An Integrated Evaluation Model of User Satisfaction with Social Media Services

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Abstract

Social media services (SMSs) have been growing rapidly in recent years, and have therefore attracted increasing attention from practitioner and researchers. Social media services refer to the online services provide users with social media applications like Youtube, Facebook, and Wikipedia. Satisfaction is an important construct and user satisfaction is critical to the successful information systems. This study integrated the expectation-confirmation theory (ECT) by introducing perceived social influence and perceived enjoyment in the development of an integrated evaluation model for studying user satisfaction and continuance intention in the context of social media services. Structural equation modeling (SEM) is used to analyze the measurement and structural model. Empirical results show that the proposed model has a good fit in terms of theoretical robustness and practical application. Our findings suggest that the key determinants of user satisfaction with social media service are confirmation, perceived social influence, and perceived enjoyment, while the outcome of user satisfaction is enhanced continuance intention.

Keywords: Satisfaction, continuance intention, evaluation model, social media services, social network sites

1. Introduction

Social media services (SMSs) with the characteristics of hedonic information systems are attracting increasing attention in the IS domain [8, 15, 18, 31-32, 36]. The term "social media" is defined as a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content [18]. Social media services refer to the online services provide users with social media applications like Youtube, Facebook, and Wikipedia. The popular online video sharing website Youtube and the social network site (SNS) Facebook exemplify hedonic information systems that have emerged in recent years.

The emerging online sharing video websites are designed to satisfy hedonic rather than utilitarian needs. In recent years, with the rapid changes wrought by the ubiquity of the Internet and the context shift of information systems (IS), the focus of web-based information systems has shifted increasingly from utilitarian information systems to hedonic information systems. As a result, hedonic information system represent an emerging research issue in the IS domain [30].

However, to date, relatively little research effort has been dedicated to this new generation of information systems. In the extensive literature on utilitarian information systems, there are comparatively few works on hedonic information systems. Because of the differences between hedonic and utilitarian information systems, the understanding on hedonic information systems is limited from prior research model of utilitarian information systems [22].

With increasing attention being given to the use of social media services, researchers are focusing on using social media in business marketing applications in the marketing domain. There are numerous works on the user satisfaction and continuance use behavior related to utilitarian information systems [7, 26-27, 35], however, relatively little effort in the IS domain has been devoted to user satisfaction and continuance use behavior in relation to hedonic information systems. With the increasing shift from utilitarian information system to hedonic information system in IS research domain. Based on the theoretical foundation from a literature review, the purpose of this study is to develop an integrated evaluation model of user satisfaction with social media services identifying the determinants of user satisfaction with social media services and analyzing the relationships of these determinants.

2. Theoretical Foundations

Social media services have been growing rapidly in recent years, and have therefore attracted increasing attention from practitioner and researchers. Utilizing social media is top of the agenda for many business executives today. Managers try to identify ways in which organizations can use social media applications profitably [18]. There is no systematic way to categorize different social media applications; however, Kaplan and Haenlein [18].identified six types of social media – collaborative projects, blogs, content communities, social networking sites, virtual game worlds, and virtual social worlds. Online social networking

sites (SNSs) are new and effective web services for human communication and sharing information with others. Social networking sites constantly provide new user services, such as blogs, photos, music, and videos, in the hope of increasing their users' intentions to update their content on these services [23]. A social network service is defined as a web-based service that is based on certain meaningful and valuable relationships including friendship, kinship, common interests and join activities [21]. Social network services allow individuals to network for variety of purposes, e.g., sharing information, as well as building and exploring the relationships [21].

Satisfaction is an important construct in IS literature. End user satisfaction (EUS) is critical to the successful implementation of information systems ([3]. Prior EUS studies attempted to identify the antecedents of EUS. Satisfaction in a given situation is the sum of one's feelings or attitudes toward a variety of factors affecting that situation [5]. User satisfaction is defined as the extent to which users believe the information system available to them meets their information requirements [17].

Oliver [24] proposed the expectation-confirmation theory (ECT) model, which expresses consumer satisfaction as a function of expectation and expectancy disconfirmation. Satisfaction, in turn, is believed to influence attitude changes and purchase intention. ECT is widely used in the consumer behavior literature to study consumer satisfaction, post-purchase behavior (e.g., repurchase behavior, complaining), and service marketing in general [7]. Karahanna et al. [19] argued that there is a difference between individuals' pre-adoption and post-adoption (continued use) beliefs and attitudes; however, few empirical studies have attempted to distinguish between individuals' pre-adoption and post-adoption (continued use) beliefs and attitudes. Bhattacherjee [7] developed a post-acceptance model of IS continuance by adapting expectation-confirmation theory (EDT) from the consumer behavior literature and integrated it with theoretical and empirical findings from prior IS usage research to theorize a model of IS continuance. The proposed IS-ECT model indicates that confirmation, perceived usefulness, and satisfaction are determinants of IS continuance intention.

The Theory of Reasoned Action (TRA) [12] is one of the most influential theories of human behavior. Drawn from social psychology, TRA has been used to predict a wide range of behaviors. Its core constructs are attitude toward behavior and subjective norm. Fishbein and Ajzen defined attitude toward behavior as "an individual's positive or negative feelings (evaluative affect) about performing the target behavior." Subjective norm, on the other hand, is defined as "the person's perception that most people who are important to him think he should or should not perform the behavior in question."

Ajzen [1] refined TRA and proposed the Theory of Planned Behavior (TPB). The major difference between TRA and TPB is that the latter incorporates a third determinant of behavioral intention, namely, perceived behavioral control, which is determined by two factors: control beliefs and perceived power. Perceived behavioral control indicates that a person's motivation is influenced by how difficult the behavior is perceived to be, as well as the perception of how successfully he/she can, or can not, perform the activity. If individuals hold strong control beliefs about the existence of factors that will facilitate a certain type of behavior, they will have a high degree of perceived control over that behavior. Conversely, individuals with strong control beliefs that impede the behavior will have a low perception of control. Positive or negative perceptions might reflect past experiences, anticipation of upcoming circumstances, and the attitudes associated with the influential norms that surround the individual.

Prior studies on TAM focused mainly on utilitarian information systems and found that the influence of perceived usefulness is higher then perceived ease of use on behavior intentions. However, regarding the determinants of intentions to use hedonic information system, perceived enjoyment have attracted attention in addition to perceived usefulness and perceived ease of use in traditional TAM. For example, van der Heijden [30] studied the differences between user acceptance models of utilitarian and hedonic information systems and found that, in the hedonic information systems, perceived enjoyment and perceived ease of use are stronger determinants of intentions to use than perceived usefulness. Bhattacherjee [6-7] developed a post-acceptance model of IS continuance by adapting the expectation-confirmation theory (EDT) from the consumer behavior literature and integrated with theoretical and empirical findings from prior IS usage research to theorize a model of IS continuance. The proposed IS-ECT model indicates that the confirmation, perceived usefulness, and satisfaction are determinant of IS continuance intention. Lin and Bhattacherjee[22] expand the research on attitude theories and proposed an initial model of interactive hedonic system usage. Specifically, they replace perceived usefulness and perceived ease of use with perceived enjoyment and social image as the core cognitive drivers of usage, and further link these beliefs to different technological attributes. Dickinger et al. [11] argued that the emergence of highly interactive media and the increased connectivity among people call for an investigation of usage behavior of those media. People tend to rely heavily on peer-to-peer interaction, which in turn influences the adoption of new media formats that enhance such

interaction. According to Dickinger et al., perceived enjoyment and social norm are important antecedents of the adoption of technology with network externalities.

As mentioned earlier, information systems research has resulted in the development of several theoretical models, with roots in information systems, psychology, and sociology, to explain user satisfaction and an individual's intention to use a technology [10, 29, 34-35]. However, there is a need to develop a refined understanding of the relationships between the theoretical integration of user satisfaction and technology acceptance [35].

3. Proposed Research Model and Hypotheses

Base on the literature, this study synthesizes four important factors that affect users' continuance intentions with regard to social media services, namely, confirmation, perceived social influence, perceived enjoyment, and satisfaction. Based on prior research, we develop an integrated evaluation model of factors that affect user satisfaction with social media services. Specifically, we investigate the relationships between confirmation, perceived social influence, perceived enjoyment, satisfaction, and continuance intention. The relationships among these constructs are integrated into our research framework, as shown in Figure 1. The model evaluates user satisfaction and continuance intention with regard to social media services. In the proposed research model, we designate satisfaction as a dependent variable and confirmation, perceived social influence, and perceived enjoyment are major independent variables. We propose the following hypotheses:

H1: Confirmation is positively related to perceived enjoyment.

H2: Confirmation is positively related to perceived social influence.

H3: Confirmation is positively related to satisfaction.

H4: Perceived enjoyment is positively related to satisfaction.

H5: Perceived enjoyment is positively related to continuance intention.

H6: Perceived social influence is positively related to perceived enjoyment.

H7: Perceived social influence is positively related to satisfaction.

H8: Perceived social influence is positively related to continuance intention.

H9: Satisfaction is positively related to continuance intention.

4. Research Methodology

Based on the constructs of our proposed research framework, the measurement variables are confirmation, perceived social influence, perceived enjoyment,
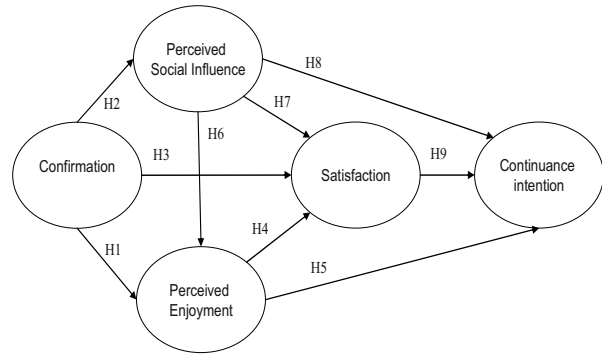

Figure 1. The research framework

satisfaction, and continuance intention. The theoretical constructs were operationalized using validated items from prior research. To ensure the content validity of the scales, the items selected must represent the concept around which generalizations are to be made. Items selected for the constructs were adapted from prior studies to ensure content validity. We adapted previously verified scales and modified the items to make them relevant in the context of social media services. All the items used a five-point Likert scales (1-5), with anchors ranging 1 representing "strongly disagree" to 5 representing "strongly agree". In the remainder of this section, we consider the operational definitions and measures of the constructs.

Bhattacherjee [7] defined confirmation as "users' perception of the congruence between expectation of system use and its actual performance". In this study, we define confirmation as users' perception of the congruence between expectations of social media services use and its actual performance. The items used to measure confirmation were adapted from Bhattacherjee [7].

Davis et al. [9] defined perceived enjoyment as "the extent to which the activity of using a computer system is perceived to be personally enjoyable in its own right aside from the instrumental value of the technology." In this study, we define perceived enjoyment as the perception of emotional enjoyment and pleasure by users derived from usage of social media services. The items used to measure perceived enjoyment were adapted from prior work by Igbaria et al.[16].

The perceived social influence construct is similar to subjective norm in prior studies. Subjective norm is defined as person's perception that most people who are important to him think he should or should not perform the behavior in question [12, 33]. Venkatesh [34] also defined social influence as the degree to which an individual perceives that important others believe he or she should use the new system. In this study, we define perceived social influence as a user's perception of the positive opinion of people important to him regarding the usage of social media

Table 1. Confirmatory factor analysis of the measurement instrument.

Constructs	Measured Variables Items	Factor loading λ	Measurement Errors	t-Value	SMC	CR	AVE
Confirmation	CON1	λ1 = 0.89 (0.03)	0.22	23.09 ***	0.78	0.90	0.75
	CON2	λ2 = 0.89 (0.03)	0.21	23.34 ***	0.79		
	CON3	λ3 = 0.82 (0.03)	0.33	20.46 ***	0.67		
Perceived Enjoyment	ENJ1	λ4 = 0.88 (0.03)	0.23	23.02 ***	0.77	0.91	0.77
	ENJ2	λ5 = 0.94 (0.03)	0.13	25.44 ***	0.87		
	ENJ3	λ6 = 0.82 (0.03)	0.32	20.83 ***	0.68		
Perceived Social Influence	SI1	λ7 = 0.85 (0.03)	0.27	21.84 ***	0.73	0.91	0.77
	SI2	λ8 = 0.90 (0.03)	0.19	23.75 ***	0.81		
	SI3	λ9 = 0.87 (0.03)	0.24	22.61 ***	0.76		
Satisfaction	SAT1	λ10 = 0.84 (0.03)	0.30	21.58 ***	0.70	0.92	0.74
	SAT2	λ11 = 0.85 (0.03)	0.28	21.88 ***	0.72		
	SAT3	λ12 = 0.92 (0.02)	0.15	25.05 ***	0.85		
	SAT4	λ13 = 0.84 (0.03)	0.30	21.51 ***	0.70		
Continuance Intention	INT1	λ14 = 0.82 (0.03)	0.32	20.53 ***	0.68	0.88	0.66
	INT2	λ15 = 0.81 (0.03)	0.35	19.88 ***	0.65		
	INT3	λ16 = 0.78 (0.03)	0.40	18.81 ***	0.60		
	INT4	λ17 = 0.83 (0.03)	0.31	20.89 ***	0.69		

SMC: Squared Multiple Correlation

CR: Composite Reliability = $(\sum standardized\ loading)^2 / [(\sum standardized\ loading)^2 + \sum \varepsilon j]$.

AVE: Average Variance Extracted

Note: ( ) refers to standard error, *** t-Value significant at 0.001

t value > 1.96 (p<0.05) *; t value > 2.58 (p<0.01) **; t value > 3.29 (p<0.001) ***

services. The items used to measure perceived social influence were adapted from Kulviwat et al.[20].

Oliver [25] defined satisfaction as "the summary psychological state resulting when the emotion surrounding disconfirmed expectation is coupled with the consumer's prior feelings about the consumption experience." Bhattacherjee [7] defined satisfaction in the IS context as users' affect with (feelings about) prior IS use. In this study, we define satisfaction as a user's overall emotional feelings about his usage of social media services. Satisfaction was measured using items adapted from Bhattacherjee [7] and Roca et al. [28].

Bhattacherjee [7] defined continuance intention as users' intentions to continue using IS. In this study, we defined continuance intention as a user's intention to continue using the social media services. The measurement of continuance intention was adapted from Bhattacherjee [7].

5. Data Analysis and Results

The subjects of this study were users of social media services, which are the service platforms that provide social media applications. Social media facilitate communication and collaboration among users, multimedia, the sharing of comments and opinions, and the provision of entertainment services, such as Youtube, Facebook, Blog, Plurk, and Twitter.

5.1. Assessment of the Measurement Model

We followed the two-step procedure involving confirmatory factor analysis (CFA) and structural equation modeling (SEM) recommended by Anderson and Gerbing [2] to ensure an adequate measurement and structural model. First, we examined the measurement model to assess its convergent and discriminant validity. Then, we examined the structural model to investigate the strength and direction of the relationships among the theoretical constructs.

We used LISREL 8.53 to assess the measurement model. Confirmatory factor analysis (CFA) was applied to the scales. All the measures were considered in order to assess the construct validity, which determines the extent to which a scale measures a variable of interest. Table 1 shows the factor loadings of the items. Items designed to measure the same construct demonstrated significantly higher factor loadings (>0.7). This confirms the validity of the survey instrument for further analysis.

5.2. Assessment of the Structural Model

We use structural equation modeling (SEM) to examine the causal structure of the proposed research model. All the tests were based on the covariance matrix and used maximum likelihood estimation (MLE), as implemented in LISREL 8.53. The goodness-of-fit indices for the research model were the normed chi-square ($\chi 2/d.f.$) =2.42, GFI = 0.94, AGFI = 0.91, NFI = 0.98, NNFI = 0.99, IFI = 0.99, and RMSEA = 0.056. All goodness-of-fit indices satisfied

the recommended values.

LISREL estimates for causal relationship of the latent variables. Hypothesis H1 posited that confirmation is positively related to perceived enjoyment. The results strongly support the hypothesis ($\gamma11 = 0.41$, p <0.001). The results also show that confirmation is positively related to perceived social influence ($\gamma21 = 0.38$, p <0.001), providing support for H2. Meanwhile, H3 proposed that confirmation is positively related to satisfaction, and the results strongly support the hypothesis ($\gamma31 = 0.47$, p <0.001). As predicted in H4 and H5 respectively, perceived enjoyment is positively related to satisfaction ($\beta31 = 0.18$, p <0.001) and continuance intention ($\beta41 = 0.19$, p <0.001); both hypotheses are thus supported. The results also shown that H6, H7, and H8 are supported, that is, Perceived social influence is positively related to perceived enjoyment ($\beta21 = 0.34$, p <0.001), satisfaction ($\beta31 = 0.22$, p <0.001), and continuance intention ($\beta41 = 0.13$, p <0.01), respectively, and the three hypotheses were all supported. Finally, H9 pertained that satisfaction is positively related to continuance intention. The results strongly support the hypothesis ($\beta43 = 0.56$, p <0.001). Thus, the results support all of our hypotheses. To summarize, the most important determinants of continuance intention are satisfaction, perceived enjoyment, and perceived social influence.

We analyzed the direct and indirect effects between the constructs using the maximum likelihood estimation (MLE). Structural equation modeling distinguishes between direct, indirect, and total effects. A total effect consists of a direct and one or more indirect effects. To summarize, the total effects of continuance intention were 0.56 for satisfaction, 0.49 for confirmation, 0.35 for perceived social influence, and 0.29 for perceived enjoyment. The results show that, among the predictors, satisfaction had the strongest total effect on continuance intention toward social media services.

For model explanation, the explained variance of confirmation with regard to perceived enjoyment, perceived social influence, and satisfaction was 39%, 15%, and 52% respectively. In terms of variance explained, overall, the research model explains 58% of the variance in users' continuance intention towards social media services.

Figure 2 presents the analysis results of structural equation modeling, which indicate whether there are causal relationships between latent variables. The path coefficients of the theoretical structure model and the hypotheses test results of the structural equation model indicate that hypotheses H1 to H9 were all supported.

6. Conclusions

In this paper, our objective is to gain a better understanding of user satisfaction and continuance intention
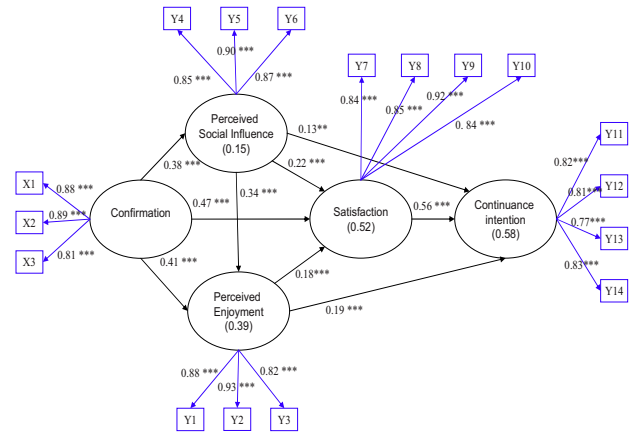

Figure 2. Structural equation model (SEM) analysis of the

when using social media services. This study integrated the expectation-confirmation theory (ECT) by introducing perceived social influence and perceived enjoyment in the development of an integrated evaluation model for studying user satisfaction and continuance intention in the context of social media services. The results show that confirmation, perceived social influence, and perceived enjoyment are significant positive predictors of user satisfaction and continuance intention in the context of social media services. Our findings suggest that the key determinants of satisfaction with social media service are confirmation, perceived social influence, and perceived enjoyment, while the outcome of satisfaction is enhanced continuance intention.

According to the empirical results, our key research findings can be summarized as follows: (1) The proposed evaluation model of user satisfaction and continuance intention in terms of social media services demonstrates a good model fit with the empirical data; (2) The most important determinants that affect user satisfaction are confirmation, perceived social influence, and perceived enjoyment. (3) Satisfaction is the strongest predictor of continuance intention, followed by confirmation, perceived social influence, and perceived enjoyment. (4) The empirical results demonstrate that confirmation is significantly and positively related to perceived enjoyment, perceived social influence, and satisfaction; perceived enjoyment is significantly and positively related to satisfaction and continuance intention; perceived social influence is significant positively related to perceived enjoyment, satisfaction, and continuance intention; and satisfaction is significantly and positively related to continuance intention.

The contributions of this study are as follows: (1) Based on a theoretical foundation of prior research, we have proposed an integrated evaluation model to explain user

satisfaction and continuance intention with social media services. The proposed model is comprised of five constructs, namely, confirmation, perceived enjoyment, perceived social influence, satisfaction, and continuance. Our empirical results demonstrate that the model has a good model fit in theoretical robustness and practical application. (2) SEM was used to analyze the measurement and structural models of data collected from users of social media services provides support for the proposed research model.

7. Acknowledgements

8. References

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