

University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Faculty Publications, College of Journalism & Mass
Communications

Journalism and Mass Communications, College of

2017

How Instagram Content Affects Brand Attitudes and Behavior

Ming (Bryan) Wang

University of Nebraska-Lincoln, mwang10@unl.edu

Valerie K. Jones

University of Nebraska-Lincoln, valeriejones@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/journalismfacpub>

Part of the [Broadcast and Video Studies Commons](#), [Communication Technology and New Media Commons](#), [Journalism Studies Commons](#), [Mass Communication Commons](#), [Public Relations and Advertising Commons](#), and the [Social Influence and Political Communication Commons](#)

Wang, Ming (Bryan) and Jones, Valerie K., "How Instagram Content Affects Brand Attitudes and Behavior" (2017). *Faculty Publications, College of Journalism & Mass Communications*. 112.

<https://digitalcommons.unl.edu/journalismfacpub/112>

This Article is brought to you for free and open access by the Journalism and Mass Communications, College of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Faculty Publications, College of Journalism & Mass Communications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Published in *Journal of Digital & Social Media Marketing* 5:2 (2017), pp. 175–188.
Copyright © 2017 Henry Stewart Publications. Used by permission.
Submitted February 24, 2017.

How Instagram Content Affects Brand Attitudes and Behavior

Ming (Bryan) Wang and Valerie K. Jones

College of Journalism & Mass Communications, University of Nebraska–Lincoln

Corresponding authors – Ming Wang, 330 Andersen Hall, Lincoln, NE 68588-0443, USA, telephone +1-402-472-2984, email mwang10@unl.edu, and Valerie K. Jones, 341 Andersen Hall, Lincoln, NE 68588-0443, USA, telephone +1-402-472-3824, email valeriejones@unl.edu

Abstract

This paper examines the effectiveness of communication on Instagram, a type of visual social networking site, by the US Transportation Security Administration (TSA). Results show that the TSA’s Instagram account elicited stronger emotional reactions than a private consumer product business Instagram account. More importantly, perceived usefulness of content, perceived persuasive intent of content, and negative emotions all affected attitudes toward the TSA. Additionally, perceived usefulness of content and negative emotions also influenced communicative action regarding the TSA account. Findings demonstrate the emotional impact of visual communication and the role of both cognitive and affective evaluations in changing attitudes and behavior regarding a government agency.

Keywords: Instagram, social media, content strategy, emotion, political marketing, brand attitude

Introduction

Visual social networking sites (VSNSs), such as Pinterest, Instagram, and Snapchat, have been gaining increasing popularity among social media users.¹ According to the Pew Research Center, Pinterest and Instagram usage has doubled since 2012.²

VSNSs are even more popular among teens. A survey conducted by Piper Jaffray in 2015 found that US teens considered Instagram their most important social networking site, while a survey conducted by Piper Jaffray in 2014 reported that 38 percent of teens

described Instagram as a favorable marketing channel to reach them, compared with Twitter at 34 percent and Facebook at 21 percent.³

The growing popularity of VSNSs is not surprising, as visual communication can be easier to digest and is more likely to be recalled than textual information, according to the dual coding theory.^{4,5} Research conducted by Momentus Media, for instance, finds that pictures and videos on Facebook generate more engagement from followers than content without such visuals.⁶

In light of the higher levels of audience engagement with visual content, VSNSs have become popular channels for brands and marketers to connect with consumers.⁷ Such adoption is not confined to the private sector alone. Various government agencies at the federal, state, and local levels are all experimenting with VSNSs to engage with citizens. At the federal level in the USA, for instance, the Transportation Security Administration (TSA), the Bureau of Land Management, the Defense Intelligence Agency, the General Services Administration, and Housing and Urban Development all maintain active Instagram accounts.

While social media have been gaining popularity among government agencies, many still avoid it owing to the heavy demands imposed upon government resources⁸ and the vulnerability of the open social media ecosystem.⁹ Effective use of social media, however, can substantially lower the costs of content production for these channels, as well as the risks of adverse consequences from social media crises, thereby resulting in more optimal results.¹⁰

Despite the growing adoption of VSNSs in government-citizen communication, research investigating the effectiveness of social networking sites and the best content strategies is still at its nascent stage. Indeed, Grabe and Myrick¹¹ urge communication scholars to move beyond the written word to explore the information value of images and to research the confluence of emotions and cognition in political participation and active citizenship.

The present study contributes to the emerging research literature on government use of VSNSs by conducting an experiment to test whether exposure to the TSA's Instagram account versus a private consumer product business Instagram account (Reynolds Kitchens) results in different content evaluations and emotional reactions. It further investigates whether an audience's cognitive and affective responses affect attitudes toward the TSA and communicative action regarding the TSA's Instagram account.

Literature Review

Government use of social media

As a result of the Open Government Initiative issued by the Obama administration in 2009, US federal agencies became more proactive in engaging with the public on social media.^{12,13}

Government agencies adopt social media by assessing three distinct factors: best practices in their informal network of peers, best practices in the public and private sectors, and "market-driven" citizen behavior.¹⁴ The adoption process typically goes through three stages.¹⁵ First is the experimental stage during which government agencies use social media outside of accepted technology use in an informal way. Then comes the stable stage

when experimentation gives in to order as norms and regulations are drafted. Last is the mature stage during which clear policies regarding appropriate behavior, types of interactions, and new models of communication are formalized.

Government use of social media contributes to a culture of transparency and openness.¹⁶ Lee and Kwak¹⁷ proposed an open government maturity model, which contends that open government undergoes five maturity levels sequentially: initial conditions, data transparency, open participation, open collaboration, and ubiquitous engagement. Social media can facilitate and expedite this process.

Social media can also benefit government-citizen communication in various other ways, such as facilitating collaboration, providing more accessible opportunities for participation, empowering users, and allowing for near real-time publishing.¹⁸ Social media enable more authentic interactions that can change the perception held by many publics that government communication is removed, distanced, or even propagandistic.¹⁹ Hence, leveraging social media can also help improve attitudes toward government agencies.

The Transportation Security Administration's use of Instagram

One government agency that needs an improvement in public attitudes is the TSA.

Created as an agency of the US Department of Homeland Security in response to the September 11th attacks, the TSA oversees the security of the general public traveling in the USA.

Despite its essential role in ensuring and protecting public safety, the US public does not hold the TSA in esteem. A 2011 Reason-Rupe survey found that while 38 percent of Americans held a positive view of the TSA, 43 percent held a negative view.²⁰ Likewise, in 2013, *Frequent Business Traveler* magazine found that an overwhelming 85 percent of frequent flyers thought negatively of the TSA.²¹

Such data suggest that the TSA needs to improve its image among the public. The agency has been working toward that goal partly through active communication on social media.

At the time of writing, the TSA maintains three official social media accounts targeted at the general public: YouTube (<https://www.youtube.com/tsa>), Twitter (<https://twitter.com/tsa>), and Instagram (<https://www.instagram.com/tsa>). Its Instagram account, in particular, has gained largely favorable attention in national media.

Opened in June 2013, TSA's Instagram account had reached 668,000 followers by the end of February 2017, with more than 1,100 posts. As one *Esquire* post notes, the pictures posted are a mixture of "weapons and puppies, with some drugs thrown in for good measure."²²

To assess the dominant content type on TSA's Instagram account, a random sample of images was coded ($n = 50$) and the majority (close to 60 percent) were found to feature firearms, ammunition, weapons, and other items prohibited from carry-on travel (Krippendorff's $\alpha = 0.81$).

When TSA's Instagram account is discussed on blogs, the sentiment is largely positive, with headlines such as "The TSA's Instagram feed is terrifying and totally awesome"²³ "Here's why you should follow the TSA on Instagram"²⁴ and "TSA's Instagram account is a must-follow."²⁵

Hence, TSA's Instagram account provides a unique opportunity to examine whether use of a VSNS by a government agency that suffers from a negative reputation can help improve public attitude toward the agency and stimulate positive communicative action regarding its social media account. The following section proposes a framework to compare the effectiveness of TSA's Instagram account and a private consumer product business Instagram account. A consumer product business was chosen as a comparison group because this product category similarly targets a large number of individuals and the general public can easily comprehend the content.

Fear appeals in political communication

Weapons typically arouse fear. Fear appeals refer to "those contents of a persuasive communication which allude to or describe unfavorable consequences that are alleged to result from failure to adopt and adhere to the communicator's conclusions."²⁶

The use of fear appeals is a popular strategy in political communication.^{27,28} One of the most famous early examples in political advertising is the 1964 "Daisy" advertisement, aired as part of President Lyndon Johnson's reelection campaign, which juxtaposed a little girl and a nuclear explosion. Fear was found to be present in 41 percent of campaigns adverts in the 2000 elections.²⁹ Recent public debates about terrorism,³⁰ immigration,³¹ and climate change³² all resort to fear appeals.

Pictures are especially powerful at evoking strong emotions, including fear. Whit Ayres, a political consultant and president of a national public opinion and public affairs research firm, observes that "most media consultants admit that their adverts have not only a direct message but also an implied message designed to elicit an emotion in the viewer, often communicated more through pictures than words."³³ In his research on the persuasive power of emotional appeals in political advertising, Brader³⁴ found that much of the emotional power of campaign adverts comes from images and music. The large number of weapons showcased on TSA's Instagram page can be frightening,³⁵ but the images are also intended to be interesting.³⁶ Indeed, Brader's³⁷ research has shown that fear appeals in political communication have both cognitive and emotional impact on political judgment, candidate evaluations, and political information seeking.

Cognitive response: Content assessment

Mediated message processing typically entails both cognitive and emotional components.^{38,39}

Cognitive processing involves mental evaluations of content. Marketing messages serve two functions: to inform and to persuade.⁴⁰ From an audience-centric perspective, messages can be perceived as (un)useful and (un)persuasive.

The informative function renders the audience more knowledgeable about the topic, helping them make informed decisions. Such messages are thus perceived to be useful if they provide instrumental value to the audience.⁴¹ This is also known as perceived informational utility, which "constitutes one important content characteristic that may influence sharing."⁴²

Government agencies routinely adopt the public information model in their communication with citizens, where the intent is to inform, just like journalists.⁴³ Communication

under this model is largely one way, which is consistent with findings that one-way push strategies dominate government communication on social media.^{44,45}

To the extent that a message is useful to an individual, he or she is more likely to engage with the content, learn the information, develop attitudes, and carry out behavior.⁴⁶⁻⁴⁸ Indeed, according to Bob Burns, Head of Social Media at the TSA, the goal of posting the pictures is to educate the public and to inform them about what the agency does.⁴⁹

On the other hand, marketing is also intended to persuade,⁵⁰ even though not all persuasive messages may be perceived as such. While government communication is seen by many as propaganda persuasion,⁵¹ if other features disguise or overwhelm the persuasive nature of the message, the audience may not perceive it to have a high persuasive intent. Hence, the same message can have varying levels of perceived persuasive intent.

Perceived usefulness and perceived persuasive intent are evaluations the public makes of marketing communication from both government agencies and private businesses. The literature has not provided conclusive evidence as to whether government communication (TSA, in this case) is perceived to be more or less useful than private business communication. The same is true with perceived persuasive intent of government versus private business communication. Hence, the following research questions are proposed:

- RQ1: Do viewers of the TSA's Instagram account and a private consumer product business Instagram account evaluate the perceived usefulness of the content differently?
- RQ2: Do viewers of the TSA's Instagram account and a private consumer product business Instagram account evaluate the perceived persuasive intent of the content differently?

Affective response: Positive-negative emotions

Visual images can potentially generate strong affective reactions.⁵²

The structure of affect has been conceptualized in a variety of ways. A commonly discussed model in the literature is the two-dimensional theory of affect: valence (positive/negative) and arousal (high/low arousal).⁵³⁻⁵⁶ Some examples of high-arousal positive emotions are active, elated, enthusiastic, excited, and strong; some examples of high-arousal negative emotions are fearful, hostile, distressed, and nervous; some examples of low-arousal positive emotions are calm, placid, and relaxed; and finally, some examples of low-arousal negative emotions are drowsy, dull, sleepy, and sluggish.^{57, 58}

In the case of TSA's Instagram account, the predominance of weapon imagery can generate stronger emotions than most other images shown in a private consumer product business account.⁵⁹ As weapon images on the TSA's account are high-arousal materials, they are more likely to generate high-arousal emotions. In terms of valence, as images of weapons are threatening, or "terrifying" as one of the above-mentioned blog headlines claimed,⁶⁰ to most individuals, they are more likely to generate stronger negative emotions compared with what would normally be shown in the Instagram feed of most brands. In a similar vein, these images should generate weaker positive emotions, such as cheerful, happy, or joyful. The following hypotheses are proposed:

- H1: Viewers of TSA's Instagram account will report weaker positive emotions than viewers of a private consumer product business Instagram account.
- H2: Viewers of TSA's Instagram account will report stronger negative emotions than viewers of a private consumer product business Instagram account.

The next question is why the differences in cognitive and affective responses matter for the TSA. It is possible that these constructs can shape public attitudes toward the TSA and communicative behavior regarding the TSA's Instagram account.

Impact of content assessment

The technology acceptance model holds that perceived usefulness is one of the strongest predictors of positive attitudes toward new technologies and acceptance of them.⁶¹ Content usefulness has been shown to contribute to, for instance, the adoption of websites⁶² and the acceptance of mobile advertising.⁶³ It has been found to be positively related to situational involvement with a company's Facebook page.⁶⁴ Research on viral behavior also shows that the public likes to pass along practical, useful content.⁶⁵ Hence, it is reasonable to expect that:

- H3: Perceived content usefulness of TSA's Instagram account will be positively associated with (a) attitudes toward the TSA and (b) communicative action regarding the account.

Research in advertising reactance has shown that when the audience believes it is being advertised to, the messages can generate a boomerang effect where the audience actively rejects the messages and evaluates the source or content in a more negative light.⁶⁶⁻⁶⁸

Reactance theory has four essential elements: freedom, threat to freedom, reactance, and restoration of freedom.⁶⁹ Individuals cherish the free will to act without constraints. When they perceive a message, however, is intended to persuade them to think, feel, or act in a certain way, they feel threatened. As a result, they experience psychological reactance by resisting the persuasive message and return to their original free-will state. Hence, reactance will not occur until the audience perceives the content to have persuasive intent and places a premium on it. A message can both be of instrumental value to the audience and have a persuasive intent. If the perceived usefulness of the message trumps its persuasive intent, then the degree of reactance is attenuated.

Reactance can affect audience engagement with social media content. For instance, a recent study has shown that advertising reactance is a strong inhibitor to followers' identification with the brand micro-blog, which in turn determines whether the followers engage with the brand on the micro-blog.⁷⁰

Informed by the literature on reactance theory, it is expected that:

- H4: Perceived persuasive content intent of the TSA's Instagram account will be negatively associated with (a) attitudes toward the TSA and (b) communicative action regarding the account.

Impact of emotional reactions

Zajonc posits that emotions can cause unconscious attitudinal and behavioral change.⁷¹ This is a well-documented phenomenon as Loewenstein and his colleagues claim that “the idea that emotions exert a direct and powerful influence on behavior receives simple ample support in psychological literature on emotions.”⁷²

Research on the impact of positive emotions consistently shows that individuals feeling positive emotions evaluate stimuli more positively.^{73–75}

On the other hand, both the protection motivation theory⁷⁶ and the extended parallel processing theory⁷⁷ hold that fear appeals that generate strong negative emotions can have powerful persuasive effects. Decades of research on fear appeals has shown that they can elicit behavioral change.⁷⁸

According to the affective intelligence theory,⁷⁹ fear is a particularly high-arousal emotion that involves detection of threat and invokes anxiety, which motivates citizens to seek more information about the public issue in order to alleviate that anxiety. This theory considers fear as part of the surveillance system that, when triggered by a threat, breaks a person’s habitual moves and shifts the focus on information-gathering. In other words, citizens are more likely to forego previous political dispositions and evaluate risk information in a way to reduce that anxiety.⁸⁰ In summary, the affective intelligence theory predicts that fear leads to more detailed information-processing, reducing the influence of partisanship and prior political attitudes.

Seeing weapons confiscated by TSA can signal to viewers that TSA has done its job right by preventing these lethal weapons from being brought onboard the plane to threaten the safety of passengers. This can lead to a more favorable assessment of the agency. Hence, strong negative emotions experienced as a result of seeing weapon images on TSA’s Instagram account may actually induce more positive attitudes toward the TSA.

High-arousal emotions, regardless of valence, can result in strong engagement.^{81,82} Arousal stimulates a fight-or-flight response. High-arousal emotions can stimulate viral behavior,⁸³ and this is especially true for negative emotions.^{84,85} Hence, it is expected that:

- H₅: Positive emotions after viewing TSA’s Instagram account will be positively associated with (a) attitudes toward the TSA and (b) communicative action regarding the account.
- H₆: Negative emotions after viewing TSA’s Instagram account will be positively associated with (a) attitudes toward the TSA and (b) communicative action regarding the account.

Method

Data

To address the research questions and test the hypotheses, an online experiment was conducted on Amazon’s mTurk, whose participants have been shown to be representative of the US population and are more diverse than college students.⁸⁶ Respondents first answered a series of pre-test questions before they were randomly assigned to one of two experimental conditions where one group viewed pictures and comments captured from

the TSA's Instagram account from November 6 to December 16, 2015, while the comparison group viewed pictures captured from the Reynolds Kitchens Instagram account (<https://www.instagram.com/reynoldskitchens>) from November 5 to December 15, 2015. After viewing either Instagram account, respondents completed post-test questions before each one was reimbursed US\$1.00 for participating in the study.

The TSA's Instagram account was chosen because it represented a government agency that had left many Americans with conflicting attitudes.^{87,88} Its Instagram account features content that is a combination of serious (such as confiscated assault weapons) and light-hearted (such as pictures of TSA Explosives Detection Canines and food pictures related to holiday travel).

It was more challenging to decide upon a private consumer product business. Reynolds Kitchens' Instagram account was chosen as a comparison group because it is a nonpolitical account with a niche group of followers. To prevent pre-experiment exposure to stimulus materials from contaminating experiment results, respondents were expected *not* to follow either of these accounts. Hence, niche accounts would allow the researchers to retain the maximum number of eligible subjects. Reynolds Kitchens' account features pictures of dishes with ingredients and recipes in the text descriptions. Moreover, scary weapons versus delicious food would both likely elicit strong emotions.

The online experiment was fielded on February 8, 2016, and closed on the same day. Respondents who spent fewer than three minutes completing the study were excluded from the analysis. One respondent who was assigned to the Reynolds Kitchens condition was already following its Instagram account, and therefore this case was dropped as well. Ultimately, 177 responses were analyzed ($n_{TSA} = 87$, $n_{Reynolds} = 90$).

The whole sample was used to test the two research questions and the first two hypotheses while only the TSA subsample was analyzed for H₃ to H₆.

Measures

Perceived usefulness of content

Respondents were asked to indicate the extent to which they agreed with the following statements on a five-point Likert scale: "I feel like I was getting useful information," "I feel like I was getting content of value," and "I found the content interesting." These items were averaged to create the index of perceived usefulness of content ($\alpha = 0.83$, $M = 3.38$, $SD = 0.97$).

Perceived persuasive intent of content

Respondents were asked to indicate the extent to which they agreed with the following statements on a 5-point Likert scale: "I feel like I was being persuaded," "I feel like I was being advertised to," and "I feel like I was being targeted." These items were averaged to create the index of perceived persuasive intent of content ($\alpha = 0.75$, $M = 2.33$, $SD = 1.00$).

Emotions

Respondents were asked to indicate the extent to which they felt a list of 16 emotions on a 5-point scale from "very slightly or not at all" to "extremely." An exploratory factor analysis yielded a two-factor structure. The first factor includes eight *positive emotions*: cheerful,

happy, joyful, excited, proud, strong, confident, and bold. These items were averaged to create an index of positive emotions ($\alpha = 0.93$, $M = 2.38$, $SD = 1.05$). The second factor signifies eight *negative emotions*: afraid, scared, frightened, nervous, angry, irritable, hostile, and disgusted. These items were averaged to create an index of negative emotions ($\alpha = 0.95$, $M = 1.58$, $SD = 0.85$).

Attitudes toward the TSA

Respondents were asked to indicate their attitudes toward the TSA on five items by using a 7-point semantic differential scale: unpleasant-pleasant, unappealing-appealing, unlikeable-likeable, bad-good, and unfavorable-favorable. These items were averaged to create an index of attitude toward the TSA ($\alpha = 0.97$, $M = 3.78$, $SD = 1.68$).

Communicative action regarding the TSA

Communicative action measures communicative activeness in taking, selecting, and giving information.⁸⁹ Respondents were asked to indicate on a 7-point scale from “very unlikely” to “very likely” their willingness to (1) follow the TSA account on Instagram, (2) comment on the TSA account on Instagram, and (3) recommend the TSA account on Instagram to their friends. These items were averaged to create an index of communicative action regarding the TSA ($\alpha = 0.93$, $M = 2.25$, $SD = 1.62$).

Results

Experimental effects on content assessment and affective response

The two research questions, H_1 and H_2 , were examined with a series of independent-samples *t*-tests.

In response to the RQ_1 , respondents who viewed the TSA’s Instagram account ($M = 3.24$) and those who viewed Reynolds Kitchens’ Instagram account ($M = 3.52$) perceived the content to be similarly useful ($t(171) = 1.90$, n.s.).

Regarding RQ_2 , respondents who viewed TSA’s Instagram account ($M = 2.18$) and those who viewed Reynolds Kitchens’ Instagram account ($M = 2.47$) perceived similar levels of persuasive intent ($t(171) = 1.91$, n.s.).

In terms of affective responses, respondents who viewed TSA’s Instagram account ($M = 2.04$) reported weaker positive emotions than those who viewed Reynolds Kitchens’ Instagram account ($M = 2.71$, $t(173) = 4.48$, $p < 0.001$), lending support to H_1 .

As predicted by H_2 , respondents who viewed TSA’s Instagram account ($M = 1.81$) did indeed feel stronger negative emotions than those who viewed Reynolds Kitchens’ Instagram account ($M = 1.36$, $t(173) = -3.55$, $p < 0.001$).

Impact of content assessment and affective response on attitudes and behavior

To investigate the impact of content evaluations of and affective reactions to TSA’s Instagram account on attitudes toward the TSA and communicative action regarding TSA’s account, two ordinary least squares (OLS) regression models were run. The analyses were

restricted to the respondents who viewed TSA's Instagram account. The results are reported in Table 1, where Model I shows the effects on attitudes toward the TSA, and Model II shows the effects on communicative action regarding TSA's Instagram account.

Table 1. The effects of content assessment and affective response on attitudes toward the TSA and communicative action regarding TSA's Instagram account

	Model I TSA attitude		Model II TSA behavior	
	B (S.E.)	β	B (S.E.)	β
Perceived usefulness of content	0.817*** (0.149)	0.496	0.745*** (0.144)	0.472
Perceived persuasive intent of content	-0.445** (0.160)	-0.254	0.136 (0.153)	0.081
Positive emotions	0.181 (0.161)	0.1	0.231 (0.154)	0.133
Negative emotions	0.484* (0.187)	0.239	0.538** (0.179)	0.281
Constant	0.902 (0.642)		-10.744 (0.610)	
Adjusted R^2	0.397***		0.385***	
n	85		86	

Note: Entries are coefficients from hierarchical OLS regression analysis.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Content assessment and affective reactions explained a significant amount of the variance in both attitudes toward the TSA ($F(4, 80) = 14.82, p < 0.001, adjusted R^2 = 0.40$) and communicative action regarding TSA's Instagram account ($F(4, 81) = 14.31, p < 0.001, adjusted R^2 = 0.39$).

Consistent with H_{3a} and H_{3b} , perceived usefulness of content was positively associated with attitudes ($b = 0.82, SE = 0.15, \beta = 0.50, p < 0.001$) and communicative action ($b = 0.75, SE = 0.14, \beta = 0.47, p < 0.001$). Perceived persuasive intent of content was negatively associated with attitudes ($b = -0.45, SE = 0.16, \beta = -0.25, p < 0.01$), supporting H_{4a} , but not with communicative action ($b = 0.14, SE = 0.15, \beta = 0.08, n.s.$), failing to support H_{4b} .

In terms of affective responses, positive emotions were not associated with either attitudes ($b = 0.18, SE = 0.16, \beta = 0.10, n.s.$) or communicative action ($b = 0.23, SE = 0.15, \beta = 0.13, n.s.$). Neither H_{5a} nor H_{5b} is supported.

Lastly, negative emotions were positively associated with both attitudes ($b = 0.48, SE = 0.19, \beta = 0.24, p < 0.05$) and communicative action ($b = 0.54, SE = 0.18, \beta = 0.28, p < 0.01$), supporting H_{6a} and H_{6b} .

Discussion

This study examined the effectiveness of government use of VSNSs, choosing TSA's Instagram account as a case. The findings indicate that government and nongovernment Instagram accounts indeed induced different levels of affective responses. More importantly,

certain content strategies and emotions were more likely to influence attitudes toward the TSA and communicative action regarding the TSA's Instagram account.

It is interesting to note that those who viewed the TSA's Instagram account and those who viewed Reynolds Kitchens' Instagram account did not see differences in the usefulness or persuasive intent of the content. The chances are that neither account provides content that is instrumental to the public's everyday life. Images of confiscated weapons on TSA's account do not matter much to the larger public who are not frequent flyers. Even among those who are frequent flyers, few are likely to carry weapons to the airport by accident, and therefore the content is similarly of little instrumental value to them. The Reynolds Kitchens account largely shows pictures of dishes, some made using Reynolds products such as aluminum foil. The descriptions to the images shown in the experiment provided only dish names and essential ingredients without showing full recipes. As a result, the public may find the content to be of similar practical use and persuasive intent.

As predicted, those who viewed TSA's Instagram account did experience weaker positive emotions and stronger negative emotions than those who viewed the Reynolds Kitchens' account. This is not surprising, as most of the images shown on TSA's account are confiscated weapons. While the content is also intended to be interesting,³⁰ the pictures elicited mostly negative emotions.

This study did not differentiate between various types of images. Arguably, the puppy images on TSA's account can elicit strong positive emotions and weak negative emotions. To increase the external validity of the study, the TSA stimulus materials showed a mixture of images as actual followers of its Instagram account would see.

Content assessment and affective responses matter because they can influence attitudes and behavior.

More specifically, providing useful content to the public leads to more favorable attitudinal and behavioral outcomes. For those who viewed the TSA account, the more useful they found the content, the more positive attitudes they held toward the TSA. Moreover, they were also more likely to follow and comment on the TSA account as well as to recommend the TSA account to others. Hence, the public information model is indeed a relevant and helpful practice for government agencies to adopt.

On the other hand, when viewers perceived they were being advertised to and persuaded by the TSA, they were likely to hold more negative attitudes toward the agency. This is consistent with reactance theory, which argues that when the public feels its freedom to make independent judgments is threatened, it will work to regain that freedom.⁹⁰ Hence, social media managers of government agencies need to make sure the information does not come off as advertising or explicit persuasive messages. Perceived persuasive intent of messages, however, was not correlated with communicative actions regarding the TSA account.

Lastly, in terms of affective influence, only negative emotions had consequences for subsequent attitudinal and behavioral change. Interestingly, individuals who felt stronger negative emotions after seeing TSA's Instagram content held more positive attitudes toward the TSA. This may be a unique scenario for the TSA as the strong negative emotions, such as fear, fright, or nervousness, resulting from seeing images of weapons could lead

to a satisfactory assessment of the TSA because the agency prevented more potential violence from happening on aircraft. This evaluation can lead to a positive attitude toward the agency.

Individuals who felt stronger negative emotions after seeing TSA's Instagram accounts were also more likely to follow and comment on the TSA account as well as to recommend the TSA account to others. This is not surprising, as the negative emotions experienced following exposure to TSA's Instagram account were high-arousal emotions, which tend to stimulate behavior. Seeing threatening images of weapons triggers a defense mechanism in the body, which motivates defensive behavior to disarm the threat.

Positive emotions, on the other hand, were not associated with either attitudes or behavior regarding the TSA. It is possible that in spite of the high-arousal positive emotions experienced, they did not affect evaluations of the attitude objective, the TSA. Some studies have also shown that emotional state will not influence evaluation when the object being evaluated is highly familiar and for which past evaluations exist in memory,^{91,92} which may be the case with the TSA. In comparison, the negative emotions may be of higher diagnostic value than positive emotions for TSA followers.⁹³

This study is not without weaknesses.

For one, this experiment focuses on very unique, specific cases, raising the concern about generalizability. The choice of the TSA's Instagram as a case of government VSNS is a deliberate and strategic one because the agency suffers low favorability ratings among the US public, and its Instagram account aims to improve public attitudes toward the agency. The content on its account is arguably unique to its agency functions: clearly, other government accounts will not be populated by weapons and dogs. Similarly, the comparison condition, Reynolds Kitchens, is also unique in and of itself. Its content consists of images of dishes and ingredients. Using the account of another government agency or private business may yield different results.

This limitation underscores the fact the best practices for social media marketing are highly contextualized. Magro echoes this sentiment by claiming that "the 'best' way to use social media in government is a nebulous and subjective problem that does not lend itself to a single set of guidelines for every task, country, agency, citizen, and government."⁹⁴

Another limitation of this study concerns the sample in the regression analyses. The models testing the impact of content assessment and affective responses on attitude and behavior were estimated among the respondents who were assigned to the TSA's Instagram condition in the experiment. These respondents were shown a screenshot of part of the actual content on TSA's account. The respondents, however, were not able to zoom in on the images, comment on the content, or view previous pictures. They viewed the content only once during the experiment. Viewers of the actual account may have different user experiences.

Despite these limitations, this study fills the gap in the literature on government use of VSNSs. TSA's Instagram account did not affect public's assessment of the usefulness or persuasive intent of its content differently versus a private consumer product business account (Reynolds Kitchens). It did elicit stronger emotional reactions, however. More importantly, perceived usefulness of content, perceived persuasive intent of content, and

negative emotions all affected attitudes toward the TSA and all but persuasive intent also influenced communicative action regarding the TSA account.

Conclusion

These findings demonstrate that, be it weapons or puppies, content strategies matter for government communication on social media, which can improve public attitudes toward government agencies and enhance public engagement. Government agencies should not avoid social media but instead should embrace it strategically.

Author biographies

Ming (Bryan) Wang is an assistant professor in the College of Journalism and Mass Communications at the University of Nebraska–Lincoln. He studies the impact of new communication technologies—particularly social media, mobile media, and virtual reality—on advertising, public relations, political communication, and health communication. His research has been published in such leading communication journals as *Journal of Communication*, *Communication Research*, and *Social Marketing Quarterly*. He holds a PhD in mass communication from the University of Wisconsin–Madison.

Valerie K. Jones is an assistant professor of advertising and public relations at the University of Nebraska–Lincoln College of Journalism and Mass Communications. She brings more than 15 years of expertise in integrated marketing communications, branding, digital media strategy, and analytics from Starcom, Fox Interactive, IBM, and her consultancy into her research and teaching. She holds a master's degree in integrated marketing communications from Northwestern University.

References

1. Hochman, N., and Manovich L. (2013) "Zooming into an Instagram city: reading the local through social media," *First Monday*, Vol. 18, No. 7, available at: <http://firstmonday.org/ojs/index.php/fm/article/view/4711/3698> (accessed 1st April, 2016).
2. Duggan, M. (2015) "Mobile messaging and social media 2015," Pew Research Center, available at: <http://www.pewinternet.org/2015/08/19/mobile-messaging-and-social-media-2015> (accessed 1st April, 2016).
3. Seetharaman, D. (2015) "Survey finds teens prefer Instagram, Twitter, Snapchat for social networks," *Wall Street Journal*, 16th October, available at: <https://blogs.wsj.com/digits/2015/10/16/survey-finds-teens-prefer-instagram-snapchat-among-social-networks> (accessed 1st April, 2016).
4. Hong, W., Thong, J., and Tam, K. (2004) "Designing product listing images on e-commerce websites: an examination of presentation mode and information format," *International Journal of Human-Computer Studies*, Vol. 61, No. 4, pp. 481–503.
5. Sadoski, M., and Paivio, A. (2004) "A dual coding theoretical model of reading," in Ruddell, R. B., Unrau, N. J. (eds) "Theoretical Models of Processes of Readings," International Reading Association, Newark, DE, pp. 1329–1362.
6. Belicove, M. E. (2016) "Facebook posting techniques that really work 2011," available at: <http://www.entrepreneur.com/blog/220166> (accessed 1st April, 2016).
7. Neher, K. (2013) "Visual Social Media Marketing: Harnessing Images, Instagram, Infographics, and Pinterest to Grow Your Business Online," Boot Camp Publishing, Cincinnati, OH.

8. Landsbergen, D. (2010) "Government as part of the revolution: using social media to achieve public goals," in "The Proceedings of the 10th European Conference on eGovernment, Limerick, 17th–18th June," pp. 243–250.
9. Wang, M. (2016) "Social media marketing: a 3A's model of best practices," in Brown, R., Jones, V., and Wang, M. (eds) "The New Advertising: Branding, Content, and Consumer Relationships in the Data-Driven Social Media Era," Praeger, Santa Barbara, CA, pp. 29–51.
10. Landsbergen, ref. 8 above.
11. Grabe, M. E., and Myrick, J. G. (2016) "Informed citizenship in a media-centric way of life," *Journal of Communication*, Vol. 66, No. 2, pp. 215–235.
12. Mergel, I. (2013) "Social media adoption and resulting tactics in the US federal government," *Government Information Quarterly*, Vol. 30, No. 2, pp. 123–130.
13. Snead, J. T. (2013) "Social media use in the US Executive branch," *Government Information Quarterly*, Vol. 30, No. 1, pp. 56–63.
14. Mergel, ref. 12 above.
15. Mergel, I., and Bretschneider, S. I. (2013) "A three-stage adoption process for social media in government," *Public Administration Review*, Vol. 73, No. 3, pp. 390–400.
16. Bertot, J. C., Jaeger, P. T., and Grimes, J. M. (2010) "Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies," *Government Information Quarterly*, Vol. 27, pp. 284–271.
17. Lee, G., and Kwak, Y. H. (2012) "An open government maturity model for social media-based public engagement," *Government Information Quarterly*, Vol. 29, No. 4, pp. 492–503.
18. Mergel, ref. 12 above.
19. Liu, B. F., and Horsley, J. S. (2007) "The government communication decision wheel: toward a public relations model for the public sector," *Journal of Public Relations Research*, Vol. 19, No. 4, pp. 377–393.
20. Ekins, E. (2011) "43 per cent of Americans have a negative view of the TSA; 38 per cent have a positive view," *Reason*, 16th September, available at: <http://reason.com/poll/2011/09/16/43-percent-of-americans-have-a> (accessed 1st April, 2016).
21. The Points Guy (2013) "News we already knew: TSA gets negative reviews from frequent flyers," available at: <http://thepointsguy.com/2013/10/news-we-already-knew-tsa-gets-negative-reviews-from-frequent-flyers> (accessed 1st April, 2016).
22. Joiner, J. (2016) "The TSA has an Instagram, and it's all weird weapons and dogs," *Esquire*, available at: <http://www.esquire.com/news-politics/news/a28973/the-tsa-on-instagram> (accessed 1st April, 2016).
23. Bierend, D. (2014) "The TSA's Instagram feed is terrifying and totally awesome," *Wired*, available at: <http://www.wired.com/2014/07/tsa-instagram> (accessed 1st April, 2016).
24. Ledbetter, C. (2015) "Here's why you should follow the TSA on Instagram," *Huffington Post*, available at: http://www.huffingtonpost.com/2015/03/16/tsa-instagram-account_n_5491947.html (accessed 1st April, 2016).
25. Alvarez, P. (2015) "TSA's Instagram account is a must-follow," *National Journal*, available at: <http://www.govexec.com/management/2015/07/tsas-instagram-account-must-follow/118642> (accessed 1st April, 2016).
26. Hovland, C. I., Janis, I., and Kelly, H. (1953) "Communication and Persuasion," Yale University Press, New Haven, CT.

27. Yzer, M. C., Southwell, B. G., and Stephenson, M. T. (2013) "Inducing fear as a public communication campaign strategy," in Rice, R. R., and Atkin, C. K. (eds) "Public Communication Campaigns" (4th edn), Sage, Thousand Oaks, CA, pp. 163–176.
28. Brader, T. (2006) "Campaigning for Hearts and Minds: How Emotional Appeals in Political Ads Work," University of Chicago Press, Chicago, IL.
29. Ibid.
30. Gadarian, S. K. (2010) "The politics of threat: how terrorism news shapes foreign policy attitudes," *Journal of Politics*, Vol. 72, pp. 469–483.
31. Brown, D. (2013) "Manufacturing fear, creating the threat: the state of American immigration policy," *Journal of Latino/Latin American Studies*, Vol. 5, pp. 57–67.
32. Dickinson, J. L., Crain, R., Yalowitz, S., and Cherry, T. M. (2013) "How framing climate change influences citizen scientists' intentions to do something about it," *The Journal of Environmental Education*, Vol. 44, No. 3, pp. 145–158.
33. Ayres, W. (2001) "Can campaign advertising be on the level?" *Campaigns & Elections*, Vol. 20.
34. Brader, ref. 28 above.
35. Bierend, ref. 23 above.
36. Johnson, L. (2015) "Meet the guy who runs the TSA's Instagram account," *Adweek*, available at: <http://www.adweek.com/news/technology/meet-guy-who-runs-tsas-instagram-account-163196> (accessed 1st April, 2016).
37. Brader, ref. 28 above.
38. Fiske, S. T., and Taylor, S. E. (1991) "Social Cognition" (2nd edn), McGraw-Hill, New York, NY.
39. Forgas, J. P. (2008) "Affect and cognition," *Perspectives on Psychological Science*, Vol. 3, No. 2, pp. 94–101.
40. Bolen, W. H. (1981) "Advertising," John Wiley & Sons, New York.
41. Smith, J. B., and Colgate, M. (2007) "Customer value creation: a practical framework," *Journal of Marketing Theory and Practice*, Vol. 15, No. 1, pp. 7–23.
42. Bobkowski, P. S. (2015) "Sharing the news: effects of informational utility and opinion leadership on online News sharing," *Journalism & Mass Communication Quarterly*, Vol. 92, No. 2, pp. 320–345.
43. Grunig, J. E. (1984) "Organizations, environments, and models of public relations," *Public Relations Research & Education*, Vol. 1, No. 1, pp. 6–29.
44. Mergel, ref. 12 above.
45. Waters, R. D., and Williams, J. M. (2011) "Squawking, tweeting, cooing, and hooting: analyzing the communication patters of government agencies on Twitter," *Journal of Public Affairs*, Vol. 11, No. 4, pp. 353–363.
46. Zillman, D. (2000) "Mood management in the context of selective exposure theory," in Roloff, M. E. (ed.) "Communication Yearbook," Vol. 23, Sage, Thousand Oaks, CA, pp. 103–123.
47. Atkin, C. K. (1973) "Instrumental utilities and information seeking," in Clarke, P. (ed.) "New Models of Communication Research," Sage, Beverly Hills, CA, pp. 205–242.
48. Atkin, C. K. (1985) "Informational utility and selective exposure to entertainment media," in Zillman, D., and Bryant, J. (eds) "Selective Exposure to Communication," Hillsdale, NJ: Lawrence Erlbaum, pp. 63–91.
49. Johnson, ref. 36 above.
50. Richards, J. I., and Curran, C. M. (2002) "Oracles on 'advertising': searching for definition," *Journal of Advertising*, Vol. 31, No. 2, pp. 63–77.

51. Harrison, S. (1999) "Propaganda, persuasion and symmetry: local and central government perspectives on communicating with the citizen," *British Journal of Management*, Vol. 10, No. 1, pp. 53–62.
52. Fahmy, S., Cho, S., Wanta, W., and Song, Y. (2006) "Visual agenda-setting after 9/11: Individuals' emotions, image recall, and concern with terrorism," *Visual Communication Quarterly*, Vol. 13, No. 1, pp. 4–15.
53. Russell, J. A. (1978) "Evidence of convergent validity on the dimensions of affect," *Journal of Personality and Social Psychology*, Vol. 36, No. 10, pp. 1152–1168.
54. Russell, J. A. (1983) "Pancultural aspects of the human conceptual organization of emotions," *Journal of Personality and Social Psychology*, Vol. 45, No. 6, pp. 1281–1288.
55. Barrett, L. F., and Russell, J. A. (1999) "The structure of current affect: controversies and emerging consensus," *Current Directions in Psychological Science*, Vol. 8, No. 1, pp. 10–14.
56. Christie, I. C., Friedman, B. H. (2004) "Autonomic specificity of discrete emotion and dimensions of affective space: a multivariate approach," *International Journal of Psychophysiology*, Vol. 51, No. 2, pp. 143–153.
57. Fiske and Taylor, ref. 38 above.
58. Watson, D., and Tellegen, A. (1985) "Toward a consensual structure of mood," *Psychological Bulletin*, Vol. 98, No. 2, pp. 219–235.
59. Toh, W. (2016) "Gamers and their weapons: an appraisal perspective on weapons manipulation in video games," in Tettegah, S. Y., and Huang, W. (eds) "Emotions, Technology, and Digital Games," Elsevier, London, pp. 83–113.
60. Bierend, ref. 23 above.
61. Davis, F. (1989) "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, Vol. 13, No. 3, pp. 319–339.
62. Hassan, S., and Li, F. (2005) "Evaluating the usability and content usefulness of websites: a benchmarking approach," in Becker, S. A. (ed.) "Electronic Commerce: Concept, Methodologies, Tools, and Applications," Information Science Reference, Hershey, New York, NY, pp. 402–420.
63. Merisavo, M., Kajalo, S., Karjalunto, H., Vertanen, V., Salmenkivi, S., Raulas, M., and Lepaniemi, M. (2007) "An empirical study of the drivers of consumer acceptance of mobile advertising," *Journal of Interactive Advertising*, Vol. 7, No. 2, pp. 41–50.
64. Chun, J. W., and Lee, M. J. (2016) "Increasing individuals' involvement and WOM intention on social networking sites: content matters!" *Computers in Human Behavior*, Vol. 60, No. 7, pp. 223–232.
65. Berger, J. (2013) "Contagious: Why Things Catch On," Simon & Schuster, New York, NY.
66. Buller, D. B., Borland, R., and Burgoon, M. (1998) "Impact of behavioral intention on effectiveness of message features: evidence from the family sun safety project," *Human Communication Research*, Vol. 24, No. 3, pp. 422–453.
67. Burgoon, M., Alvaro, E., Grandpre, J., and Voulodakis, M. (2002), "Revisiting the theory of psychological reactance: communicating threats to attitudinal freedom," in Dillard, J. P., and Pfau, M. (eds) "The Persuasion Handbook: Developments in Theory and Practice," Sage, Thousand Oaks, CA, pp. 213–232.
68. Ringold, D. J. (2002) "Boomerang effect in response to public health interventions: some unintended consequences in the alcoholic beverage market," *Journal of Consumer Policy*, Vol. 25, No. 1, pp. 27–63.

69. Dillard, J. P., and Shen L. (2005) "On the nature of reactance and its role in persuasive health communication," *Communication Monographs*, Vol. 72, No. 2, pp. 144–168.
70. Zhao, H., Su, C., and Hua, Z. (2016) "To participate or not to participate in a brand micro-blog: facilitators and inhibitors," *Information Development*, Vol. 32, No. 5, pp. 1774–1785.
71. Zajonc, R. B. (2000) "Feeling and thinking: closing the debate over the independence of affect," in Forgas, J. P. (ed.) "Feeling and Thinking: The Role of Affect in Social Cognition," Cambridge University Press, Cambridge, UK, pp. 31–58.
72. Loewenstein, G., Weber, E., Hsee, C., and Welch, N. (2001) "Risk as feelings," *Psychological Bulletin*, Vol. 127, No. 2, pp. 267–286.
73. Srull, T. K. (1983) "Affect and memory: the impact of affective reactions in advertising on the representation of product information in memory," in Bagozzi, R. P., and Tybout, A. (eds) "Advances in Consumer Research," Association for Consumer Research, Ann Arbor, MI, pp. 520–525.
74. Forgas, J. P., and Bower, G. H. (1987) "Mood effects on person-perception judgments," *Journal of Personality and Social Psychology*, Vol. 53, No. 1, pp. 53–60.
75. Isen, A. M., Shalker, T. E., Clark, M., and Karp, L. (1978) "Affect, accessibility of material in memory, and behavior: a cognitive loop?" *Journal of Personality and Social Psychology*, Vol. 36, No. 1, pp. 1–12.
76. Rogers, R. W. (1983) "Cognitive and physiological processes in fear appeals and attitude change: a revised theory of protection motivation," in Cacioppo, J. T., and Petty, R. E. (eds) "Social Psychophysiology: A Sourcebook," Guilford, New York, NY, pp. 153–176.
77. Witte, K. (1992) "Putting fear back into fear appeals: the extended parallel process model," *Communication Monographs*, Vol. 59, No. 4, pp. 329–349.
78. Rulter, R. A. C., Kessels, L. T. E., Peters, G., and Kok, G. (2014) "Sixty years of fear appeal research: current state of the evidence," *International Journal of Psychology*, Vol. 49, No. 2, pp. 63–70.
79. Marcus, G. E., Neuman, W. R., and MacKuen, M. (2000) "Affective Intelligence and Political Judgment," University of Chicago Press, Chicago, IL.
80. Huddy, L., Feldman, S., and Cassese, E. (2007) "On the distinct political effects of anxiety and anger," in Neuman, W. R., Marcus, G. E., Crigler, A., and MacKuen, M. (eds) "The Affect Effect," University of Chicago Press, Chicago, IL, pp. 202–230.
81. Fiske and Taylor, ref. 38 above.
82. Watson and Tellegen, ref. 58 above.
83. Berger, ref. 65 above.
84. Ibid.
85. Godes, D., Chen, Y., Das, S., Dellarocas, C., and Pfeiffer, B. (2005) "The firm's management of social interactions," *Marketing Letters*, Vol. 16, No. 3, pp. 415–428.
86. Buhrmester, M. D., Kwang, T., Gosling, S. D. (2011) "Amazon's Mechanical Turk: a new source of inexpensive, yet high-quality, data?" *Perspectives on Psychological Science*, Vol. 6, No. 1, pp. 3–5.
87. Ekins, ref. 20 above.
88. The Points Guy, ref. 21 above.
89. Kim, J., and Grunig, J. E. (2011) "Problem solving and communicative action: a situational theory of problem solving," *Journal of Communication*, Vol. 61, pp. 120–149.
90. Dillard and Shen, ref. 69 above.
91. Srull, T. K. (1984) "The effects of subjective affective states on memory and judgment," in Kinnear, T.C. (ed.) "Advances in Consumer Research," Association for Consumer Research, Provo, UT, pp. 530–533.

92. Salovey, P., and Birnbaum, D. (1989) "Influence of mood on health-related cognitions," *Journal of Personality and Social Psychology*, Vol. 57, No. 3, pp. 539–551.
93. Amrisha, V., Grossmann, T., and Woodman, A. (2008) "Not all emotions are created equal: the negativity bias in social-emotional development," *Psychological Bulletin*, Vol. 134, No. 3, pp. 383–403.
94. Magro, M. J. (2012) "A review of social media use in e-government," *Administrative Science*, Vol. 2, No. 2, pp. 148–161.