

Does Trustworthy Social Networking Sites Draw User's Persistency Behaviors? Examining Role of Trust in Social Networking Sites Continuance Usage

Completed Research Paper

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ABSTRACT

While many researchers pointed out the importance of trust on Information Systems (IS) usage, this study explored the role of trust on usage of CMC media in the context of social networking sites (SNS). Social exchange theory (SET) and the expectation confirmation model of IS continuance (ECM-IS) were employed in the research model. The research model investigated SNS users' continuous usage behaviors under antecedents from supporting theories and the impact of trust on all those antecedents simultaneously. The empirical research findings, using a Web survey in the context of Facebook, which is the most popular SNS, revealed that users trust in SNS impacts on overall perceptions of SNS and their usage. Discussions and limitation of research is addressed.

Keywords

Expectation confirmation model of IS continuance (ECM-IS), social exchange theory (SET), social networking sites (SNS), partial least square (PLS), trust.

INTRODUCTION

As a tool for communication with others in the online environment, computer-mediated communication (CMC) media (e.g., email, instant messaging, or social networking sites (SNS)) has been prosperous. Among these CMC media, SNS has become the most popular electronic communication media, which SNS is defined as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (Boyd and Ellison 2007, p. 211). Such network communication environment supports two-way interactions among parties simultaneously without considerable limitations on time or place. However, due to lack of physical coherence at the point of communication, the feeling of a social presence is limited, which eventually increases the necessity of trust among interaction parties (Breneman and Karimov 2012) or of more secured communication tools. Under the psychological contract perspective, the violation of a psychological contract incurs a lack of fulfillment of obligations or promises, resulting in potential destruction of exchanging relationships (Chiu et al. 2010). Consequently, the existence of trust among parties plays a pivotal role in retaining psychological contracts with exchanging parties. In the context of Information Systems (IS) and IS users, prior literature explored the impact of trust on IS artifact, identifying trust of IS users and artifact as important determinants of building commitment and initiating enhanced relationships (e.g., Morgan and Hunt 1994). Nevertheless, even though prior studies sparked interest in trust and its relation to a variety of IS context (e.g., Gefen et al. 2003), trust's impact on communication media also should not be ignored, in that more trust in media achieves a better ability to task (e.g., effective communication) and its performance (e.g., feeling of communicating effectiveness) when appropriate media are chosen.

Accordingly, unlike prior IS literature that measured the impact of trust on limited related constructs not a whole in research model, the current study aims to examine the overall impact of trust on users' perception of continuance use of computer-mediated communication media in the context of SNS. The present study raises a question that has not been much researched previously: how does trust affect users' perceptions of SNS use and the behavioral intentions driving those continued usage behaviors? To answer the research question, this study integrated two theoretical frameworks to examine factor influencing SNS users' actual continued behaviors: the expectation confirmation model of IS continuance (ECM-IS) and social exchange theory (SET) including trust.

THEORETICAL FOUNDATIONS

Expectation Confirmation Model of IS Continuance (ECM-IS)

The Expectation Confirmation Model of IS continuance (ECM-IS) is anchored in Oliver's (1980) Expectation Disconfirmation Theory (EDT) (Bhattacharjee 2001). Basically, four constructs (pre-expectation, post-purchase performance, confirmation, and satisfaction) of EDT represent the ability to account for an individual's retention behaviors such as repeated purchase or continued usage.

To explain Information Systems (IS) continued usage in buyer and seller relationships, Bhattacharjee's (2001) ECM-IS adopted but modified the EDT foundation by placing a construct of perceived usefulness as a surrogate for post-purchase performance, as well as by highlighting more significantly post-purchase expectation than pre-purchase expectation because confirmation and satisfaction constructs are able to cover the concept of pre-purchase expectation. Primarily, Bhattacharjee assumed confirmation positively associated with perceived usefulness that it partially mediates between confirmation and satisfaction, depending on the degree of uncertainty involved. According to ECM-IS, both satisfaction and confirmation resulted from fulfillment of prior expectation and a level of benefit acquired from prior IS usage experience. Recently, Bhattacharjee, Perols, and Sanford (2008) supplemented the model with actual continuance use of IS because his original model did not include any influence between intention and actual behaviors, and many intention-oriented theories (e.g., Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM)) eventually predicted the power of actual continuance behavior. Under Bhattacharjee's very recent model, the current study attempted to examine how SNS users' the level of confirmation influences on satisfaction along with SNS users' continuance usage behaviors. In the context of SNS, SNS user's satisfaction with communication with others (e.g., friends) stems from a comparison between his or her pre-usage expectations and perceptions of post-usage expectations, which is called the level of confirmation. Positive confirmation results from greater post-usage performance than the pre-usage expectation, which determines the SNS user's positive level of satisfaction as the fulfillment of the SNS user's expectation indicating continuing usage. Otherwise, the dissatisfied SNS user will change the communication channel. Perceived usefulness of SNS mediates the relationship between confirmation and satisfaction, which highly perceived usefulness of SNS leads to enhance the degree of satisfaction on SNS.

Social Exchange Theory (SET)

Generally, within an individual's interactions with others, two exchange perspectives are considered: social exchange (sharing intangible assets – emotion, respect or caring) and economic exchange (exchanging monetary assets) behaviors stemming from the cost-benefit exchange perspective (Gefen and Ridings 2002). The cost-benefit exchange perspective seen in ongoing human interactions their relationships are maintained when the interaction party's perceived benefit outweighs the perceived cost of or investment in the interaction. For example, in the context of SNS and its usage, as a type of online community where members are responsible for managing the online territory, such member-initiated online communities engage in voluntary interactions among community members, thereby members' perceived benefit from voluntary participation outweighing perceived cost is a core reinforcement of the creation of relationships. Importantly, social exchanging activities do not guarantee corresponding returns from investment (or cost) for reciprocal interactions (Skerlavaj et al. 2010); they only ensure "the assumed cooperative intentions of the other party (that is, the belief that the other party will reciprocate as they are expected" (Gefen and Ridings 2002, p. 51). According to Blau's (1964) social exchange theory, three primary constructs comprise the backbone of theory: perceived benefit, trust, and commitment. The current study adopted perceived benefit and trust only because commitment focuses on "an implicit or explicit pledge of continuity between relational partners" (Fullerton 2005, p. 1374).

Perceived Benefit

Perceived benefit (also called relational benefit) is defined as “the benefit customers receive from long-term relationships above and beyond the core service performance” (Bitner et al. 1998, p.102). For sustainable reciprocal relationships, two cognitive processes are involved in the consideration of perceived benefit and perceived cost (Kramer 2005). First, it is named the comparison level, in which the relationships are retained when the perceived benefit is greater than the perceived cost at direct comparison. Second, the comparison level of alternatives is when the results of the direct comparison of a cost-benefit ratio with alternatives play an important role and rational basis for deciding whether to remain in the relationships. Therefore, for example, if few alternatives of communication media exist or alternatives achieve less effective communication than SNS usage, then such reciprocal relationships weaken enough to be sustained.

Trust

Trust is another salient determinant in SET to maintain sustainable relationships because reciprocal parties’ trusting each other plays a significant role in the reduction of uncertainty and associated risk of the relationship (Wu et al. 2010). Generally, trust is defined as “the willingness of a party to be vulnerable to the actions of another party, with the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Liao 2008, p. 1883). Prior literature described trust in different ways depending on its use. For example, Zucker’s (1986) study described as three different types: 1) characteristic-based trust, which relies on general (e.g., culture) or specific (e.g., family) similarities and commonalities, 2) process-based trust, which is anchored in the level of satisfaction of prior transactions or experience (Gefen 1997), and 3) institution-based trust, which depends on the third party’s guarantee under a form of certification (Karpinski 2000). From another perspective, trust is recognized as: 1) trusting belief, which refers to “the confident trustor perception that the trustee...has attributes that are beneficial to the trustor” (McKnight et al. 2002, p. 337), 2) trusting intention, described as “securely willing to depend, or intends to depend, on the trustee” (McKnight et al. 2002, p. 337), and 3) disposition to trust, indicating “a person displays a tendency to be willing to depend on others across a broad spectrum of situations and persons” (McKnight et al. 2002, p. 339). Such categorization generally stems from an individual’s rational and cognitive-based evaluation process toward objects or a target person or organization. In the context of SNS, the current study proposes the importance of trust in that it plays a significant role in reduction of any associated risk and uncertainty about communicating party. Such heightened risk or uncertainty has influence on the willingness of exchanging behaviors, emotional motivation, or the development of intention (Pavlou et al. 2007).

RESEARCH MODEL AND HYPOTHESES

This study proposes a model that integrates ECM-IS and SET with modifications to fit the current study purpose (Figure 1).

In reference to perceived benefit and its relationship with satisfaction, prior studies revealed that IS users’ perceived benefit has positively influenced their satisfaction (e.g., Yen and Lu 2008). Furthermore, perceived benefit is analogous to the perceived usefulness from the technology acceptance model (TAM) (Davis et al. 1989), both concepts of which play a crucial role in enhancing satisfaction influencing future IS usage behaviors. Given that an SNS is a type of online community and electronic communication media, it is reasonable that an SNS user perceives a benefit to his or her use of an SNS, resulting in a positive effect on satisfaction. Therefore, this study hypothesizes the following:

H1: An SNS user’s perceived benefit from the SNS will be positively associated with the user’s satisfaction with the SNS.

Oliver’s (1980) EDT posits that positive confirmation results in high user satisfaction (Bhattacharjee 2001). Along with satisfaction being regarded as a key function of benefit and cost in a reciprocal relationship according to SET, a consumer’s level of satisfaction determines his or her intention to repurchase a product or to continue a service (Szymanski and Henard 2001). Tsai, Huang, Jaw, and Chen (2006) found that an increase in a customer’s e-satisfaction led to an increase in the rate of repurchase. Eriksson and Nilsson (2007) revealed that user satisfaction was one of the primary motivations behind continued usage. Recently, Bhattacharjee’s (2008) research extended the ECM-IS model by including actual continuance behavior, from intention to continuance, and by aligning it with other behavioral theories.

Placing the above discussion in the context of SNS, a user will perceive increased satisfaction when the post-perceived performance of SNS usage outweighs the pre-expected usefulness of the SNS (positive confirmation). The increase in

satisfaction will also positively impact both the intent to continue engaging and its actual use with the SNS; the positive intention to use the SNS will positively impact actual continuance behavior with the SNS. Thus, we posit:

H2: An SNS user's confirmation will be positively associated with the user's satisfaction with the SNS.

H3: An SNS user's satisfaction will be positively associated with the user's intention to continue using the SNS.

H4: An SNS user's satisfaction will be positively associated with the user's actual continued use of the SNS.

H5: An SNS user's intention to continue using the SNS will be positively associated with the user's actual continuance use of the SNS.

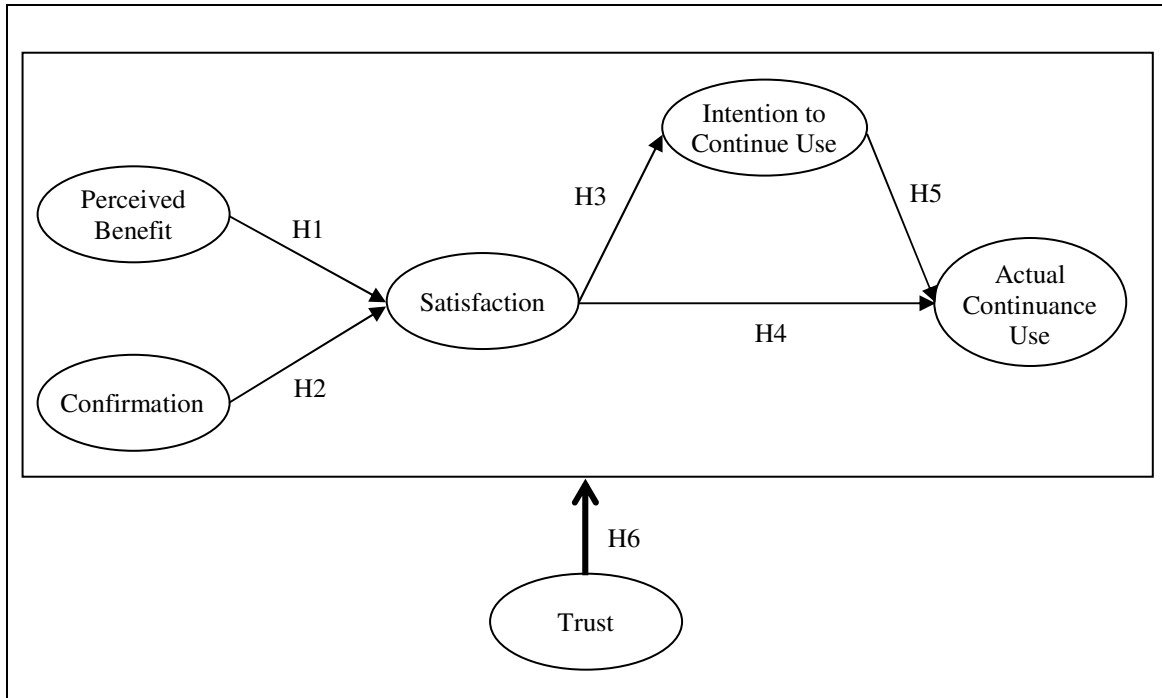


Figure 1. Research Model and Hypotheses

Prior IS literature revealed in the context of IS usage trust is a significant determinant of IS users' satisfaction in terms of relieving the potential risk of opportunistic behaviors among exchanging parties (Lee and Turban 2001). Furthermore, trust reduces anxiety about opportunism and boosts member mutuality (Wu et al. 2010), which drives more expectation on post-transacting activities and performance expectancy (Luo et al. 2010). As result, more enhanced perceived benefit will be gained under higher mutuality among interacting parties. Such trustworthy interacting party creates favorable behavioral beliefs of the user party, eventually initiating positive forms of transaction behaviors (Chiu et al. 2010). Similar reasoning with prior theoretical arguments, the current research proposes role of trust in other constructs in research model following which was rarely considered in prior literature:

H6: An SNS user's trust in SNS will be positively associated with the user's a) perceived benefit of SNS use, b) confirmation of SNS, c) satisfaction with SNS usage, d) intention to continue use of SNS, and e) actual continued use of the SNS.

RESEARCH METHOD

Research Context

The current study selected Facebook as representative of SNS because the site has more than one billion active monthly users as of December 2012, more than 60% of whom log in on a daily basis on average in December 2012, and about 82% of our monthly active users are outside the United States and Canada. (Facebook 2012).

Selection of Measurement Items

A total of 6 constructs measured the perception of SNS usage by questionnaires after modification to fit the research purpose. All the survey items were assessed via a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Four items measuring perceived benefit and four trust items were from Jin et al. (2010) and Fogel and Nehmad (2009), respectively; four items measuring satisfaction and three items intention to continue use were adopted from Spreng, McKenzie, and Olshavasky (1996) and Bhattacharjee (2001), respectively; and four items measuring confirmation and five actual continuance usage behaviors were adopted from Bhattacharjee (2001) and Bhattacharjee et al. (2008), respectively. The items focused on Facebook-specific use only. For example, a perceived benefit item was, "I value the close, personal relationship I have with my friends on Facebook." A confirmation item was, "My experience with Facebook greatly exceeded my initial expectation." A trust item was, "Facebook is a trustworthy social networking site." The resulting instrument was pilot tested by a small group of graduate students.

Data Collection

In total, 291 participants (85% of the total recipients) aged from 21 to 29 years old answered the Web-based survey questions. They have Facebook experience and reside in the United States. Demographical information is listed in Table 1.

Gender	Participants	
Male	165	56.7 %
Female	123	42.3%
No response	3	0.01
Total	291	100%

Table 1. Demographic Information

In this study, 135 participants have used Facebook for more than five years, 99 participants for 3-5 years, 38 participants for 1-3 years, and 19 participants have usage experience of less than one year at time of survey. In addition, 43% of the participants visit Facebook more than 12 times per week, 25.4% visit between 7 and 12 times per week, 30.6% visit between 1 and 6 times per week, and 1% visit fewer than 1 time per week. On average, 35.7% of users spend over 60 minutes in Facebook per week, 38.5% spend 16-60 minutes per week, and 25.8% spend 15 minutes or less per week on Facebook.

RESULTS

This study used the partial least squares (PLS) methodology via SmartPLS 2.0 M3 beta (Ringle et al. 2005). All variables are reflective.

Measurement Model Assessment

Convergent Validity

To examine the convergent validity of constructs, this study examined four convergent validity indicators, and each test indicates the indicators' qualifying convergent validity (see Table 2). First, all constructs revealed acceptable factor loadings with all items above 0.7, as Chin (1998) suggested, without maintaining high cross-loadings. Second, average variance extracted (AVE) of all constructs was above the recommended criteria of 0.5, indicating all constructs qualified for convergent validity. Third, composite reliabilities of constructs ranged between 0.87 and 0.94, which indicates well-qualified

suggested criteria at 0.7, and the last Cronbach’s alpha also ranged from 0.78 to 0.92, which exceeds the minimum requirement of 0.6 (Hair et al. 2006).

Constructs	Composite Reliability	Cronbach’s Alpha	AVE
Actual continuance usage	0.90	0.87	0.65
Confirmation	0.90	0.86	0.70
Intention to continue use	0.90	0.78	0.82
Perceived benefit	0.87	0.80	0.62
Satisfaction	0.92	0.82	0.85
Trust	0.94	0.92	0.81

Table 2. Convergent Validity

Discriminant Validity

The study also assessed discriminant validity by the comparison between the square root of each construct’s AVE and correlations; the square root of each construct’s AVE should be higher than correlations. Analysis results confirmed discriminant validity was met under such criteria (see Table 3).

Constructs	Actual continuance usage	Confirmation	Intention to continue use	Perceived benefit	Satisfaction	Trust
Actual continued usage	0.81	0.00	0.00	0.00	0.00	0.00
Confirmation	0.54	0.84	0.00	0.00	0.00	0.00
Intention to continue use	0.57	0.55	0.91	0.00	0.00	0.00
Perceived benefit	0.57	0.63	0.53	0.79	0.00	0.00
Satisfaction	0.48	0.64	0.54	0.62	0.92	0.00
Trust	0.39	0.35	0.36	0.44	0.46	0.90

Note: *Diagonals indicating the square root of the AVEs.

Table 3. Discriminant Validity – Correlations Among Constructs

Common Method Bias

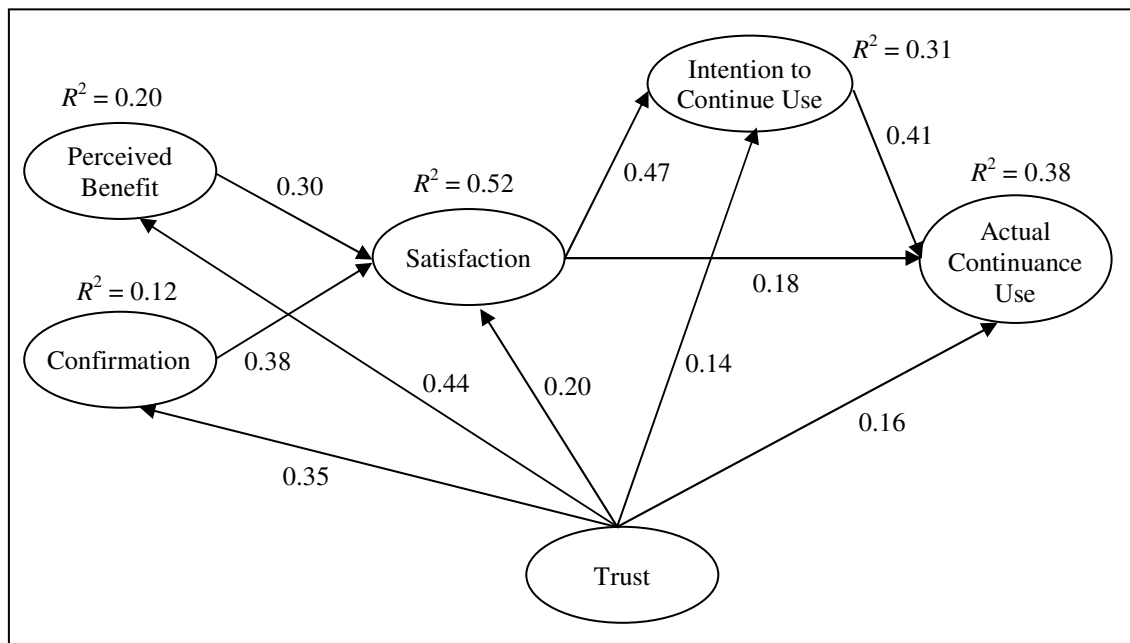
The common method bias was also examined because of the nature of data collection methodology. First, in Harman’s one-factor test, the total six factors explained 66.53% of the total variance, and the first factor explained 37.13% of the total variance (Podsakoff et al. 2003). Second, applying Lindell and Whitney’s (2001) partial correlation procedure, this study deployed a marker variable, which defined “the smallest observed correlation among the manifest variables as a proxy for common method variance” (Podsakoff et al. 2003, p. 893) as a post hoc method when no marker variable was employed at the time of the study. Using the lowest correlation (between confirmation and trust construct, 0.35) (Lindell and Whitney 2001), common method variance-adjusted correlations were identified, and those were all statistically significant at a 1% level of confidence, except for the second- and third-lowest correlation between actual continuance usage and trust, and between trust and intention to continue usage, respectively.

Structural Model Assessment and Hypothesis Testing

Our research findings showed all hypotheses are significant at the 1% level of confidence, and each construct explains variance-related constructs significantly (see Figure 2). Most noteworthy, trust in Facebook itself explained 20% (adjusted $R^2 = 0.20$) of the total variance of the site’s perceived benefit and 12% (adjusted $R^2 = 0.12$) of the confirmation variance.

DISCUSSION

In reference to perceived benefit and confirmation and their relationship with satisfaction, our findings support hypotheses that Facebook users’ perceived benefit and confirmation significantly influenced those users’ satisfaction with Facebook use. First, within the theoretical framework of ECM-IS and SET, perceived benefit (and a surrogate of perceived usefulness) plays an important role in explaining IS users’ persistent behaviors. Under the buyer-seller relationship, perceived benefit is anchored in “the benefit customers receive from long-term relationships above and beyond the core service performance” (Bitner et al. 1998, p. 102). Along with this notion, in the context of Facebook, Facebook users’ perceived benefit from the site’s usage indicates considerably affected satisfaction on Facebook, which implies their time or effort investment led to better communication results and to the retention of ongoing friendships. Second, research findings also supported a positive relationship confirmation of satisfaction with Facebook usage, as with other IS research that implies Facebook (as a means of communication) usage has improved, thus driving user satisfaction with Facebook.



Note: all p values < 0.01

Figure 2. Structural Model – Hypotheses Testing

The second set of hypotheses linked satisfaction with intention to continue use and actual continued usage following recent ECM-IS (Bhattacharjee et al. 2008). Actual continuance usage is still under debate among researchers because such continuance behavior is likely influenced by other behavioral aspects, such as habitual usage or automatic (unconscious) response (Limayem et al. 2007). Consequently, unlike prior IS studies, this study attempted to examine any mediating effects’ existence among those three constructs in the context of Facebook. Our research findings confirmed that intention to continue use of Facebook partially mediates the relationships between satisfaction and actual continuance usage. Importantly, satisfaction is identified as the strongest factor affecting intention to continue usage ($\beta = 0.47, p < 0.001$), and the Facebook user’s intention more strongly influenced actual continuance usage than satisfaction’s impact on actual continued usage ($\beta = 0.41, p < 0.001; \beta = 0.18, p < 0.001$, respectively). Such findings imply that the actual continued behaviors of Facebook users satisfied with such use tend to be significantly developed by users’ intention. In addition, such intention is not rooted in temporal satisfaction (described as transaction-specific satisfaction) but in cumulative satisfaction derived from ongoing communicating activities (Chang et al. 2009); 93.5% of Facebook users have been on Facebook for more than at least one year.

Our last set of hypotheses—in terms of the relationships between trust and confirmation, perceived benefit, satisfaction, intention to continue usage, actual continued use of Facebook, and most significantly, trust in Facebook, which is an artifact itself—all had positive relationships with such constructs. Along with trust being a core factor within SET, there has been debate about the causal order of exchanges and relationships among scholars (Cropanzano and Mitchell 2005). The current

research findings imply that the nature of trust in Facebook can be assessed in different ways, given previous explorations of the root of trust derived from product usage or service rendered. Because the origin of trust in Facebook can be anchored in either friends' trust in Facebook as a safe communication tool or in trust of Facebook itself, our research findings are noteworthy in that trust in Facebook is fundamentally embedded in retaining ongoing relationships by the continued usage of Facebook. For further consideration of trust impacting other constructs, a post-hoc analysis was conducted to examine any influence changes among constructs without the existence of trust in Facebook. As a result, without considering trust in Facebook, all relationships were supported positively and significantly with minimal change in R squares, in which trust of Facebook lies with all constructs (Figure 3).

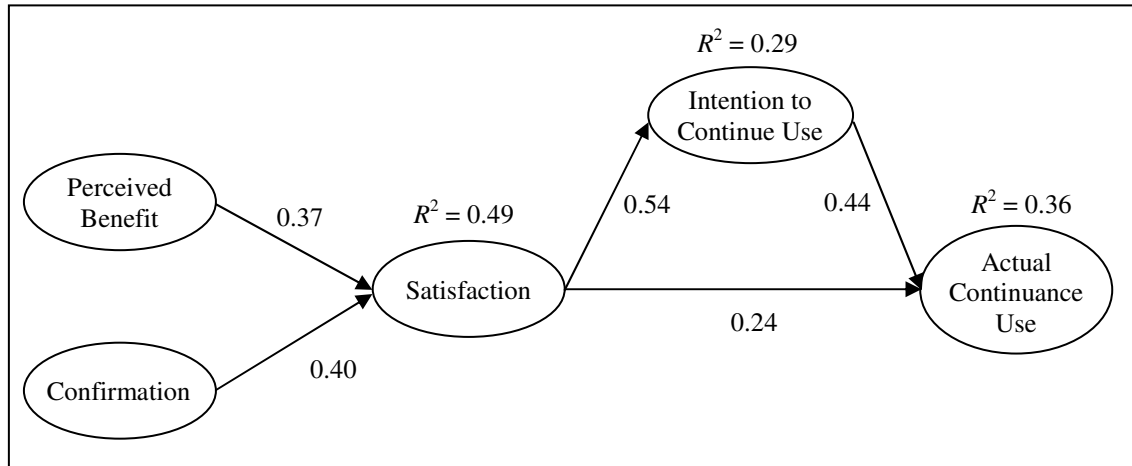


Figure 3. A Post-hoc Analysis

LIMITATION AND FUTURE RESEARCH

The limitation of this study is follows. First, the research model has not completely identified the root of trust of Facebook. Unlike other prior IS literature studying trust under IS platforms, the current study focused on the initiation of trust in communication media involving media as an artifact itself and media users. Therefore, how trust of Facebook is anchored in the nature of trust origin requires further exploration. Second, study participants were college students, thus limiting the scope of media users, even though college-aged students are one of the most experienced Facebook user groups. Also, Facebook is only one of the social networking sites that it may not represent all SNSs. Future research with varied groups of Facebook users and SNSs might provide distinguished perceptions. Last, the current research findings have not discussed with any potential reverse causality issues (e.g., inverse direction between trust and perceived benefit) and high correlations among constructs. Future research should identify such relationships to support the current research findings and arguments.

CONCLUSION

This study investigated the salient antecedents determining SNS users' continued behaviors and examined the impact of trust of SNS toward other constructs within the theoretical framework of SET and ECM-IS. Our findings supported that trust is a key factors to explain SNS user's actual continued usage behaviors under both ECM-IS and SET integrated research models, which are visible and informative in the context of Facebook.

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