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A STUDY ON THE FACTORS AFFECTING THE BEHAVIOR OF SPREADING ONLINE RUMORS: FOCUSING ON THE RUMOR RECIPIENT'S EMOTIONS

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Abstract

In the past several decades, the Internet has dramatically changed the way modern society communicates. In particular, online media have altered the method by which rumors are transmitted, from hearing those rumors via word of mouth among people to seeing rumors written as online messages. As a consequence of this change, many individuals and organizations have been greatly damaged by malicious online rumors. And although the manner in which rumors are circulated has evolved in the manner described, few studies on the subject of online rumors have been conducted. In addition, no consensus on the key determinants of online rumor-spreading has been formulated because few researchers have developed solid theoretical foundations to empirically test factors in the online rumor context. Therefore, we suggest a research model based on social psychological theories such as cognitive emotion theory and dual process theory to explain the behavior of online rumor-spreading as well as factors identified in literature on rumor and persuasion studies. In line with the above, our model suggests that informational and normative determinants of online rumor-spreading lead to emotions that lead to attitude and behavior of spreading rumors online.

Keywords: Online Rumor, Cognitive Emotion Theory, Dual Process Theory, Informational Factors, Normative Factors, Factors Regarding Online Rumor-Spreading.

1 INTRODUCTION

1.1 Research Background

With the emergence of thousands of blogs and social media, people can freely share their opinions without time and space constraints. In addition, this phenomenon has changed the way of communication and the method of rumor-spreading from hearing to seeing. In past, when online communication relatively took a small share over the whole social communication, people usually transmitted rumors by word of mouth. Nowadays, most citizens can exchange rumors by written or depicted messages through Twitter, Facebook, and YouTube.
This may be seemingly one of the modern conveniences, meanwhile one of disasters to our society. In particular, it is difficult to control the circulated information on the Internet because online communication is normally done on a real-time basis. Moreover, as there are no official gatekeepers which verify the truth of floated information, unverified or falsified information have flooded on the Web. Therefore, the reputation management of company or individual has come into the picture these days. The following story tells us about the seriousness of online rumor.

> *"BOYCOTT COCA COLA! Attention all Muslim Media's and Muslims of the World!!!!! Last year famous Jew's shoe making company "NIKE" designed shoes with written ALLAH using the art of calligraphy. Now once again they are back by using the art of calligraphy but with very internationally well known beverage product Coca Cola. In normal, we read Coca Cola but actually its reversed calligraphy art and if you read it, it means "No Mohammad, No Mecca". Please ask Muslim Ummah to boycott drinking Coca Cola and should ask company official to immediately change their monogram…" (Kimmel 2004, p.7)*

Although this rumor proved to be false, it has still remained its existence on the Internet. As it is practically impossible to wipe out all the rumors once they are ignited on the Web, prevention or early actions can be effective ways to quash online rumors. To do this, we need to comprehend what kinds of online rumors get people's attention and what kinds of characteristics of online rumors will facilitate the behavior of rumor-spreading.

1.2 Research Question and Objectives

The research question of this study is "what kinds of factors affect the behavior of spreading rumors online?" This question refers to determinants that affect the attitude behind spreading an online rumor. Therefore, the objectives of this study are to develop an understanding of the factors that affect an individual's attitude regarding the spreading of online rumors and how these factors eventually influence the individual's online rumor-spreading behavior. Based on face-to-face rumor-related theories and social psychological theories, we develop a theoretical framework in order to draw a research model.
To test our research hypotheses, we use structural equation modeling with partial least squares (PLS). In this way, we describe the relationship between emotions and the attitude toward spreading online rumors with cognitive emotion theory. In addition, we identify informational factors and normative factors that affect rumor recipients' emotions. Further, we expect that this study will provide researchers and stakeholders with a more realistic understanding on how to manage the diffusion of online rumors, and how to minimize losses stemming from malicious online rumors.

2 LITERATURE REVIEW

Online rumor basically changed the manner of rumor transmission from "to hear" by word of mouth among people to "to see" via written online messages. Thus, factors pertaining to online rumor-spreading are, in a way, analogous to the factors proposed by earlier persuasion studies. Therefore, the factors related to the persuasiveness of online messages were carefully reviewed.

According to Yale's model, source, message and receiver are three major informational components in message evaluation. Source credibility and argument strength are vital factors that were found to play a significant role in communication judgment (Cacioppo et al. 1983; Wathen and Burkell 2002). In addition, several receiver characteristics such as a receiver's prior belief and attitude may affect evaluations of an incoming message (Zhang and Watts 2003). Five informational-based factors and one normative-based factor have been widely used in persuasion research. They are argument strength, source credibility, confirmation of prior belief, prior attitude to the object, issue involvement, and consensus, and they are examined in this research (Grewal et al. 1994; Smith and Shelby 1978; Zhang and Watts 2003).

2.1 Argument Strength

Several studies have demonstrated that argument strength will directly affect the attitude of the receiver, particularly in online environments (Sia and Tan 1999). Argument strength is defined as the extent to which the message receiver views the argument as convincing or valid in supporting its position (Cacioppo et al. 1983). Argument strength is concerned with the quality of the received information. If the received information is perceived to be made up of valid arguments, the receiver will develop a positive attitude toward the information and consider it to be credible.

On the other hand, if the received information appears to comprise invalid arguments, the receiver will adopt a negative attitude toward the information and be inclined to treat it as not credible. Argument strength has proved to be an important element that people use in evaluating incoming communications (Nabi and Hendriks 2003).

2.2 Source Credibility

Many studies have shown that an information source's credibility significantly influences the evaluation of incoming messages (Hovland and Weiss 1951; Eagly and Chaiken 1978; Wathen and Burkell 2002). It is defined as the information source's trustworthiness and expertise (Hovland and Weiss 1951). Hovland and Weiss (1951) showed that the communicator's credibility can exert influence on the credibility of the message. Eagly and Chaiken found that communicators with more positive attributes were more persuasive than those with less positive attributes (Eagly and Chaiken 1993). They indicated that source credibility determines the effectiveness of a communication (Eagly and Chaiken 1978). People tend to believe information from a highly credible source and more readily accept the information; hence, if the source has low credibility, the receiver is less likely to accept that information (Grewal et al. 1994). In a virtual context, Wathen and Burkell's research found that Web information receivers also considered virtual source credibility as an important indicator of information credibility (Wathen and Burkell 2002).

2.3 Confirmation of Prior Belief

Many studies have shown that confirmation or disconfirmation of prior belief significantly influences the credibility of the received information (Fogg et al. 2001). It is defined as the level of confirmation between the received information and their prior beliefs (Man Yee Cheung et al. 2009).

In an eWOM context, when consumers perceive the information to be consistent with their prior knowledge or expectations, they have more confidence in the received information (Alloy and Naomi 1984; Peterson and William 1987; Zhang and Watts 2003). However, if the information disconfirms the prior belief, the consumer will probably refuse to accept the recommendation and discount its

validity. Thus, if an online rumor confirms the rumor receivers' existing beliefs, they will be more likely to believe the online rumor.

2.4 Prior Attitude to the Object

Classic theories of attitudes assume that initial attitudes can exert powerful influences when individuals evaluate new information (Sherif et al. 1965; Anderson 1985). For example, groups with established attitudes about an issue may differ from groups without such attitudes, requiring more or less attention to the communicator selection. Sherif and Hovland (1961) had recognized that an individual's own standpoint may serve as an anchor for the interpretation of new information.
Specifically, if people have established attitudes about the object, those attitudes are likely to provide subjectively valid bases for a current evaluation of the object (Albarracin and Mitchell 2004; Eagly and Chaiken 1993; Fazio 2000; Kruglanski et al. 1993; Pratkanis and Greenwald 1989; Sanbonmatsu and Fazio 1990). Poortinga and Pidgeon (2004) concluded that people with strong preconceived ideas may not change their existing attitudes and attributions of trust easily, as they largely interpret events in accordance with their prior attitudinal positions.

2.5 Message Involvement

Message involvement refers to the general level of interest in the object or the centrality of the object to the person's ego-structure (Sun et al. 2006). Many researchers have examined involvement as a key factor that has the potential to explain word of mouth. The relationship between message involvement and eWOM has also been positively validated (Sun et al. 2006). Flynn, Goldsmith and Eastman (1994) showed that product involvement was positively correlated with opinion leadership.
In the eWOM context, Ha (2002) found that information from WOM is more likely to influence individuals when they are in a high-involvement purchase situation. Xue and Phelps (2004) discovered that consumer-generated comments on a product posted on an independent online forum were more persuasive than those posted on commercial websites, especially when individuals were less involved with the product.

2.6 Consensus

Normative influence occurs when information on the position favored by other members is available (Kaplan and Miller 1987). Kelly (1967) defined consensus as two or more individuals agreeing on the performance level of a product. For example, if a person finds that other people experience the same effect with respect to the same object or person, he/she will have more confidence that the effect is true. Sundar (2008) also asserted that individuals tend to assume that if many others think something is correct or good, they are likely to think that way as well.
Past research also found that consensus could have a higher effect for interpersonal communication than nonconsensus information (Burnkrant and Cousineau 1975; Pincus and Waters 1977). People tend to believe what most people believe, even if it is not true (Deutsch and Gerrard 1955). The strength of consensus will be reinforced when including more supportive viewpoints from different persons (Weiner 2000). People automatically tend to trust sites and sources that were either recommended by known others or that come from aggregated testimonials, reviews or ratings (Chaiken 1987). Having reviewed the literature relevant to research subject, this study now turns to a discussion of the theoretical framework for the research model.

3 THEORETICAL FRAMEWORK

As we reviewed earlier, the amount of rumor in circulation results from subjective determinants of emotional factors and cognitive factors (Rosnow 1980). Eventually, cognitive factors pertaining to personal emotional factors may affect the judgment of rumor transmission behavior. Therefore, we posit that the evaluation and spreading of online rumors are determined by the combinatorial effects of the emotional process provoked by stimuli from outside and the cognitive process for dealing with incoming information related to rumor. Based on this assumption, a theoretical framework for this study is composed of cognitive emotion theory primarily adopted by attitude research and dual process theory mainly proposed by persuasion studies.

3.1 Cognitive Emotion Theory

Cognitive emotion theory (CET) assumes that emotions are caused by the cognitive activity of observing a stimulus and the formation of corresponding evaluative perceptions (Lazarus and Folkman 1984). According to CET, cognition such as beliefs can be assumed to directly precede emotions. In other words, cognitive appraisal is a necessary precondition for emotional arousal. This argument suggesting that cognition and affect involve separate and independent systems has been supported by numerous emotion studies (Reisenzein 2009). Further, CET postulates that emotions are expected to directly cause particular behaviors (Frijda 2010).

Many scholars have argued that non-cognitive factors, such as affect, have a significant influence on attitude that is not mediated by the cognitive structure (Breckler 1984; Crites et al. 1994; Haugtvedt 1997; Herr 1995; Miniard and Barone 1997; Schwarz 1997). Furthermore, several researchers have demonstrated the impact of affect on attitude. Holbrook and Batra (1987) found that multiple affect categories are related to attitudes. Trafimow and Sheeran (1998) found differences between affective-based and cognitive-based beliefs and observed associations of each type of belief with attitudes.

Many proposed conceptualizations distinguish emotions into positive and negative affect (Laros and Steenkamp 2005). Emotion is defined as "a mental state of readiness that arises from cognitive appraisals of events or thoughts; has a phenomenal tone; is accompanied by physiological processes; is often expressed physically; and may result in specific actions to affirm or cope with the emotion, depending in its nature and meaning for the person having it." (Bagozzi et al. 1999)

Positive emotions such as joy, pleasure, interest and excitement (Yalch and Spangenberg 2000) may stimulate people to circulate rumors as a source of diversion or as a means of getting attention (Rosnow and Fine 1976). The rumors that are circulated must attract interest and must be sensational and attention-getting (Koenig 1985). Negative emotions such as anger, surprise, disgust, sadness, fear and contempt (Yalch and Spangenberg 2000) may also stimulate people to interact with others (Fiske 2004). Affect is seen to guide other judgments and influences subsequent information processing (Petty et al. 1991; Zajonc 1980). Some arousal or excitement is necessary for rumormongering to occur (Adams and Bristow 1979). Although there are some conceptual and methodological difficulties associated with the measurement of affect (Crites et al. 1994), it could be conceptualized as a fuzzy, overall valenced (positive or negative) evaluation of a particular situation or object. Moreover, affective responses can be distinguished from more cognitive attitudes in the sense that they are more spontaneous and more easily accessible.

3.2 Dual Process Theory

Dual process theory is a psychological theory that posits two distinct categories or types of influences on the persuasiveness of received messages: informational influence and normative influence (Deutsch and Gerrard 1955). Informational influence arises from information obtained as evidence about reality. It is based on the receiver's self-judgment of the received information, and hence the relevant components of the information, such as the content, source and receiver, are important sources of influence (Hovland and Kelley 1953). For instance, informational influence may be derived from the power of the presenter if this is considered to be more authoritative and erudite about the presenting topic. Normative influence, on the other hand, refers to the influence on the individual

arising from the norms/expectations of others that are implicit or explicit in the choice preference of the group or community. In normative influence, one's communication evaluation is based not so much on the received information as on the opinions of other audiences.
Deutsch and Gerrard's dual process theory has been studied in various contexts, such as neighborhoods, university settings and workplace communities, all of which have demonstrated the significant role of normative forces (Burnkrant and Cousineau 1975; Kaplan and Miller 1987). Dual process theory has been adopted to explain how different types of influences (normative factors vs. informational factors) affect the persuasiveness of online consumer reviews. Informational influence is based on the content of the reviews, whereas normative influence reflects the impact of social aggregation mechanisms available to today's online consumers (Man Yee Cheung et al. 2009). According to the theory, informational and normative influence work together to shape the reader's information credibility judgment. This theory focuses on a communication influence model based on both the receiver's self-judgment of the information and the normative power of other audiences. It is useful in explaining communication effectiveness when group opinions/discussions are present (Briggs et al. 2002; Sia et al. 2002). Thus, it has both informational elements from the shared discussion content and normative influences from the community of participant opinions.

3.3 Conceptual Framework

To identify salient beliefs for online rumor-spreading, factors are derived from informational factors and normative factors in dual process theory. As discussed earlier, belief in a rumor is considered as the most important factor in rumor-spreading. It can be conceptually linked to the receiver's self-judgment of the received information. Thus, we assume that both sides of belief factors affect the emotions.
In conclusion, order of constructs is placed as follows: cognition-emotion-behavior according to CET. The other part of the conceptual model is consistent with the assumptions of CET. Attitude toward the spreading of online rumor is mediated by positive and negative emotions. The theoretical framework is integrated with two social psychological theories and academic foundations from earlier rumor research. Figure 1 shows the conceptual framework of this study.

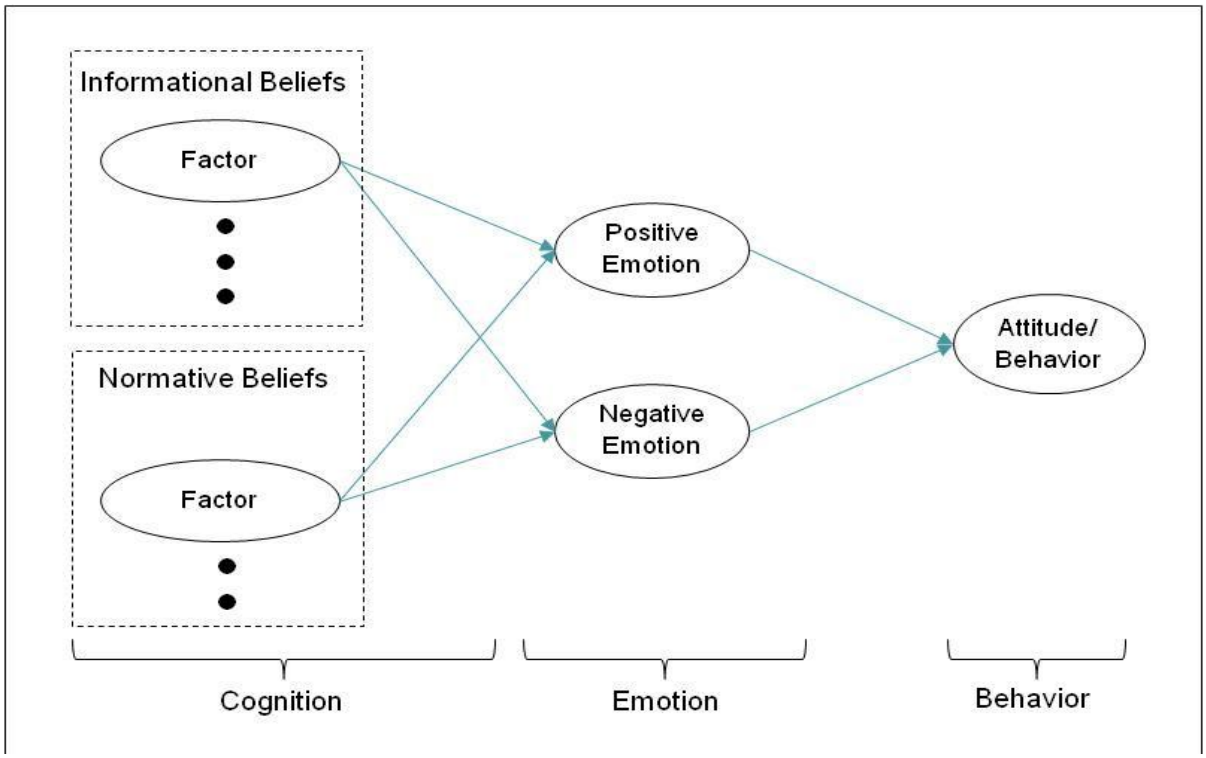

Figure 1. Theoretical Framework

4 RESEARCH MODEL

4.1 Hypotheses

With the introduction of earlier literature, researchers and practitioners have identified many variables affecting the behavior of rumor-spreading as we have seen in previous chapters. Even though many factors affecting behavior of rumor-spreading have been identified, there has been no consensus on key determinants of online rumor-spreading because few researchers have empirically tested such factors in the online rumor context based on solid theoretical foundations. Therefore, we suggest a research model based on various social psychological theories to explain the behavior of online rumor-spreading as well as factors identified from the literature review.

The proposed model is rooted in the theoretical framework derived from cognitive emotion theory and dual process theory. Factors are derived from rumor and persuasion study from the standpoint of importance and relevance in rumor-spreading. Thereafter, the selected factors are put in informational and normative variables based on dual process theory. Informational factors are: argument strength, source credibility, confirmation of prior belief, prior attitude to the object, and issue involvement. The normative factor is consensus. Comprehensively, six belief factors are applied to the research model.

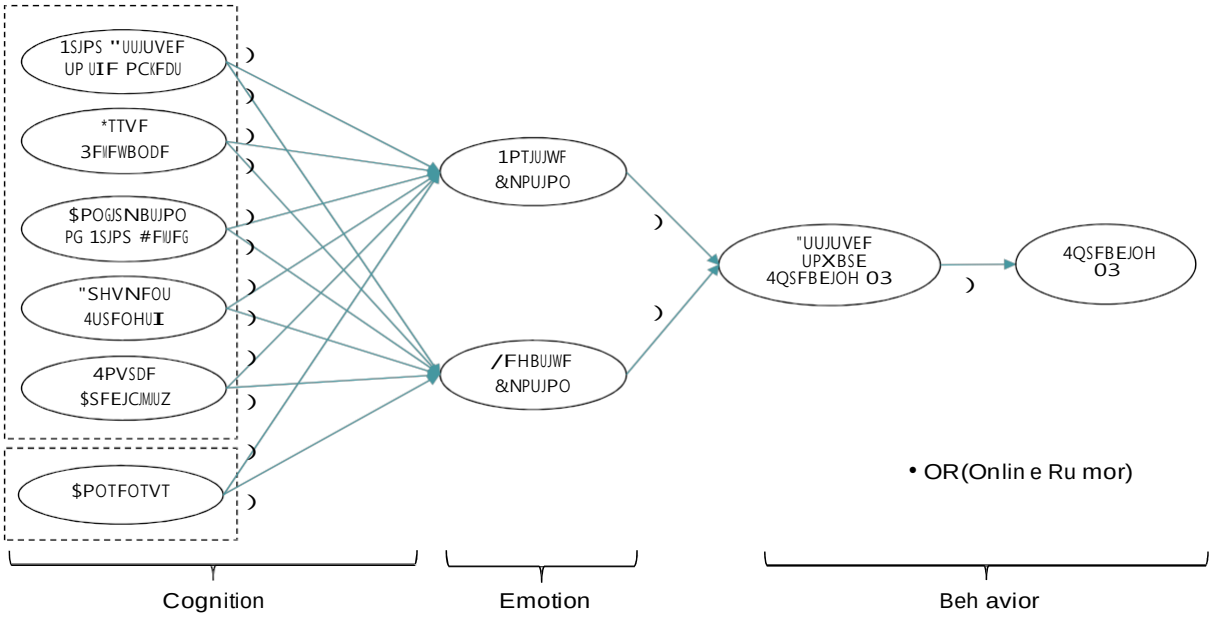

Figure 2. Research Model

Based on the research model, 15 hypotheses are formulated. Every hypothesis except H4 and H5 related with prior attitude to the object has a positive (+) relationship, while two hypotheses have negative (-) relationships. The arguments for these hypotheses are described in the literature review.

4.2 Methodology

4.2.1 Sample Rumor

Before we did a survey about online rumor, we selected a sample rumor (Tablo rumor) to help the respondents recall the situation of online rumor-spreading. The following news described a detailed story about the Tablo rumor (Stanford Daily on Sept. 28, 2010):

> *"Daniel Seon Woong Lee, better known in Korea as recording artist Tablo, graduated from Stanford with a seemingly uncontroversial record: two English degrees, a bachelor's in 2001 and a master's in 2002. But over the past ten months, an Internet campaign has launched attacking*

Lee's credentials and, he says, threatening him and his family. Lee received a master's degree in English through Stanford's co-term program in 2002. Lee, the front man of premier Korean rap group Epik High, became aware of the allegations that he was not a Stanford graduate in March, when he began receiving threats to his Twitter account. The sources of the attacks were netizens–vocal participants in an online community–who question the validity of Lee's Stanford degrees. An intervention from Stanford Registrar Tom Black and a letter from English professor Tobias Wolff did little to help stop the movement. The campaign to discredit Lee's degrees exploded. One of the largest antagonists, the netizen group "We Urge Tablo to Tell the Truth," formed in May and now has more than 131,000 members. The allegations range widely–that Lee has exaggerated his grade point average and that he claims he was best friends with Reese Witherspoon when she attended Stanford, for example. Black said verifying a person's degree from the University is not an unusual practice, but he has never seen a case this severe. Black released a copy of Lee's transcript, and when that did not prove satisfactory, he wrote a letter vouching for Lee's attendance and graduation. Recently, Black allowed camera crews to film him printing a degree to show that none of the process is fraudulent. Black said that he does not think the netizens will stop asking questions. He has stopped responding to e-mails concerning Lee. "It's all just rumor and innuendo," Black said. "It's not truth they're after. It's just to ruin his life." Lee maintains that he is not angry and even waited several months before pursuing legal action. He hopes a documentary airing on October 2, 2010 in Korea ("Tablo Goes to Stanford," on Korean network MBC) will vindicate his reputation."

After the MBC network aired the documentary on Oct. 2, 2010, Korean police reported the results of their investigation into the veracity of the Tablo rumor on Oct. 8, 2010. Although the rumor was proved to be false by the authorities, the rumor still survived and circulated on the Internet.

4.2.2 Questionnaire

All the measurement items were extracted from previous study, with some amendments made to fit the context of the present research (Smith and Vogt 1995; Zhang and Watts 2003). Because the original measurement items were written in English, the questions should be translated into Korean. Then, a native Korean speaker who was fluent in English carefully checked the translation. Disagreements in wording and meaning were resolved through further discussion.

A preliminary test was conducted prior to the actual data collection in which two PhDs and eight carefully selected PhD candidates of the School of Business Administration in Sungkyunkwan University in Korea were invited. They were asked to fill out the paper questionnaire, were then interviewed to report any difficulties in understanding the questions. The reports informed that there were no significant problems with the questionnaire instructions and items. Based on the suggestions of the preliminary test respondents, some minor changes were made to the questionnaire such as adding explanations about constructs and items that were unclear to respondents.

Thereafter, a pilot test was conducted in the online questionnaire in the portal of Sungkyunkwan University for one week. There were two main sections in the online questionnaire. The first section included an explanation of the general research purpose and a brief story about the Tablo rumor.

In the second section, the question items, the respondents were asked to answer the questions referring to the Tablo rumor heard or read from various media. Out of 63 total responses, 56 responses proved to be valid. After analyzing the 56 samples using paired t-test for the belief in a rumor before the police report and the one after the police report, we found out that there was a significant difference ($p<0.007$) between both beliefs. In addition, there were sampling biases from respondents who didn't know the Tablo rumor at all. Therefore, we restructured questionnaire items focusing on the situation before the police report and changed the survey method to a paper-based questionnaire to control the sampling biases from respondents who didn't know the Tablo rumor in the main survey.

In the main survey, we prevented respondents who didn't know the Tablo rumor from answering a paper-based questionnaire. Additionally, respondents who didn't have experience in accessing rumor sources were led to answer "don't know" in the part of source credibility for an exact measure. Respondents comprised undergraduate students from three universities in Korea. Within three days, 211 valid responses were received out of a total of 231 responses.

Respondents were encouraged to recall the situation prior to the police report. Then we gave extra points to the respondents who participated in the survey as an incentive. Questions were asked about their perceptions of prior attitude to the object, issue relevance, confirmation of prior belief, argument strength, source credibility, consensus, and positive/negative emotion. Items on their attitude toward spreading online rumor, and behavior of spreading online rumor were also included in this section. All the measurement items for the constructs in this study are shown in Table 1.

Construct	Item	Measurement
Prior Attitude to the Object	Item1	1. I felt Tablo was good
	Item2	2. I felt Tablo was favorable
	Item3	3. I felt Tablo was honesty
	Item4	4. I felt a sense of closeness with Tablo
	Item5	5. I felt Tablo was innocent
Issue Relevance	Item1	1. I think the forgery of academic records of the celebrities is often what I am interested in
	Item2	2. I think the forgery of academic records of the celebrities is often what I am excited about
	Item3	3. I think the forgery of academic records of the celebrities is often what I have fun with
	Item4	4. I think the forgery of academic records of the celebrities is often what I bear in mind
	Item5	5. I think the forgery of academic records of the celebrities is often what I care about
Consensus	Item1	1. I agree on the argument regarding the Tablo rumor that has a lot of hits
	Item2	2. I agree on the argument regarding the Tablo rumor that has a lot of comments
	Item3	3. I agree on the argument regarding the Tablo rumor that has a lot of recommendations
	Item4	4. I agree on the argument regarding the Tablo rumor that most people state identical opinions
Confirmation of Prior Belief	Item1	1. Information about the rumor corresponded to what I had known before reading it
	Item2	2. Information about the rumor supported my impression of Tablo
	Item3	3. Information about the rumor confirmed information I had previously known about Tablo
Argument Strength	Item1	1. The argument about the Tablo rumor was convincing
	Item2	2. The argument about the Tablo rumor was valid
	Item3	3. The argument about the Tablo rumor was persuasive
	Item4	4. The argument about the Tablo rumor was logical
Source Credibility	Item1	1. I trusted the information that the Tajinyo provided
	Item2	2. I trusted the information that the Sangjinse provided
	Item3	3. I trusted the information that the Tajinal provided
	Item4	4. I trusted the information that Tablo provided
	Item5	5. I trusted the information that Whatbecomes provided
	Item6	6. I trusted the information that the Internet portal provided
	Item7	7. I trusted the information that the MBC broadcast provided
Positive Emotion	Item1	1. I felt amused
	Item2	2. I felt interested
	Item3	3. I felt pleased
	Item4	4. I felt excited
Negative Emotion	Item1	1. I felt angry
	Item2	2. I felt surprised
	Item3	3. I felt disappointed
	Item4	4. I felt displeased
	Item5	5. I felt depressed
	Item6	6. I felt contemptuous
Attitude toward Spreading Online Rumor	Item1	1. I thought spreading the Tablo rumor was desirable
	Item2	2. I thought spreading the Tablo rumor was valuable to me
	Item3	3. I thought spreading the Tablo rumor was important to me
	Item4	4. I thought spreading the Tablo rumor was meaningful to me
Spreading Online Rumor	Item1	1. I transmitted the Tablo rumor by online means
	Item2	2. I posted the Tablo rumor on SNS, BBS, and blog
	Item3	3. I transmitted the Tablo rumor by online means without change
	Item4	4. I posted the Tablo rumor on SNS, BBS, and blog without change
	Item5	5. I transmitted the Tablo rumor by online means by changing
	Item6	6. I posted the Tablo rumor on SNS, BBS, and blog by changing

Table 1. Measurement Items of the Constructs

The questionnaire is carefully ordered to prevent respondents' common method bias. For the questionnaire, the multiple-item method will be used, and each item will be measured based on seven-point Likert scale from "Strongly agree" to "Strongly disagree." All operational definitions of variables are summarized in Table 2.

Construct	Definition	Key References	Items
Prior Attitude to the Object	An initial individual's degree of like or dislike for an object	Sherif and Hovland (1961)	5
Consensus	The degree to which individuals agree on the other people's opinion with respect to the same object	Kelly (1967)	4
Confirmation of Prior Belief	The level of confirmation between the received information and their prior beliefs	Man Yee Cheung (2009)	3
Argument Strength	The extent to which the message receiver views the argument as convincing or valid in supporting its position	Cacioppo and Morris (1983)	4
Source Credibility	The information source's trustworthiness and expertise	Hovland and Weiss (1951)	7
Positive Emotion	The emotional state of joy, pleasure, interest and excitement	Yalch and Spangenberg (2000)	4
Negative Emotion	The emotional state of anger, surprise, disgust, sadness, fear, and contempt	Yalch and Spangenberg (2000)	6
Issue Relevance	The general level of interest in the object to the person's ego-structure	Sun et al., (2006)	5
Attitude toward Spreading Online Rumor	An individual's degree of like or dislike for an object	Fishbein and Ajzen (1975)	4
Behavior (Spreading Online Rumor)	An individual's observable response in a given situation with respect to a given target	Fishbein and Ajzen (1975)	6

Table 2. Operational Definitions of Constructs

4.2.3 Sample Demographics

Among the 211 respondents, 141 (66.8%) were male and 70 (33.2%) were female. They were generally young (53 (25.1%) were under 20, 130 (61.6%) were 21 to 25 years old, 28 (13.3%) were 26 to 30). All the respondents were well-educated as undergraduate students. They were generally familiar with the Internet, with 178 (84.4%) of them having used the Internet for more than one hour per day on average.

4.3 Results and Discussions

4.3.1 Measurement Model Analyses

Table 3 shows the descriptive and internal consistency statistics for all the constructs in the research model. The factors loadings for all constructs are shown in Table 4. Item 4 of positive emotion, item 1 of argument strength, item 5 of negative emotion, item 2 of prior attitude to the object, and items 3, 4, 6, 7 of source credibility construct were excluded in the analysis for low loading values. The answers that included a "don't know" item were also excluded in the analysis confined to the test source credibility construct. As a result, the number of samples for the source credibility test was 137. The valid 211 samples were applied for the test of all the rest of the constructs.

Construct	Number of Items	Mean	S.D.	AVE	Composite Reliability	Cronbach's Alpha
AGST	3	3.61	1.68	0.87	0.95	0.92
ATTD	4	2.18	1.74	0.90	0.97	0.96
BHVR	6	1.82	1.55	0.90	0.98	0.98
CSSS	4	3.69	1.54	0.80	0.94	0.92
COPB	3	2.77	1.70	0.87	0.95	0.92

ISRV	5	3.15	1.71	0.78	0.95	0.93
NGTE	5	3.38	1.65	0.60	0.88	0.84
PATO	4	4.52	1.63	0.87	0.96	0.95
PSTE	3	3.78	1.66	0.74	0.90	0.83
SRCR	3	2.78	1.49	0.95	0.98	0.97

*AGST(Argument Strength), COPB(Confirmation of Prior Belief), PATO(Prior Attitude to the Object), ATTD(Attitude), SRCR(Source Credibility), PSTE/NGTE(Positive/Negative Emotion), BHVR(Behavior), ISRV(Issue Relevance), CSSS(Consensus)

Table 3. Descriptive Results and Internal Consistency of Model Constructs

Convergent validity was used to judge the extent to which each measurement item was related to what it should theoretically be related to. If the scales rate is high, the convergent validity is high. Fornell and Larker (1981) recommended a value of composite reliability should be above 0.70, and a Cronbach's alpha also above 0.70 as acceptable range values of the measurement items. As can be seen from Table 4, the composite reliability and Cronbach's alpha of all the constructs satisfied the threshold criteria.

	1	2	3	4	5	6	7	8	9	10
BHVR1	.780									
BHVR2	.850									
BHVR3	.837									
BHVR4	.885									
BHVR5	.878									
BHVR6	.861									
PATO1		-.847								
PATO3		-.861								
PATO4		-.905								
PATO5		-.892								
ISRV1			.775							
ISRV2			.805							
ISRV3			.732							
ISRV4			.665							
ISRV5			.651							
NGTE1				.760						
NGTE2				.628						
NGTE3				.691						
NGTE4				.780						
NGTE6				.554						
CSSS1					.829					
CSSS2					.855					
CSSS3					.845					
CSSS4					.785					
COPB1						.746				
COPB2						.771				
COPB3						.733				
PSTE1							.763			
PSTE2							.827			
PSTE3							.510			
ATTD1								.790		
ATTD2								.773		
ATTD3								.766		
ATTD4								.796		
AGST2									.720	
AGST3									.797	
AGST4									.747	
SRCR1										.850
SRCR2										.855
SRCR5										.817

Table 4. Factor Loadings for all Constructs

Discriminant validity describes the degree to which the operationalization is not similar to other operationalizations that it theoretically should not be similar to. Fornell and Larcker (1981) proponed that a value of AVE (Average Variance Extracted) should be above 0.50, and the square root of every AVE of each construct be larger than any correlation among any pair of constructs. Table 5 shows that all values of the square root of AVE were above 0.50 and were larger than all other cross-correlations. This shows that the variance explained by the each construct was larger than the measurement error variance (Fornell and Bookstein 1982).

	AVE	AGST	ATTD	BHVR	CSSS	COPB	ISRV	NGTE	PATO	PSTE	SRCR
AGST	0.87	**0.93**									
ATTD	0.90	0.45	**0.95**								
BHVR	0.90	0.45	0.63	**0.95**							
CSSS	0.80	0.39	0.41	0.38	**0.89**						
COPB	0.87	0.47	0.54	0.52	0.45	**0.93**					
ISRV	0.78	0.48	0.60	0.62	0.43	0.50	**0.88**				
NGTE	0.60	0.45	0.54	0.53	0.31	0.42	0.54	**0.77**			
PATO	0.87	-0.31	-0.43	-0.40	-0.21	-0.52	-0.38	-0.31	**0.93**		
PSTE	0.74	0.55	0.46	0.49	0.22	0.45	0.56	0.49	-0.39	**0.86**	
SRCR	0.95	0.64	0.59	0.61	0.56	0.66	0.63	0.58	-0.46	0.62	**0.97**

* Diagonal elements (in bold) are the square root of the average variance extracted (AVE).
Off-diagonal elements are the correlations among constructs.

Table 5. Square Root of AVE and Cross-Correlations

4.3.2 Structural Model Analyses

To test the research model, PLS (Partial Least Squares) was used. PLS is a latent structural equation modeling technique that is used as a component-based approach for estimation (Lohmoller 1989). It is particularly useful when we need to predict a set of dependent variables from a large set of independent variables and with less restrictive demands on sample size and residual distribution (Chin 1998). Table 6 presents the results of the structural model. The model explains 48.1 percent of the variance of positive emotion and 36.8 percent of the variance of negative emotion, showing a rather high explanatory power. Finally, the attitude toward spreading online rumor construct alone explains 42.7 percent of the variance of behavior of spreading online rumor. This provides substantial evidence of the strong relationship between the constructs in the model.

Hypothesis	Path Coefficient	t-value	Result
Positive emotion	R^2=0.481		
Prior attitude to the object (H4)*	-0.123	1.988	Supported
Issue relevance (H6)**	0.308	4.559	Supported
Confirmation of prior belief (H8)*	0.143	2.047	Supported
Argument strength (H10)**	0.324	4.380	Supported
Source Credibility (H12)**	0.619	13.144	Supported
Consensus (H14)*	0.150	2.305	Supported
Negative emotion	R^2=0.368		
Prior attitude to the object (H5)	-0.056	0.761	Not Supported
Issue relevance (H7)**	0.339	4.491	Supported Not
Confirmation of prior belief (H9)	0.121	1.369	Supported
Argument strength (H11)*	0.166	2.000	Supported
Source Credibility (H13)**	0.579	10.799	Supported
Consensus (H15)	-0.002	0.024	Not Supported
Attitude	R^2=0.486		
Positive emotion (H2)	0.117	1.768	Not Supported
Negative emotion (H3)**	0.283	4.561	Supported
Behavior	R^2=0.427		
Attitude (H1)**	0.596	10.978	Supported

*p<0.05, **p<0.01

Table 6. PLS Results

Five determinants of informational influence and a normative determinant to positive emotion were supported. Issue relevance (H6), argument strength (H10), and source credibility (H12) were found to be statistically significant at the $p<0.01$ level, while prior attitude to the object (H4), confirmation of prior belief (H8), and consensus (H14) were significant at the $p<0.05$ level.
Three of the five determinants of informational influence to negative emotion were supported. Issue relevance (H7) and source credibility (H13) were found to be statistically significant at the $p<0.01$ level, while argument strength (H11) was significant at the $p<0.05$ level. On the other hand, prior attitude to the object, confirmation of prior belief, and consensus were not significant in the model. Thus, H5, H9, and H15 were not supported.

4.3.3 Discussion

This study applied the cognitive emotion theory and the dual-process theory of information processing to examine how online users express their emotions of online rumors. The structural model explained more than 40 percent of the variance of the positive emotion of online rumor. Negative emotion, in turn, explained more than 30 percent of the variance of attitude and behavior of spreading online rumor. Additionally, it was found that informationally based determinants significantly influenced positive emotion. Meanwhile, prior attitude to the object, confirmation of prior belief, and consensus were excluded in negative emotion. These results can be explained by the remarks made by the respondents after they finished the survey. A considerable number of respondents who have negative emotions thought Tablo was not a very famous artist and so they did not form a prior attitude regarding him. Thus, H5 was not supported.
In fact, there were differences between positive emotion and negative emotion. The majority of the respondents who were members of online rumor communities felt interest (positive emotion) in the Tablo rumor. Thus, they had a relatively strong need to understand the rumor with cognition. Additionally, consensus played an important part in forming their positive emotion. Positive emotion did little to affect attitude toward spreading online rumor while negative emotion was associated with it. It can be explained that memories for neutral stimuli decrease but memories for arousing stimuli remain the same or improve (LeBar and Phelps 1998; Baddeley 1982, Kleinsmith and Kaplan 1963). Namely, if people receive the stronger impulse, the longer the stimulus will live in their memory. In the end, attitude significantly influenced behavior of spreading online rumor as earlier behavioral research suggested (Fishbein and Ajzen 1975).

5 CONCLUSION

The contribution of this research is that we conducted a pioneering exploratory empirical study in the online rumor research field. While previous research focused on face-to-face rumor-spreading, few studies were actually carried out. This study defined online rumor and revealed the status quo of online rumor-spreading. Thus, we can understand the phenomena of online rumor from a realistic point of view. Additionally, we developed a research model to provide a more comprehensive understanding of online rumor-spreading. We found the major factors affecting the online rumor-spreading behavior based on social psychological theories. To a large extent, this study empirically supports the cognitive emotion theory. The theory argues that cognitive structure is mediated by emotion (Lazarus et al. 1982). Our findings demonstrate that the belief constructs affect positive or negative emotion, and then emotion affects the attitude and behavior of online rumor-spreading. These results provide significant implications both in theory and practice.
Even though this research has drawn theoretically and practically meaningful implications, it has a few limitations. First, because the survey was conducted after the police report on the veracity of the sample rumor, we had no choice but to retrospectively ask the respondents for their perceptions about the rumor. Although we carefully designed our questionnaire to focus on the situation before the police report was issued, the respondents' answers might have been influenced by the event. For more effective online rumor research, controlling the change of cognition and emotion as time goes by should be considered in future studies. Second, the data in this study was collected from Korean students for the specific sample rumor. The results might not be generalizable due to the national characteristics unique to Korea and the small sample size.

References

Adams, B., and Bristow, M. (1979). Ugandan Asian Expulsion Experiences: Rumor and Reality. *Journal of Asian and African Studies*, (14), 191-203.

Albarracin, D., and Mitchell, A. L. (2004). The Role of Defensive Confidence in Preference for Pro-Attitudinal Information: How Believing That One Is Strong Can Sometimes Be a Defensive Weakness. *Personality and Social Psychology Bulletin*, (30), 1565-1584.

Alloy, L. B., and Naomi, T. (1984). Assessment of Covariation by Humans and Animals: The Joint Influence of Prior Expectations and Current Situational Information. *Psychological Review*, 91(1), 112-149.

Allport, G., and Postman, L. (1947). The Psychology of Rumor. NY: Henry Holt and Company.

Ambrosini, P. J. (1983). Clinical Assessment of Group and Defensive Aspects of Rumor. *International Journal of Group Psychotherapy*, (33), 69-83.

Anderson, C. A. (1985). Argument Availability as a Mediator of Social Theory Perseverance. *Social Cognition*, (3), 235-249.

Baddeley, A. D. (1982). *Your Memory, A User's Guide*. NY: Macmillan.

Bagozzi, R. P., Gopinath, M., and Nyer, P. U. (1999). The Role of Emotions in Marketing. *Journal of the Academy of Marketing Science*, 27(2), 184-206.

Breckler, S. J. (1984). Empirical Validation of Affect, Behavior, and Cognition as Distinct Components of Attitude. *Journal of Personality and Social Psychology*, (47), 1191-1205.

Briggs, P., Burford, B., De Angeli, A., and Lynch, P. (2002). Trust in Online Advice. *Social Science Computer Review*, 20(3), 321-332.

Burnkrant, R. E., and Cousineau, A. (1975). Informational and Normative Social Influence in Buyer Behavior. *Journal of Consumer Research*, 2(3), 206-215.

Cacioppo, J. T., Petty, R. E., and Morris, K. J. (1983). Effects of Need for Cognition on Message Evaluation, Recall, and Persuasion. *Journal of Personality and Social Psychology*, 45(4), 805-818.

Chaiken, S. (1987). *The Heuristic Model of Persuasion*. In M. P. Zanna, J. M. Olson and C. P. Herman (Eds.). Social influence: The Ontario Symposium (5, pp. 3-39), Hillsdale, NJ: Erlbaum.

Chin, W. W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 22(1), 7-16.

Crites, S. L., Jr., Fabrigar, L. R., and Petty, R. E. (1994). Measuring the Affective and Cognitive Properties of Attitudes: Conceptual and Methodological Issues. *Personality and Social Psychology Bulletin*, (20), 619-634.

Deutsch, M., and Gerrard, H. B. (1955). A Study of Normative and Informational Social Influence upon Individual Judgment. *Journal of Abnormal and Social Psychology*, 53(3), 629-636.

DiFonzo, N., and Bordia, P. (2007). *Rumor Psychology: Social and Organizational Approaches*. NY: American Psychological Association.

Eagly, A. H., and Chaiken, S. (1993). *The Psychology of Attitudes*. Orlando, FL: Harcourt Brace Jovanovich.

Eagly, A. H., Mladinic, A., and Otto, S. (1994). Cognitive and Affective Bases of Attitudes toward Social Groups and Social Policies. *Journal of Experimental Social Psychology*, (30), 113-137.

Eagly, A. H., Wood, W., and Chaiken, S. (1978). Causal Inferences about Communicators and Their Effect on Opinion Change. *Journal of Personality and Social Psychology*, 36(4), 424-443.

Fazio, R. H. (2000). *Accessible Attitudes as Tools for Object Appraisal: Their Costs and Benefits*. In G. Maio and J. Olson (Eds.), Why We Evaluate: Functions of Attitudes (pp. 1-36). Mahwah, NJ: Erlbaum.

Fishbein, M., and Ajzen, I. (1975). *Beliefs, Attitude, Intention and Behavior: An Introduction to Theory and Research*. MA: Addison-Wesley Publishing Company.

Fiske, S. T. (2004). *Social Beings: A Core Motives Approach to Social Psychology*. Hoboken. NJ: Wiley.

Flynn, L. R., Goldsmith, R. E., and Eastman, J. K. (1994). The King and Summers Opinion Leadership Scale: Revision and Refinement. *Journal of Business Research*, 31(1), 55-64.

Fogg, B. J., Marshall, J., Laraki, O., Osipovich, A., Varma, C., Fang, N., Paul, J., Rangnekar, A., Shon, J., Swani, P., and Treinen, M. (2001). What Makes Websites Credible? A Report on a Large Quantitative Study. In J. A. Nichols and M. L. Schneider (eds.), *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. NY: ACM Press, 61-68.

Fornell, C., and Bookstein, F. L. (1982). Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-voice Theory. *Journal of Marketing Research*, (19:4), 440-452.

Fornell, C., and Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Errors. *Journal of Marketing Research*, 18(1), 39-50.

Frijda, N. H. (2010). Impulsive Action, and Motivation. *Biological Psychology*, (84), 570-579.

Grewal, D., Gotlieb, J., and Marmorstein, H. (1994). The Moderating Effects of Message Framing and Source Credibility on the Price-Perceived Risk Relationship. *Journal of Consumer Research*, 21(1), 145-153.

Ha, H. Y. (2004). Factors Influencing Consumer Perceptions of Brand Trust Online. *Journal of Product and Brand Management*, 13(5), 329-342.

Haugtvedt, C. P., et al. (1997). Beyond Fact or Artifact: An Assessment of Fishbein and Middlestadt's Perspectives on Attitude Change Processes. *Journal of Consumer Psychology*, (6), 99-106.

Herr, P. M. (1995). Whither Fact, Artifact and Attitude: Reflections on the Theory of Reasoned Action. *Journal of Consumer Psychology*, (4), 371-380.

Hicks, R. D. (1990). Police Pursuit of Satanic Crime: Part 2: The Satanic Conspiracy and Urban Legends. *Skeptical Inquirer*, (14), 378-389.

Holbrook, M. B., and Batra, R. (1987). Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising. *Journal of Consumer Research*, (14), 404-420.

Hovland, C., and Weiss, W. (1951). The Influence of Source Credibility on Communication Effectiveness. *Public Opinion Quarterly*, (15), 635-650.

Kaplan, M., and Miller, C. (1987). Group Decision Making and Normative Versus Informational Influence: Effects of Type of Issue and Assigned Decision Role. *Journal of Personality and Social Psychology*, (53), 306-313.

Kelley, H. H. (1967). *Attribution Theory in Social Psychology*. In D. Levine (Ed.), Nebraska Symposium on Motivation (15, pp. 192-238). Lincoln: University of Nebraska Press.

Kimmel, A. J. (2004). *Rumors and Rumor Control*. NJ: Erlbaum.

Kimmel, A. J., and Keefer, R. (1991). Psychological Correlates of the Transmission and Acceptance of Rumors about AIDS. *Journal of Applied Social Psychology*, (21), 1608-1628.

Kleinsmith, L. J., and Kaplan, S. (1963). Paired Associate Learning as a Function of Arousal and Interpolated Interval. *Journal of Experimental Psychology*, (65), 190-193.

Koenig, F. (1985). *Rumor in the Marketplace: The Social Psychology of Commercial Hearsay*. MA: Auburn House.

Kruglanski, A. W., Webster, D. M., and Klein, A. (1993). Motivated Resistance and Openness to Persuasion in the Presence or Absence of Prior Information. *Journal of Personality and Social Psychology*, (65), 861-876.

Laros, F. J. M., and Steenkamp, J. (2005). Emotions in Consumer Behavior: a Hierarchical Approach. *Journal of Business Research*, 58(10), 1437-1445.

Lazarus, R. S., and Folkrnan. S. (1984). *Stress, Appraisal and Coping*. NY: Springer Publishing.

Lazarus. R. S., Coyne, J. C., and Folkman, S. (1982). *Cognition, Emotion, and Motivation: The Doctoring of Humpty-Dumpty*. In R. W. J. Neufeld (Ed.). Psychological Stress and Psychopathology. NY: McGraw-Hill.

LeBar, K. S., and Phelps, E. A. (1998). Arousal-Mediated Memory Consolidation: the Role of the Medial Temporal Lobe in Humans. *Psychological Science*, (9:6), 490-493.

Lohmoller, J. (1989). *Latent Variable Path Modelling with Partial Least Squares*. Heidelberg: Physica-Verlag.

Man Yee Cheung, Chuan Luo, Choon Ling Sia, and Huaping Chen. (2009). Credibility of Electronic Word-of-Mouth: Informational and Normative Determinants of On-line Consumer Recommendations. *International Journal of Electronic Commerce*, 13(4), 9-38.

Miniard, P. W., and Barone, M. J. (1997). The Case for Noncognitive Determinants of Attitude: A Critique of Fishbein and Middlestadt. *Journal of Consumer Psychology*, (6), 77-91.

Nabi, R. L., and Hendriks, A. (2003). The Persuasive Effect of Host and Audience Reaction Shots in Television Talk Shows. *Journal of Communication*, 53(3), 527-543.

Peterson, R. A., and William, R. W. (1987). *Perceived Risk and Price-Reliance Schema and Price-Perceived Quality Mediators*. In J. Jacoby and J. Olson (eds.), Perceived Quality. Lexington, MA: Lexington Books.

Petty, R. E., and Cacioppo, J. T. (1981). *Attitudes and Persuasion: Classic and Contemporary approaches*. Dubuque, IA: Brown.

Petty, R. E., Baker, S. M., and Gleicher, F. (1991). *Attitudes and Drug Abuse Prevention: Implications of the Elaboration Likelihood Model of Persuasion*. In L. Donohew and H. Sypher (Eds.), Persuasive Communication and Drug Abuse Prevention. Hillsdale, NJ: Erlbaum.

Pincus, S., and Waters L. K. (1977). Informational Social Influence and Product Quality Judgements. *Journal of Applied Psychology*, 5(62), 615-619.

Poortinga, W., and Pidgeon, N. F. (2004). *Trust, the Asymmetry Principle, and the Role of Prior Beliefs*. SRA Europe Annual Conference, Paris, 15-17.

Reisenzein, R. (2009). Emotional Experience in the Computational Belief-Desire Theory of Emotion. *Emotion Review*, (1), 214-222.

Rosnow, R. L. (1991). Inside Rumor: A Personal Journey. *American Psychologist*, (46), 484-496.

Sanbonmatsu, D. M., and Fazio, R. H. (1990). The Role of Attitudes in Memory-Based Decision Making. *Journal of Personality and Social Psychology*, (59), 614-622.

Schwartz, E. I. (1998), *O.K., Retailers, Why Do your Own Marketing When You can Make 100,000 Other Web Sites Do it for You?*. New York Times, August 10.

Schwarz, N. (1997). Moods and Attitude Judgments: A Comment on Fishbein and Middlestadt. *Journal of Consumer Psychology*, (6), 93-98.

Sherif, M., and Hovland, C. I. (1961). *Social Judgment: Assimilation and Contrast Effects in Communication and Attitude Change*. Westport, CT: Greenwood Press.

Sherif, C. W., Sherif, M., and Nebergall, R E. (1965). *Attitude and Attitude Change: The Social Judgment-Involvement Approach*. PA: W. B. Saunders.

Sia, C. L., Tan, B. C. Y., and Wei, K. K. (1999). Can a GSS Stimulate Group Polarization? An Empirical Study. *IEEE Transactions on Systems, Man and Cybernetics*, 29(2), 227-237.

Sia, C. L., Tan, B. C. Y., and Wei, K. K. (2002). Group Polarization and Computer-Mediated Communication: Effects of Communication Cues, Social Presence, and Anonymity. *Information Systems Research*, 13(1), 70-90.

Smith, R. E., and Shelby, D. (1978). Attributional Processes and Effects in Promotional Situations. *Journal of Consumer Research*, (5), 149-158.

Smith, R. E., and Vogt, C. A. (1995). The Effects of Integrating Advertising and Negative Word of Mouth Communications on Message Processing and Response. *Journal of Consumer Psychology*, 4(2), 133-152.

Stanford Daily on Sept. 28, 2010, *Korean Pop Star Battles Attacks on Stanford Record*, http://www.stanforddaily.com/2010/09/27/korean-pop-star-battles-attacks-on-stanford-record/.

Sun, T., Youn, S., Wu, G., and Kuntaraporn, M. (2006). Online Word-of-mouth (or mouse): An Exploration of Its Antecedents and Consequences. *Journal of Computer-Mediated Communication*, (11:4), 1104-1127.

Sundar, S. S. (2008). *The Main Model: A Heuristic Approach to Understanding Technology Effects on Credibility*. In M. J. Metzger & A. J. Flanagin (Eds.), Digital Media, Youth and Credibility, (pp. 73-100). Cambridge, MA: The MIT Press.

Trafimow, D., and Sheeran, P. (1998). Some Tests of the Distinction between Cognitive and Affective Beliefs. *Journal of Experimental Social Psychology*, (34), 378-397.

Wathen, C. N., and Burkell, J. (2002). Believe It or Not: Factors Influencing Credibility on the Web. *Journal of the American Society for Information Science and Technology*, 53(2), 134-144.

Weiner, B. (2000). Intrapersonal and Interpersonal Theories of Motivation from an Attributional Perspective. *Educational Psychology Review*, (12), 1-14.

Xue, F., and Phelps, J. E. (2004). Internet-Facilitated Consumer-to-Consumer Communication: The Moderating Role of Receiver Characteristics. *International Journal of Internet Marketing and Advertising*, 1(2), 121-136.

Yalch, R. F., and Spangenberg, E. R. (2000). The Effects of Music in a Retail Setting on Real and Perceived Shopping Times. *Journal of Business Research*, (49), 139-147.

Zajonc, R. B. (1980). Feelings and Thinking: Preferences Need No Inferences. *American Psychologist*, 35(2), 151-175.

Zajonc, R. B., and Markus, H. (1982). Affective and Cognitive Factors in Preferences. *Journal of Consumer Research,* 9(2), 123-131.

Zhang, W., and Watts, S. (2003). *Knowledge Adoption in Online Communities of Practice.* In S. T. March, A. Massey, and J. I. DeGross (eds.), 24th International Conference on Information Systems. Atlanta: AIS, 96-109.