

## **What Influences Adolescents' Rumor Acceptance and Support for Participation in Sociopolitical Issues? Analyzing the Role of Patterns and Levels of Communication**

JAE-SEON JEONG<sup>1</sup>

Hallym University, Republic of Korea

SEUNGYOON LEE

Purdue University, USA

This study examines the impact of adolescents' communication behaviors on their acceptance of rumors as well as their perceptions and support for participation regarding a sociopolitical issue. Applying the heuristic-systematic model, we suggest that adolescents' communication patterns and overall level of communication reflect two different information-processing modes. Survey results ( $N = 558$ ) in the context of the 2008 mad cow disease scare in South Korea show that five communication patterns differently influence adolescents' acceptance of rumors, perceived severity, and support for sociopolitical participation. Further, the overall level of communication influences rumor acceptance on adolescents' support for sociopolitical participation.

*Keywords: rumor acceptance, communication patterns, information processing, heuristic-systematic model, adolescents, support for sociopolitical participation*

Today's adolescents have access to information about social occurrences via a multitude of online and off-line sources (Bennett, Wells, & Freelon, 2011), which could potentially lead to increased awareness of sociopolitical issues (Hoffman & Thomson, 2009). However, the information they obtain and share can be inaccurate and unsubstantiated, thus contributing to the spread of rumors about sociopolitical issues. Adolescents' vulnerability to unconditional acceptance of information is a key barrier to their development of productive civic habits (Roth, 1983) and may not only increase the likelihood of them experiencing political biases later in life (Hao, 2011) but also influence the general public's perceptions about the topics at hand. To promote public discourses that involve well-informed and factual information, it is critical to identify the processes by which rumors are accepted. Although past research has explored rumor spreading in settings such as organizations (Houmanfar & Johnson, 2004), little

---

Jae-Seon Jeong: jaeseonjeong1@gmail.co.kr

Seungyoon Lee (corresponding author): seungyoon@purdue.edu

Date submitted: 2017-04-03

<sup>1</sup> This study was supported by a National Research Foundation of Korea grant funded by the Korean government (Grant No. NRF-2015S1A3A2046760).

Copyright © 2018 (Jae-Seon Jeong and Seungyoon Lee). Licensed under the Creative Commons Attribution Non-commercial No Derivatives (by-nc-nd). Available at <http://ijoc.org>.

research has examined the underlying process of how people accept rumors and the effects of rumor acceptance on the broader public—in particular, the adolescent population. The current study addresses this gap by examining the determinants of adolescents' acceptance of rumored information and the effects of such acceptance on their perceptions and support for participation regarding a sociopolitical issue.

This study uses the heuristic-systematic model (HSM; Chaiken, 1980; Chaiken, Liberman, & Eagly, 1989) to closely examine the processes by which rumors are accepted. The HSM can be applied to communication contexts in which individuals receive information and form judgments on a subject (Chaiken et al., 1989). When individuals are exposed to information, they process it in one of two ways: heuristically or systematically. To capture these different information processes underlying rumor acceptance, we examine the patterns as well as the overall level of adolescents' communication. We then examine how these two aspects of communication influence adolescents' (a) susceptibility for rumor acceptance, (b) perceived situation severity, and (c) support for sociopolitical participation. We also explicate the effects of rumor acceptance by demonstrating how they, too, influence adolescents' perceived severity of sociopolitical issues and support for sociopolitical participation.

This study is conducted in the context of the 2008 bovine spongiform encephalopathy (or mad cow disease) scare in South Korea, which involved the spreading of rumors about the general public's susceptibility to mad cow disease through the importation and consumption of American beef. This sociopolitical concern and subsequent protests were largely driven and supported by adolescents (Breen, 2008).

### **The Heuristic-Systematic Model and Adolescents' Information Processing**

Individuals' systematic information processing occurs when they are motivated to understand an issue in depth and process information through cognitive elaboration (Chaiken et al., 1989). This processing tends to occur when the information is personally relevant or of great importance or when the issue involves a high level of risk. On the other hand, when processing information heuristically, individuals exert less effort and rely more on readily accessible information (Chaiken, 1980). Heuristic processing tends to occur when individuals are not deeply involved in the issue or do not have the capacity to process the information further.

Adolescents' tendency to process information heuristically and superficially, particularly in the sociopolitical context, has been a topic of concern. Evidence has suggested that the use of heuristics and biases differs by age, and certain heuristics (e.g., representativeness heuristic) are more apparent in adolescents than in older adults (Klaczynski, 2001). According to Slovic, Finucane, Peters, and MacGregor (2002), adolescents do not readily engage in elaborative information processing about risky health behaviors (e.g., smoking). Rather, they rely on heuristic processing in judging risk and making health-related decisions. Young adults are generally less knowledgeable about political issues (Dudley & Gitelson, 2002) and make their political decisions more quickly than older adults do (Riggle & Johnson, 1996). Individuals who do not have much political information develop cognitive shortcuts to reason about their political choice (Nørgaard Kristensen & Solhaug, 2013). For instance, young adults may use name

recognition heuristics to make inferences about candidates' qualifications (Kam & Zechmeister, 2013) or draw conclusions about political competence from personal appearance (Franklin & Zebrowitz, 2016).

Heuristic processing of information, including rumors, has a potentially negative impact on adolescents because they are more susceptible to the influence of peers' opinions (Prinstein & Dodge, 2008). Adolescents are more vulnerable than adults to two processes: social cascades and group polarization (Sunstein, 2014). Social cascades explain the spread of information, with individuals more strongly believing information from people who are similar to them. Complementary to this, group polarization suggests that when individuals are around others who hold beliefs similar to their own, their beliefs compound on each other and become more extreme. Because adolescents' boundary of social interaction is relatively limited compared to that of adults, and tends to be limited to their peer groups, the influence of peers often carries greater weight than the influence of their family (Laghi et al., 2013). Such tendencies among adolescents are likely to influence individuals to hold similar perspectives (N. Lee, Shah, & McLeod, 2013) and to be more susceptible to social cascades and group polarization.

#### **Adolescents' Communication Patterns, Perceived Severity, and Support for Sociopolitical Participation**

Several aspects can be considered for identifying the patterns of adolescents' communication, particularly in the context of their understanding of and participation in sociopolitical issues. First, whom they receive information from or exchange information with is important because adolescents are at a transitional stage where their primary group of belonging moves beyond family to broader entities including peers, teachers, and social groups (Harter & Whitesell, 2003). Adults such as teachers play an important role in communicating with adolescents about civic values (Flanagan & Faison, 2001). Peer groups also serve to provide norms for adolescents and influence their civic knowledge or participation (N. Lee et al., 2013; Valentino & Sears, 1998).

Outside of such social circles, organizations, government institutions, and authority individuals can be important sources of information about certain sociopolitical issues given the knowledge and expertise they hold (Chryssochoidis, Strada, & Krystallis, 2009; Liu & Horsley, 2007). Further, communicating with people outside of one's cohesive social groups allows one to be exposed to the broader public opinion. Interacting with out-group members helps reduce bias or hostility toward the opposite group (Amichai-Hamburger & McKenna, 2006). From a similar perspective, the size and heterogeneity of adolescents' communication networks (Campbell & Kwak, 2011) has been examined.

Second, considering information channels, N. Lee et al. (2013) emphasized the role of communication taking place in online networks in youth civic engagement. As adolescents are surrounded by increasingly diverse media environments, their use of online media channels and technology has received great attention (Vromen, 2007). For instance, Shah, McLeod, and Yoon (2001) found that young adults' use of the Internet for information exchange more strongly influenced civic participation than did the use of both traditional print and broadcast news media. Yamamoto, Kushin, and Dalisay (2015) examined the influence of media use (mobile apps, traditional off-line and online media, and social media)

on young adults' political participation, and found that college students' online political expression enhanced the effects of media use on political participation.

Third, in addition to the consideration of these sources of information and communication channels, one could be involved in different types of information behaviors. For example, to expand their understanding of a subject, individuals can seek out more nuanced information through secondary sources (Jeong & Lee, 2017). J. Kim and Grunig (2011) suggested six types of information behaviors: information seeking, information attending, information forefending, information permitting, information forwarding, and information sharing.

Considering these different aspects of communication (i.e., information sources, communication channels, and information behaviors) can help identify the patterns of adolescents' communication. Despite the wide array of research on the topic, studies have not yet explained how adolescents' communication patterns and acceptance of rumors impact their support for sociopolitical participation. Additionally, past research has not considered an important aspect of the information that can potentially influence the spreading of rumors: perceived severity. When individuals face risky situations, they evaluate the severity of possible harm to themselves and others (Griffin et al., 2008). In this study, we define perceived severity as adolescents' perception of the likelihood that a sociopolitical event (i.e., importing American beef) will cause harm (e.g., the development of mad cow disease). Further, we propose that the communication patterns adolescents engage in, as well as their overall level of communication, will explain their perceptions and support for participation regarding sociopolitical issues.

*RQ1: What are the differential effects, if any, of adolescents' communication patterns on their perceived severity of sociopolitical issues?*

*RQ2: What are the differential effects, if any, of adolescents' communication patterns on their support for sociopolitical participation?*

### **The Heuristic-Systematic Model Approach to Rumor Acceptance**

Rumors are not characterized by their positive or negative nature, or whether they ultimately are true or false. Instead, the defining feature is that rumors are circulated without being confirmed (DiFonzo & Bordia, 2007). Rumors serve as a collective effort to interpret a potentially problematic issue of interest that is lacking authoritative information (Peterson & Gist, 1951). In times of high uncertainty, reliable information is replaced by widespread rumors (Dubois, Rucker, & Tormala, 2011), and rumors serve to reduce the anxiety associated with uncertainty (e.g., need for cognitive closure; Kimmel & Keefer, 1991), which emerge as powerful political forces (Berinsky, 2015).

Because rumors consist of pieces of information, research on information processing can provide useful frameworks for understanding rumor acceptance. In particular, the HSM can explain within-individual rumor processing. Heuristic processing is likely to result in information being accepted at face value without further verification (Fine & Ellis, 2010), and such unverified claims may be communicated and transmitted as rumors (Berinsky, 2015). In contrast, people who engage in systematic processing are

likely to require strong arguments and seek out additional evidence when confronted with rumors if they are to accept and be further influenced by the rumors (Einwiller & Kamins, 2008).

Previous studies have examined how these two different modes of information processing are reflected in individuals' communication. J. Kim and Grunig (2011) stressed that systematic processing is an active mode in thinking and acting about one's problem, and behaviors such as information seeking and forwarding are the reflection of systematic processing. Indeed, the presence of information behaviors (e.g., searching for further information) elevates systematic processing and attenuates heuristic processing on information adoption (W. Zhang & Watts, 2008). According to Tian (2011), interpersonal political discussion fosters an important reasoning and evaluation process, and eventually helps individuals understand political information and provide a cognitive base for political participation. On the other hand, people using heuristics make a less effortful judgment and do not eagerly seek additional information (Einwiller & Kamins, 2008; Trumbo, 2002). Instead, they use cognitive shortcuts to reduce information-seeking cost (L. Zhang, Peng, Zhang, Wang, & Zhu, 2014). When one is exposed to a rumor, an initial explanation is automatically generated by heuristic approaches. With the motivation for further substantiation, one engages in an effortful processing such as searching for relevant information or discussing the rumor with others. These behaviors enable people to evaluate the rumor, integrate the information, and decide whether to accept the information (Krull & Anderson, 1997). In sum, different patterns of communication as well as the overall level of communication individuals engage in reflect the ways in which they process information.

The current study emphasizes that the acceptance of rumor depends on individuals' patterns of communication as well. For communication that involves active information seeking and sharing with diverse people, cognitive effort is required of all parties involved in the dialogue. In fact, even rumors that individuals are inclined to trust tend to decrease in believability in the face of strong counterarguments or additional information found via fact-checking (Garrett, 2011). However, such elaborate processing is not common among adolescents, who have a tendency to accept information through heuristic processing (Roth, 1983), and they are likely to constrain themselves to less reputable, unverifiable information by virtue of online social platforms. Rumor spreading can be facilitated by individuals getting the rumor from online social networks rather than from their neighbors (Qian, Tang, Zhang, & Zheng, 2015). The following research question asks how the different modes of information processing, reflected in the patterns of communication adolescents engage in, influence their acceptance of rumors:

*RQ3: What are the differential effects, if any, of adolescents' communication patterns on rumor acceptance?*

### **Rumor Acceptance, Perceived Severity, and Sociopolitical Participation**

Despite the fact that rumors are unverified information, they are commonly viewed as factual information by the general public and thus can impede the formation of a well-informed public (Berinsky, 2015). Past studies have explored the impact of communication and rumors on political beliefs. Garrett (2011) argued that rumors containing strong political biases are more likely to be believed and shared with others, particularly when the rumor concerns candidates an individual opposes. Weeks and Southwell

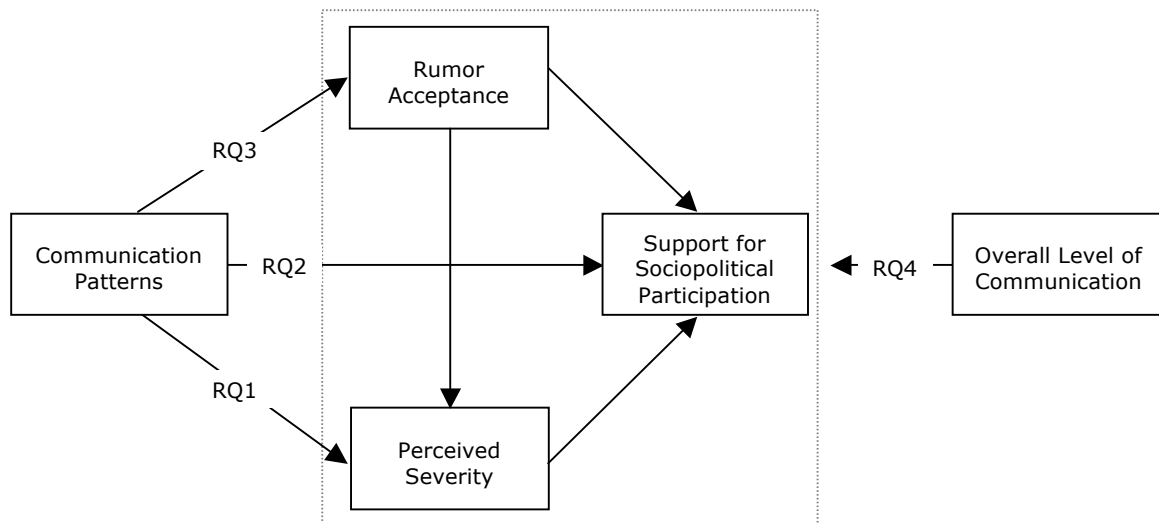
(2010) found that mainstream media coverage of a rumor predicted subsequent information-seeking behaviors, which suggests that the public is influenced by the information—including rumor-based information—delivered by media outlets.

Rumors, in general, attract attention, stimulate emotion, evoke involvement, and influence attitudes and behaviors (DiFonzo & Bordia, 2007). Weeks and Garrett (2014) suggested that rumor belief contributes to shaping individuals’ perceptions of political reality, and subsequently influences their political judgment. The credibility of negative word-of-mouth information (e.g., rumors) was positively related to one’s perceived severity of risk (Zhu, Xie, & Gan, 2011). Taken together, these processes can help explain the persistence of rumors in various sociopolitical contexts. Given these findings, the present study examines the effects of rumor acceptance on adolescents’ sociopolitical perceptions and behaviors.

Further, these effects can differ across the level of communication. Drawing from the HSM, we suggest that individuals’ communication mirrors two different types of information processing. Specifically, critical information processing such as cognitive evaluation or verification through diverse communication may enable people to process rumors in a more systematic way, and subsequently influence one’s sociopolitical perceptions and behaviors. Thus, we examine whether the overall level of communication adolescents engage in influences the extent to which rumor acceptance affects their perceived severity and support for sociopolitical participation.

*RQ4: What are the differential effects, if any, of rumor acceptance on perceived severity and support for sociopolitical participation among adolescents with differing levels of communication?*

The research model is presented in Figure 1.



**Figure 1. Research model.**

## **Method**

### ***Research Context***

In 2008, public discourses in South Korea regarding the government's decision to resume U.S. beef imports were ignited with the argument that American beef was unsafe due to the presence of mad cow disease. Adolescents were the primary age group encouraging sociopolitical engagement on a broad scale, primarily utilizing online platforms and text messaging (Epstein & Jung, 2011). The situation fits with the research of Hao (2011), who suggests that in the case of public emergencies, adolescents become active in online rumor spreading in an effort to garner people's attention and shape their beliefs. Overall, the primary concern was with governmental policies, and the fear of mad cow disease in U.S.-imported beef products led to many demonstrations by activist groups; the protests represented a large proportion of women and teenage participants compared to past sociopolitical protests (S. Lee, Kim, & Wainwright, 2010). Adolescents closely related themselves with the protests and issues surrounding U.S. beef imports and devised creative ways to support sociopolitical participation, such as by sharing the symbol of protests through online communities (C. Kim, Kim, & Lee, 2009; S. Lee et al., 2010). Although the general public was believed to have been prompted by rumors, no empirical analysis has been conducted to determine the effect of the rumors.

### ***Sample and Design***

Data for this study came from part of a larger online public opinion survey conducted in November 2014. The sample was recruited through an online data collection company, Market Link,<sup>2</sup> and participants had to meet two criteria: (1) They lived in Seoul, South Korea, in 2008, and (2) they were adolescents at that time. The initial sample consisted of 664 individuals who were currently between ages 19 and 23, which would have made them between ages 13 and 17 in 2008. A guideline containing the purpose of the survey and the study context, including a brief explanation about the U.S. beef protests in 2008, was provided to respondents.

This study is dependent on retrospective measures of adolescents' activities. Although the recall of personal experiences regarding past events might lead to potential biases, research has provided evidence that people can recall detailed information about significant and unexpected public events

---

<sup>2</sup> The company recruits panels through advertisements in various online, mobile, and off-line venues. It manages a general panel representative of the overall South Korea population as well as specialized panels segmented based on participants' sociodemographic profile data. The company sent an e-mail invitation to a random sample of 1,300 people who met our criteria for participation. The response rate was 51%. Participants received points, which they could redeem for rewards worth \$5. To ensure data quality, careless responses were identified through response time and response patterns, and were excluded from the data.

(Brown, 1990; Hirst et al., 2015). To facilitate memory recall, we provided contextual cues;<sup>3</sup> individuals who could not accurately recall the information requested by the items (i.e., indicating that they were unsure about the questions) were excluded from the analysis ( $N = 84$ ). The resulting sample of 558 participants consisted of 39.6% ( $n = 221$ ) men and 60.4% ( $n = 337$ ) women, ranging in age from 19 to 23 ( $M = 21.16$ ;  $SD = 0.785$ ). Participants reported that in 2008, 40.3% were middle school seniors ( $n = 225$ ), 35.8% were freshmen in high school ( $n = 200$ ), and 23.8% were sophomores in high school ( $n = 133$ ).

### **Measures**

Items for all constructs were recorded on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). Each item also included a response option stating "I do not remember." The survey questionnaire concluded with a battery of demographic questions including questions about sex and age.

*Communication patterns* were measured with a 19-item instrument that was developed to capture various patterns of adolescents' communication. Items were derived from relevant, but separate, studies that offered three critical dimensions of the communication construct explained above: information sources, communication channels, and information behaviors. Specifically, seven information sources emerged from the literature: adults, friends, and the Internet (N. Lee et al., 2013); mass media (Valentino & Sears, 1998); government and experts (Cotten & Gupta, 2004); and people who have different opinions (Mutz, 2001). Communication channels are categorized as face-to-face conversation and mediated communication through phone and/or the Internet (N. Lee et al., 2013). Information behaviors are represented in three types: acquisition, active seeking, and exchanging (J. Kim & Grunig, 2011; Yamamoto et al., 2015). In developing a measure of communication patterns, we used these cues as a starting point for item generation. A combination of these three dimensions resulted in a broad pool of items reflecting the multiple ways that adolescents can communicate. These items were distinguished into five subtypes through exploratory factor analysis: Items 1 to 4 were drafted to reflect communication with one's friends, and items 5 to 8 to reflect communication with those who have opposite opinions. Items 9 to 12 and items 13 to 16 were drafted to reflect communication with authoritative sources and communication with adult groups, respectively. Finally, items 17 to 19 were drafted to reflect online information-seeking behavior. Items and scales are presented in Table 1 along with Cronbach's alpha values.

*Rumor acceptance* was measured based on the extent to which respondents agreed with the following two statements referring to rumors about the safety of U.S. beef that had been spread (Jurenas & Manyin, 2011; "Mad Cow Panic," 2008): "I believed Koreans were genetically vulnerable to mad cow disease" and "I believed that eating American beef caused holes in the brain." These items showed high reliability ( $\alpha = .96$ ).

---

<sup>3</sup> Dijkstra and Kaup (2005) indicated that contextual cues such as asking autobiographical information prior to questionnaires can aid participants' recall. We asked several questions to cue participants' memories of their life circumstances (e.g., "Where was your school located in 2008?").



*Perceived severity* was measured using a modified, two-item version of Zagumny and Brady's (1998) scale. The items were modified to refer to the perceived severity of the sociopolitical issue: "I thought that mad cow disease was a very serious disease" and "I thought that people were more likely to get mad cow disease when we import beef from the U.S." These items showed good reliability ( $\alpha = .77$ ).

*Support for sociopolitical participation* was measured with a single item that assessed the individual's general attitudes (i.e., support or not) toward the large-scale sociopolitical participation: "I am supportive of sociopolitical participation related to the mad cow disease in 2008, such as the candlelight protests."

### **Analysis**

An exploratory factor analysis was conducted in SPSS using maximum likelihood estimation and the promax rotation to examine the factor structure of the 19-item communication measure. After establishing a five-factor structure of communication patterns, this study proceeded to test the proposed model through path analysis using Mplus 7. To test RQ1, RQ2, and RQ3, we examined the links between each communication pattern and the three outcomes of interest: (1) rumor acceptance, (2) perceived severity, and (3) support for sociopolitical participation.

To answer RQ4, we used the following procedure. Based on the five factors of communication patterns, the sample was divided into two groups depending on the level of communication. The summation method, developed by J. Kim (2011), was adopted to segment the level of communication. Respondents with scores lower than the mean on each communication pattern were assigned a value of 0, and respondents with scores equal to or higher than the mean were assigned a value of 1. This approach was used to divide individuals into high and low levels for each of the five communication patterns. Subsequently, the five scores were summed to obtain an overall communication level score. We categorized respondents with a total score from 0 to 2 as low ( $n = 279$ ), and respondents with a score from 3 to 5 as high ( $n = 279$ ). Therefore, the measure of communication levels captures not only the amount of communication but also the variety of communication. In other words, a higher score suggests an adolescent's higher involvement in communication pertaining to multiple communication patterns. Because the items measuring communication patterns incorporate the three dimensions (sources, channels, and information behavior), a higher score suggests diversity in these dimensions. Subsequently, for each of these two groups, we opted for multigroup analysis using Mplus 7 to compare results between different levels of communication. The overall path analysis model with rumor acceptance and perceived severity predicting support for sociopolitical participation was tested for groups of low and high levels of communication, respectively.

### **Results**

The correlation matrix for the model at factor level is depicted in Table 1. The table includes the means, standard deviations, and Cronbach's alpha coefficients for the measures concerned. We conducted an exploratory factor analysis with 19 items and found that five factors were justified. Item 18, whose cross-loading is less than .2, was eliminated.

**Table 1. Factor Loadings of the Exploratory Factor Analysis of Communication Measure (Promax Rotated).**

Communication patterns	HC	OC	AC	VC	IC	$\alpha$	$M$ ( $SD$ )
HC1: I have had face-to-face conversations with friends about mad cow disease.	<b>.81</b>	.06	.23	.24	.02	<b>.88</b>	3.40 (0.96)
HC2: I have heard about "mad cow" from face-to-face conversations with friends.	<b>.81</b>	.09	.25	.21	-.02		
HC3: I have exchanged views with friends on "mad cow" by cell phone or Internet.	<b>.79</b>	.25	-.02	.16	.22		
HC4: I have heard about "mad cow" from friends by cell phone or Internet.	<b>.78</b>	.26	.02	.15	.21		
OC1: I have discussed mad cow disease with people of different opinions than my own in person.	.14	<b>.86</b>	.23	.14	.01	<b>.86</b>	2.78 (0.88)
OC2: I have heard about "mad cow" from face-to-face conversations with people of different views than my own.	.18	<b>.85</b>	.22	.15	.02		
OC3: I have discussed mad cow disease with people of different opinions than my own by cell phone or Internet.	.15	<b>.74</b>	-.01	.19	.39		
OC4: I am interested in views different from my own on mad cow disease that I encountered through the cell phone or Internet.	.33	<b>.52</b>	.16	.05	.40		
AC1: I have acquired information about mad cow disease analyzed by mass media (e.g., TV, newspapers).	.02	.25	<b>.75</b>	.12	.22	<b>.82</b>	3.46 (0.86)
AC2: I have acquired opinions about "mad cow" from related field experts.	.05	.22	<b>.76</b>	.06	.30		
AC3: I have acquired views about "mad cow" from medical experts.	.12	.14	<b>.72</b>	.07	.10		
AC4: I have acquired announcements on mad cow disease released from the government.	.28	-.07	<b>.69</b>	.09	.00		
VC1: I have had face-to-face conversations with adults (e.g., parents, teachers) about mad cow disease.	.19	.04	.29	<b>.80</b>	-.06	<b>.81</b>	3.04 (0.89)
VC2: I have heard about "mad cow" from face-to-face conversations with adults.	.32	.11	.25	<b>.73</b>	-.07		
VC3: I have exchanged views with adults about mad cow disease by cell phone or Internet.	.18	.30	-.09	<b>.69</b>	.42		
VC4: I have heard from adults about mad cow disease by cell phone or Internet.	.16	.31	-.16	<b>.66</b>	.44		
IC1: I have searched for information about mad cow disease on the Internet (e.g., blogs, online communities, etc.).	.00	.02	.24	.05	<b>.69</b>	<b>.79</b>	3.14 (1.04)
IC2: I have searched for information about mad cow disease from experts on the Internet.	.30	.30	.29	.05	<b>.59</b>		

Note. Primary loadings are in bold type. HC = horizontal communication; OC = out-group communication; AC = authoritative communication; VC = vertical communication; IC = informative communication.

Based on the results of the factor analysis and past literature, we suggest that a five-factor solution fits the data best: vertical communication, horizontal communication, authoritative communication, out-group communication, and informative communication. In the analyses that follow, scales were computed by averaging the items loading strongly on each of the five factors (see Table 1). We label each factor as follows: Horizontal communication ( $\alpha = .88$ ,  $M = 3.40$ ) contains items referring to communication with one's friends; out-group communication ( $\alpha = .86$ ,  $M = 2.78$ ) contains items referring to communication with people holding opposite opinions; authoritative communication ( $\alpha = .82$ ,  $M = 3.46$ ) contains items referring to communication with authoritative sources; vertical communication ( $\alpha = .81$ ,  $M = 3.04$ ) contains items referring to communication with adult groups (e.g., parents, teachers); and informative communication ( $\alpha = .75$ ,  $M = 3.14$ ) contains items referring to active attempts to acquire information. To test mean differences across the factors, a repeated-measures analysis of variance was used. The results reveal a significant difference between the means ( $F = 102.02$ ,  $p < .001$ ), and the mean of out-group communication was the lowest.

### ***Influence of Communication Patterns***

Descriptive statistics are provided, and correlations among variables are conducted. All communication pattern scales reveal significant moderate-size intercorrelations, which is expected when assessing facets of a single construct (Clark & Watson, 1995). The largest correlation between scales is .55, between out-group communication and informative communication.

As shown in Table 2, the results regarding the effects of communication patterns on adolescents' perceived severity (RQ1) show that horizontal ( $\beta = .24$ ,  $p < .001$ ), vertical ( $\beta = .11$ ,  $p < .05$ ), and informative communication ( $\beta = .14$ ,  $p < .01$ ) are positively associated with perceived severity. However, out-group communication and authoritative communication patterns are not significantly associated with perceived severity.

As to the effects of communication patterns on support for sociopolitical participation (RQ2), results indicate that horizontal ( $\beta = .25$ ,  $p < .001$ ), authoritative ( $\beta = .09$ ,  $p < .05$ ) and informative communication ( $\beta = .20$ ,  $p < .001$ ) were positively associated with support for sociopolitical participation. However, out-group communication was negatively associated with support for sociopolitical participation ( $\beta = -.13$ ,  $p < .01$ ). Vertical communication did not show a significant relationship with support for sociopolitical participation.

Further, the results regarding the effects of communication patterns on rumor acceptance (RQ3) indicate that horizontal ( $\beta = .25$ ,  $p < .001$ ) and vertical ( $\beta = .14$ ,  $p < .01$ ) communication were positively associated with rumor acceptance. Out-group, informative, and authoritative communications were not significantly associated with rumor acceptance.

In the above results exploring RQ1, RQ2, and RQ3, the comparison of the parameter estimates reveals different effects of communication patterns (see Table 2 and Figure 2). Horizontal communication generally shows the greatest association with rumor acceptance, perceived severity, and perception of sociopolitical participation. The other significant predictor is informative communication, which shows

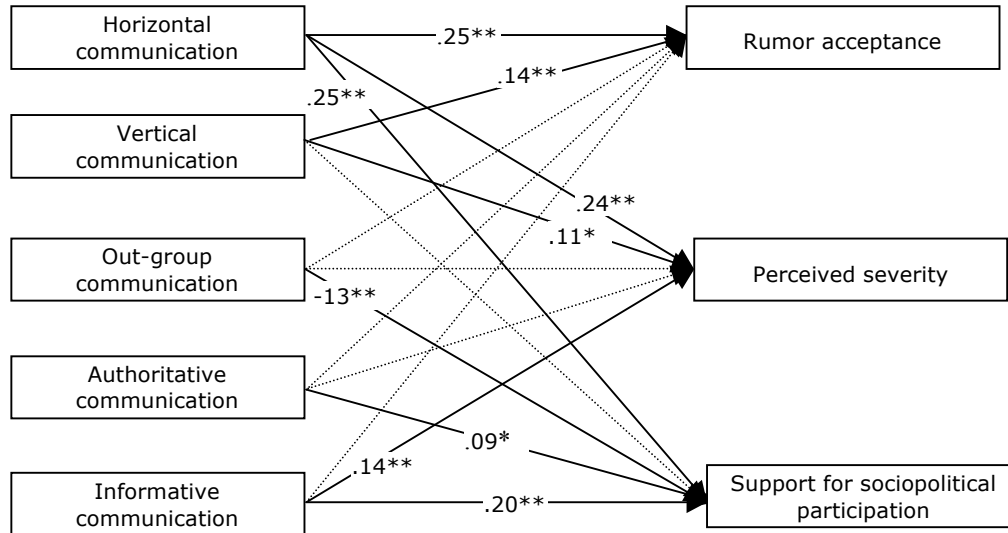
positive but weaker relationships with perceived severity and support for sociopolitical participation. Vertical communication also shows positive but weaker relationships with rumor acceptance and perceived severity.

**Table 2. Path Coefficients of the Research Model Predicting Rumor Acceptance, Perceived Severity, and Support for Political Participation.**

	Path		<i>B</i>	$\beta$	<i>SE</i>	<i>t</i>
HC	→	RA	0.23	.25	.05	4.92***
OC	→	RA	-0.02	-.02	.05	-0.30
AC	→	RA	0.00	.00	.05	0.08
VC	→	RA	0.14	.14	.05	2.94**
IC	→	RA	0.07	.09	.04	1.68
HC	→	PS	0.23	.24	.05	4.73***
OC	→	PS	-0.09	-.09	.05	-1.68
AC	→	PS	0.02	.02	.05	0.33
VC	→	PS	0.11	.11	.05	2.25*
IC	→	PS	0.12	.14	.05	2.57**
HC	→	SP	0.31	.25	.06	5.00***
OC	→	SP	-0.17	-.13	.07	-2.52**
AC	→	SP	0.13	.09	.06	2.09*
VC	→	SP	0.04	.03	.06	0.61
IC	→	SP	0.22	.20	.06	3.83***

*Note.* HC = horizontal communication; VC = vertical communication; OC = out-group communication; AC = authoritative communication; IC = informative communication; RA = rumor acceptance; PS = perceived severity; SP = support for sociopolitical participation.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



**Figure 2. Path analysis of the research model.**  
**Paths significant at  $p < .05$  are displayed in solid lines.**

***Effects of Overall Communication Level on the Relationships Between Rumor Acceptance, Perceived Severity, and Support for Sociopolitical Participation***

Next, we examined the differential effects of rumor acceptance on perceived severity and support for sociopolitical participation depending on the levels of communication. To find the difference between the high and low groups in the path model set for the current study, a multigroup analysis was conducted. A test for structural invariance finds no significant difference between the full structural invariance model that assumed invariance for all paths, and for the metric invariance model,  $\Delta\chi^2(3) = 5.86, p > .05$  (see Table 3). However, for the partial structural invariance model that examined the difference between the groups on specific paths, there is a significant difference between the groups in terms of the effect of rumor acceptance on support for participation,  $\Delta\chi^2(1) = 4.29, p < .05$ . The results revealed a stronger relationship between rumor acceptance and support for sociopolitical participation when communication level was low ( $\beta = .29, p < .01$ ), while there was no relationship between rumor acceptance and support for sociopolitical participation in the high-level group ( $\beta = .10, p > .05$ ). However, there were no group differences in the effect of rumor acceptance on perceived severity and the effect of perceived severity on the support for participation.

**Table 3. Multigroup Analysis Results.**

Model	$\chi^2$	<i>df</i>	TLI	CFI	RMSEA	Model comparison	
Baseline model	0	0				$\Delta$ DF	$\Delta\chi^2$
Structural invariance	5.86	3	0.94	0.97	.05	3	5.86
RA→PS	0.19	1	1.05	1.00	.00	1	0.19
PS→SP	0.28	1	1.05	1.00	.00	1	0.28
RA→SP	4.29	1	0.78	0.96	.10	1	4.29*

*Note.* TLI = Tucker-Lewis index; CFI = confirmatory fit index; RMSEA = root mean square error of approximation; RA = rumor acceptance; PS = perceived severity; SP = support for sociopolitical participation.

\*  $p < .05$ .

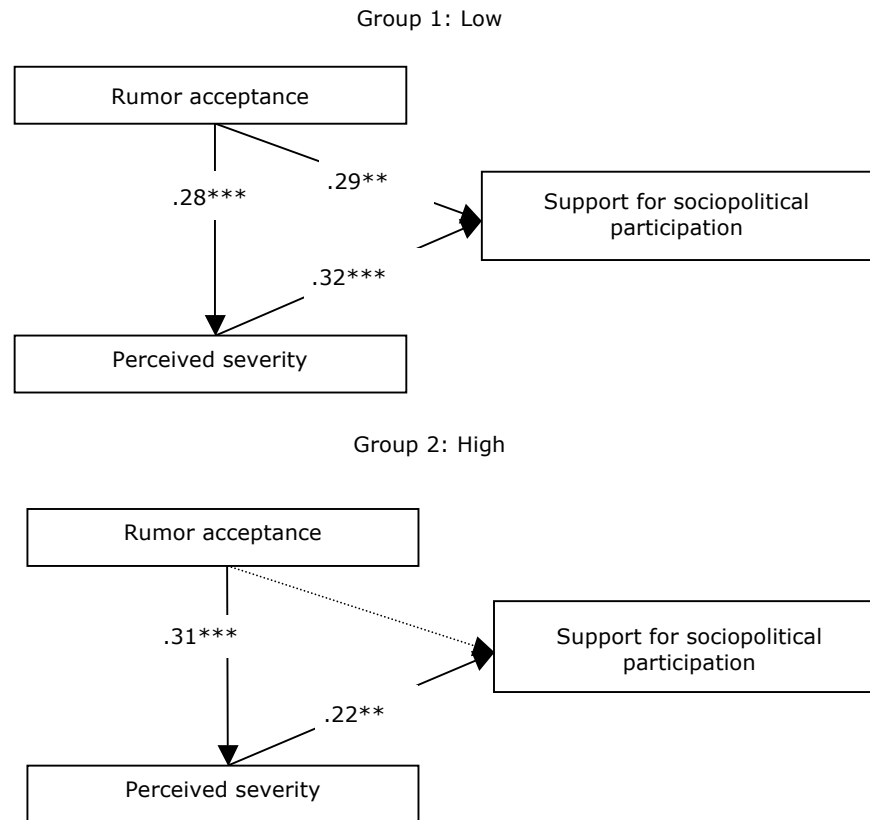
Furthermore, rumor acceptance has a positive effect on adolescents' perceptions of situation severity, which in turn has a strong influence on support for sociopolitical participation. This pattern was observed for both levels of communication (see Table 4). In terms of the overall model assessing the role of different levels of communication (see Figure 3), the total effect of rumor acceptance on supporting sociopolitical participation is inversely related to level of communication, such that the effect is stronger in the low-level group (.38) than in the high-level group (.17) (see Table 4).

**Table 4. Total, Direct, and Indirect Effects of Path Analyses.**

		Total	Direct	Indirect (95% CI)
Group 1: Low	RA→PS	.28	.28***	
	PS→SP	.32	.32***	
	RA→SP	.38	.29***	.09 [.04, ~.15]
Group 2: High	RA→PS	.31	.31***	
	PS→SP	.22	.22***	
	RA→SP	.17	.10	.07 [.02, ~.16]

*Note.* CI = confidence interval; RA = rumor acceptance; PS = perceived severity; SP = support for sociopolitical participation.

\*\*\*  $p < .001$ .



**Figure 3. Path analysis of the research model for the two groups with differing levels of communication. Paths significant at  $p < .05$  are displayed in solid lines.**

### Discussion

This study's findings suggest that the five communication patterns are distinct and differentially relate to rumor acceptance, perceived situation severity, and support for sociopolitical participation regarding sociopolitical issues (RQ1, RQ2, and RQ3). Horizontal communication shows the strongest association with perceived severity, rumor acceptance, and support for sociopolitical participation. This result is consistent with the ideas of social cascades and group polarization (Sunstein, 2014). Moreover, informative communication is a significant predictor of rumor acceptance and support for sociopolitical participation. The results are consistent with previous research suggesting that adolescents' online activities promote their civic participation (Bennett et al., 2011). That is, adolescents' active information seeking may influence their subsequent perceptions and behaviors regarding sociopolitical issues. Vertical communication, which has a substantial correlation with rumor acceptance and perceived severity, is not

significantly related to support for sociopolitical participation. The result is consistent with the finding that adolescents' communication with their parents about sociopolitical issues is inconsequential for civic engagement (N. Lee et al., 2013).

However, out-group communication was negatively related to support for sociopolitical participation, which may indicate that adolescents who communicate with individuals of differing opinions have a lower tendency to polarize. Yet the mean of out-group communication was the lowest of the five communication patterns, implying that adolescents' lack of communication with people who hold opposing opinions may result in bias regarding recognition. Authoritative communication is not significantly associated with rumor acceptance or perceived severity but is positively associated with supporting sociopolitical participation. This finding suggests that authoritative sources may not have played a role as sources of information on the mad cow issue or they did not provide sufficient evidence to dispel related rumors.

The results indicate a different effect of the level of communication on the association between rumor acceptance and sociopolitical participation (RQ4), such that as adolescents are more actively involved in communication, rumor acceptance becomes less related to their support for sociopolitical participation (see Table 4, total effects). Conversely, perceived severity shows a consistent, strong influence on sociopolitical support in both levels of communication. This result suggests that adolescents who see the situation as more severe subsequently support sociopolitical participation.

Furthermore, little variance in sociopolitical participation is explained within our model for individuals at high levels of communication, implying that factors other than perceived severity and rumor acceptance might have a stronger impact on their support for sociopolitical participation. However, at low levels of communication, more variance is explained by rumor acceptance and perceived severity. The results suggest that adolescents who engage in a high level of communication clearly incorporate other determinants into their processing of sociopolitical information, which can be considered evidence of systematic processing. Moreover, rumor acceptance remains a strong predictor of support for sociopolitical participation among adolescents with low levels of communication, which can be considered an indicator of heuristic processing. This suggests that in communication environments with limited or homogeneous sources of information, rumors may play a more influential role in adolescents' support for sociopolitical participation.

The differential importance of rumors influenced by the communication level is consistent with existing research demonstrating that rumors serve to fill in gaps where reliable or trustworthy information is lacking (Dubois et al., 2011). It may be that when adolescents lack sufficient knowledge or understanding due to a restricted pool of resources, they turn to rumors as additional sources of information to reduce possible anxiety related to uncertainty or ignorance (Kimmel & Keefer, 1991). Jaeger, Anthony, and Rosnow (1980) found that adolescents' anxiety levels and the source of a rumor played important roles in predicting rumor transmission, such that highly anxious adolescents were the most likely to transmit rumors, particularly when the rumor was received from a peer source. In other words, adolescents may be less discriminate in the information they choose to utilize in situations where additional information resources are lacking.



These findings also suggest that the level of communication is important to consider when distinguishing between systematic and heuristic processing. Specifically, a higher level of communication seems to represent systematic processing, both in terms of the evident processes and expected outcomes (e.g., less reliance on rumors). Conversely, heuristic processing can be operationalized as limited communication, illustrated by face-valid processes and related outcomes (e.g., increased reliance on rumors). This finding is novel in that most previous research has shown motivation levels to be the determining factor in communication processes (e.g., Chung, & Yoo, 2008), while the current study focuses more concretely on communication levels and consequential differences between heuristic and systematic processing. Motivation may be implicit within information processing (Lang, 2006), such that systematic processing is effortful in nature, whereas heuristic processing may represent a lack of motivation. Therefore, these two lines of research may be mutually informative.

### ***Theoretical and Practical Implications***

Our findings contribute to the field in two unique ways. First, this research fills a gap in the literature by examining the effect of rumors on adolescents' sociopolitical participation. Whereas past research has not fully examined this point due to the difficulty of identifying a rumor that involves a large portion of society, this study captures the effects of rumor acceptance on adolescents within a natural sociopolitical context. Second, this study provides a theoretical model of the primary antecedents underlying adolescents' acceptance of rumors in a sociopolitical context. The results show that certain communication patterns appear to result in adolescents' higher susceptibility to rumor when there are few alternative information sources. Adolescents generally have a lower degree of openness to experience and conscientiousness (Roberts & Mroczek, 2008), which hinders them from being responsive to different perspectives and novel behaviors, or approaching problems in a systematic, deliberate way. Thus, in the presence of a rumor, adolescents are less likely to be scrutinizing or skeptical of unverified information but are more likely to engage in restricted communication and accept the rumor's validity.

Practically, it is important to examine adolescents' communication in the context of their support for sociopolitical participation. The adolescent period affects one's formation of civic habits, which are likely to be maintained through adulthood (Delli Carpini, 2000). For example, information obtained through social interaction on social media has direct effects on adolescents' sociopolitical participation, making it important to understand the consequences of adolescents' communication behaviors (Valenzuela, Arriagada, & Scherman, 2012). The current study expands upon this stream of research by more clearly discerning different communication patterns and levels that specifically influence adolescents' information processing and support for sociopolitical participation. Understanding the factors that influence adolescents' sociopolitical participation can provide insights for encouraging their broader civic engagement, which may involve a wider array of participatory actions in various social and political issues.

By focusing on adolescents, a group that is underexamined yet particularly susceptible to sociopolitical rumors and bias, we enhance the current understanding of adolescents' information processes underlying rumor acceptance. One means of reducing both adolescents' dependence on rumors and the possible consequential sociopolitical biases is to increase the availability of diverse information

regarding sociopolitical issues. Our research identifies a higher level of communication, which likely represents systematic processing, as an important determinant. It is necessary to develop a diverse communication environment in which adolescents are able to easily access information and take diverse perspectives into account. Such an environment can potentially promote active and effortful communication, public discourses that involve factual information, and eventually well-informed political engagement.

Our study also contributes to an understanding of the information needs of adolescent publics. The results identify that authoritative sources did not significantly influence adolescents' perception toward social issues. This finding indicates that authoritative sources such as government may not be very effective in delivering sociopolitical information to adolescents or have failed to attract adolescents' attention. Information generated from the public without proper validation can lead to disastrous consequences, and official organizations or expert groups can minimize these consequences by cultivating interactive informational relationships with the public (Holladay & Coombs, 2013; Palen, Hiltz, & Liu, 2007). These efforts to meet the public's information needs should be made to promote adolescents' use of these information sources for systematic processing.

The current study suggests avenues for future research. First, this study focuses on communication factors that predict rumor acceptance. Other relevant factors might influence rumor acceptance. For example, the personal relevance of a message topic to individuals can motivate them to process the message more systematically (Chaiken, 1980). When people think that an issue is highly relevant to them, they desire more information about the issue and engage in effortful information processing. Further, systematic information processing can be motivated by one's desire for sufficiency (Chaiken et al., 1989). Moreover, while the current study focuses on the factors underlying how rumored information becomes accepted, future research can examine the role of rumor-sharing behavior as a potential driver of sociopolitical participation.

Second, the current study provides a theoretical perspective for linking both communication patterns and the overall level of communication with systematic information processing, yet it does not directly test the key variables of the HSM, including the level of motivation and the ability to process information. Incorporating these variables in future studies will enable us to further contribute to the HSM by testing how these communication factors provide additional explanatory power for information processing, particularly in the context of rumors.

Third, the theoretical and methodological approaches taken in this study could be used for segmenting the adolescent public to better understand the effects of risk management on their perceptual and behavioral outcomes. To build desirable relationships with publics, understanding the diverse spectrum of publics via effective public segmentation is a primary and crucial step (Berkowitz & Turnmire, 1994). By segmenting the public, organizations can group their publics into homogeneous segments and, ultimately, develop effective communication strategies to reach the target publics. Finally, it would be important for future research to examine communication factors in a multitude of contexts to determine whether these results are consistent across environments. Overall, the current study provides a ground for expanding our understanding of the role of communication and rumors in broader social contexts.

### References

- Amichai-Hamburger, Y., & McKenna, K. Y. (2006). The contact hypothesis reconsidered: Interacting via the Internet. *Journal of Computer-Mediated Communication*, 11(3), 825–843.
- Bennett, W. L., Wells, C., & Freelon, D. (2011). Communicating civic engagement: Contrasting models of citizenship in the youth Web sphere. *Journal of Communication*, 61(5), 835–856.
- Berinsky, A. J. (2015). Rumors and health care reform: Experiments in political misinformation. *British Journal of Political Science*, 47, 241–262. doi:10.1017/S0007123415000186
- Berkowitz, D., & Turnmire, K. (1994). Community relations and issues management: An issue orientation approach to segmenting publics. *Journal of Public Relations Research*, 6(2), 105–123.
- Breen, M. (2008, May 8). They may already have vCJD. *The Korea Times*. Retrieved from [http://koreatimes.co.kr/www/news/opinion/2008/05/137\\_23870.html](http://koreatimes.co.kr/www/news/opinion/2008/05/137_23870.html)
- Brown, N. R. (1990). Organization of public events in long-term memory. *Journal of Experimental Psychology: General*, 119(3), 297–314.
- Campbell, S. W., & Kwak, N. (2011). Political involvement in “mobilized” society: The interactive relationships among mobile communication, network characteristics, and political participation. *Journal of Communication*, 61(6), 1005–1024.
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, 39(5), 752–766.
- Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). New York, NY: Guilford Press.
- Chrysochoidis, G., Strada, A., & Krystallis, A. (2009). Public trust in institutions and information sources regarding risk management and communication: Towards integrating extant knowledge. *Journal of Risk Research*, 12(2), 137–185.
- Chung, D. S., & Yoo, C. Y. (2008). Audience motivations for using interactive features: Distinguishing use of different types of interactivity on an online newspaper. *Mass Communication and Society*, 11(4), 375–397.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, 7(3), 309–319.

- Cotten, S. R., & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, 59(9), 1795–1806.
- Delli Carpini, M. X. (2000). Gen.com: Youth, civic engagement, and the new information environment. *Political Communication*, 17(4), 341–349.
- DiFonzo, N., & Bordia, P. (2007). *Rumor psychology: Social and organizational approaches*. Washington, DC: American Psychological Association.
- Dijkstra, K., & Kaup, B. (2005). Mechanisms of autobiographical memory retrieval in younger and older adults. *Memory & Cognition*, 33(5), 811–820.
- Dubois, D., Rucker, D. D., & Tormala, Z. L. (2011). From rumors to facts, and facts to rumors: The role of certainty decay in consumer communications. *Journal of Marketing Research*, 48(6), 1020–1032.
- Dudley, R. L., & Gitelson, A. R. (2002). Political literacy, civic education, and civic engagement: A return to political socialization? *Applied Developmental Science*, 6(4), 175–182.
- Einwiller, S. A., & Kamins, M. A. (2008). Rumor has it: The moderating effect of identification on rumor impact and the effectiveness of rumor refutation. *Journal of Applied Social Psychology*, 38(9), 2248–2272.
- Epstein, S., & Jung, S. (2011). Korean youth netizenship and its discontents. *Media International Australia*, 141(1), 78–86.
- Fine, G. A., & Ellis, B. (2010). *The global grapevine: Why rumors of terrorism, immigration, and trade matter*. New York, NY: Oxford University Press.
- Flanagan, C. A., & Faison, N. (2001). Youth civic development: Implications of research for social policy and programs. *Social Policy Report*, 15(1), 3–15.
- Franklin, R. G. Jr., & Zebrowitz, L. A. (2016). The influence of political candidates' facial appearance on older and younger adults' voting choices and actual electoral success. *Cogent Psychology*, 3(1). doi:10.1080/23311908.2016.1151602
- Garrett, R. K. (2011). Troubling consequences of online political rumoring. *Human Communication Research*, 37(2), 255–274.
- Griffin, R. J., Yang, Z., ter Huurne, E., Boerner, F., Ortiz, S., & Dunwoody, S. (2008). After the flood: Anger, attribution, and the seeking of information. *Science Communication*, 29(3), 285–315.
- Hao, W. (2011). Decoding the phenomenon of angry youth and Internet rumors amid public emergencies. *Chinese Education & Society*, 44(2–3), 128–136. doi:10.2753/CED1061-1932440210

- Harter, S., & Whitesell, N. R. (2003). Beyond the debate: Why some adolescents report stable self-worth over time and situation, whereas others report changes in self-worth. *Journal of Personality, 71*(6), 1027–1058.
- Hirst, W., Phelps, E. A., Meksin, R., Vaidya, C. J., Johnson, M. K., Mitchell, K. J., . . . Olsson, A. (2015). A ten-year follow-up of a study of memory for the attack of September 11, 2001: Flashbulb memories and memories for flashbulb events. *Journal of Experimental Psychology: General, 144*(3), 604–623.
- Hoffman, L. H., & Thomson, T. L. (2009). The effect of television viewing on adolescents' civic participation: Political efficacy as a mediating mechanism. *Journal of Broadcasting & Electronic Media, 53*(1), 3–21.
- Holladay, S. J., & Coombs, W. T. (2013). Successful prevention may not be enough: A case study of how managing a threat triggers a threat. *Public Relations Review, 39*(5), 451–458.
- Houmanfar, R., & Johnson, R. (2004). Organizational implications of gossip and rumor. *Journal of Organizational Behavior Management, 23*(2–3), 117–138. doi:10.1300/J075v23n02\_07
- Jaeger, M. E., Anthony, S., & Rosnow, R. L. (1980). Who hears what from whom and with what effect: A study of rumor. *Personality and Social Psychology Bulletin, 6*(3), 473–478.
- Jeong, J. S., & Lee, S. (2017). The influence of information appraisals and information behaviors on the acceptance of health information: A study of television medical talk shows in South Korea. *Health Communication, 1*–8. doi:10.1080/10410236.2017.1323365
- Jurenas, R., & Manyin, M. E. (2011, August 3). *U.S.-South Korea beef dispute: Issues and status* (CSR Report for Congress No. 7-5700). Retrieved from <https://www.hsdl.org/?view&did=718727>
- Kam, C. D., & Zechmeister, E. J. (2013). Name recognition and candidate support. *American Journal of Political Science, 57*(4), 971–986.
- Kim, C. K., Kim, S. Y., & Lee, C. (2009). Candlelit demonstration and the social characteristics of the teenager participants. In S. T. Hong (Ed.), *Candlelit demonstration and Korean society* (pp. 129–163). Seoul, Korea: Culture and Science.
- Kim, J. N. (2011). Public segmentation using situational theory of problem solving: Illustrating summation method and testing segmented public profiles. *PRism, 8*(2), 1–12.
- Kim, J. N., & Grunig, J. E. (2011). Problem solving and communicative action: A situational theory of problem solving. *Journal of Communication, 61*(1), 120–149.

- Kimmel, A. J., & Keefer, R. (1991). Psychological correlates of the transmission and acceptance of rumors about AIDS. *Journal of Applied Social Psychology, 21*(19), 1608–1628.
- Klaczynski, P. A. (2001). Framing effects on adolescent task representations, analytic and heuristic processing, and decision making: Implications for the normative/descriptive gap. *Journal of Applied Developmental Psychology, 22*(3), 289–309.
- Krull, D. S., & Anderson, C. A. (1997). The process of explanation. *Current Directions in Psychological Science, 6*(1), 1–5.
- Laghi, F., Schneider, B. H., Vitoroulis, I., Coplan, R. J., Baiocco, R., Amichai-Hamburger, Y., . . . Flament, M. (2013). Knowing when not to use the Internet: Shyness and adolescents' on-line and off-line interactions with friends. *Computers in Human Behavior, 29*(1), 51–57.
- Lang, A. (2006). Using the limited capacity model of motivated mediated message processing (LC4MP) to design effective cancer communication messages. *Journal of Communication, 56*, S57–S80. doi:10.1111/j.1460-2466.2006.00283.x
- Lee, N. J., Shah, D. V., & McLeod, J. M. (2013). Processes of political socialization: A communication mediation approach to youth civic engagement. *Communication Research, 40*(5), 669–697.
- Lee, S. O., Kim, S. J., & Wainwright, J. (2010). Mad cow militancy: Neoliberal hegemony and social resistance in South Korea. *Political Geography, 29*(7), 359–369.
- Liu, B. F., & Horsley, J. S. (2007). The government communication decision wheel: Toward a public relations model for the public sector. *Journal of Public Relations Research, 19*(4), 377–393.
- Mad cow panic. (2008, May 2). *Korea Joongang Daily*. Retrieved from <http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2889277>
- Mutz, D. C. (2001). Facilitating communication across lines of political difference: The role of mass media. *American Political Science Review, 95*(1), 97–114.
- Nørgaard Kristensen, N., & Solhaug, T. (2013). Casting a vote—Complexities and strategies among “first-time voters” in their approach to elections. *Nordidactica: Journal of Humanities and Social Science Education, 2*, 1–19.
- Palen, L., Hiltz, S. R., & Liu, S. B. (2007). Online forums supporting grassroots participation in emergency preparedness and response. *Communications of the ACM, 50*(3), 54–58.
- Peterson, W. A., & Gist, N. P. (1951). Rumor and public opinion. *American Journal of Sociology, 57*(2), 159–167.

- Prinstein, M. J., & Dodge, K. A. (2008). *Understanding peer influence in children and adolescents*. New York, NY: Guilford Press.
- Qian, Z., Tang, S., Zhang, X., & Zheng, Z. (2015). The independent spreaders involved SIR Rumor model in complex networks. *Physica A: Statistical Mechanics and Its Applications*, 429, 95–102. Retrieved from <https://doi.org/10.1016/j.physa.2015.02.022>
- Riggle, E. D. B., & Johnson, M. M. S. (1996). Age difference in political decision making: Strategies for evaluating political candidates. *Political Behavior*, 18(1), 99–118.
- Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current Directions in Psychological Science*, 17(1), 31–35.
- Roth, C. (1983). Factors affecting developmental changes in the speed of processing. *Journal of Experimental Child Psychology*, 35(3), 509–528.
- Shah, D. V., McLeod, J. M., & Yoon, S. H. (2001). Communication, context, and community an exploration of print, broadcast, and Internet influences. *Communication Research*, 28(4), 464–506.
- Slovic, P., Finucane, M., Peters, E., & MacGregor, D. G. (2002). Rational actors or rational fools: Implications of the affect heuristic for behavioral economics. *Journal of Socio-Economics*, 31(4), 329–342.
- Sunstein, C. R. (2014). *On rumors: How falsehoods spread, why we believe them, and what can be done*. Princeton, NJ: Princeton University Press.
- Tian, Y. (2011). Communication behaviors as mediators: Examining links between political orientation, political communication, and political participation. *Communication Quarterly*, 59(3), 380–394.
- Trumbo, C. W. (2002). Information processing and risk perception: An adaptation of the heuristic-systematic model. *Journal of Communication*, 52(2), 367–382.
- Valentino, N. A., & Sears, D. O. (1998). Event-driven political communication and the preadult socialization of partisanship. *Political Behavior*, 20(2), 127–154.
- Valenzuela, S., Arriagada, A., & Scherman, A. (2012). The social media basis of youth protest behavior: The case of Chile. *Journal of Communication*, 62(2), 299–314.
- Vromen, A. (2007). Australian young people's participatory practices and Internet use. *Information, Community & Society*, 10(1), 48–68.

- Weeks, B. E., & Garrett, R. K. (2014). Electoral consequences of political rumors: Motivated reasoning, candidate rumors, and vote choice during the 2008 US presidential election. *International Journal of Public Opinion Research, 26*(4), 401–422.
- Weeks, B., & Southwell, B. (2010). The symbiosis of news coverage and aggregate online search behavior: Obama, rumors, and presidential politics. *Mass Communication and Society, 13*(4), 341–360.
- Yamamoto, M., Kushin, M. J., & Dalisay, F. (2015). Social media and mobiles as political mobilization forces for young adults: Examining the moderating role of online political expression in political participation. *New Media & Society, 17*(6), 880–898.
- Zagumny, M. J., & Brady, D. B. (1998). Development of the AIDS health belief scale (AHBS). *AIDS Education and Prevention, 10*(2), 173–179.
- Zhang, L., Peng, T. Q., Zhang, Y. P., Wang, X. H., & Zhu, J. J. (2014). Content or context: Which matters more in information processing on microblogging sites. *Computers in Human Behavior, 31*, 242–249. doi:10.1016/j.chb.2013.10.031
- Zhang, W., & Watts, S. A. (2008). Capitalizing on content: Information adoption in two online communities. *Journal of the Association for Information Systems, 9*(2), 73–94.
- Zhu, D., Xie, X., & Gan, Y. (2011). Information source and valence: How information credibility influences earthquake risk perception. *Journal of Environmental Psychology, 31*(2), 129–136.