in using WeChat will not influence their acceptance in using WeChat. They disagree ($M = 2.33$) that Technological Complexity (TC) will affect them in using WeChat. This means that it is not difficult for them to learn how to use WeChat.

Table 2

Descriptive Statistics of Research Model Constructs

TAM Constructs	Mean	Std. Deviation	Ranking
System Usage (SU)	3.14	.584	6
Perceived Usefulness (PU)	3.47	.667	4
Perceived Ease of Use (PEOU)	4.17	.717	1
Attitude Towards Computer Use (ATU)	3.72	.712	2
Behavioral Intention to Use (BIU)	3.69	.720	3
Technological Complexity (TC)	2.33	.672	8
Facilitating Conditions (FC)	3.27	.793	5
Computer Self-efficacy (CSE)	3.13	.625	7

Relationship among the Factors

The computed correlation coefficients for the constructs are shown in Table 3.

Table 3

Pearson Correlation Coefficient Research Model Construct

	PU	PEOU	ATU	BIU	SU	TC	CSE	FC
PU	1	.422**	.636**	.787**	.544**	-.383*	.129	.345*
PEOU	.422**	1	.524**	.452**	.333*	-.478**	.030	.234
ATU	.636**	.524**	1	.794**	.655**	-.231	-.087	.388*
BIU	.787**	.452**	.794**	1	.530**	-.349*	-.113	.359*
SU	.544**	.333*	.655**	.530**	1	-.232	-.060	.129
TC	-.383*	-.478**	-.231	-.349*	-.232	1	-.167	-.382*
CSE	.129	.030	-.087	-.113	-.060	-.167	1	.326*
FC	.345*	.234	.388*	.359*	.129	-.382*	.326*	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

There is a significant moderate correlation for the influence of PEOU on PU ($r = 0.42$), PU on ATU ($r = 0.64$), PEOU on ATU ($r = 0.524$), BIU on SU ($r = 0.530$) and a strong correlation for the influence of PU on BIU ($r = 0.787$), ATU on BIU ($r = 0.794$) at 0.01 significance level. The moderate influence of FC on BIU ($r = 0.359$) is at 0.05 significance level. On the other hand, there is a weak correlation for the influence of TC on BIU ($r = - 0.349$) which is found to be significant at 0.05 significance level and CSE on BIU ($r = - 0.113$) which is found to be not significant.

Linear regression analysis was computed to show the level of influence of one construct over another based on the hypothesis. The results in Table 4 show that BIU is 62% influenced by PU and 63% influenced by ATU respectively. These influences were shown to be significant at .000 significance level. Other constructs have a lower percentage of influence on BIU with PEOU, FC, TC and CSE having an influence in the decreasing order of 20.4%, 12.9%, 12.2% and 1.3% respectively. Only influence by PEOU was significant at the level of 0.04. These data analysis on correlation and linear regression analysis have the following findings for the six hypotheses (summarized in Table 5). It can be concluded that perceived usefulness (PU) and attitude towards usage (ATU) have the greatest significant influence on behavioural intention to use (BIU) WeChat among the pre-service teachers involved in this study. Other factor that has minor significant influence on the use of WeChat over BIU was perceived ease of use (PEOU). The influence of PEOU on BIU was indirect via PU or ATU based on the proposed TAM model. This might be the cause of its minor significant influence on BIU. Interestingly, the findings indicate that even though factors like technological complexity (TC), facilitating conditions (FC) and self-efficacy (CSE) have minor influence on BIU, their influences were found to be not significant.

The analysis indicates that pre-service teachers have very positive intention (BIU) to use WeChat. Perceived usefulness (PU) is related to one's believe to use technology (Ajzen & Fishbein, 1980). Since PU has direct influence on intention of technology use (BIU), this implies that pre-service teachers believe that using WeChat can help them in their learning and they have more control over the knowledge acquisition. This probably has influenced the pre-service teachers to have positive intention to use WeChat. The low influence of technological complexity (TC), facilitating conditions (FC) and self-efficacy (CSE) towards the intention of using WeChat could imply that pre-service teachers' positive intrinsic motivations might have helped them to overcome the difficulties of technological complexity, little facilitating conditions and low self-efficacy towards using WeChat. Similar positive influence of PU and ATU on the intention (BIU) to use WeChat have been reported in research carried out by Hua, Qi and Zhang (2014). The finding on the positive BIU to use WeChat in learning concur with the finding of Davies (1985) which reported that users' intention is crucial to the adoption of information system. The different results obtained concerning the influence of technological complexity (TC), facilitating conditions (FC) and self-efficacy (CSE) factors on the intention use of WeChat might be due to other factors which are not covered in this study. These other external factors could be perceived mobility value, perceived output quality and perceived enjoyment which were found to have positive influence on PU and PEOU for students' acceptance of mobile learning in universities (Zhu, Guo & Hu; 2012).

Table 4

Linear Regression Analysis of Factors based on TAM affecting the use of WeChat

Influence of A → B	R-squared	% of influence	Sig.
PEOU → BIU	.452	20.4	.004
PU → BIU	.787	62	.000
ATU → BIU	.794	63	.000
TC → BIU	.349	12.2	.030
FC → BIU	.359	12.9	.025
CSE → BIU	.113	1.3	.494

Table 4 is directly related to the hypothesis shown in Table 5. Based on the results, hypothesis null for H₄, H₅ and H₆ are being accepted indicating that technological complexity (TC), facilitating conditions (FC) and self-efficacy (CSE) factors do not have significant influence on users' behavioural intention to use (BIU) WeChat. The rejection of hypothesis null for H₁, H₂ and H₃ indicate that:

- H₁: Perceived ease of use (PEOU) has a positive influence on behavioural intention to use WeChat.
- H₂: Perceived usefulness (PU) has a positive influence on behavioural intention to use WeChat.
- H₃: Attitude towards usage (ATU) has a positive influence on behavioural intention to use WeChat.

Table 5

Summary of Hypothesis Findings

Hypothesis	Significance Level	H ₀
H ₁ Perceived ease of use (PEOU) has a positive influence on behavioural intention to use WeChat.	.004	Reject
H ₂ Perceived usefulness (PU) has a positive influence on behavioural intention to use WeChat.	.000	Reject
H ₃ Attitude towards usage (ATU) has a positive influence on behavioural intention to use WeChat.	.000	Reject
H ₄ Technological Complexity (TC) has a positive influence on behavioural intention to use WeChat.	.030	Accept
H ₅ Facilitating Conditions (FC) has a positive influence on behavioural intention to use WeChat.	.025	Accept
H ₆ Self-efficacy (CSE) has a positive influence on behavioural intention to use WeChat.	.494	Accept

CONCLUSION

This research has successfully carried out a pilot study on the factors that have positive influence on the behavioural intention to use WeChat among pre-service teachers in a Teacher Education Institute in Sarawak. The findings of this study show that the main factors influencing behavioural intention to use WeChat were the perceived usefulness of WeChat and attitude of the pre-service teachers

towards using WeChat. Other minor factors affecting the use was perceived ease of use. External factors like technological complexity, facilitating conditions and self-efficacy did not have significant influence on the use of WeChat. Based on the initial findings, the two factors that have been identified to have positive influence on the acceptance of using WeChat in learning among the pre-service teachers are “the usefulness of WeChat” and “a positive attitude”. Besides that, other factors like perceived mobility value, perceived output quality and perceived enjoyment are possible factors that can also influence their acceptance of using WeChat in learning. These factors can be included in the questionnaire to increase the scope and comprehensiveness of the study. The findings from this research cannot be generalized since only a small sample of participants was involved. Future studies involving more pre-service teachers from the institute could be carried out to add to the generalizability of the findings.

These findings suggest that pre-service teachers’ willingness to use WeChat is influenced intrinsically by their own attitude and perceptions. External factors like technological complexity, facilitating conditions and self-efficacy are not the main factors that inhibit them from using WeChat. It has been reported that higher education (HE) students are very well equipped and have used mobile phone extensively (Bennett, Maton, & Kervin, 2008; Bullen, Morgan, Belfer & Qayyum, 2009; Jones & Cross, 2009). Thus, the finding from this study also suggest that the percentage of success in using WeChat for teaching and learning among pre-service teachers will be high if they are not negatively influenced by their own attitude and perceptions as they are also from that generation. This research is used as a pilot study to find out the reliability of the questionnaire used and also as an initial finding on the factors that influence pre-service teachers’ acceptance of WeChat in learning. As for future research, the scope of the study could be widened by including more pre-service teachers so that a generalization of the study can be obtained. Factors like perceived mobility value, perceived output quality and perceived enjoyment are related to the beliefs and attitude of a person. These will be relevant to be included in the questionnaire to study whether they have similar intrinsic influence as attitude and perception of the TAM model.

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