

Exploring Satisfaction with and Trust in Social Networking Sites through the Lens of Fan Pages: Uncertainty Reduction and General Systems Theory Perspective

Full Paper

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Abstract

The purpose of this study is to examine social networking sites (SNS) users' overall satisfaction with and trust in SNS, as related to their activities of visiting fan pages. We employ two theories—uncertainty reduction theory (URT) and general systems theory (GST)—to examine antecedents affecting overall satisfaction with and trust in SNS. Using a web-based survey, we analyzed 200 SNS users who follow at least one company's fan page, and utilized seemingly unrelated regression (SUR) models to empirically test our hypotheses. Our findings indicate that uncertainty reduction strategies supported by URT are significantly associated with perceived usefulness of companies' posts in their fan pages. In turn, perceived usefulness of those posts promotes more visits to the fan page. Finally, users' perceived usefulness of fan page posts eventually accounts for the overall satisfaction with and trust in SNS. The implications and limitations are discussed at the end of this study.

Keywords: Uncertainty reduction theory, general systems theory, satisfaction, trust, social networking sites, seemingly unrelated regression model, fan page.

Introduction

Given the burgeoning trend of social networking sites (SNS) use and the ubiquity of mobile devices, SNS have become a major means of communication to socialize and collaborate. Recent SNS have provided multiple communication tools such as conventional storyboards (e.g., timelines on Facebook; www.facebook.com), instant messaging services among individual users or between organizations and individual users, and tagging (location or other people). At the company level, the opening of fan pages on SNS has become an important communication tool to facilitate direct interaction with customers. Companies do so by exchanging comments (i.e., posted content) on posts about products and services, or on the company's announcements. From the SNS users' perspective, becoming a fan or withdrawing membership from a page is an easy and penalty-free process. For example, Facebook users can opt in to a specific company's fan page (by clicking "Like"), view the details of posted messages, and even interact with the company. Users can also opt out (i.e., terminate fan page subscriptions) of a fan page if they decide not to view the postings any longer. From a company's perspective, fan pages primarily benefit from a large number of fans and their personal networks because of the power of viral marketing, as well as the word-of-mouth effect from existing fans within SNS (Jansen et al. 2009).

Researchers have identified several antecedents for users' participation in fan pages and their overall satisfaction with and trust in SNS. For example, gratification from content, relationships, and self-orientations are found to be the primary impacting factors for fan page use (Jahn and Kunz, 2012). System

and information quality, users' sense of community and connectedness, awareness of other users' activities, and entertainment aspects are also key factors for users' satisfaction with SNS (Chan et al. 2015). In terms of trusting in SNS, many studies found that similarity in personality traits between users and SNS, users' involvement in developing and sharing virtual content, information intensity, and hedonic aspects are related to trustworthiness of social networking sites (Munar and Jacobsen, 2013). Of note, Tang and Liu (2015) suggested that trust in SNS becomes an important research topic with practical significance.

While these studies contribute to the body of knowledge on the satisfaction with and trust in SNS use, we find that little is known about how fan page followers' behaviors in said pages influence the degree of overall satisfaction with and trust in SNS itself. To fill this research gap, the purpose of this study is to examine the role of fan page users' activities in SNS fan pages, as well as their perceptions of satisfaction with and trust in SNS while they are participating in fan pages. Accordingly, we raise the following research questions:

RQ1: What are the determinants (related to users' activities and beliefs within fan pages) of SNS users' satisfaction with and trust in SNS?

RQ2: What are the impacts of SNS users' uncertainty reduction strategies on visiting behaviors to SNS fan pages, via perceived usefulness of company posts in fan pages?

To answer these questions, we employ uncertainty reduction theory (URT) to understand fan page followers' behavioral aspects within SNS fan pages (Bradac et al. 1980). Within the theoretical lens of URT, we focus on the impact of uncertainty reduction strategies (URS) on page followers' perceived usefulness of posts on fan pages, which, in turn, affect users' visiting behaviors. Secondly, we employ general systems theory (GST) to account for the direct effect of perceived usefulness on overall satisfaction with and trust in SNS itself (von Bertalanffy, 1969).

Theoretical Background

General Systems Theory

Introduced by von Bertalanffy (1969), general systems theory (GST) is a meta-theory that explains the nature of an entity (system) characterized by the interactions of its components. GST is applicable to the integration of existing or new theories, depending on the research context. Accordingly, many researchers from different academic disciplines (e.g., biology, physics, psychology, or social sciences) have applied this theory to their own research contexts, and have studied the nature of systems and the interactions of the units (or subsystems) within a system (Lai et al. 2001). Kast and Rosenzweig's (1972) suggested four key aspects of GST are as follows: 1) a sub-system or components of main systems, 2) an open-system vs. closed system view, 3) feedback, and 4) a hierarchy.

First, GST claims that all systems consist of their interrelated sub-systems, parts, or elements, meaning that any single part of a system alone cannot state the totality of the system with its components. Rather, the whole system emerges when two or more of its parts work together. Thus, a whole system is greater than the summation of its entire sub-systems (Wang 2004). We apply this assumption of GST in the context of SNS and their fan pages because conventional SNS consist of two or more communication features (e.g., instant messaging, groups, games, and fan pages), so that they play a role as communication media (Smock et al. 2011). Aligning with general systems theory, each embedded communication tool becomes a part of SNS and works as a sub-component of the SNS, in which all SNS communication tools are interlinked with each other. For example, in the context of Facebook, one member is able to tag or share postings to his/her pages or groups. Such interconnections among subsystems in SNS, accordingly, empower the ability of communication among SNS users.

Second, GST defines the two characteristics of a system: either an open system or a closed system. The key characteristic of an open-system is that the system itself is able to exchange information, materials, or energy with its surrounding environment. SNS and their subsystems are a prime example of open systems, since almost all SNS enable members to link specific content to a subsystem and even other SNS under the option of sharing (e.g., YouTube, Instagram) or pinning it (e.g., Pinterest).

Third, feedback acts as a motivator to achieve a system's steady state and a dynamic equilibrium via a continuous inflow of materials or informational input (Kast and Rosenzweig 1972). The form of feedback is an important element on which SNS communications thrive because all SNS communication platforms

allow users to continue their flow of conversation by adding comments (a type of feedback) to promote further communication. To enrich a text-based feedback platform, for example, Facebook supports multiple features such as emoticons to express feelings or location-based tags to identify the poster's location.

Last, the concept of hierarchy indicates that the system consists of sub-systems or parts, in that these sub-components form a particular structure with some order among one another (Kast and Rosenzweig 1972). We claim that the concept of the hierarchy of subsystems can be aptly applied to SNS. Current SNS have evolved into multiple communication channels, which implies that instant messaging services or opening pages/groups have become major parts of SNS, and all notifications facilitate users' communication within the entire SNS. The pages and groups created by (or followed by) an SNS user can be listed as an individual SNS user's SNS service menu (i.e., on the left-hand side of Facebook).

In sum, we believe that the theoretical perspective of GST is a crucial theoretical backbone for our study because SNS embrace sub-communication components (e.g., fan pages, groups, etc.). More specifically, due to the interaction between the whole system (SNS) and one of its subcomponents (fan pages) described above, a SNS user's technological beliefs about one of the sub-components of SNS (fan pages) could be related to overall beliefs (satisfaction and trust) in SNS itself and this study aims to explore this relationship.

Uncertainty Reduction Theory

Another theory we use for our study is uncertainty reduction theory (URT), URT describes perceived uncertainty regarding another party or person related with one's behavioral involvement as "an interactant's subjective sense of the number of alternative predictions available when thinking about a partner's future, or the number of alternative explanations available when thinking about a partner's past behavior" (Bradac 2001, p. 458). Under URT, one becomes uncomfortable when no clear explanations exist regarding a communicating partner's future behaviors or attitudes. Such unpredictable behaviors induce one's motivation to reduce uncertainty in order to ensure future behaviors toward the target party (Byron and Baldrige 2007). To decrease uncertainty in ongoing relationships, URT suggests three general uncertainty reduction strategies (URS): passive, active, and interactive (Antheunis et al. 2010).

First, the goal of passive uncertainty reduction strategies (PURS) is to acquire information from other people in unobtrusive ways (Tidwell and Walther 2002). In terms of classifying media as cue-rich (e.g., SNS) and cue-poor communication media (e.g., email), cue-rich media are more advantageous than cue-poor media when delivering content because cue-rich media afford more informational cues such as visual (video clips or images) and audio (voice or music) cues in addition to monotonic text-based cues. Such an affluence of cues allows for better information gathering and helps relieve more uncertainty (Antheunis et al. 2010). For example, fan page followers might read, view, or watch postings regarding products posted on companies' fan pages that may strengthen their awareness of products or services, which becomes an optimal way for followers to gather information and reduce uncertainty with minimum exertion.

Second, interactive uncertainty reduction strategies (IURS) encourage direct interactions with a communicating party such as direct questioning to the communicating party, self-presentation, or self-disclosure (Antheunis et al. 2010). For example, individual SNS users may directly request information in the comments section of postings or ask questions via messaging features on SNS to gather information. Users' direct feedback on companies' SNS pages while engaging with other page followers or page managers are examples of interactive uncertainty reduction strategies. Because of the nature of interactivity, cue-rich communication media support better, more diverse types of direct interactivity than cue-poor communication media. Additionally, this strategy is useful to detect any deception from communicating parties and to identify any falsification (Tidwell and Walther 2002). For example, if a user finds a posting on a company's fan page that claims to offer a good promotion deal, the user can ask the company by adding a comment about how to get the deal in order to verify the truthfulness of a posted content.

Last, active uncertainty reduction strategies (AURS) lead to the involvement of one party to understand the other person without direct confrontation. This strategy is quite different from interactive strategy, in that one communicating party seeks the required information from third parties regarding the target personnel, but those target personnel are not likely to be aware of one's information-gathering activities. We argue that AURS in the current research context may be less applicable than the other two uncertainty reduction strategies. It does make sense that if a fan page follower perceives uncertainty about a product-related post on a fan page, they tend to either look into the postings on the fan page (a passive strategy) or ask direct

questions to the fan page as comments on a particular posting on the fan page (interactive strategy). It is in rare cases that followers will ask questions to other fan page administrators about the posts without knowing the original fan page administrator. Likewise, there are not many reasons why a fan page follower would ask questions about fan page postings to others without the fan page knowing about it.

Among the three uncertainty reduction strategies, the current research primarily considers passive and interactive uncertainty reduction strategies to examine the role of those strategies in perceived usefulness of posts, and in turn indirectly affect satisfaction with and trust in SNS.

Satisfaction and Trust in SNS

In regards to satisfaction, in the field of information systems (IS), an individual's satisfaction with an information system has been an important antecedent for the use of an IS (Bhattacharjee 2001b) and for the performance gain from the IS (Gelderman 1998). Adopting upon prior literature of mass communication studies, we propose a perspective about the role of satisfaction with social networking sites looking at SNS as social advertising media where establishing firms' fan pages (one of the methods of interactive online advertisements) and attracting SNS users. The field of mass communication defines media satisfaction as "a positive general feeling evoked by users' favorable post-consumption evaluation of a medium, media genre, media program, media content or media-generated activity" (Patwardhan et al. 2011, p. 175). As such, prior literature claims that continuous use of some parts of media contents or participating in media-generated activities is a significant antecedent influencing media satisfaction. That is, satisfaction with media could be a consequence of continued use of some parts of media-generated content and activities (Palmgreen and Rayburn 1985). For example, gratification obtained from the contents of TV shows is strongly related to satisfaction with television media (Perse and Ferguson 1993). Perse and Ferguson (1993) also found that higher exposure to television utility positively influences satisfaction with television media. For Internet media as well, frequent exposure to online activities is positively related to satisfaction with other online activities regarding Internet media (Patwardhan and Ramaprasad 2005). Given these theoretical perspectives, we consider satisfaction with SNS as a consequence of users' beliefs about fan pages as a result of their continuous uncertainty reduction activities. Our proposed relationship between users' beliefs about fan pages and users' satisfaction with SNS as a media, which is rarely attempted to date, will extend our knowledge on the media satisfaction and interactive advertising literatures.

For the purpose of this study, trust is defined as one's positive expectation for another person, an entity, or an organization based on past performance and truthful guarantees. That is, trust is about expectations of the future (Shneiderman 2000). Trust in general helps to maintain a good relationship between trustor and trustees, such as buyers and sellers in commercial transactions or the members of global virtual teams (Liu et al. 2004; Sarker et al. 2011). Trust in SNS is an important research topic, since trust plays a crucial role for online users who seek reliable information (Tang and Liu 2015). That is, the purposes of SNS are not only to connect people online, but also to share information and news among people (Mangold and Faulds 2009). For SNS to play an important role as a media for people to share information and news, SNS users should have trust in SNS itself as a communication media (Hiltz et al. 2012). Prior literature found that similarity in personality traits between users and SNS in the context of Twitter, users' involvement in developing and sharing of virtual content, the intensity of information, and hedonic aspects of the information are related to trustworthiness of social media contents (Munar and Jacobsen 2013). Despite the effort of prior literature to find antecedents of trust, not many studies have investigated theoretical aspects of influencing trust in an entity, particularly within SNS context. In our study, therefore, we investigate the factors embedded in a subsystem (a fan page) that influence overall trust in SNS, which will contribute to the body of knowledge on both trust and GST studies.

Research Model and Hypotheses Development

We suggest a research framework with two theoretical underpinnings (GST and URT) in the context of SNS and their page followers. Figure 1 illustrates the application of GST and URT in the context of SNS fan pages (as a part of system) and SNS themselves (as a whole system). Our research model consists of two layers: 1) satisfaction with SNS usage and trust in SNS during a SNS use (SNS as a whole system) and 2) SNS users who subscribe to fan pages and their activities on fan pages (as a sub part of SNS).

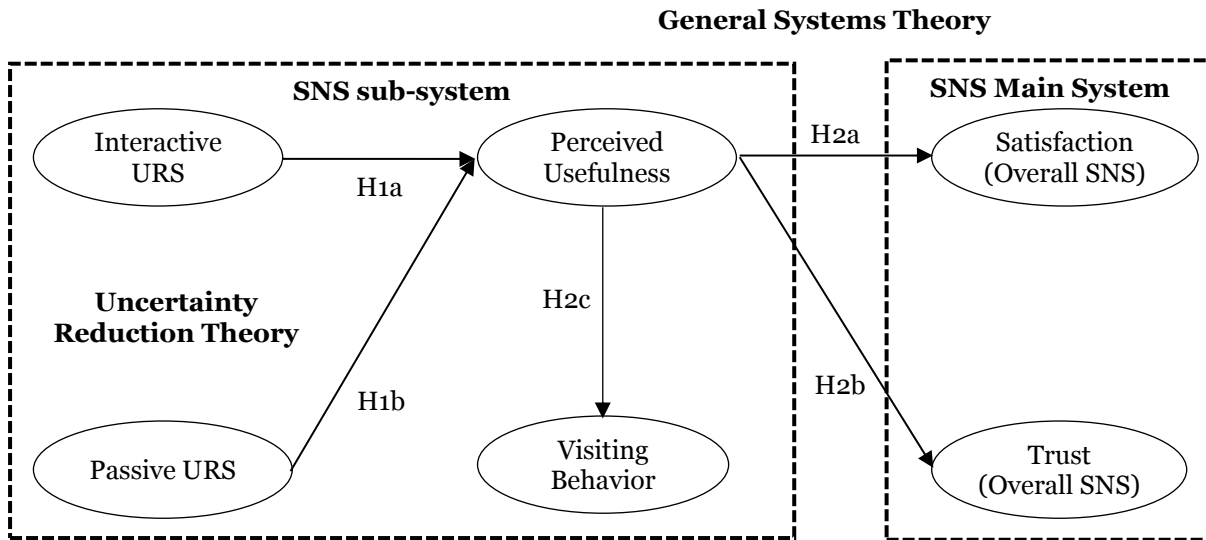


Figure 1. Research Model and Hypotheses

The Role of Uncertainty Reduction Strategies on Perceived Usefulness

We argue that both passive and interactive uncertainty reduction strategies are necessary to enhance the perceived usefulness of page posts because SNS support a variety of communication tools to assist the flow of communication. First, we claim that interactive uncertainty reduction strategies play an important role in enhancing perceived usefulness of posts in fan pages. It is true that most SNS fan pages facilitate direct communication with their followers, thus these followers can post their opinions, feedback, or direct questions on the contents on top of fan page owners (companies). Direct reciprocation facilitates the flow of information between page subscribers and information providers; thus more information about the products and services on fan pages will be disclosed to page followers. Eventually, the more informational postings (as a response to page followers' inquiries) regarding the products or services that page followers observe, the more those cues will attract page followers' attention, leading to their perceived usefulness of the postings on fan pages.

Second, we posit that passive uncertainty reduction strategies also play a salient role in reducing uncertainty regarding the products or services on fan pages, which eventually improve page followers' perceived usefulness of the postings. Because fan pages on SNS continuously provide posts about their products and services, page followers are able to gain various informational cues regarding products or services from these pages. Besides, other functionalities on SNS that improve the richness of information (e.g., location-based information, tagging people, etc.) supplement more detail and vivid description than merely simple media content for page followers. As such, with various multimedia channels that help improve users' understanding of product-related information, simply reading these postings enriched by various features on SNS (e.g., location-data or watching multimedia contents on fan pages) improves understanding about postings through users' passive uncertainty reduction strategies. Therefore, we posit:

H1: The extent of an individual fan page follower's interactive (H1a) and passive (H1b) uncertainty reduction strategy implementation is positively associated with his/her perceived usefulness of company's page postings.

The Role of Perceived Usefulness on Visiting Behaviors (to fan pages), Satisfaction with and Trust in SNS

From the GST perspective, the key activities for maintaining the stability and growth of a system are the interactions between the system as a whole and its subcomponents via the mechanism of collaborative feedback and their hierarchical relationship (von Bertalanffy 1969). In the context of the fan pages and SNS, we posit that SNS users' overall satisfaction with and trust in SNS are influenced by users' perception of usefulness of one of its subcomponents (fan pages), which is formed by their interactive and collaborative

behaviors with fan pages accounted by URS. We argue that users' perception of usefulness from interactive and collaborative activities within fan pages leads individual users to share more postings with their friends and to obtain more information within SNS as media. Furthermore, as long as the fan pages provide useful information, both individual users and their friends may benefit by sharing the information and feel gratification from the media over the long term. The literature on mass communication also argues that this gratification from the media results in satisfaction with the media themselves (Patwardhan and Ramaprasad 2005; Patwardhan et al. 2011). Users' feeling of usefulness via gratification from the media providing them with quality and useful information also influences users' trust in the media itself (Filiari et al. 2015). In addition, as an important e-marketing strategy, fan pages have emerged as a pertinent advertising method for companies striving to attract individual users as potential customers. Several examples of anecdotal evidence show that fan pages often provide deals and promotions that page fans may not get elsewhere (i.e., some e-coupons are provided only on Facebook fan pages, and not on the companies' websites or blogs).

The relationship between the perceived usefulness of information systems (IS) and continued usage has been proposed and tested in various IS contexts. For example, under the supported expectation-confirmation model of IS, Bhattacharjee (2001b) found a significant relationship between perceived usefulness (PU) and intention to use in IS in the context of document management systems. Moreover, several researchers have found a positive relationship between PU and actual behavior in the context of SNS. For example, perceived usefulness is positively associated with intention to continue using online services, as well as between continuous intention and actual continued use of online services (Kang et al. 2013). Kwon and Went (2010) also found a direct relationship between PU and continued use of SNS (Kwon and Wen 2010). We claim that this relationship holds in the context of individuals visiting companies' fan pages. For example, when page followers find the information or monetary benefit (e.g., e-coupons) provided by a fan page to be useful, they would more likely continue to visit the page. Therefore, we posit:

H2: An individual fan page follower's perceived usefulness of the postings on the company's fan pages is positively associated with overall satisfaction with (H2a) SNS, trust in (H2b) SNS, and visiting behaviors to fan pages (H2c) in SNS.

Research Method

Research Context

Our target population consists of individuals who use Facebook and who have experience visiting companies' Facebook fan pages as page followers (e.g., by clicking 'Like' or 'Subscribe' on the pages). A total of 365 Facebook users responded to the survey questions, and 200 participants' surveys were useful (54.79% response rate). We analyzed those 200 completed survey responses to test our hypotheses.

Selection of Measurement Items

We adopted six items measuring interactive (three items) and passive (three items) uncertainty reduction strategies from Antheunis et al. (2010), and four items measuring satisfaction from Spreng et al. (1996). We adopted five items measuring continued visiting behaviors and four items measuring perceived usefulness from Bhattacharjee et al. (2008) and Bhattacharjee (2001b), respectively. Last, we adopted four items measuring trust from Fogel and Nehmad (2009). Additionally, we added five control variables into our structural model test: gender, age, living area, education, and income.

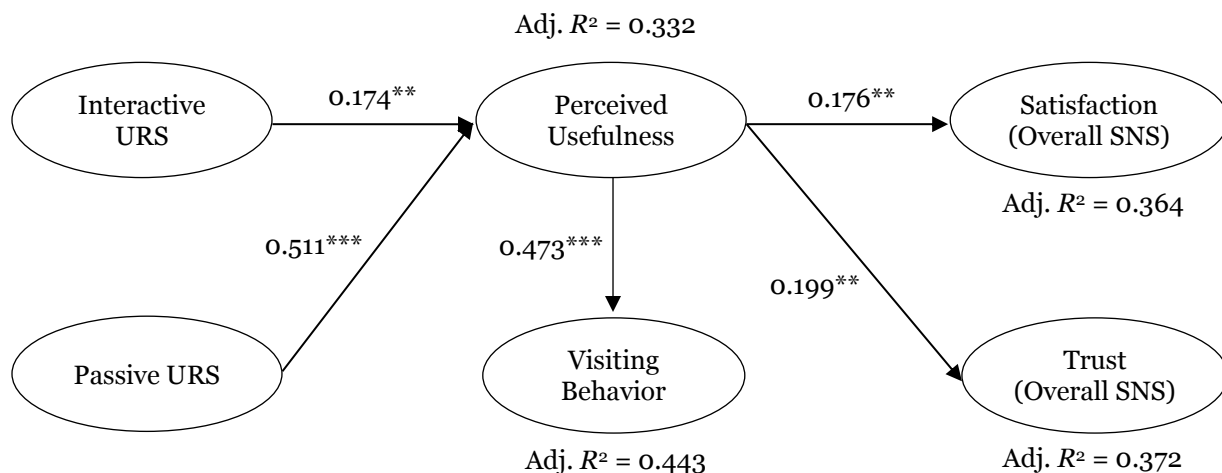
All questions were Facebook specific. For example, one item regarding interactive uncertainty strategy was "When you are reading (or watching, listening to) companies' postings, how often have you clicked "Like" or "Subscribe" for the postings?" One item regarding passive uncertainty strategy was "When you are on Facebook, how often have you read your *Liked* company's social activities?" One item regarding perceived usefulness was "Reading postings regarding products or services from *Liked* or *Subscribed* companies' fan pages enables me to acquire more information." One item of measuring satisfaction was "How do you feel about your overall experience of using Facebook?" One item regarding visiting behavior was "In general, how much time do you spend on your *Liked* or *Subscribed* companies' Facebook pages per week?"

Demographics of Survey Participants

Of the survey respondents, 61% of the participants were female and 61% were in their 20s and 30s. 73% possessed undergraduate or graduate school degrees. 56% of the survey respondents reported a household income ranging from \$20,000 to \$74,999. 49% responded that they currently lived in a suburban area (49.0%). More than 85.0% of respondents logged on to Facebook at least once a day at the time of the survey. Additionally, about 83.5% of the respondents used Facebook for more than three years. 46% “liked” more than 11 companies’ fan pages, while another half of the respondents were subscribing to fewer than 10 companies’ fan pages. Among those respondents, 50% of them at least ‘often’ read postings from the fan pages.

Data Analysis

In our study, a research model includes multi-dependent variables and multi-tiered research design supported by two distinct theories. Therefore, instead of applying the typical structural equation model (SEM), our study used a method called a joint generalized least squares or seemingly unrelated regression (SUR) by Zellner (1962) to consider possible correlation among the error terms in the set of linear equations (Habermann et al. 2015). The SUR model demonstrates an effective technique for estimating the particular models that capture the mediating conditions (Preacher et al. 2007). It handles the simultaneous evaluation of equations involving both observed and unobserved variables (Greene 2000). The simultaneous system of the SUR equations was estimated by using standardized data to eliminate the effects of the units of measurement, which changed across the constructs in the model. The results of the hypothesis testing are presented in Figure 2.



Note: *p < 0.1; **p < 0.05; ***p < 0.001.

Figure 2. Testing Hypotheses

Results

Our research model consists of four sub-equations based on SUR model. Because SUR assumes all error terms of equations are correlated with one another, it is an important to note that our model reflects uncaptured phenomenon included in error terms; eventually, those uncaptured phenomenon are considered when testing hypotheses by applying the SUR method. Details are listed in the table 1 below.

In reference to the first hypothesis, our findings show that both interactive and passive uncertainty reduction strategies were significant predictors of perceived usefulness in the company’s page postings. Testing hypothesis 1, our research finding shows that the relationship between IURS and perceived usefulness is significant ($\beta = 0.174$, $p < 0.05$) and supports the relationship between PURS and perceived usefulness ($\beta = 0.511$, $p < 0.001$) as well. The results from H1 reveal that SNS users’ passive and interactive activities of reducing uncertainty significantly affect their perceived usefulness of companies’ postings

about products or services on fan pages. These findings suggest that the attained information from users' activities of watching, communicating, and transferring posted contents on fan pages plays a salient role in better understanding posted contents, thus enhancing the usefulness of postings.

Hypothesis 2 is supported. First, our test result reveals that individuals who have higher levels of perceived usefulness are significantly associated with satisfaction with and trust in SNS, and more likely to visit the company's fan page ($\beta = 0.176, p < 0.05$; $\beta = 0.199, p < 0.05$; $\beta = 0.473, p < 0.001$, respectively). The results from H2a and H2b reveal that the perceived usefulness of companies' postings on fan pages is positively associated with overall satisfaction with and trust in SNS, which has been rarely investigated in prior literature. This is noteworthy empirical evidence for the body of knowledge on GST, in that the users' activities within a subcomponent of a system influence users' overall satisfaction with and trust in the whole system in the context of SNS and their fan pages. Our findings indicate that users' perceived usefulness of posts plays a significant role in the behavior of visiting a fan page as hypothesized H2c. Consistent with prior IS literature indicating a positive association between perceived usefulness and continuous behavioral intention (e.g., Bhattacharjee 2001b), our findings provide empirical evidence of the link between perceived usefulness and continuous visiting behaviors in the context of SNS usage and their fan pages.

Hypothesis		H1a and H1b	H2a	H2b	H2c
Equations		Equation 1 DV = PU	Equation 2 DV = Satisfaction	Equation 3 DV = Trust	Equation 4 DV = VB
Independent variables	IURS	0.174** (0.071)	-	-	-
	PURS	0.511*** (0.115)	0.176** (0.076)	0.199** (0.071)	0.473*** (0.065)
Control variables					
Gender		0.484* (0.134)	0.172 (0.121)	0.051 (0.116)	-0.247** (0.107)
Age		-0.253 (0.036)	-0.074* (0.045)	0.058 (0.034)	-0.014 (0.039)
Education Level		-0.344 (0.024)	-0.067 (0.047)	-0.032 (0.075)	-0.074** (0.045)
Living Area (Suburban)		0.157 (0.145)	-0.312* (0.183)	0.054 (0.195)	0.082 (0.149)
Living Area (Rural)		0.413 (0.154)	-0.254 (0.170)	-0.006 (0.173)	0.196 (0.149)
Income		0.049** (0.024)	0.026 (0.027)	-0.034 (0.026)	-0.024 (0.023)
Adjusted R ²		0.332	0.364	0.372	0.443
System weighted R ²		0.391			

Note: DV – Dependent Variable, PU – Perceived Usefulness, VB – Visiting Behaviors; () – Standard Error; *p < 0.1; **p < 0.05; ***p < 0.001.

Table 1. SUR Results

Perceived usefulness is accounted for 33.2% of the total variance by both IURS and PURS and visiting behavior is explained 44.3% of the total variance by perceived usefulness only. Satisfaction and trust are explained 36.4% and 37.2% of the total variance, respectively, by perceived usefulness.

Research Implications and Conclusion

Our study provides some implications for academia and practice. First, our findings suggest that uncertainty reduction theory (URT) can be a salient theoretical foundation to provide meaningful insights into SNS users' behaviors and perceptions. For instance, both interactive and passive uncertainty reduction strategies are important antecedents for followers' perceived usefulness of content on SNS. In other words, such findings emphasize that users' activities of watching posted content (passive strategy) and sharing comments under posted content (interactive strategy) on a fan page do have a significant effect on users' beliefs about the fan page content, and eventually, their behavior of visiting the fan page. Second, from the GST perspective, our findings support the notion that the sub-communication system of SNS users and their activities eventually contribute to increased SNS users' overall satisfaction with and trust in the SNS (the whole systems) themselves. In other words, our research findings imply that users' activities within one of the parts of SNS communication tools are significantly associated with users' satisfaction with and trust in SNS overall, which are two important factors for the success of SNS where people share information. Thus, we claim that GST can be brought into the field of information systems for future research in order to explain various phenomena on the interaction between the subparts of communication-based

information systems and whole systems. For practice, first, our empirical findings provide an important practical implication to SNS as valuable advertising media. The positive impact of the perceived usefulness of fan page postings on users' satisfaction with and trust in SNS suggests that the more fan page subscribers perceive that fan pages are useful for them, the more they think the SNS media fulfilled their expectations (satisfied) and are trustworthy. As such, our study implies that a high degree of perceived usefulness of fan page postings (a kind of marketing or advertising effort by firms) within a SNS heightens the value of SNS by enhancing users' satisfaction with and trust in the SNS. Second, our results suggest that companies should not only respond promptly to their followers with diverse forms of feedback, but also should provide their subscribers with useful information about their products and services, as well as useful offerings. This is important because such companies' timely and vivid information about their products and services can spur followers' active use of passive uncertainty reduction strategies, encouraging more frequent visiting to fan pages. Furthermore, because interactive strategies play a significant role in increasing perception of usefulness of posts about products or services, a company's efforts to interact with its page followers should improve its effectiveness of marketing through its fan pages in SNS.

Our research contributes to the information systems (IS) and communication disciplines in the following ways. First, our research extends the applicability of GST in the context of communication-based IS artifacts (SNS). That is, we explain the relationship between users' perception in sub-communication channels (fan pages) and satisfaction with/trust in whole communication systems in the context of SNS. Second, our research provides a theoretical background of page followers' behavioral activities by employing uncertainty reduction theory (URT).

Limitation and Future Research

This study has some limitations. First, we did not consider the industry categories of the companies who own fan pages as a determining or moderating factor when investigating the interrelationships among constructs. Therefore, we suggest that future studies consider the industry categories of companies who own fan pages (or product types). Second, since we collected data via a cross-sectional approach with self-reported measures of perceptions, we can only conclude that the significant relationships among the variables of our focus are associative, but not causal. Therefore, to address the causality issues and possible self-serving bias, future studies could conduct a similar study with objective data (e.g., actual frequency of visiting fan page visits, possibly with a longitudinal approach).

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