AN EMPIRICAL STUDY OF USERS' CONTINUANCE INTENTION AND WORD OF MOUTH TOWARD SNA (SOCIAL NETWORK APP)

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ABSTRACT

There has been a long-running war going on over the mobile application and it has attracted increased attention in recent years. However, there has been little research on Social Network App (SNA). We try to extend the Expectation-Confirmation Model with the Technology Acceptance Model as the theoretical model to explain the users' continuance intention and word of mouth on SNA usage. Hypothesis testing was performed using SmartPLS on data collected with 204 Apps users. The results show that satisfaction was affected by perceived usefulness, perceived ease of use, confirmation, and the continuance intention and word of mouth were influenced by satisfaction. Theoretical and practical implications were discussed.

Keywords: Social Network App, word of mouth, continuance intention, satisfaction, perceived ease of use, perceived usefulness, confirmation

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INTRODUCTION

Since 2007, more than 500 million smartphones have been activated. By the end of 2012, the cumulative number of smartphone devices activated will surge past 1 billion. According to IDC, over 3 billion smart-phone devices were adopted between 2007 and 2010, making the rate of smartphone device adoption more than four times faster than that of personal computers (Newark-French, 2012). The mobile application (App) revolution has changed the way software is distributed and used among consumers. Over 40 billion applications have already been downloaded from the App Store. People are spending ever more time in App. With App usage soaring, Social Network App (SNA) service captures the significant majority of consumers' time. App users spend more and more time of their day using Social Network App (SNA) (Newark-French, 2012).

In our study we attempted to explain the word of mouth and continue intention to SNA usage. We based our framework on Expectancy Confirmation Model (ECM) and Technology Acceptance Model (TAM). Rather than focusing solely on continuance intentions to use SNA, our study also examined the willingness of users to provide positive word of mouth about the SNA usage. The confirmatory factor analysis was employment to examine the reliability and validity of the measurement model. The model was tested by Partial Least Squares (PLS) technique. Implications for scholars and practitioners are discussed.

LITERATURE REVIEW

Expectancy Confirmation Model (ECM) is widely used to evaluate consumers' satisfaction and usage behavior in the study of consumer behavior (Tse & Wilton, 1988; Anderson & Sullivan, 1993; Patterson, Johnson, & Spreng, 1997; Bhattacherjee, 2008). ECM proposes that consumers' expectation and perceived performance determine their satisfaction (Oliver 1980, Oliver 1993). Bhattacherjee incorporates perceived usefulness from TAM with ECM to reflect users' expectation (Bhattacherjee, 2001a; Bhattacherjee, 2001b; Bhattacherjee and Premkumar, 2004). There are two internal dimensions of TAM: perceived usefulness (PU) and perceived ease of use (PEOU) (Davis et al., 1989). ECM posits two main determinants of usage behavior (satisfaction and usage intention), and two direct determinants of satisfaction (perceived usefulness and confirmation).

In the revised ECM model, user satisfaction was affected by confirmation and perceived usefulness, continuance intention was determined by satisfaction. In addition, perceived usefulness was affected by confirmation, which has a direct effect on continuance intention.

In previous studies have indicated that users' satisfaction on using specific application targets was influenced by perceived usefulness, confirmation (Sweeney and Soutar, 2001; Kang et al., 2009; Lii and Sy, 2009) and also satisfaction plays an important role in predicting user intention and word of mouth (Bhattacherjee, 2001a, Bhattacherjee et al., 2008, Kim et al., 2009).

Social Network App (SNA) as a social communicate tool belong to a specific application that calls for additional constructs, such as PEOU to be incorporated in order to fit nicely into the ECM domain. The modified ECM model enables a better explanation of SNA usage behavior.

According to ECM, continuance intention is defined as user's continuance intention to a product or service in the post- acceptance stage. The higher perceived satisfaction leads to the higher change to reuse the product or service in the future.

In this study, we defined PU as "the degree to which a person believes that using specific application system would enhance his or her specific performance" (Davis et al., 1989), PEOU as "the degree to which the prospective user expects in using specific application system to be free of effort" (Davis et al., 1989), confirmation as "users' perception of the congruence between expectation of specific application system use and its actual performance" (Bhattacherjee, 2001b).
As above, we proposed the following hypothesis:
H1: Perceived ease of use positively influences perceived usefulness.
H2: Perceived ease of use positively influences user satisfaction.
H3: Confirmation has a significant effect on perceived usefulness.
H4: Perceived usefulness has a significant effect on user satisfaction.
H5: Confirmation significantly influences user satisfaction.
H6: Perceived usefulness positively influences continuance intention.
H7: Satisfaction positively influences continuance intention.
H8: Satisfaction has a significant effect on word of mouth communication.

RESEARCH METHOD

The research model (as shown in Fig.1) is an extension of ECM with TAM. The data used to test the research model were obtained through an online survey of the users of Social Network App (SNA) service.
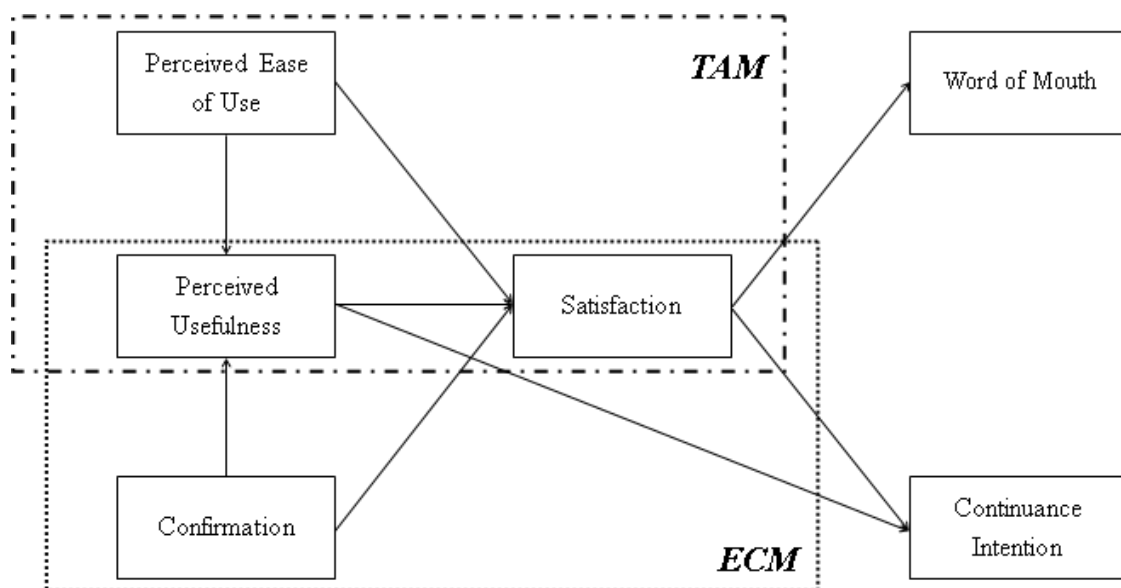

Figure 1 Research Model

METHODOLOGY

1. Measures

The constructs in this study included perceived ease of use, perceived usefulness, confirmation, users' satisfaction, word of mouth and continuance intention. We used established measures from previous literature. The five-point Likert scale, ranging from strongly disagree (1) to strongly disagree (5), was used to measure multi-item perceptual scales.

2. Data collection

We developed our self-administered questionnaire on specific platform for data collection. The existing scales from prior research were used, but modified the wording of the questionnaire in order to fit the particular context of Social Network App usage. In a pretest phase, we invited a small group of IS faculty and doctoral students to review of the survey to modify the scales and questions. The purpose of these pretests was to confirm that relevant aspects were included and to enhance the valid, reliable, and appropriate of the questionnaire. The final questionnaire of 32 items measuring 6 latent variables is presented in Appendix A.

We conducted an online survey about SNA services users' psychological factors in continuance intention. We posted the invitation messages with the URL to the online questionnaire on a number of Facebook groups and technology forums related to App experiencers.

DATA ANALYSIS AND RESULTS

The SmartPLS method was used to perform the statistical analysis in this study.

The PLS procedure (Wold, 1985) is widely adopted by IS researchers in recent years because of its ability to provides a better explanation for medium sample sizes and complex relationships. (Chin 1998).

A two-step analytical procedure (Hair et al. 1998) was used, we first examined the measurement model and then the structural model was used to conduct a path analysis and test our hypotheses. Following the two-step analytic approach, we ensure our conclusion on structural relationship was drawn from a set of measurement instruments with desirable psychometric properties.

1. Descriptive statistics

The survey data was collected in July 2012 to August 2012 to collect data for testing our hypotheses. The respondents were asked to complete the questionnaire based on their experience with Social Network App (SNA) services. The 204 responses were received in this study. The results show that 60% of the respondents were men, 26% between 41 and 55 years old, 59% held a university undergraduate degree, and had 1-2 years of experience in using Social Network App (SNA).

2. Measurement model

Convergent validity and discriminant validity of the constructs indicate the extent to which the items of a scale that are theoretically related should be related in reality. Table 1 present information concerning the estimate of reliability, the composite reliability (CR) ranged from 0.94 to 0.97 are above 0.7, which are higher than the threshold level of 0.7 suggested by Chin (1998). The Cronbach's Alpha, ranged from 0.92 to 0.97, are higher than the threshold level of 0.7 (Nunnally, 1978). The average variance extracted (AVE) ranged from 0.76 to 0.87 in our study, which are higher than the threshold level of 0.50 suggested by Fornell and Larcker (1981) suggested. The validity can be assessed by the square root of the average variance extracted (AVE) for each construct and all data were higher than the corresponding inter-construct correlations as show in Table 2. And the item loadings are greater than 0.707 (Chin, 1998). Overall, we concluded that the measures were valid.

Table 1 Construct reliability measures

Construct	Mean	Standard Deviation	Cronbach Alpha	Composite Reliability	AVE
PEU	3.89706	0.82134	0.93700	0.95052	0.76273
PU	3.79510	0.89057	0.92007	0.94003	0.75833
Con	3.53137	0.82407	0.92537	0.94368	0.77040
SA	3.45980	0.87004	0.94720	0.95951	0.82581
WOM	3.48529	0.93918	0.96659	0.97217	0.83308
CI	3.83333	0.89397	0.94926	0.96335	0.86795

Table 2 Inter-construct correlations and square roots of AVE of low-order constructs.

	PEU	**PU**	**Con**	**SA**	**WOM**	**CI**
PEU	**0.87335**					
PU	0.50677	**0.87082**				
Con	0.48886	0.69181	**0.87772**			
SA	0.48253	0.65781	0.60216	**0.90874**		
WOM	0.46208	0.63270	0.59101	0.81406	**0.91273**	
CI	0.58639	0.62139	0.61997	0.66171	0.71686	**0.93164**

3. Structural model

The path coefficients were yielded by PLS analysis for the structural model. The bootstrap resampling procedure was used to the testing of significance of all paths. Fig. 2 shows the results of the hypothesized structural model test. Table 3 presents the results with overall explanatory powers, estimated path coefficients, and associated t-value of the paths. The overall explanatory power of our research model had R^2 = 49.9%, 66.3%, 49.1% and 51.6% for continued intention, word of mouth, satisfaction and perceived usefulness, revealed that usage of SNA can be predicted by extended ECM with TAM.

As indicated in Table 3, the perceived ease of use and confirmation to perceived usefulness was significant with path coefficients of 0.222 and 0.584 respectively, thus hypotheses H1 and H3 were supported. The effects of perceived ease of use, perceived usefulness, and confirmation were positive relationship to satisfaction with standardized path coefficients of 0.156, 0.412, and 0.241. Hypotheses H2, H4, and H5 were thus supported. The effects of satisfaction were positive relationship to word of mouth with standardized path coefficients of 0.814. Thus, hypotheses H8 was supported. Finally, perceived usefulness and satisfaction had a direct positive relationship to continuance intention with standardized path coefficients of 0.328 and 0.446, respectively. This provided support for hypotheses H6 and H7.
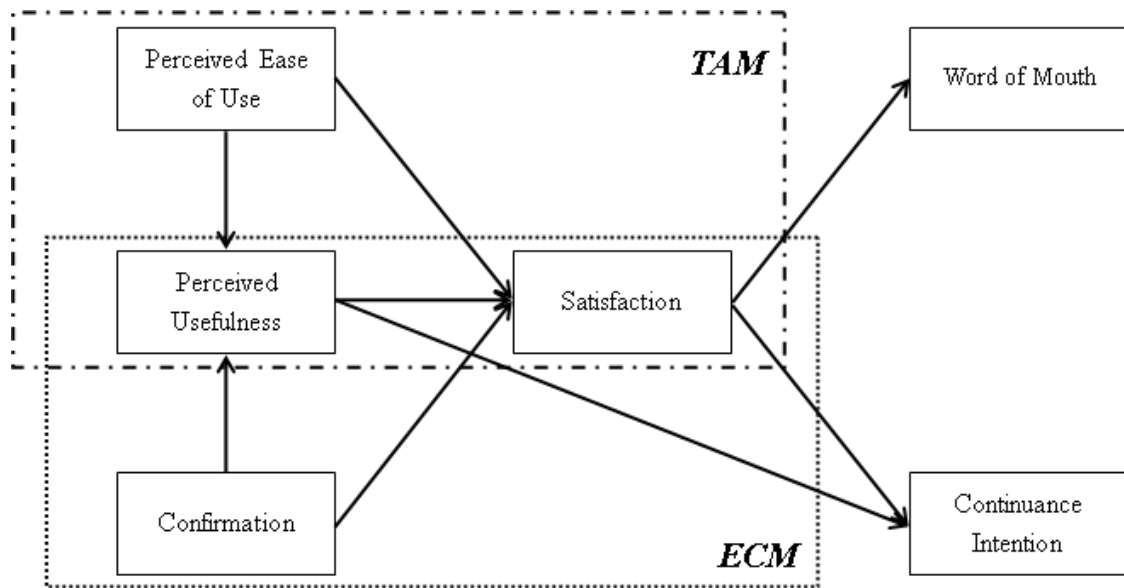

Figure 2 PLS analysis structural model

Table 3 Structure model

Construct	R^2	β	t-value
PEU→PU		0.222***	3.694
CON→PU		0.584***	10.578
PU→SA		0.412***	4.854
PEU→SA		0.156*	2.243
CON→SA		0.241**	2.889
SA→WOM		0.814***	27.951
PU→CI		0.328***	4.089
SA→CI		0.446***	5.135
PU	0.516		
SA	0.491		
WOM	0.663		
CI	0.499		

DISCUSSION AND CONCLUSIONS

This study tries to extend the Oliver's ECM (1980) with Davis's TAM (1989) as the structure model. The path coefficients, including perceived ease of use to perceived usefulness, confirmation to perceived usefulness, perceived usefulness to satisfaction, perceived ease of used to satisfaction, confirmation to satisfaction, satisfaction to word of mouth, perceived usefulness to continuance intention, and satisfaction to continuance intention, are found statistically significant. These results have several implications for academic and practice.

1. Implications for academics

Our study provided an insight into factors contributing to word of mouth and continuance intention to the SNA usage. It also showed that perceived usefulness and satisfaction were the two key factors in determining a customer's continuance intention to the SNA usage. The empirical results show that the unified model supports for all of our hypotheses and has good explanatory power, implying that the integration of ECM and TAM provides a model with a theoretical basis to explain SNA usage.

2. Implications for practitioners

Users' continuance intention was significantly influenced by perceived usefulness and satisfaction (β=0.328, p<0.001; 0.446, p<0.001), which was accordant to our hypothesis. Especially, the result shows that satisfaction is the strongest predictor of users' continuance intention. It means that if users feel good on the whole to use Social Network App, the users would like to continue the use Social Network App.

However, the perceived usefulness was influenced by confirmation. It demonstrated that people would make sure that the SNA can enhance their effectiveness for life or work before used. Therefore, the confirmation plays the important role on SNA usage. Word of mouth was significantly influenced Satisfaction (β=0.814, p<0.001). If people feel satisfy by using SNA, he/her might be more likely to recommend or share the using experience to others. Thus, the developer should concerned that the users' evaluation because word of mouth is important in using SNA service.

SNA users' satisfaction was predicted primarily by users' SNA perceived usefulness and confirmation on a prolonged basis (β=0.412, 0.241, p<0.001). However, we found some interesting patterns emerge. If the SNA is benefit to the users or the SNA can enhances users living or working effectiveness, the users will feel satisfy for SNA usage. Additionally, if the user gets the benefit or help to perform many things more conveniently by using SNA, the user will feel more satisfy on it.

LIMITATIONS

It may have some limitations on this study. First, our study examined only on the effect of perceived usefulness and satisfaction to the word of mouth and continuance intention of SNA users. However, other relational constructs may affect the related

continuance intention and word of mouth. Second, the web-based forms was conducted by employed a nonrandom convenience sampling. Gathering a larger using sample an alternate survey modality and random sampling methods would be costly. The online survey method was appropriate for collecting data from participants with Internet experience and who were free of geographical constraints. Third, the findings were acquired from a single study that was targeted to a specific user group, SNA users. Finally, the sample may have been biased for the voluntarily respondents.

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Appendix A. Questionnaire items used in this study

Constructs	Questionnaire items
Perceived usefulness	By using Social Network App can provide me with useful information about my work or life.
	Using Social Network App enhances my effectiveness my working and living effectiveness.
	Using Social Network App helps me perform many things more conveniently.
	Social Network App is of benefit to me.
	Overall, this Social Network App is useful.
Perceived ease of use	Learning to operate the Social Network App is easy for me.
	I have no problem in using Social Network App.
	I find the Social Network App to be easy to use.
	It is easy for me to become skillful at using the Social Network App.
	Interaction with the Social Network App does not require a lot of my mental effort.
	Overall, this Social Network App is easy to use.
Confirmation	My expectation with using Social Network App was satisfied as a whole.
	The benefit provided by Social Network App was better than what I expected.
	The service content delivered by Social Network App was more thoughtful than what I expected.
	The service level provided by Social Network App was better than I expected.
	Overall, the service of Social Network App mostly met my expectation.
Satisfaction	My decision to use Social Network App was a wise one.
	I am satisfied with using Social Network App.
	I feel extremely satisfied about my overall experience of using Social Network App.
	I think, I did the right thing by deciding to use Social Network App.
	It was good on the whole to use Social Network App.
Word of mouth	I will encourage friends and relatives to use Social Network App.
	I will recommend using Social Network App to others who seek my advice.
	I tell people positive things about Social Network App.
	I will urge my friends to use Social Network App.
	I will advise other people to use Social Network App.
	I don't hesitate to say good things about using Social Network App.
	I would like to share my using Social Network App experience.
Continuance Intention	In the future, I expect I will continue to use Social Network App.
	I prefer to continue to use Social Network App for process modeling over other process modeling grammars.
	If I could, I would like to continue the use Social Network App.
	I will frequently using Social Network App in the future