

Public's online responses to a public health crisis: an empirical application of situational theory of publics and attribution theory in the case of the Middle East Respiratory Syndrome (MERS) outbreak in Korea

Wonjun Chung*
University of Suwon

Abstract

By applying the two theoretical frameworks (situational theory of publics and attribution theory) to the case of the 2015 Middle East Respiratory Syndrome (MERS) outbreak occurred in S. Korea, this study explores an interactive effect between the different types of publics and their attributive perception toward the MERS on the electronic word-of-mouth (eWOM) behaviors. For the purpose, this study employs a quantitative approach by using 326 participants in a 4 (publics: active, aware, aroused, or inactive) X 2 (attribution to the MERS crisis: responsibility or irresponsibility toward the government) factorial design. The results show that regardless of the crisis attribution, active public was more likely to participate in eWOM activities than any other public but the direction of the eWOM was directed in a negative way, while inactive public continued to be inactive. However, aware and aroused publics were significantly influenced by the way they attributed the crisis in terms of the crisis responsibility or irresponsibility toward the government.

Keywords: public health crisis, Middle East Respiratory Syndrome (MERS), situational theory of publics, attribution theory, eWOM

1. Introduction

The communicative behavioral reactions of publics after a crisis occurs are of great concern to both communication scholars and crisis managers. Crisis communication research has produced an abundant body of literature that helps communication managers to understand when and how the publics respond to a crisis. For example, the situational theory of publics is one of the key theoretical approaches that guides to identify that while a variety of publics exist, they react differently to a crisis, and this difference eventually affects crisis outcomes such as restoring an organization's image (Benoit, 2004; Coombs and Holladay, 2004; 2007; 2009), reputation (Coombs, 2007; Claeys, Cauberghe and Vyncke, 2010), negative word-of-mouth intention (Coombs and Holladay, 2007; 2009), and purchase intentions (Coombs and Holladay, 2007; Laufer and Jung, 2010). In addition, a great deal of previous research under attribution theory has been devoted to understand how the publics perceive a crisis and intend to communicate about the crisis issue with one another via online, depending on the perception (Austin et al., 2012; Sutton et al., 2013; Utz et al., 2013; Jin et al., 2014; Liu et al., 2015).

* wjchun1@hotmail.com

A Middle East Respiratory Syndrome Coronavirus (MERS-CoV, hereafter MERS) outbreak occurred in South Korea (hereafter Korea) from June 20 to July 28, 2015. A total of 186 patients were confirmed as being infected with MERS, 36 of whom were dead (Korea Centers for Disease Control and Prevention, 2015). Public health emergency responses against the MERS were implemented, including enhanced triage in hospitals, screening of suspected patients, rapid testing, isolation of suggestive cases, information technology-supported contact tracing, and extensive quarantine. However, it took several weeks to catch up with the spread, because of the initial delays in identifying infective cases. Overall, more than 16,000 people had been cumulatively quarantined because of potential contact with infective cases. Significant public fear and economic impact had been documented over the course of the outbreak (Ki, 2015).

It is widely believed that effective communication is critical for the containment of the spread of emerging infectious diseases such as the MERS case in Korea. However, during the MERS period, various media outlets and studies had pointed out communication failure among the Korean government, general publics and the MERS-related stakeholders as one of the key components that contributed to the wide and rapid spread of the uncertainty of the MERS. Due to the reason above, this present study regards the MERS case as a public health crisis.

There are two reasons to conduct this study. First, using hypothetical scenarios, most of the previous crisis communication studies have tended to test the publics' communication behaviors with different crisis types (Coombs and Holladay, 2009; Claeys et al., 2010; McDonald et al., 2010), not real responses utilized in an actual crisis case. This brings external validity issues of those studies. This problem can be identified as the primary rationale for this current study which uses a real crisis. The MERS crisis is a particularly useful research case as it affected various publics in Korea.

Second, unlike previous crisis management studies that often used a theoretical framework per crisis situation, this study is to combine the two theories, *situational theory of publics* and *attribution theory*, at the same time and then apply them to the MERS crisis. Each theory has been regarded as a useful framework for previous crisis management literature. Specifically, situational theory of publics provides a typology of public segmentation, while the theory explains how various publics differently weigh importance of an issue in a communicative decision (Aldoory et al., 2010; Grunig, 1997; Lee and Rodriguez, 2008; Kim and Grunig, 2011). Attribution theory, on the other hand, proposes that publics' communicative reactions to a crisis is the result of the perception toward the crisis. According to Alhakami and Slovic (1994), publics tend to have a dichotomous perception toward a crisis; responsible or irresponsible to the crisis. Given this connection, this study assumes that, after the MERS crisis happened, different types of publics communicate in a different way based on each one's different perception on the cause of the crisis. Specifically, this research focuses on whether various publics behave differently in terms of electronic word-of-mouth (hereafter eWOM).

Overall, by applying the two theoretical frameworks, this study explores an interactive effect between the different types of publics and their attributive perception toward the MERS on the eWOM behaviors, that is, how they used social media to communicate about the MERS shortly after the outbreak of the crisis. This effort is important for crisis communication practitioners who face any health-related crises because this study may provide them crucial tips to understand the contemporary publics' online communication behaviors and eventually design more effective initial communication strategies.

2. Review of literature

2.1 Crisis communication

A crisis can be defined as an event that brings, or has the potential for bringing, an organization into disrepute, which could imperil an organization's future profitability, growth, and its survival (Coombs, 2007; Holladay and Coombs, 2013; Jin et al., 2014). Crises occur unexpectedly and are negative in nature (Coombs, 2006). These events are characterized by high consequence, low probability, ambiguity, and decision-making time pressure (McDonald et al., 2010). Generally, in a crisis, the crisis-related organizations try to present the case in favor of their defense during and after the crisis, while the media try to place blame for the crisis (Coombs and Holladay, 2004; Utz et al., 2013).

Coombs (2007) added an aspect of crisis in his definition: "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes" (Coombs, 2007: 2-3).

The crucial element in this definition is that a crisis is a perception and, ultimately, public perception of the crisis is reality (Coombs, 2007). Penrose (2000) studied the role of publics' perception in crisis communication and concluded that public perception of a crisis is a critical element in crisis responses, and eventually affects crisis outcomes. According to Coombs (2007), crisis communication is a process that takes place in four stages: prevention, preparation, response, and revision. Ulmer, Seeger and Sellnow (2007) also described crisis communication as a four-step process: managing uncertainty, responding to a crisis, resolving a crisis, and learning from a crisis. This current study focuses on the initial stage of managing uncertainty during the MERS crisis.

2.2 Electronic word-of-mouth (eWOM) in social networking sites (SNS)

In recent years, social media have become a new hybrid component that allow organizations to establish positive relationships with their publics in various communication areas (Mangold and Faulds, 2009; Chu and Kim, 2011). On the other hand, SNS have also enabled a variety of publics to connect with one another by exchanging information, opinions and thoughts about any issues whose overall process is named as online or electronic WOM. The term, eWOM, is initially derived from marketing areas and defined as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau et al., 2004: 39). eWOM occurs on a wide range of online channels, such as blogs, emails, consumer review websites and forums, virtual consumer communities, and SNS (Dwyer, 2007; Hung and Li, 2007). Prior empirical investigations have examined the impact of eWOM on product sales, consumers' decision-making processes, and attitude towards the brand and the website (Hennig-Thurau et al., 2004; Mangold and Faulds, 2009; Chu and Kim, 2011).

In crisis management literature, eWOM activities are considered to be important forums to track spontaneous crisis discourses from the publics' perspective in terms of four aspects: opinion-seeking, -giving, -sharing and -disseminating (Jennex, 2012; Alexander, 2014). Past research has frequently viewed opinion-seeking and -giving as two important dimensions of offline WOM. Publics with a high level of opinion-seeking behaviors tend to search for information and advice from others when making a communication decision (Hennig-Thurau et al., 2004; Sutton et al., 2013; Utz et al., 2013; Liu et al., 2015). On the other hand, individuals with a high level of opinion-giving behavior may exert great influence on others' attitudes and behaviors (Mangold and Faulds, 2009; Chu and Kim, 2011; Jin et al., 2014). In online spaces such as SNS, however, interactivity among

publics enables dynamic and interactive eWOM where a single person can take on the multiple roles of opinion provider, seeker and transmitter (Sutton et al., 2013). Another important dimension of eWOM is opinion-sharing and -disseminating behaviors (Sun et al., 2006). Sun et al. (2006) suggested that online opinion-sharing and -disseminating is an important behavior consequence of eWOM that facilitates the flow of multidirectional information. Overall, opinion-seeking, -giving, -sharing and -disseminating are unique characteristics of eWOM in SNS, which bring a research interest in this study.

Public segmentation literature has emphasized that recognizing the characteristics of various publics is an important step in crisis communication as they engage in various communication behaviors (Grunig, 1997; Lesley, 1992). In a crisis situation, the better we understand the publics' characteristic factors, the more effectively crisis communication practitioners will be anticipating their reactions to the crisis and selecting strategic responses to those reactions. Characteristics most often discussed are an assessment of the publics' knowledge, involvement, and power to influence the decisions of the involved organizations such as government (Heath and Abel, 1996; Palenchar and Heath, 2002). Based on the three components (i.e., problem recognition, constraint recognition, and involvement), Grunig (1997) developed the situational theory of publics to explain and to predict why some publics are active and others are passive in communicative reactions to a crisis.

2.3 A typology of publics in crisis communication: situational theory of publics

In communication literature, situational theory of publics uses the term publics to refer to stakeholders. As defined by Dewey (1927) and Grunig (1997), publics are groups of people facing a similar situation, who recognize a problem and then organize to solve the problem. Publics are recognizable based on their shared behaviors, and the communication behaviors of publics can be understood by measuring how members perceive situations in which they are affected by organizational consequences.

Situational theory of publics suggests a typology of publics that predicts 1) how individuals perceive a situation and 2) how, based on their perception, they will engage in certain communication behaviors, such as information-seeking, information-processing, and participatory intentions. Grunig (1997) further proposed a set of three components of the theory to determine the communicative effectiveness with different publics. The first component is problem recognition. This concept suggests that people do not even think about a situation unless they perceive something needs to be done about a problem related to it. The second component is constraint recognition, which occurs when "people perceive that there are obstacles in a situation that limit their ability to do anything about the situation" (Grunig, 1997: 10). Constraint recognition discourages communication behavior, even if communicants have high problem recognition. The final component is involvement. The level of involvement notes the degree to which an individual is considered personally and emotionally connected to and involved in a problem (Grunig, 1997). Involvement, then, increases the likelihood of individuals attending to and comprehending certain contextual crisis situations such as a MERS case. Overall, the level of involvement is often used to predict whether a person will be active or passive in their communication behavior in a crisis.

These individuals are divided into four kinds of publics—active, aware, latent, and nonpublics—who have varying levels of problem recognition, constraint recognition, and involvement for certain issues or problems. Active publics are likely to have high levels of involvement and problem recognition, and lower levels of constraint recognition. Because these individuals recognize how the problem affects them and think they can do something about it, Grunig (1997) theorized that this type of public will actively seek information and act on that information. Aware publics will process information received and might act, but they are limited by either lower levels of involvement and problem recognition, or higher levels of constraint recognition. Latent

publics are not fully aware of their connection to, or involvement with, an issue and the related organization. As such, this type of public could become active or aware as information changes its cognitions about the issue. Finally, nonpublics do not care about an issue and have a minimal level of involvement with the issue.

Hallahan (2000) added to the situational theory of publics by renaming latent publics and nonpublics into aroused and inactive publics. Aroused publics have low levels of knowledge and low levels of constraint recognition, but their level of involvement is high, which encourages them to begin seeking information. Inactive publics are defined as groups with low levels of knowledge and involvement regarding an organization and its operations; this type of public, as such, may not yet recognize the consequences of an organization's behavior or may be apathetic toward the organization.

Overall, based on the three components (problem recognition, constraint recognition, and involvement) of situational theory of publics, previous studies note a total of eight possible types of publics as represented in Table 1 (Grunig, 1997; Hallahan, 2000; Rawlins, 2006). In the current study, however, only four publics (active, aware, aroused, and inactive) are considered as distinctive groups of publics in NIMBY. The choice to focus on only active, aware, aroused, and inactive publics is because the remaining publics conceptually are considered mixed publics (e.g., active/aware, aware/active, aroused/inactive, or inactive/aroused), meaning they are not mutually exclusive, and thus they are not considered "primary publics" in community-based communication programs (Rawlins, 2006).

Table 1. Eight kinds of publics defined by the three components of the situation theory

Variables	High involvement	Low involvement
High problem recognition Low constraint recognition	Active public	Active/ Aware public
High problem recognition High constraint recognition	Aware/ Active public	Aware public
Low problem recognition Low constraint recognition	Aroused public	Aroused/ Inactive public
Low problem recognition High constraint recognition	Inactive/ Aroused public	Inactive public

This table is modified from Grunig (1997), Hallahan (2000), and Rawlins (2006).

In summary, whether certain publics will become active publics or another type of publics can be predicted by whether they recognize the MERS problem, whether the problem involves them, and whether they think they can do anything about the problem (Heath and Douglas, 1991). For example, when a MERS issue came up, active publics would be more active than aware, aroused, and inactive publics in terms of e-WOM because the active group's urgency was greater toward the MERS than that of other publics (Sandman, 2012).

Thus, hypothesis one (RH1) is proposed.

RH1: There are significant differences among the four publics in eWOM behaviors during the MERS crisis: There is a main effect of public segmentation on the eWOM.

2.3.1 Attribution theory

The understanding of how publics perceive and interpret a crisis is crucial for developing the body of knowledge in crisis communication, from both critical and functionalist perspectives. Some scholars advocated

an audience-oriented approach to crisis communication and applied attribution theories from social psychology to explain the effects of responsibility attributions on organizational reputation in the context of crises (Coombs and Holladay, 2004). Previous research suggested that the perception people possess about a crisis may influence positive or negative evaluations on the crisis, thereby allowing them to integrate the evaluations into attitudinal and behavioral intentions (Andsager, 2000).

Weiner (1986) who developed attribution theory, identified a crisis as driving people's need to search for causes of the event. Attribution theory posits that when a crisis occurs, the publics (e.g., consumers, opinion leaders, stakeholders, media, etc.) look for attributions about the cause of the crisis; they will assess who is responsible for the crisis, and often blame the cause (Wiener, 1986; Forsterling, 2001). If an organization is deemed responsible for a crisis, the attributions that the publics made about crisis responsibility have negative attitudinal and behavioral consequences for certain organizations related to the crisis (Coombs, 2007). An example of negative behavioral outcome against the organizations is negative e-WOM. It often includes developing virtual community coalitions to address defined problems or needs regarding the crisis, increasing the awareness and concern of the crisis issues about the need or problem, and obtaining opposition to or support for activities or programs that address the needs or reduce the problems (Chang and Jacobson, 2010).

Overall, attribution theory implies that negative attribution to the MERS would make publics produce more unfavorable eWOM regarding the MERS crisis and more likely to participate in negative eWOM to blame the MERS-responsible organizations such as Korean federal government, Korean local governments, other Korean public offices (e.g., Korean Ministry of Health and Welfare, Korean Centers for Disease Control and Prevention, etc). On the other hand, certain publics who see the MERS-related organizations mentioned above irresponsible to the MERS will bring more favorable participatory communication activities that produce positive e-WOM. Thus, hypothesis two (RH2) is proposed.

RH2: Publics who see the MERS-related organizations irresponsible to the MERS will produce more favorable/positive eWOM than others who regard the organizations responsible to the crisis: There is a main effect of attribution on the direction of the eWOM.

The relationship among problem recognition, constraint recognition, involvement and attribution of the MERS crisis, however, is likely to be interactive and dynamic, rather than purely linear; as such, one can imagine that all of the variables combine to foster eWOM to ascertain whether the MERS problem is serious enough to mobilize them to participate in the eWOM by either a positive or negative way. Thus, an interaction effect among these variables is hypothesized (H3); sub-sequential hypotheses are followed by different types of the publics (H3-1 to H3-4).

Active publics are often directly involved in the MERS crisis issues; this group can serve as missionaries for the cause or as representatives for a social movement, special interest group, or political party in interaction with the related organizations of the crisis (Grünig, 1997; Hallahan, 2000). Active publics are composed of individuals who share high involvement and low constraint recognition. As their perception toward the MERS case is very high, they are predisposed to actively participate in negative eWOM, regardless of an attribution (Sandman, 2012).

RH3-1: Active publics produce negative eWOM against the MERS-related organizations, no matter if they regard the MERS issue as part of the organizations' responsibility or irresponsibility.

Compared to an active public, aware publics may not actively participate in eWOM because of their high constraint recognition and low involvement. However, as aware publics are highly perceptive about risks of the MERS, this type of public can be influenced by attribution of the crisis.

RH3-2: Some aware publics who perceive the MERS organizations responsible for the MERS crisis produce negative eWOM while other aware publics who perceive the organizations irresponsible for the MERS crisis participate in producing positive eWOM.

Aroused publics show comparatively low levels of knowledge about the MERS crisis and its impacts on public health. They are, however, potential active publics because they possess a low level of constraint recognition and a high level of involvement in the issues (Hallahan, 2000). Thus, the aroused public can be prompted by different attribution to the crisis.

RH3-3: Some aroused publics who perceive the MERS organizations responsible for the MERS crisis produce negative eWOM while other aroused publics who perceive the organizations irresponsible for the MERS crisis produce positive eWOM.

Inactive publics are conceptualized here as groups composed of individuals who possess low levels of issue perception about the MERS and low levels of involvement in its public health issues (Hallahan, 2000). Yet, they have high level of constraint recognition while taking a fatalistic position that nothing can be done to alter the situation (Grunig, 1997; Sandman, 2012). Thus, this type of public pays minimal attention to the crisis and is least likely to participate in eWOM in either a positive or negative way.

RH3-4: Inactive publics produce minimal eWOM activities, regardless of a direction of attribution to the MERS.

3. Methods

A 4 (publics: active, aware, aroused, or inactive) X 2 (attribution to the MERS crisis: responsibility or irresponsibility toward the government) factorial design was used to investigate the hypotheses of this study.

3.1 Collected participants

A reliable research agent that has an online sampling panel consisting of more than 1,000 Korean people gathered by a stratified sampling method was hired for this study. From July 28, 2015 (right after the Korean government declared the end of the MERS crisis) to August 12, 2015 (about two weeks), a total of 618 subjects of the panel initially participated in an online survey.

3.2 Independent variables: public types and attribution of the crisis

For this study, the three components used to classify the types of publics were incorporated and each was operationalized and measured with multiple-item scales. In detail, a series of item scales drawn from previous studies were used to determine each participant's recognitions and involvement. This study employed a nine-point Likert scale in order to optimize the measure of population variances in the variables, where one (1) indicated strongly disagree and nine (9) indicated strongly agree.

Principal component analysis (PCA), with Varimax rotation for validity, and tests for the construct items of the independent variables and reliability with Cronbach's α for each component were performed. Table 2 shows acceptable values for all variables for the Kaiser's Measure of Sampling Adequacy (MSA), as the overall Kaiser-Meyer-Olkin (KMO) value was good at .81, and Bartlett's test of sphericity had a satisfactory value

($X^2=3721.2$, $p<.01$).

Problem recognition. Problem recognition was operationalized by the level of problem perception of the MERS in general. For analysis, a problem perception index was constructed by combining six items from previous studies (Heath and Abel, 1996; Heath et al., 1995), including holistic concern: 1) health problems of MERS, 2) environmental problems of MERS, 3) safety problems of MERS, 4) social problems of MERS, 5) economic problems of MERS, and 6) Korean image/reputation problems of MERS at the global stage. Cronbach's α for the aggregated scale was .89. Participants showed a somewhat high level of problem recognition ($M=6.4$, $SD=1.3$). Based on the mean score, a total of 306 participants were categorized as low problem cognition, because their average point was below 6.39; the rest ($N=312$) were coded as high recognition, because their average involvement point was above 6.41. None of the participants had the exact mean score of 6.4, which would indicate average problem recognition.

Constraint recognition. Constraint recognition was operationalized by the level of obstacle perception when dealing with the MERS issues that limit publics' ability to participate in communicative activities in general. Based on research by Grunig (1997), and Kim and Grunig (2011), the constraint recognition scale was created with the following five response items: 1) I do not have any power in the MERS issue decision; 2) I cannot do anything about the MERS risk situation; 3) There are constraints or obstacles that limit my ability to participate in communicative behaviors such as eWOM; 4) I do not understand the MERS situation enough to do anything about it; and 5) I do not have the ability to make a difference in the outcome of any communicative behaviors. Cronbach's α was .82. Participants showed a moderate level of constraint recognition ($M=5.7$, $SD=1.3$). Based on the mean score, a total of 310 participants were categorized as low constraint recognition, because their average point was below 5.69; the rest ($N=308$) were coded as high recognition, because their average involvement point was above 5.71. None of the participants had the exact mean score of 5.1.

Involvement. Involvement was operationalized by participants' direct and indirect involvement concerning the MERS issue. Based on previous studies (Heath and Douglas, 1991; Heath et al., 1995; Kim and Grunig, 2011), public involvement was measured by the following four items: 1) directly/indirectly involved in public health issues due to the MERS, 2) directly/indirectly involved in economic issues due to the MERS, 3) directly/indirectly involved in social issues due to the MERS, and 4) directly/indirectly involved in family issues due to the MERS (eliminated later by a factor analysis). Cronbach's α was .79. Participants showed a somewhat low level of involvement ($M=4.6$, $SD=1.5$). Based on the mean score, a total of 311 participants were categorized as low involvement because their average point was below 4.59; the remainder ($N=307$) were coded as high recognition because their average involvement point was above 4.61. None of the participants had the exact mean score of 4.3.

Attribution perception. Attribution perception was operationalized by participants' attribution direction (either responsible or irresponsible) toward the MERS-related organizations. This study used a nine-point semantic differential (bi-polar opposite) scale ranging from greatly irresponsible (1) to greatly responsible (9), while (5) indicates no decision or don't know. Respondents were asked to rate their attributions to the following organizations: how much you evaluate the following organizations causing the initiation and extension of this MERS crisis in terms of irresponsible or responsible 1) the Korean government, 2) the Korean local governments, 3) the Korean public organizations (e.g., Korean Ministry of Health and Welfare, Centers for Disease Control and Prevention, etc.), 4) the MERS-related hospitals of Korea (e.g., Samsung Hospital, etc.). Cronbach's α was .86. Participants showed a little high level of responsibility perception against those organizations ($M=5.5$, $SD=1.4$). Based on the mean score, a total of 308 participants were categorized as the irresponsibility perception group because their average point was below 5.49; the remainder ($N=310$) were coded as the responsibility recognition group because their average involvement point was above 5.51. None

of the participants had the exact mean score of 5.5.

Results for the PCA and the reliability tests with Cronbach's α for all independent variables are presented in Table 2.

Table 2. PCA and Cronbach's α results of four independent variables

Construct of IVs	Items	M	SD	1	2	3	4	Total M (SD)	α
Problem recognition	health problem	7.8	1.7	.92				6.4 (1.3)	.87
	environmental problem	5.9	1.1	.68					
	safety problem	7.4	1.1	.85					
	social problem	5.2	1.7	.58					
	economic problem	6.6	.9	.69					
	image/reputation of Korea	5.5	1.3	.54					
Constraint recognition	I do not have any power in the MERS decision	6.5	2.1		.81			5.7 (1.3)	.82
	I cannot do anything about the MERS situation	5.8	1.2		.89				
	There are constraints that limit my ability to participate in communicative behaviors	4.8	1.7		.61				
	I do not understand the MERS risk situation enough to do anything	5.5	1.2		.69				
	I do not have the ability to make a difference in the outcome of any communicative behaviors	5.9	1.3		.85				
Involvement	involved in public health issues due to the MERS	4.6	1.6			.75		4.7 (1.5)	.74
	economic issues	6.2	1.6			.81			
	social issues	3.3	1.3			.68			
Attribution	the Korean government	6.6	1.4				.94	5.5 (1.4)	.86
	the local governments	4.9	2.1				.74		
	the public organizations	5.8	.8				.89		
	the MERS-related hospitals	4.7	1.3				.65		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Kaiser-Meyer-Olkin (KMO)=.81, Bartlett's test of sphericity $X^2=3721.2$, $p<.01$

3.3 Analyzed participants

Of the total of 618 initial participants, 292 were later excluded because they were regarded as mixed publics (e.g., active/aware, aware/active, etc.). The reasons for the elimination, as mentioned earlier, were that mixed publics are not mutually exclusive, and so they were not considered "primary publics" in this study (Rawlins,

2006). As a result, data from a total of 326 participants was finally used in this study; 92 participants were regarded as active publics, while 81 were identified as aware, 77 as aroused, and 76 as inactive publics. The age of the participants varied, ranging from 25 to 62 ($M=39.4$, $SD=3.7$). 179 participants (55%) were male, while the remainder ($N=147$, 45%) were female.

3.4 Dependent variable

The eWOM activities as actual communicative reactions of publics regarding the MERS crisis were operationalized as an individual's actual online communication behaviors in terms of MERS-related information/opinion-seeking, -giving, -sharing and -disseminating in either a positive or a negative way. This participation variable was a composite measurement that combined four questionnaire items, which determined the extent to which respondents engage in eWOM activities. This study used a nine-point semantic differential (bi-polar opposite) scale ranging from greatly negative (1) to greatly positive (9), while (5) indicate didn't participate in eWOM or neutral eWOM. Respondents were asked to indicate and rate their actual eWOM behaviors regarding the following four eWOM activities: 1) seek (either positive or negative) news/opinions/information about the MERS on the Internet/SNS, 2) post (either positive or negative) news/opinions/information about the MERS on the Internet/SNS, 3) share (either positive or negative) news/opinions/information about the MERS on the Internet/SNS, and 4) disseminate (either positive or negative) news/opinions/information about the MERS on the Internet/SNS. The scale was reliable ($\alpha=.83$). And, participants showed moderate negative eWOM activities regarding the MERS crisis ($M=4.3$, $SD=1.4$).

4. Results

It was hypothesized that there would be a main effect of the different types of publics (RH1), the different attributions of the crisis (RH2), and an interaction between the variables (RH3-1 to RH3-4), when given consideration to the eWOM behaviors regarding the MERS crisis. To test hypothesis one, a one-way ANOVA was first run, and the test indicated a significant difference in the eWOM among the four different types of publics ($F(3, 322)=96.6$, $p<.01$). Explicitly, active publics significantly participated in active eWOM, but in a negative way ($M=2.7$, $SD=1.0$), while the other publics (aroused publics: $M=4.8$, $SD=1.9$; aware publics: $M=4.9$, $SD=1.4$; and, inactive publics: $M=4.8$, $SD=1.1$) seemed in-between positive and negative eWOM activities (See Table 3). Thus, hypothesis one was supported.

Table 3. The main effects of public types and attributions on eWOM

Publics	Attributions	N	M	SD	t (df), p^*	F (df), p^{**}
Inactive	irresponsible	37	4.8	1.4	-.4 (74), n.s.	96.6 (3, 322), $p<.01$
	responsible	39	4.9	.3		
	Total	76	4.8	1.1		
Aware	irresponsible	39	5.7	1.9	24.8 (79), $p<.01$	
	responsible	42	4.2	1.3		
	Total	81	4.9	1.4		

Publics	Attributions	N	M	SD	t (df), <i>p</i> *	F (df), <i>p</i> **
Aroused	irresponsible	39	6.6	.9	34.8 (75), <i>p</i> <.01	96.6 (3, 322), <i>p</i> <.01
	responsible	38	3.2	.5		
	Total	77	4.8	1.9		
Active	irresponsible	47	2.9	1.1	1.9 (90), n.s.	
	responsible	45	2.6	.8		
	Total	92	2.7	1.0		
Total	irresponsible	162	5	1.7	9.6 (324), <i>p</i> <.01	
	responsible	164	3.7	1.0		
	Total	326	4.3	1.4		

* t-test comes from an independent t-test for each public in the comparison of irresponsible and responsible attributions.

** F-test comes from an one-way ANOVA of the four publics on eWOM behaviors.

Regarding hypothesis two, an independent t-test was run to compare the directions of eWOM between publics who perceived the MERS-related organizations responsible or those who thought the organizations irresponsible. The t-test demonstrated that there was a significant difference of eWOM directions between the irresponsible attribution group ($M=5$, $SD=1.7$) and the responsible attribution group ($M=3.7$, $SD=1.0$) ($t(324)=9.6$, $p<.01$). The irresponsible attribution group showed more positive eWOM activities than the responsible attribution group across all types of publics (See Table 3); thus, hypothesis two was supported.

Finally, a two-way ANOVA was conducted. As shown in Table 4, the ANOVA confirmed a direct effect of the different types of publics upon eWOM (RH1). The direct effect was significant ($F(3, 316)=219.3$, $p<.01$), and its partial eta-squared (η^2) was .54. In addition, the direct effect of the crisis attributions (RH2) was also significant ($F(1, 316)=254$, $p<.01$, $\eta^2=.38$). This study now turns to the interaction between public types and attributions of the crisis, and the interaction effect upon actual eWOM activities (RH3). The interaction effect of the independent variables on the behaviors was significant ($F(3, 316)=94$, $p<.01$, $\eta^2=.34$). These findings supported the main argument of this study, which suggests that in the MERS crisis, publics interact with different crisis attributions in the realm of eWOM activities.

Table 4. The interactive effects of public types and attributions on eWOM

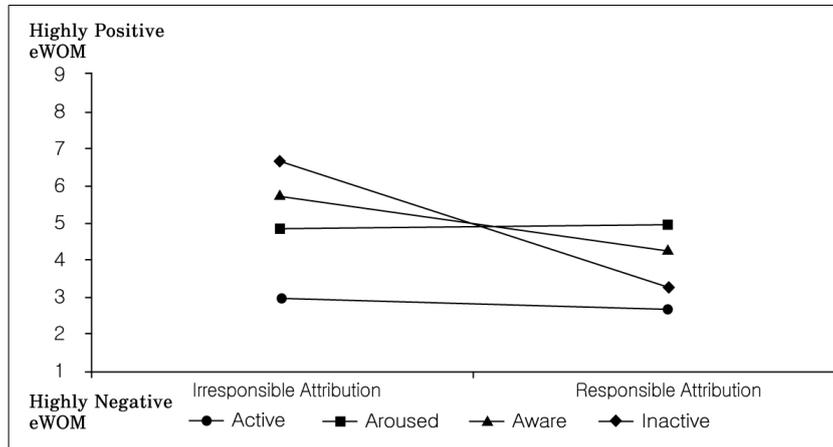
Source	df	F	partial Eta squared (η^2)	<i>p</i>
Publics	3,316	219.3	.54	<i>p</i> <.01
Attributions	1,316	254	.38	<i>p</i> <.01
Publics X Attributions	3,316	94	.34	<i>p</i> <.01

R Squared = .68 (Adjusted R Squared = .67)

To show a visual understanding of the interaction effects, the mean scores of eWOM by different crisis attributions are plotted in Figure 1 where the X axis indicates the dichotomy of the directions of the crisis attributions (Left: irresponsible attribution; Right: responsible attribution) and the Y axis represents a semantic differential (bi-polar opposite) scale ranging from highly negative eWOM (1) to highly positive eWOM (9). The plot clearly depicts the interaction effect, pointing out that publics showed different directions of eWOM by

different attributions of the MERS crisis.

Figure 1. The Interaction between publics and attribution on eWOM



Since the crisis attributions were observed to have an interaction effect with the types of publics upon the directions of eWOM, several independent t-tests were conducted to compare the mean of each public (RH3-1 to RH3-4). The mean scores of all eight cells are shown in Table 3. Regarding hypothesis 3-1, a t-test demonstrated that among active publics, there was no significant difference upon the directions of eWOM between the irresponsible attribution group ($M=2.9$, $SD=1.1$) and the responsible attribution group ($M=2.6$, $SD=.8$) ($t(90)=1.9$, n.s.). In other words, active publics had actively participated in negative eWOM activities, regardless of the crisis attributions. Thus, hypothesis 3-1 was supported (See Table 3).

As demonstrated in Table 3, regarding hypothesis 3-2 about aware publics, a t-test supported the significant difference between the irresponsible attribution group ($M=5.7$, $SD=1.9$) and the responsible attribution group ($M=4.2$, $SD=1.3$) ($t(79)=24.8$, $p<.01$). In other words, aware publics had been willing to participate in eWOM in either a positive or negative way, depending on each individual's crisis attribution. Thus, hypothesis 3-2 was supported.

Regarding hypothesis 3-3 about aroused publics, a t-test demonstrated a significant difference in eWOM between the irresponsible attribution group ($M=6.6$, $SD=.9$) and the responsible attribution group ($M=3.2$, $SD=.5$) ($t(75)=34.8$, $p<.01$). Like aware publics, aroused publics were also to participate in eWOM in either a positive or negative way, depending on each individual's crisis attribution (See Table 3). Thus, hypothesis 3-3 was supported.

However, no significant difference was observed in eWOM among inactive publics. Specifically, inactive publics showed a lack of eWOM activities, regardless of the crisis attributions ($t(74)=-.4$, n.s.). Thus, hypothesis 3-4 was supported.

5. Discussion

This study contributes in several ways to our understanding of publics' communicative behaviors such as eWOM during a crisis. First, the study confirms and extends situational theory of publics by demonstrating

individual differences on the behaviors. Consistent with previous findings using this theory (e.g., Heath et al., 1995; Lee and Rodriguez, 2008; Kim and Grunig, 2011), the current study demonstrates that each type of public showed a different level of and a direction (positive or negative) of eWOM activities regarding the MERS crisis. For example, active publics who recognized the unexpected public health crisis as a serious problem (high problem recognition), who perceived less obstacles that limit their ability to solve this problem (low constraint recognition), and who had high levels of involvement were more likely to participate in eWOM than other publics. On the other hand, inactive publics were the least likely to participate in eWOM activities because this group paid minimal attention to and was less involved in the crisis.

Second, a direct impact of crisis attributions (either irresponsible or responsible perception to the crisis-related organizations) on eWOM is observed while utilizing attribution theory. This study reveals the association of the negative perception/attribution on the organizations and the negative eWOM behaviors against the organizations. This study confirms the results of previous research findings that publics who saw the crisis-related organizations as irresponsible for the crisis were more likely to produce positive eWOM activities (Heath et al., 1995; Stafford and Hartman, 2000). In contrast, people who perceived the crisis-related organizations as responsible for the crisis were more likely to participate in eWOM activities in negative ways.

Third, this study, however, reveals that attributions about the crisis did not necessarily influence every individual to always negative or positive eWOM activities. Interestingly, for example, active publics' attributions regardless of responsibility or irresponsibility expressed negative eWOM activities. One explanation for the current findings is that active publics were highly aware of negative outcomes of the MERS. As a result, this public was likely to participate in active eWOM behaviors always in negative ways.

In addition, this study finds that aroused publics were more likely to express a different direction of eWOM than any other public, because they possessed low problem recognition, low constraint recognition, and a high level of involvement, consequently causing them to be more likely to participate in eWOM activities depending on an attribution. Aware publics were also an important public in the MERS crisis. Although this group seemed relatively less involved (compared to the aroused public), the different directions of attributions might play a role in triggering an increase in eWOM.

Overall, the findings of this study show that the behavioral orientation of publics toward the MERS crisis was a complex and dynamic phenomenon, in which a variety of factors such as problem and constraint recognitions, involvement, and attributions exert a differential influence on eWOM (Alhakami and Slovic, 1994; Heath et al., 1995; Hallahan, 2000; Stafford and Hartman, 2000; Burns and Slovic, 2012; Savadori et al., 2004). Publics often rely on their own perceptions, and their behaviors vary.

5.1 Practical implications

The findings of this study suggest some key implications that crisis communication practitioners should consider when dealing with different types of publics in a crisis. Governmental organizations and publics are interdependent in nature but often seek to pursue incompatible goals. When a crisis is characterized negatively by both parties, the event is inherently conflict-laden (Hallahan, 2000; Plowman et al., 2001; Wilson, 2001). For example, there would be a high level of uncertainty and conflict when a crisis occurs (Simmons, 2008; Sandman, 2012). In the MERS crisis, it seemed that various publics participated in online information-seeking, -sharing, -disseminating activities in order to reduce uncertainty and conflict. However, the directions of those activities varied, depending on their initial attributions of the crisis. Thus, the related organizations should have communicated with those more effectively and made them more involved into the beginning stages of crisis management.

First, based on the two dimensions of potential threat (high to low) and potential collaboration (high to low) toward the crisis-related organizations, Savage et al. (1991) classified publics into four types (supportive, marginal, nonsupportive, and mixed blessing). The findings of this study imply that in the MERS, active publics can be regarded as nonsupportive publics, as this group continues to negatively communicate with one another regardless of attribution. A nonsupportive public is a group of people who consider the potential threat high, but the potential collaboration as low. Because an active, nonsupportive public is the most distressing for the related organizations, the communication managers need to institute conflict management strategies when dealing with this public. One frequently cited conflict management strategy for dealing with active publics in a crisis situation includes the use of compensation to increase acceptance of the crisis and to reimburse affected publics for potential losses.

An alternative step toward conflict management from crisis communication literature when dealing with active publics should be to create trust and a sense of belonging between the related organizations and their active publics (Sandman, 2012; Lesly, 1992; Heath et al., 1995; Sauer, 2003). It should require strategies for building long-term relationships based on mutual trust that result in the behaviors supporting both parties. According to Svendsen (1998), trust is a core condition that is necessary for both an organization and its active publics to move toward greater interdependence and ultimately to reach “collaborative mind.” Collaborative mind is the stage when the organization ceases to focus on the aspirations of active publics and attends to the collective will and mission of both the organization and the publics as one cohesive group. In general, transparency of information is emphasized as an effective means of communicating about the MERS risks and impacts (Sauer, 2003; Simmons, 2008). When risk communication is effective, it has the potential to increase the public’s trust and the assumed credibility of the organization officials, and active publics (Sandman, 2012).

Incorporating consensus-building efforts into a crisis is another frequently cited strategy to promote interaction between active publics and the related organizations. Kearney and Smith (1994) advocated full citizen participation and a period of prolonged political debate as a means of reducing the distrust that often exists between the two parties in a crisis management processes. Simmons (2008) argued that a notion of power-sharing would be a key in a consensus-building process to reduce frustration, animosity, and financial and time costs associated with making decisions about risks in a crisis.

In general, scholars have found evidence that informal processes are more effective in promoting consensus (Savadori et al., 2004; Burns and Slovic, 2012). Kasperson et al. (1992) suggested that lengthy debates and dialogues between active publics and local governments can be most effectively stimulated in informal settings wherein varied interests can discuss their perspectives on crisis issues. When effective discussions occur, there is an increased likelihood that acceptable solutions to the challenges of the crisis management process can be achieved.

Second, in the MERS crisis, aware publics who hold a low level of involvement can be considered a supportive public. Savage et al. (1991) suggested that as this public is low on potential threat but high on potential for collaboration, an involvement strategy is needed. Involving aware publics in a decision-making process is important because the crisis-related organizations can maximally encourage this public’s collaborative potential. Although it takes constant effort, the organizations can involve aware publics by implementing participative management strategies, decentralizing authority to opinion leaders, or increasing the decision-making participation of the publics (Savage et al., 1991).

Third, aroused publics are a mixed blessing public. A mixed blessing public plays a major role because crisis-related organizations often face this group, whose potential to threaten or to collaborate are equally high. The importance of managing this type of public is that this group could become either highly positive or highly negative. For the mixed blessing public, effective collaboration may well determine the long-term relationship.

If this type of public is not properly managed using a collaborative strategy, it can easily become a negative public (Stafford and Hartman, 2000; Wilson, 2001). As aroused publics have a lack of information regarding crisis issues, the first stage in the collaborative communication process involves exchanging information and developing structures, roles, and responsibilities that work for everyone (Stafford and Hartman, 2000; Palenchar and Heath, 2002).

Last, inactive publics can be regarded as a marginal public. This public does not need to be communicated with directly, but it should be monitored to determine if its orientation toward an organization might change. A marginal public is neither highly threatening nor collaborative. Monitoring helps manage the marginal public, whose potential for both threat and collaboration is low (Stafford and Hartman, 2000). By recognizing that this type of public's interests are narrow and issue specific (Sandman, 2012), crisis communication practitioners can minimize the organization's expenditures and resources. When making strategic decisions, those practitioners should monitor the interests of the typically inactive publics. Only when community issues involved in the decisions are likely to be salient to inactive publics should the organizations' act to increase this publics' support or to deflect its opposition; effort, otherwise, may be wasted (Savage et al., 1991; Svendsen, 1998).

Overall, long-term planning as a key element of effective crisis management can both mitigate negative impacts of a crisis and reinforce positive ones. To have a better crisis communication management, the crisis-related organizations should need to involve various public groups in the initial stages of crisis management process. It has been found that this process is multisectoral and very complex (Simmons, 2008). Numerous studies have reported that participatory communication programs in a crisis are minimal, passive, partial, static, and short-lived (Devine-Wright, 2009). In this regard, the crisis-related organizations need to create ways to empower publics, rather than merely serve them. With this in mind, this process requires effective informing, educating, and training various publics at the very early stage to increase public understanding (Sauer, 2003; Simmons, 2008).

5.2 Limitations and future study

There are some limitations that should be addressed in the future. First, this study did not consider important outcome variables of situational theory of publics, which are information seeking and processing. Previous studies showed a strong link between the publics' communication behavior such as eWOM, particularly the intensity with which they seek information, and their behavioral intentions (Lee and Rodriguez, 2008; Kim and Grunig, 2011). According to the situational theory of publics (Grunig, 1997), publics who are highly involved in an issue are more likely than minimally involved publics to communicate because they can generate more arguments on the topic, have a greater proportion of arguments supporting their position, seek issue-associated information, and express more opinions on the topic. This relationship in influencing eWOM behaviors in a crises should be further investigated in future research.

Second, future research that uses more comprehensive framework and considers public's online responses extend the findings from this study and contribute to theoretical development of crisis communication. Future research studying the responses delivered by other social media platforms (e.g., Blog and YouTube) as well as interpersonal/face-to-face communication outlets should be needed in order to extend and confirm the results of this study.

Last, a further investigation is needed to retest this study's proposed framework in different settings (e.g. different crisis settings) and also at different levels of risk to extend the generalizability of the findings of this study.

6. Conclusion

Effective initial communication was one of the most serious challenges surrounding the MERS crisis that occurred in 2015 in Korea. As the MERS-related organizations, especially the Korean government, postponed to disclose the names of the hospitals where confirmed MERS cases were exposed, the MERS spread from hospitals to hospitals and public anxiety was amplified significantly. By applying the two theoretical frameworks (situational theory of publics and attribution theory) to the MERS crisis, this study used 326 participants in a 4 (publics: active, aware, aroused or inactive) X 2 (attribution of the crisis toward the related organizations: irresponsibility or responsibility) design to investigate various communicative behaviors in terms of eWOM. The results showed that regardless of crisis attribution, active publics were more likely to participate in the eWOM activities than any other public, but this group strongly produced those in a negative way while inactive publics continued to be inactive. However, aware and aroused publics were significantly influenced by the different directions of attributions.

References

- Aldoory, L., Kim, J. and Tindall, N. (2010). The influence of perceived shared risk in crisis communication: elaborating the situational theory of publics. *Public Relations Review*, 36, 134-140.
- Alexander, D. E. (2014). Social media in disaster risk reduction and crisis management. *Science and Engineering Ethics*, 20(3), 717-733.
- Alhakami, A. S. and Slovic, P. (1994). A psychological study of the inverse relationship between perceived risk and perceived benefit. *Risk Analysis*, 14(6), 1085-1096.
- Andsager, J. L. (2000). How interest groups attempt to shape public opinion with competing news frames. *Journalism & Mass Communication Quarterly*, 77(3), 577-592.
- Austin, L., Liu, B. F. and Jin, Y. (2012). How audiences seek out crisis information: exploring the social-mediated crisis communication model. *Journal of Applied Communication Research*, 40, 188-207.
- Benoit, W. L. (2004). Image restoration discourse and crisis communication. In D. P. Millar and R. L. Heath (Eds.), *Responding to Crisis: A Rhetorical Approach to Crisis Communication*. Mahwah: Erlbaum, 263-280.
- Burns, W. J. and Slovic, P. (2012). Risk perception and behaviors: anticipating and responding to crises. *Risk Analysis*, 32(4), 579-582.
- Chang, L. and Jacobson, T. (2010). Measuring participation as communicative action: a case study of citizen involvement in and assessment of a city's smoking cessation policy-making process. *Journal of Communication*, 60(4), 660-679.
- Chu, S. and Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. *International Journal of Advertising*, 30(1), 47-75.
- Claeys, A., Cauberghe, V. and Vyncke, P. (2010). Restoring reputations in times of crisis: an experimental study of the situational crisis communication theory and the moderating effects of locus of control. *Public Relations Review*, 36, 256-262.
- Coombs, W. T. (2006). The protective powers of crisis response strategies: managing reputational assets during a crisis. *Journal of Promotion Management*, 12. Retrieved from <http://www.haworthpress.com/web/JPM9>(Accessed 15 September 2016)
- _____ (2007). Attribution theory as a guide for post-crisis communication research. *Public Relations Review*, 33, 135-139.
- Coombs, W. T. and Holladay, S. J. (2004). Reasoned action in crisis communication: an attribution theory-based approach to crisis management. In D. P. Millar and R. Heath (Eds.), *Responding to Crisis: A Rhetorical Approach to Crisis Communication*. Mahwah: Lawrence Erlbaum, 95-115.

- Coombs, W. T. and Holladay, S. J. (2007). The negative communication dynamic: exploring the impact of stakeholder on behavioral intentions. *Journal of Communication Management*, 11(4), 300-312.
- _____ (2009). Further explorations of post-crisis communication: effects of media and response strategies on perceptions and intentions. *Public Relations Review*, 35, 1-6.
- Devine-Wright, P. (2009). Rethinking NIMBYism: the role of place attachment and place identity in explaining place-protective action. *Journal of Community & Applied Social Psychology*, 19, 426-441.
- Dewey, J. (1927). *The Public and its Problems*. Chicago, IL: Swallow.
- Dwyer, P. (2007). Measuring the value of electronic word of mouth and its impact in consumer communities. *Journal of Interactive Marketing*, 21(2), 63-79.
- Forsterling, F. (2001). *Attribution: An Introduction to Theories, Research and Applications*. Philadelphia, PA: Psychology Press.
- Grunig, J. E. (1997). A situational theory of publics: conceptual history, recent challenges and new research. In D. Moss, T. MacManus and D. Verčič (Eds.), *Public Relations Research: An International Perspective*. London, U. K.: International Thompson Business Press, 3-46.
- Hallahan, K. (2000). Inactive publics: the forgotten publics in public relations. *Public Relations Review*, 26(4), 499-515.
- Heath, R. L. and Abel, D. D. (1996). Types of knowledge as predictors of company support: the role of information in risk communication. *Journal of Public Relations Research*, 8(1), 35-56.
- Heath, R. L. and Douglas, W. (1991). Effects of involvement on reactions to sources of messages and to message clusters. In J. E. Grunig and L. A. Grunig (Eds.), *Public Relations Research Annual*. Hillsdale: Lawrence Erlbaum Association, 179-193.
- Heath, R. L., Liao, S. H. and Douglas, W. (1995). Effects of perceived economic harms and benefits on issue involvement, use of information sources and actions: a study in risk communications. *Journal of Public Relations Research*, 7(2), 89-110.
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G. and Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? *Journal of Interactive Marketing*, 18(1), 38-52.
- Holladay, S. J. and Coombs, W. T. (2013). Successful prevention may not be enough: a case study of how managing a threat triggers. *Public Relation Review*, 39(5), 451-458.
- Hung, K. H. and Li, S. Y. (2007). The influence of eWOM on virtual consumer communities: social capital, consumer learning, and behavioral outcomes. *Journal of Advertising Research*, 47(4), 485-495.
- Jennex, M. (2012). *Managing Crises and Disasters with Emerging Technologies: Advancements*. Hershey, PA: IGI Global.
- Jin, Y., Liu, B. F. and Austin, L. (2014). Examining the role of social media in effective crisis management: the effects of crisis origin, information form, and source on publics' crisis responses. *Communication Research*, 41, 74-94.
- Kasperson, R. E., Golding, D. and Tuler, S. (1992). Social distrust as a factor in siting hazardous facilities and communicating risks. *Journal of Social Issues*, 48(4), 161-187.
- Kearney, R. C. and Smith, A. A. (1994). The low-level radioactive waste siting process in Connecticut: anatomy of a failure. *Policy Studies Journal*, 22(4), 617-631.
- Ki, M. (2015). MERS outbreak in Korea: hospital-to-hospital transmission. *Epidemiology and Health*, 37, e2015033.
- Kim, J. and Grunig, J. E. (2011). Problem solving and communicative action: a situational theory of problem solving. *Journal of Communication*, 61(1), 120-149.
- Korea Centers for Disease Control and Prevention. (2015). MERS statistics. Retrieved from: http://www.mers.go.kr/mers/html/jsp/Menu_C/list_C4.jsp?menuIds=&fid=5767&q_type=&q_value=&cid=64426&pageNum=1 (Accessed 27 July 2016)
- Laufer, D. and Jung, J. M. (2010). Incorporating regulatory focus theory in product recall communications to increase compliance with a product recall. *Public Relations Review*, 36, 147-151.
- Lee, S. and Rodriguez, L. (2008). Four publics of anti-bioterrorism information campaigns: a test of the situational theory. *Public Relations Review*, 34(1), 60-62.
- Lesly, P. (1992). Coping with opposition groups. *Public Relations Review*, 18(4), 325-334.
- Liu, B. F., Fraustino, J. D. and Jin, Y. (2015). Social media use during disasters: how information form and source influence intended behavioral responses. *Communication Research*, 43(5), 626-646.

- Mangold, W. G. and Faulds, D. J. (2009). Social media: the new hybrid element of the promotion mix. *Business Horizons*, 52(4), 357-365.
- McDonald, L. M., Sparks, B. and Glendon, I. A. (2010). Stakeholder reactions to company crisis communication and causes. *Public Relations Review*, 36, 263-271.
- Palenchar, M. J. and Heath, R. L. (2002). Another part of the risk communication model: analysis of communication processes and message content. *Journal of Public Relations Research*, 14(2), 127-158.
- Penrose, J. (2000). The role of perception in crisis planning. *Public Relations Review*, 26(2), 155-171.
- Plowman, K. D., Briggs, W. G. and Huang, Y. (2001). Public relations and conflict resolution. In R.L. Heath (Ed.), *Handbook of Public Relations*. Thousand Oaks: Sage, 311-320.
- Rawlins, B. L. (2006). Prioritizing stakeholders for public relations. *Institute for Public Relations*. Retrieved from www.instituteforpr.org (Accessed 27 July 2016)
- Sandman, P. M. (2012). *Responding to Community Outrage: Strategies for Effective Risk Communication* (2nd ed.). Falls Church, VA: American Industrial Hygiene Association Publication.
- Sauer, B. (2003). *The Rhetoric of Risk: Technical Documentation in Hazardous Environments*. Mahwah, NJ: Lawrence Erlbaum.
- Savadori, L., Savio, S., Nicotra, E., Rumiati, R., Finucane, M. and Slovic, P. (2004). Expert and public perception of risk from biotechnology. *Risk Analysis*, 24(5), 1289-1299.
- Savage, G., Nix, T., Whitehead, C. and Blair, J. (1991). Strategies for assessing and managing organizational stakeholders. *Academy of Management Executive*, 5, 61-75.
- Simmons, M. W. (2008). *Participation and Power: Civic Discourse in Environmental Policy Decisions*. Albany, NY: State University of New York Press.
- Stafford, E. R. and Hartman, C. L. (2000). Environmentalist-business collaborations: social responsibility, green alliances, and beyond. In G. Zinkan (Ed.), *Advertising Research: The Internet, Consumer Behavior and Strategy*. Chicago: American Marketing Association, 170-192.
- 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). Retrieved from <http://jcmc.indiana.edu/vol11/issue4/sun.html> (Accessed 27 July 2016)
- Sutton, J., Spiro, E. S., Johnson, B., Fitzhugh, S., Gibson, B. and Butts, C. T. (2013). Warning tweets: serial transmission of messages during the warning phase of a disaster event. *Information, Communication & Society*, 17, 765-787.
- Svendsen, A. (1998). *The Stakeholder Theory*. San Francisco, CA: Berrett-Koehler Publisher.
- Ulmer, R. R., Seeger, M. W. and Sellnow, T. L. (2007). Post-crisis communication and renewal: expanding the parameters of post-crisis discourse. *Public Relations Review*, 33, 130-134.
- Utz, S., Schultz, F. and Glocka, S. (2013). Crisis communication online: how medium, crisis type and emotions affected public reactions in the Fukushima Daiichi nuclear disaster. *Public Relations Review*, 39, 40-46.
- Weiner, B. (1986). *An Attributional Theory of Motivation and Emotion*. New York, NY: Springer-Verlag.
- Wilson, L. J. (2001). Relationships within communities: public relations for the new century. In R. L. Heath (Ed.), *Handbook of Public Relations*. Thousand Oaks: Sage, 521-526.