

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/320683729>

Social media, trust, and disaster: Does trust in public and nonprofit organizations explain social media use during a disaster?

Article in *Quality & Quantity* · March 2018

DOI: 10.1007/s11135-017-0594-4

CITATIONS

8

READS

401

3 authors:



Brian Williams
Lamar University

7 PUBLICATIONS 12 CITATIONS

[SEE PROFILE](#)



Jesus N Valero
University of Utah

18 PUBLICATIONS 74 CITATIONS

[SEE PROFILE](#)



Kyungwoo John Kim
Korea Institute of Public Administration

12 PUBLICATIONS 46 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



A Study of a Cross-Sector Collaboration System for the Homeless: The Case of Continuum of Care (CoC) Homeless Networks [View project](#)



Resilience [View project](#)

Social media, trust, and disaster: Does trust in public and nonprofit organizations explain social media use during a disaster?

Brian D. Williams¹ · Jesus N. Valero² · Kyungwoo Kim³

© Springer Science+Business Media B.V. 2017

Abstract This study seeks to understand public trust as a factor that compels citizens to utilize social media in the midst of a disaster. More specifically, we explore whether the source of trustworthy information explains variation in the use of social media as an avenue of communication. In order to test this relationship, we draw on previous social media and emergency management research and utilize data from a 2012 survey conducted by the American Red Cross. First, descriptive results indicate that citizens are more likely to report that friends and family are their preferred source of trustworthy information as opposed to local emergency officials and U.S. federal agencies (such as FEMA) or official non-governmental organizations. However, when only official organizations are considered, citizens are more likely to use social media during a disaster when their source of trustworthy information derives from local emergency officials. Additionally, when the public has used social media during a disaster, the need for trust may not disappear but is not as significant to the use of social media during a disaster. These results suggest that local public organizations should invest efforts in building the public's trust to ensure that critical information is efficiently disseminated and accessed by citizens over social media when disaster strikes. In summary, as more trust in local emergency management increases, use of social media in a disaster is expected to increase. As public use of social media during a disaster increases, more of the public can be reached to increase the effectiveness of protective actions during a disaster.

✉ Kyungwoo Kim
Keithkim81@gmail.com

Brian D. Williams
bwilliams9@lamar.edu

Jesus N. Valero
jesus.valero@utah.edu

¹ Department of Political Science, Lamar University, Beaumont, TX, USA

² Department of Political Science, University of Utah, Salt Lake City, UT, USA

³ Department of Public Administration, University of North Texas, Denton, TX, USA

Keywords Social media · Public trust · Disaster · Emergency management

1 Introduction

The use of social media has been studied in many ways in the field of emergency management, including: organizational decision-making (Conrado et al. 2016; Shan et al. 2012), big data collection for disaster management (Choi 2016), strategies for emergency managers (Wukich 2015), and the effects of social media on organizations (Wukich 2015; Kim et al. 2016). Few studies, however, have examined the factors that may compel citizens to use social media platforms to communicate with public and nonprofit organizations during a disaster (Song et al. 2015). This is an important area of study because of the effect that timely and accurate information has on producing effective emergency management.

This study relies on data collected from a national survey that was conducted in 2012 by the American Red Cross. We contend that the publics' trust in emergency management organizations is a key factor that explains the publics' willingness to engage in more innovative forms of communication such as an organization's social media. Testing this general proposition advances scholarly understanding of why citizens would or would not use social media during a disaster.

In the next section, we outline our theoretical argument from which we draw testable hypotheses. We first begin with a review of social media use followed by an exploration of the concept of trust in government and implications on communication. This is followed by our choice of research design and a discussion of the results. The study concludes with a set of implications for the practice of emergency management.

2 Theoretical considerations

2.1 Communication, social media, and public trust

Traditional communication mechanisms have evolved from the 911 call-in system for emergencies to the 311 system, which processes non-emergency requests through telephone calls (Caillier 2009; Reddick 2009). More recent forms of communication platforms such as e-government, include web-based programs (such as social media outlets) and local government web site portals (Caillier 2009; Jun and Chung 2016). This evolution of communication platforms is consistent with Adams' argument (1992) that governments are likely to adopt modern tools of technology as cities grow and globalization creates connections across time and space.

Norris and Moon (2005) propose that local government adoption and implementation of e-government must be incremental with consistent progress for the public to accept the innovation. Additionally, Walker (2008) suggests that technical innovations require an evolutionary implementation because of external forces (e.g., the public). Pan et al. (2006) add that innovation can be accomplished through a relationship model where local government and citizens have the ability to interact without the public having direct organizational involvement. These three findings and proposals, about technological innovation, get to the heart of the issue of trust in the source of information in relation to the public's use of a specific avenue such as social media to provide and receive information.

However, e-government implementation through customer relations management requires more than simply providing information. For example, numerous studies have found that multiple avenues and sources of information are advantageous and necessary for reaching the widest range of recipients (Cutter et al. 2009; Morss and Hayden 2010; Phillips and Morrow 2007; Williams 2015). Additionally, disaster impacts can vary from community to community and from hazard to hazard. This creates the necessity that communication efforts focus on the community context (Morss and Hayden 2010; Paton 2003; Paton and Johnston 2001), including the adoption of innovations, such as social media platforms, that allow for two-way communication.

For example, Arlikatti et al. (2010) consider communication avenues based on the language of the population and found that Spanish speaking populations report receiving information about the 211 system mostly from television followed by the internet, radio, cell phone, and newspaper while English speaking populations report receiving information about the 211 system mostly from the internet followed by television, newspaper, and cell phone. English-speaking respondents reported receiving no information from the radio. These findings suggest that the community context does have an impact on the avenue that individuals trust and accept to receive general information. The findings also suggest that multiple avenues are important and should include internet-based communication such as social media for emergency management.

Just as innovation is considered to be evolutionary through external forces, social media use is proposed to increase as new technologies are publicly embraced (Lindsay 2011). The aspect of social media use is especially important when communication is viewed as a long-term framework aimed at creating trust under normal circumstances that can be translated into trust during a disaster (Engdahl and Lidskog 2014). Siegrist and Cvetkovich (2000) found that individuals will turn to sources of information that they trust to gain information during a disaster. This positions the issue of public trust in the source of information as a vital aspect to communicating risk and protective orders in the wake of a disaster, and highlights the need to examine public trust in government in relation to public willingness to use social media during a disaster.

2.1.1 Social media use

Social media is defined as a form of multiple-interaction communication that has an internet-based platform (Mergel and Bretschneider 2013; Jung and Valero 2016) and includes social network services such as Facebook, Twitter, Instagram and others. These services enable individuals to communicate with multiple people simultaneously and in real time. By ‘friending’ more individuals over these social media outlets, individuals are able to generate their own social media networks and by so doing, they become more ‘networked’ (Baker and Oswald 2010; Fadul 2014; Hsu et al. 2013; Lee 2011; Otterbacher et al. 2013; Jung and Park 2016; Xu and Feng 2015). Like individuals, organizations can also create a social media page and build its own social media network by appealing to the general public on the social media platform (Danowski and Park 2014; Jung et al. 2014, 2017; Hong et al. 2016; Kim et al. 2015). This is advantageous for organizations such as those engaged in risk communication when a single post or tweet can reach multitudes when individuals and organizations share or re-tweet information with their own social media networks.

Song et al. (2015) specifically analyze the effects of citizen participation during a disaster. Although they observe a lack of citizen participation at the local level, Song et al. (2015) propose that citizens are more likely to participate when local government has

fewer resources for disaster management. Additionally, they propose that making social network systems, with coordination from non-governmental organizations, a part of everyday life can positively affect disaster operations.

Many studies focus on building capacity or resilience, with some concern with the level of trust that the public has in the content of social media platforms (Jung and Park 2014; Kim et al. 2016; Song et al. 2015). This concern is due to the ability to post information that is unchecked or even false. Trust in the content of information has been found to have a positive association with an increase in an individual receiving information from official sources (Williams 2015). The more an individual trusts the content of the information from official sources, such as a federal agency, the more likely an individual is to seek information from an official source.

This may seem like a common-sense proposal; however, inaccurate information can be transmitted by official organizations and have an influence on future social media use. Social network services can provide internal tools to mitigate the effect of inaccurate information. Mendoza et al. (2010) examine the use of twitter in what they term as emergency situations. They find that the twitter platform can warn users when false information or rumors are present and should be discarded. Morris et al. (2012) investigate individual perception of the credibility of tweets, and they find that most respondents were unable to identify the truthfulness of a tweet which results in something other than truthfulness of the tweet influencing the perception of credibility.

Together, these findings on twitter platform use suggest that there are ways to mitigate false rumors; however, individuals do not have the capacity to differentiate content truthfulness from trust in the author. In light of this challenge, Sutton et al. (2008) contend that social media provides a vital backchannel communication that provides interaction on a large scale between individuals that would otherwise be difficult to come by in a short amount of time. For example, individuals are able to report, in real time, whether a road is cut off by fire and impassible.

Providing real time information can save lives when the transmission of information to official organizations and then back out to the public can take too long to provide accurate information when the situation can shift in moments. Therefore, creating a relationship of trust, through two-way communication, in a meaningful way that educates the public, can be conceptualized in the relationship between trust in a disaster/emergency management organization. What is missing from the literature is an understanding of the effect that public trust in public organizations can have on the willingness of individuals to use social media during a disaster.

2.1.2 Hypotheses

This section develops our hypotheses of trust in individual sources of communication and the relationship with social media use in a disaster. These hypotheses are based upon the above theoretical background on communication sources, but more specifically, social media use. The individual sources of communication that are of interest include nonprofit organizations and public emergency management organizations. The section on nonprofit organizations focuses on the American Red Cross as a major provider of social services during a disaster. The section on public organizations focuses on the Federal Emergency Management Agency as the major federal provider of services that supports local emergency management organizations during a disaster. This section begins with a review of trust and sources of communication.

Kasperson and Dow (1993) found that distrust in government can isolate populations, especially when the information communicated is not easily understood by the public. This lack of trust occurs when a barrier is created between the public and the information source because information is not understood. This can result in increased damage and harm. Therefore, information should be communicated in terms and language that is understood, within a context that is understood, and through an avenue that is accessible and utilized. A focus is placed here on the avenue and source of information.

Engdahl and Lidskog (2014) suggest that a relationship of trust must be created between government and the public before a disaster emerges. This focus emphasizes the importance of understanding that simply providing information does not produce public trust in the communication source. Additionally, trust is needed for the public to accept information from the source through an avenue that is accessible. Kapucu et al. (2013) found that information technology, under which social media is classified, does provide an avenue to build trust. The implication of these proposals is that when trust is established, networks in emergency management, which relies heavily upon collaboration to manage disaster effectively, can be sustained.

Increased communication with the public can increase the ability of public organizations to provide effective services that are needed and desired by the public they serve. Song et al. (2015) found that the public has less participation at the local level when citizen participation is considered as the amount of input that citizens give in how government should function. This low level of citizen participation can be explained by findings that individuals tend to trust family and friends at higher rates than other sources of information such as public organizations. For example, Mileti and O'Brien (1992), Sutton et al. (2008), Arlikatti et al. (2010), and Benavides and Arlikatti (2010) have all found that people are more likely to trust their friends and family for information about threats rather than official public organizations.

Other sources include television and radio; however, trust in these sources can vary based upon demographics. These studies also fail to address the indirect effect of friends and family receiving information from public organizations. Therefore, the next two sections focus on nonprofit and public organizations and the communication relationship with the public.

2.1.3 Public organizations

While trust in the content of information has been found to be positively associated with an increase in individuals receiving information from official sources (Williams 2015), disaster and risk communication from emergency management agencies has predominately served to simply disseminate information (Lindsay 2011). The literature has focused mostly on how individuals receive information (for examples see Arlikatti et al. 2010; Benavides and Arlikatti 2010; Mileti and O'Brien 1992; Sutton et al. 2008). Recent legislative and executive actions have centered on agencies such as the Federal Emergency Management Agency (FEMA) moving beyond simply providing information to enhancing disaster management operations as the importance of social media is increasing as a source of communication by engaging the public through social media. If relationships rely upon trust and individuals will turn to traditionally trusted sources (e.g., FEMA and local government), then public trust in official organizations will result in increased willingness to turn to official social media sources during a disaster.

H1 Individual trust in federal organizations will be positively associated with the publics' willingness to use social media during a disaster.

H2 Individual trust in local emergency management organizations will be positively associated with the publics' willingness to use social media during a disaster.

2.1.4 Nonprofit organizations

Nonprofit organizations play a key role in emergency management, often being the first entity to respond to disasters at the local level (Kim and Jung 2016). Although there are a myriad definitions of nonprofit organization, most scholars would agree that nonprofits do not coerce participation, do not distribute profits to shareholders, and they do not have clear lines of accountability and ownership (Frumkin 2002). The non-distribution constraint, in particular, helps nonprofits gain the public's trust when they lack the incentive to exploit consumers. Nonprofit revenue and profit is a means to achieve a public good or service—often addressing a social ill that government or the private business sector is unable or unwilling to address.

The American Red Cross, for example, is a US-based and multipurpose nonprofit organization that “prevents and alleviates human suffering in the face of emergencies by mobilizing the power of volunteers and the generosity of donors” (American Red Cross 2017). The American Red Cross uses social media such as Facebook and Twitter to build relationships and trust, however, staff availability and time constraints along with alienation of older generations by social media provides barriers to relationship and trust building through social media (Briones et al. 2011). To overcome these barriers and to improve communication efforts, the organization provides a social engagement guide for staff members, which lays out protocols for field units. The guide, for example, encourages staff and volunteers to engage in communication over social media such as Facebook and Twitter, and to listen and respond to posts and comments in a meaningful way to add value and educate the public (American Red Cross 2012). Thus, we content that trust in nonprofit organizations—as an entity that functions to achieve positive community programs—will share a positive relationship with citizen use of social media during a disaster.

H3 Individual trust in nonprofit organizations will be positively associated with the publics' willingness to use social media during a disaster.

2.2 Research design, data and methods

The American Red Cross¹ commissioned CARAVAN ORC International to conduct a survey of adults 18 years of age and older in the United States. The survey took place over a three-day period from June 14–17, 2012 by using both telephone and online surveys. The online portion of the survey resulted in 1017 respondents and the telephone version resulted in 1018 respondents from a random sample nationwide. For this research, we rely on data from the online survey because phone survey data was not available to researchers.

The final sample for this study was determined first by the number of respondents that report using social media. The data shows that 700 (68.8%) of the 1017 respondents use social media (see Table 1). Of those 700 that report using social media, 205 (29.3%) report having experience using social media during a disaster (see Table 2). The final sample of

¹ It is important to note that the investigators on this study did not participate in the original study and are not associated with the American Red Cross or CARAVAN ORC International.

Table 1 Citizens' social media use

	Frequency	Percent
Yes	700	68.8
No	317	31.2

N = 1017

Table 2 Experience in social media use during a disaster

	Frequency	Percent
Yes	205	29.3
No	495	70.7

N = 700

700 respondents out of those reporting the use of social media was selected to test our models.

The key dependent variable, in this study, is the willingness of individuals to use social media in a disaster. This is measured as the degree to which individuals are willing to use social media in a scale of 1–5 with 1 being “definitely would not use social media” and 5 being “definitely would use social media” (See Table 3). In the full sample of respondents, 442 (43.5%) of 1017 either definitely would or probably would use social media in a disaster.

The main independent variable in this study is public trust. Public trust is conceptualized as the degree to which respondents trust public and nonprofit organizations. These organizations include the American Red Cross, FEMA, and local government emergency management teams. The independent variables are dummy variables coded as ‘1’ when the respondent trusts an organization as a source of disaster information (otherwise, coded as ‘0’).

The first sets of control variables are demographic and descriptive variables of the respondent such as: gender, age, homeowner, married, and children. We control for demographics such as homeownership status, married status, and number of children as the literature proposes that the community context is an important factor because needs and perceptions of trust can vary from community to community.

The last control variable is whether individuals have used social media during a previous disaster. Previous social media use is measured as a dummy variable. When a respondent has used social media during previous disasters, it is coded as ‘1’ (otherwise, coded as ‘0’). It is important to address previous use of social media during a disaster when measuring individual willingness to use social media during a disaster to account for previous experiences that can affect trust in public and nonprofit organizations.

Table 3 Willingness to use social media during a disaster

	Frequency	Percent
Definitely would	241	23.7
Probably would	201	19.8
Might or might not	270	26.5
Probably would not	154	15.1
Definitely would not	151	14.8

N = 1017

3 Analysis results

The descriptive analysis that results from the 2012 American Red Cross Survey shows that approximately 43.5% (442 out of 1017) of all respondents are willing to use social media after a disaster occurs. Additionally, of the 68.8% (700 out of 1017) that report using social media on a regular basis, 29.3% (205 out of 700) have used social media in a previous disaster. For descriptive purposes, we first look at sources of information beyond public and nonprofit organizations to determine if the sample is representative in those results. Due to missing data, the number of respondents for this section includes 205 rather than the full 700 respondents in the final sample.

As shown in Table 4, the results indicate that citizens continue to report higher levels of trust in friends and family at 71.7% (147 out of 205) and news media at 71.2% (146 out of 205). This finding is in comparison to local emergency management agencies at 66.8% (137 out of 205) and federal agencies, such as FEMA, at 56.1% (115) when it comes to receiving information during a disaster. The local chapter of the American Red Cross has less than 50% support in that they provide trustworthy information. Respondents are allowed to choose any number of information sources listed. While this does not provide a rank order of who is trusted more, the findings do suggest that more respondents are more likely to perceive that information from family and friends is trustworthy as opposed to other sources of information.

Interestingly, the difference between friends and family versus news media or reporters is negligible. There is only half a percent difference with one more respondent choosing friends and family. This does not tell us if the same respondents that choose friends and family also chose news media or reports. However, this does suggest that local emergency officials, secondary to friends, family, news media, and reporters, receive a higher trustworthy rating than do federal agencies or the American Red Cross. This finding of trust in friends and family as a source of information runs parallel to previous literature on risk

Table 4 Source of trustworthy information on social media during a disaster

	Frequency	Percent
Friends and family	147	71.7
News media or reporters	146	71.2
Local emergency officials	137	66.8
Federal agencies such as FEMA	115	56.1
American Red Cross local chapter	96	46.8
People who are in the general area of the emergency	64	31.2

N = 205

Table 5 Descriptive statistics

	N	Mean	SD	Min	Max
Willingness—social media use	700	3.6629	1.17218	1	5
Trust in American Red Cross	700	0.1371	0.34424	0	1
Trust in FEMA	700	0.1643	0.3708	0	1
Trust in local emergency management	700	0.1957	0.39703	0	1
Gender	700	0.4714	0.49954	0	1
Age	700	43.55	14.589	18	80
Homeowner	700	0.6557	0.47547	0	1
Marriage	700	0.5314	0.49937	0	1
Children	700	0.3014	0.45921	0	1
Social media use in disaster	700	0.2929	0.4554	0	1

communication and sources of communication (see Arlikatti et al. 2010; Benavides and Arlikatti 2010; Mileti and O'Brien 1992; Sutton et al. 2008).

Table 5 provides the descriptive statistics for the dependent, independent, and control variables in the full sample. Ten variables are tested across three models using hierarchical regression analysis. Hierarchical regression is appropriate here as it allows us to assess the effect of public trust in emergency management organizations on the willingness to use social media in a disaster as control variables are introduced over three steps.

Three models are used to analyze the effect that trust in official emergency management organizations has on the willingness of individuals to use social media in a disaster. Model 1 isolates trust in the American Red Cross, FEMA, and local emergency management to

Table 6 Regression analysis

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Trust in American Red Cross	0.249	0.17	0.174	0.169	0.027	0.167
Trust in FEMA	0.223	0.166	0.27	0.166	0.004	0.169
Trust in local emergency management	0.655***	0.15	0.628***	0.148	0.131	0.169
Gender			− 0.291***	0.085	− 0.278	0.083
Age			− 0.003	0.003	0	0.003
Homeowner			− 0.054	0.099	− 0.066	0.097
Marriage			− 0.044	0.093	− 0.024	0.091
Children			0.301***	0.098	0.295	0.096
Prior social media use in disaster					0.871	0.153
Constant	3.464	0.047	3.737	0.159	3.507	0.161
N	700		700		700	
F	27.855		13.086		15.542	
R ²	0.107		0.146		0.184	
Adjusted R ²	0.103		0.135		0.172	

^aDependent variable: willingness—social media use

^b*** $p < .01$; ** $p < .05$; * $p < .1$

understand the effect of trust alone and the impact that controlling for demographic variables has on the willingness to use social media in a disaster in later models. Model 2 includes gender, age, homeowner, married, and children. The third model incorporates the final variable of whether the individual has used social media in a disaster.

The results of the hierarchical regression analysis (recorded in Table 6), suggests that citizens who trust local emergency response organizations are more likely to use social media during a disaster. There is no statistical evidence to support the association between citizens' trust in American Red Cross or FEMA and the willingness to use social media. A noteworthy finding is that gender matters in the willingness to use social media. Female citizens are more likely to do so during a disaster. Moreover, citizens with children are more willing to use social media than those who do not have a child. Lastly, citizens who have experience with social media use during past disasters are more likely to utilize social media again during a future disaster.

In reviewing the results across the first two models, trust in local emergency management is the only organization that is statistically significant in predicting the willingness to use social media in a disaster. This predictive capability is negated when social media use in disaster is added to model three, even though the adjusted r square shows an increase in variance in the models ability to predict an individual's willingness to use social media in a disaster. The amount of variation explained increases by just over 3% when gender, age, homeowner, marriage, and children are considered, from 10.3 to 13.5%. The amount of variation explained increases almost another 4%, for an overall increase of 7–17.2% when previous social media use in disaster is considered.

However, the impact of trust in local government decreases when gender, age, homeowner, marriage, and children are considered by just over 4% from 0.655 to 0.628. This amount of decrease in impact may be considered negligible when the increase in the amount of variance explained is taken into account. Additionally, while the significance of trust in any emergency management organization disappears when social media use in disaster is accounted for, the effect of trust is almost negligible and the effect of being male and having children reduces. It can be argued that the amount of decrease, in Model 3, in the impact that gender and having children have on the willingness to use social media in a disaster is negligible, especially when the effect of previous experience with social media in a disaster is considered along with the amount of variance explained.

4 Discussion

The purpose of this study is to understand the relationship between trust in an organization and an individual's propensity to use social media during a disaster. Our first and second hypotheses stated that trust in nonprofit organizations (e.g., American Red Cross) and federal organizations (e.g., FEMA) would predict the use of social media during disaster. We found no statistically significant relationship between these two variables; thus, hypotheses 1 and 2 are not supported. In Model 2, the results suggest that as trust in local emergency management organizations increases, the likelihood of respondents using social media as a source of communication during a disaster will increase. Hypothesis 3 is accordingly partially supported. In Model 3, the impact of trust in local government organizations seems to have a statistically significant effect on social media use when previous social media use in disaster is included in the model.

Having trust in local emergency management does move the average person from the maybe category to the probably would use social media in a disaster category. This suggests that the chances of local government getting the public to comply with protective orders through social media will increase with public trust. Examining this variable in isolation would suggest that when social media is used, efforts should be focused through local emergency management organizations to ensure increased effectiveness of communication. However, when all three models are examined, the methodological application of hierarchical regression across the three models provides a different narrative.

Trust, in agencies such as FEMA and the ACR, does not have predictive ability on the willingness to use social media in a disaster. Additionally, the impact levels are negligible, especially when accounting for prior experience with social media in disaster. This does not mean that federal or nonprofit organizations should not be concerned with public trust. It is simply that we can better predict public willingness to use social media in a disaster through public trust in local emergency management organizations.

It is important not to automatically view FEMA and ARC as untrustworthy; simply that individual willingness to use social media during a disaster is not statistically impacted by whether someone trusts the organization. As we look across the models, gender and having children increases the impact of trust in FEMA while they decrease the impact of trust in ARC and local emergency management. Gender and children remain significant when prior social media use in a disaster is controlled for while the impact of FEMA, ARC and local emergency management is significantly reduced. This shows that the use of hierarchical regression analysis through the use of three steps does make a difference methodologically in the interpretation of the findings.

First, it is important not to interpret the addition of prior social media use during a disaster as reducing trust in the organization. Rather, it should be interpreted that prior social media use during a disaster simply negates the effect that trust in the organization has on whether someone is willing to use social media in a disaster. This means that prior use may need to be observed as a significant independent variable rather than as a control variable in future studies.

The more interesting finding, from a practical perspective, is that previous experience of social media use in a disaster not only reduces the impact that trust in emergency management organizations has on the willingness of the public to use social media in a disaster, but also negates the statistical significance of trust in local emergency management. This means that when the public uses social media in a disaster, the need to have trust in the organization is no longer a vital consideration to the willingness of the public to use social media in future disasters (Endo 2013). Again, this is not to say that trust in emergency management organizations is not important, just that when the public has used social media in a disaster, trust in the method of communication may take precedence over trust in the source of information and no longer require trust in the organization alone.

The findings also suggests that the control variables of age, owning a home and being married should not be relied upon as main independent variable due to the lack of significance as predictors. This lack of significance can be explained by a low level of variation in age, homeownership and marriage rates for those who are more likely to use technology. However, the findings do not provide support for removing them as control variables (Kwak et al. 2011; Skoric and Kwan 2011). However, the findings also suggest that females and individuals with children are more likely to use social media, especially when they trust local government.

5 Conclusion

The purpose of this study is to determine how trust in emergency management organizations compels the use of social media in a disaster. The focus is based upon the assumption that innovation is driven more by external influencers such as the public or citizenry. The use of hierarchical regression through three models has shown that trust in local emergency management agencies is the most important factor to increase the use of social media during a disaster. Then as more people use social media during a disaster, prior experience in using social media will take precedence in compelling the use of social media in future disasters. The findings suggest a major implication for the practice of emergency management.

Local emergency management has the ability to increase the use of social media during a disaster by increasing the trust that specific populations, in the community, have in local emergency management organizations. As more of the public gains trust in local emergency management, the more the public will be willing to use social media in a disaster. As more of the public uses social media in a disaster, local emergency management organizations can shift their focus to other vulnerable populations to increase trust and therefore use of social media. The findings do rely, however, on the occurrence of disastrous events in order to increase social media use by the public in disaster by utilizing an incremental policy implementation approach. However, this is where future research implications become imperative.

One limitation to this study is that it does not have the ability to describe what public trust in official organizations looks like, just the level of trust reported. Future research should look at the social link between official organizations and the public to determine exactly why those that do trust official organizations have the level of trust that they do and that effect on social media use during a disaster. Future research should also include local emergency managers into research to understand better, how emergency management perceives why the public does or does not trust local emergency management organizations.

Findings that reveal the ability to increase the use of social media in disaster by increasing public trust in local emergency management organizations are associated with the reduced need for trust in emergency management organizations after repeated use of social media in a disaster. This means that as the public uses social media in a disaster, those individuals no longer need to be targeted for increased trust, as future use will then be determined by the successful use of social media in previous disasters. These findings suggest that research needs to further examine the relationships and determine how practice can increase the use of social media in disaster without waiting for the next disaster to occur. Nevertheless, we have to start somewhere in order to save lives today until we have the answers of tomorrow.

References

- American Red Cross, ARC.: American Red Cross mission. <http://www.redcrossblood.org/about-us/our-mission> (2017). Accessed 26 Feb 2017
- American Red Cross, Social Engagement Team: Social Engagement Handbook Version 2.0. American Red Cross (2012)

- Arlikatti, S., Pulido, A.M., Slater, H., Kwarteng, A.: Perceived role of the Spanish-language media in promoting disaster resiliency: public service announcements and 2-1-1 program. *J. Span. Lang. Media* **3**, 78 (2010)
- Baker, L.R., Oswald, D.L.: Shyness and online social networking services. *J. Soc. Pers. Relationsh* **27**(7), 873–889 (2010)
- Benavides, A., Arlikatti, S.: The role of the Spanish-language media in disaster warning dissemination: an examination of the emergency alert system. *J. Span. Lang. Media* **3**, 41 (2010)
- Briones, R.L., Kuch, B., Liu, B.F., Jin, Y.: Keeping up with the digital age: how the American Red Cross uses social media to build relationships. *Public Relat. Rev.* **37**(1), 37–43 (2011)
- Caillier, J.G.: Centralized customer service: what local government characteristics influence its acceptance and usage of information? *Public Adm. Manag.* **14**(2), 292–322 (2009)
- Choi, S.: The analysis technique of social media for disaster management. *Int. J. Des. Nat. Ecodyn.* **11**(3), 396–405 (2016)
- Conrado, S.P., Neville, K., Woodworth, S., O’Riordan, S.: Managing social media uncertainty to support the decision making process during emergencies. *J. Decis. Syst.* **25**(1), 171–181 (2016)
- Cutter, S.L., Smith, M.M.: Fleeing from the hurricane’s wrath: evacuation and the two Americas. *Environ. Sci. Policy Sustain. Dev.* **51**(2), 26–36 (2009)
- Danowski, J.A., Park, H.W.: Arab spring effects on meanings for Islamist web terms and on web hyperlink networks among Muslim-majority nations: a naturalistic field experiment. *J. Contemp. East. Asia* **13**(2), 15–39 (2014)
- Endo, K.: Social journalism in the inter-media society: results from the social survey on the great East Japan earthquake and the Fukushima nuclear power plant disaster. *J. Contemp. East. Asia* **12**(2), 5–17 (2013)
- Engdahl, E., Lidskog, R.: Risk, communication and trust: towards an emotional understanding of trust. *Public Underst. Sci.* **23**(6), 703–717 (2014)
- Fadul, J.A.: Big data and knowledge generation in tertiary education in the Philippines. *J. Contemp. East. Asia* **13**(1), 5–18 (2014)
- Hong, Y.J., Shin, D., Kim, J.H.: High/low reputation companies’ dialogic communication activities and semantic networks on facebook: a comparative study. *Technol. Forecast. Soc. Change* (2016). doi:[10.1016/j.techfore.2016.05.003](https://doi.org/10.1016/j.techfore.2016.05.003)
- Hsu, C.L., Park, S.J., Park, H.W.: Political discourse among key twitter users: the case of Sejong City in South Korea. *J. Contemp. East. Asia* **12**(1), 65–79 (2013)
- Frumkin, P.: *On Being Nonprofit: A Conceptual and Policy Primer*. Harvard University Press, Cambridge (2002)
- Jun, C.N., Chung, J.C.: Big data analysis of local government 3.0: focusing on Gyeongsangbuk-do in Korea. *Technol. Forecast. Soc. Change* (2016). doi:[10.1016/j.techfore.2015.11.007](https://doi.org/10.1016/j.techfore.2015.11.007)
- Jung, K., Chilton, K., Valero, J.N.: Uncovering stakeholders in public–private relations on social media: a case study of the 2015 Volkswagen scandal. *Qual. Quant.* **51**(3), 1113–1131 (2017)
- Jung, K., Park, H.W.: Citizens’ social media use and homeland security information policy: some evidences from twitter users during the 2013 North Korea nuclear test. *Gov. Inf. Q.* **31**, 563–573 (2014)
- Jung, K., Park, H.W.: Tracing interorganizational information networks during emergency responses: a webometric approach to the 2012 Gumi chemical spill. *Gov. Inf. Q.* **33**(1), 133–141 (2016)
- Jung, K., Valero, J.N.: Assessing the evolutionary structure of homeless network: social media use, keywords, and influential stakeholders. *Technol. Forecast. Soc. Change* **110**, 51–60 (2016)
- Jung, K., No, W., Kim, J.W.: Who leads nonprofit advocacy through social media? Some evidence from the Australian marine conservation society’s twitter networks. *J. Contemp. East. Asia* **13**(1), 69–81 (2014)
- Kapucu, N., Garayev, V., Wang, L.: Sustaining networks in emergency management. *Public Perform. Manag. Rev.* **37**(1), 104–133 (2013)
- Kasperson, R.E., Dow, K.: Hazard perception and geography. In: Garling, T., Gollidge, R.G. (eds.) *Behavior and Environment: Psychology and Geographical Approaches*, pp. 193–221. Elsevier, Amsterdam (1993)
- Kim, J.W., Kim, Y., Suran, M.: Emergency-response organization utilization of social media during a disaster: a case study of the 2013 Seoul floods. *J. Contemp. East. Asia* **14**(2), 5–15 (2015)
- Kim, J.W., Jung, K.: Does voluntary organizations’ preparedness matter in enhancing emergency management of county government? *J. Local Self Gov.* **14**(1), 1–17 (2016)
- Kim, K., Jung, K., Chilton, K.: Strategies of social media use in disaster management. *Int. J. Emerg. Serv.* **5**(2), 1–16 (2016)
- Kwak, N., Campbell, S.W., Choi, J., Bae, S.Y.: Mobile communication and public affairs engagement in Korea: an examination of non-linear relationships between mobile phone use and engagement across age groups. *Asian J. Commun.* **21**(5), 485–503 (2011)

- Lee, J.T.-H.: From Tahir square to Tiananmen: why the Egyptians succeeded in 2011 but the Chinese failed in 1989? *J. Contemp. East. Asia* **10**(2), 41–46 (2011)
- Lindsay, B.R.: *Social Media and Disasters: Current Uses, Future Options, and Policy Considerations*. Congressional Research Services Report (2011)
- Mendoza, M., Poblete, B., Castillo, C.: Twitter under crisis: can we trust what we RT? In: *The First Workshop on Social Media Analytics* (2010)
- Mergel, I., Bretschneider, S.: A three-stage adoption process for social media use in government. *Public Adm. Rev.* **73**(3), 390–400 (2013)
- Mileti, D.S., O'Brien, P.W.: Warnings during disaster: normalizing communicated risk. *Soc. Probl.* **39**(1), 40–57 (1992)
- Morris, M.R., Counts, S., Roseway, A., Hoff, A., Schwarz, J.: Tweeting is believing? Understanding microblog credibility perceptions. In: *ACM 2012 Conference on Computer Supported Cooperative Work* (2012)
- Morss, R.E., Hayden, M.H.: Storm surge and “certain death”: interviews with Texas coastal residents following hurricane ike. *Weather Clim. Soc.* **2**(3), 174–189 (2010)
- Norris, D.F., Moon, M.J.: Advancing e-government at the grassroots: Tortoise or hare?. *Public Adm. Rev.* **65**(1), 64–75 (2005)
- Otterbacher, J., Shapiro, M., Hemphill, L.: Interacting or just acting. *J. Contemp. East. Asia* **12**(1), 5–20 (2013)
- Pan, S.-L., Tan, C.-W., Lim, E.T.K.: Customer relationship management (CRM) in e-government: a relational perspective. *Decis. Support Syst.* **42**(1), 237–250 (2006)
- Paton, D.: Disaster preparedness: a social-cognitive perspective. *Disaster Prev. Manag.* **12**(3), 210 (2003)
- Paton, D., Johnston, D.: Disasters and communities: vulnerability, resilience and preparedness. *Disaster Prev. Manag.* **10**(4), 270–277 (2001)
- Phillips, B.D., Morrow, B.H.: Social science research needs: focus on vulnerable populations, forecasting, and warnings. *Nat. Hazards Rev.* **8**(3), 61–68 (2007)
- Reddick, C.G.: The adoption of centralized customer service systems: a survey of local governments. *Gov. Inf. Q.* **26**(1), 219–226 (2009)
- Shan, S., Wang, L., Li, L., Chen, Y.: An emergency response decision support system framework for application in e-government. *Inf. Technol. Manag.* **13**(4), 411–427 (2012)
- Siegrist, M., Cvetkovich, G.: Perception of hazards: the role of social trust and knowledge. *Risk Anal.* **20**(5), 713–720 (2000)
- Skoric, M.M., Kwan, G.C.E.: Platforms for mediated sociability and online social capital: the role of facebook and massively multiplayer online games. *Asian J. Commun.* **21**(5), 467–484 (2011)
- Song, M., Kim, J.W., Kim, Y., Jung, K.: Does the provision of emergency management information on social media facilitate citizen participation during a disaster? *Int. J. Emerg. Manag.* **11**(3), 224–239 (2015)
- Sutton, J., Palen, L., Shklovski, I.: Backchannels on the front lines: emergent uses of social media in the 2007 southern California wildfires. In: *Proceedings of the 5th International ISCRAM Conference* (2008)
- Xu, W.W., Feng, M.: Networked creativity on the censored web 2.0: Chinese users' twitter-based activities on the issue of internet censorship. *J. Contemp. East. Asia* **14**(1), 23–43 (2015)
- Walker, R.M.: An empirical evaluation of innovation types and organizational and environmental characteristics: towards a configuration framework. *J. Public Adm. Res. Theory* **18**(4), 591–615 (2008)
- Williams, B.D.: Communication effect of terrorism preparedness. In: *86th Annual Southern Political Science Association*, New Orleans, La (2015)
- Wukich, C.: Social media use in emergency management. *J. Emerg. Manag.* **13**(4), 281–294 (2015)