

The Documentary Analysis of Quantitative Method Used in Disaster Communication:

The Involvement in Social Media Use during Disasters

งานวิจัยเพื่อการวิเคราะห์ผลวิจัยด้านสื่อสังคมออนไลน์ที่ศึกษาโดยการวิจัยเชิงปริมาณ
ซึ่งใช้เพื่อการตอบสนองต่อสถานการณ์ภัยพิบัติทางธรรมชาติ

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ABSTRACT

This study aims basically to highlight the quantitative design, which was used to investigate the issue of user involvement in disaster communication relating to social media use during disaster situations. The results introduce some of the agreements that social media usages have influenced the different levels of involvement on disaster communication for disaster management.

บทคัดย่อ

งานวิจัยนี้วิเคราะห์ผลวิจัยด้านสื่อสังคมออนไลน์ที่ศึกษาโดยการวิจัยเชิงปริมาณ เพื่อศึกษาบทบาทของสื่อสังคมออนไลน์ซึ่งใช้เพื่อการตอบสนองต่อสถานการณ์ภัยพิบัติทางธรรมชาติ ซึ่งผลของการวิเคราะห์สรุปความได้ว่าการใช้สื่อสังคมออนไลน์เป็นส่วนหนึ่งที่มีอิทธิพลและบทบาทต่างกันของการสื่อสารในภาวะวิกฤตเพื่อการจัดการเหตุการณ์ภัยพิบัติทางธรรมชาติ

Key Words: Quantitative design, Social media Use, Disaster management

คำสำคัญ: การวิจัยเชิงปริมาณ การใช้สื่อสังคมออนไลน์ การจัดการภัยพิบัติทางธรรมชาติ

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Introduction

Social media have been increasingly used with disaster communication and even more than conventional modes of communication such as television, newspaper, phone call, one-on-one, and group (Fraustino, Daisy, Liu & Jin, 2012). To date, dealing with disaster, the disaster agencies turn to online social media the most for information seeking and sharing (Fraustino, Daisy, Liu & Jin, 2012). Given essentially, “within the last five years social media have played an increasing role in emergencies and disasters” (Lindsay, 2011, p. 288). In addition, social networking sites (SNSs) have popular reached to top five ranks that public get access the most for their emergency sources (Lindsay, 2011).

Disaster can be defined as an emergency event which often causes of danger, damage and harm to affect humans’ life, property and environment, and the consequences, adversely affected society problems (Alexander, 1997). Generally, disasters can be categorized into three types including: (Ahmed, 2011, p. 2)

- 1) natural disaster (i.e., earthquake, extreme heat or cold, fire, flood, hurricane, landslide, thunderstorm, tornado, Tsunami and volcanic eruption).
- 2) man-made (i.e., biological, chemical, nuclear and radiation threat).
- 3) hybrid (for example, “extensive clearing of jungles cause soil erosion and subsequently heavy rain causes landslides; the location of residential areas, factories etc at the foot of an

active volcano or in avalanche area; and flood plain disasters”) (Ahmed, 2011, p. 2).

Although, disaster is not able to prevent from happening, minimization of a disaster can be possible when people enhance the response (Ahmed, 2011).

The description of “involvement” has been used in various fields such as in a way of psychology (Sherif, et al., 1965), of a product or advertisement (Krugman, 1967), and of one’s job (Lawler & Hall, 1970). Specifically, “user involvement” has been more mentioned in many researches, as examples, “an exploratory investigation of user involvement in a new service development” (Alam, 2002), and “managing user involvement in service innovation experiments with innovating end users” (Magnusson, Matthing & Kristensson, 2003). Even though user involvement concept is vaguely used that hardly finds a clear definition, its principle is widely accepted in many disciplines (Kujala, 2003). However, user involvement “can be seen to be a general term describing direct contact with users and covering many approaches” (Kujala, 2003, p. 1).

During disaster, immediate consumption behaviors of social media use have risen as people seeking for information (Bates & Callison, 2008; Pew Internet & American Life Project, 2006; Sweetser & Metzgar, 2007). In regards, social media refer to the applications that base on content of users, which feature to generate content, foster dialogue, and influence on users actions in increasing the application or service’s value (Kaplan & Haenlein, 2010). In the past few years, many case studies have pointed to show a substantial role of social media that can be put to use during

disasters, as in the event of Hurricane Katrina, 9-11 Terrorist Attacks, 2010 Haitian Earthquake, 2011 Tuscaloosa and Joplin Tornados, and 2012 Hurricane Sandy (Fraustino, Daisy, Liu & Jin, 2012). Moreover, research participants report using social media in disaster management as for them to maintain majority senses in the community, to seek of supports (emotion), to check in with family and friends, and for seeking timely information during disaster (Fraustino, Daisy, Liu & Jin, 2012).

However, communication research review to cover user involvement in the way of disaster communication and on social media use that can be effected/ impacted during disaster. For example, influential social media creators can be influenced from *issue-involvement* and/ or *self-involvement* (Jin & Liu, 2010). In disaster communication, Fraustino, Daisy, Liu and Jin, (2012) defined:

Self-involvement primarily applies to individuals who have direct disaster experience and knowledge (e.g., disaster survivors and disaster response volunteers) or those with personal connections to disaster areas (e.g., those with family members affected by the disaster) (p. 23).

Apparently, social media use has been applied and connected to the user involvement in disaster communication during disaster.

The relationship between the involvement in social media use of disaster communication during disaster framework has been investigated by various researchers Greenwald & Leavitt, (1984), Barki & Hartwick, (2004), Alam, (2002), Kujala, (2003),

Magnusson, Matthing & Kristensson, (2003), Ahmed, (2011), Lindsay, (2011), Fraustino, Daisy, Liu & Jin, (2012) using qualitative, quantitative, and mixed-method approaches. However, quantitative has been considered a better approach to probe into more information. This paper, therefore, aims primarily to investigate the issue of disaster communication: the involvement in social media use during disaster that had been studied using the quantitative approach.

Research Question

This paper addresses the following research question:

RQ1. What issues of the involvement in social media use during disaster have been investigated using quantitative approach?

Methodology

Research design

The method for this paper is document analysis, used to access quantitative approached to explore disaster communication: the involvement in social media use during disasters. According to Wesley (2009) states

“quantitative scholars treat “reality” as something that can be both measured and configured. Real-world observations are converted into numerical form, then manipulated statistically to produce findings. By definition, quantitative analysis requires the “quantification” of the phenomena. Quantitative researchers apply proven statistical formulae, correlation coefficients,

regression analyses, tests of significance, and other mathematical procedures in an effort to reveal the regularities of people life. Findings in quantitative analyses are predicted largely in numerical terms.” (p. 5).

Inclusion Criteria

This paper focuses on using document analysis method. There are ten academic articles selected for this study. The selection was restricted to articles concerning two categories between social media use in disaster response and user involvement. The researcher selected five articles for each topic. The first topic is center on disaster communication of social media use. The second topic is focus on “involvement” as a key element. There are various approaches of involvement terms, but the researcher scopes and frames into a few approaches such as user involvement and audience involvement. These articles on the user involvement of social media for disaster management framework are acquired from Google Scholar site with the specific search of the quantitative methods use.

The researcher selected the studies that explored user involvement and social media use for disaster management during the past five years 2008-2012. However, the researcher could find only article published between 1984-2005. Since the user involvement key factor have been majored in many research during those years i.e. “Measuring User Participation, User Involvement, and User Attitude” (Barki & Hartwick, 1994).

The selected articles provide framework of both quantitative and qualitative design that are commonly used for investigating the involvement in

social media use during disaster. The document analysis is essential to classify the issues of involvement in social media usage and prove to be effective in determining the underlying issues in the said topics. In brief, document analysis in this study helps interpret the quantitative methods commonly used for investigating on the involvement in social media use during disasters issue.

Results

In this study, ten articles are grounded in the user involvement in disaster communication of social media use during disaster situations. Out of ten reading articles, the researcher divided half of reading articles into two main topics. From the first five articles of social media use, case study and document analysis methods are mainly employed. For the second half of user involvement articles, survey questionnaire is a major method. The other methods of reading articles included are semi-structured interviews, focus groups, and experimental.

For the first five articles, the main topics are social media use in disaster situations. Out of five reading articles, case study and document analysis methods are used the most. Four articles applied both case study and document analysis methods. As the example of Fraustino and colleagues (2012) that used many disaster cases such as Terrorist Attacks 9-11, Tuscaloosa and Joplin Tornadoes in 2011, and Hurricane Sandy in 2012 to include in the study as they analyzed how social media were used during those disasters. Only one article by Ahmed (2011) did not use a case study but interesting method of the qualitative design

was applied. The research explored two methods which Ahmed (2011) used, the semi-structured interviews and focus groups, and used NViVo to analyze the qualitative data. However, the first five articles use qualitative design and apply using multi-methods in the research.

As for the other five articles, the topics are based on a key context of “involvement” that construct in field of communication-related. Five research articles present both quantitative and qualitative methods. Five articles mostly use survey questionnaire method. A cross-sectional survey is most developed to cover many areas in the research by Barki & Hartwick (1994); Kujala (2003). For example, Barki and Hartwick (1994) used two questionnaires in the study as they surveyed pre-development and post-implementation of user involvement. Next, experimental is applied by two articles of Alam (2002), and Magnusson, Matthing, & Kristensson (2003). However, this can conclude that more research rely on quantitative design than qualitative. Only one articles by Alam (2003) that used mixed-method approach in the research. Alam (2003) included both qualitative and quantitative, which they were surveys, experiments, and case study.

To conclude, the researcher found that both qualitative and quantitative designs are highlighted as the major methods in exploring disaster communication: the involvement in social media use during disasters. Hence, mixed-methods are sufficient as a basis substantial approach in understanding issues regarding the involvement in social media use during disaster and for disaster management.

Discussion and Conclusions

This study has primarily employed a document analytical method to explore the quantitative studies investigating the relationship between the involvements in social media use of disaster communication during disaster. A major assumption is that the functions of quantitative approach suitable to probe such issues for more information and better understanding.

As noted above, in method section, there are two main subjective topics that in this study has been together focus on. The first topic mainly talks about disaster communication of social media and for disaster management. With this topic, most researchers use case study and document analysis methods in order to probe in-depth information of disaster phenomenon.

Case study and document analysis methods are suitable using in this case even though this paper focuses on quantitative method approach. The strength of using the case study method is to have a thoroughly investigated insight with a thick description with which to help the researcher understand the context and facilitate in-depth analysis (Yin, 1989). Especially, the interrelationship between the involvement in social media use during disaster. As McCracken (1988) defined, the qualitative method sought for correlating relationships between categories. However, the purpose of qualitative and case study method in this regard is to help a better understanding of disaster events. Therefore, case study and document analysis methods are appropriate sought to explore such issues.

The second topic is focus on “involvement” as a key term, as specifically “user involvement” conceptual is framed to be base in the reading articles. Under the involvement topic, most researchers mainly suggest quantitative method to be used in order to probe and examine the effect of user involvement. Especially, survey questionnaire is the most important method that most researchers had applied. This is because surveys can cover many approaches. According to Kujala (2003), a cross-sectional surveys in the study were “closely linked and most of the approaches ...that include a rationale explaining” why and how to involve users (Kujala, 2003, p. 3). Therefore, survey questionnaire in this study can reveal the importance of using method in regards issues of disasters.

Although quantitative approach is purposed as a prime method in this study, but post-review is depicted that both quantitative and qualitative methods equally play together. As case study and document analysis methods support the studies that show more the important results in researchers’ investigation. At the same time, survey questionnaire method also aids the studies that show more effective findings in many studies. Hence, using mixed method (quantitative and qualitative) is qualified and appropriate to explore in the issue of the involvement in social media use of disaster communication during disasters.

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