

## **Involvement of Social Media in Disaster Management during the Wenchuan and Ya'an Earthquakes <sup>1</sup>**

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### **Abstract**

Social media is being increasingly utilized in disaster relief work to identify safety issues, locate displaced-victims, and seek or provide support for those who need help. The presence of social media in disaster management has changed significantly in recent years, as it was not prevalent in the 2008 Wenchuan earthquake, but had become a powerful force in the 2013 Ya'an earthquake. This paper discusses the development of social media in disaster management via making a comparison between how it functioned in the two earthquakes. It examines the following aspects: who are the stakeholders that use social media in the earthquake management; how do they adopt this means in response to the earthquakes; and what are the outcomes of adopting social media with regards to public engagement and collaboration in an emergency event. As Sina Weibo acts as the equivalent of China's Twitter, the methodology relies on an analysis of posts in Weibo. The outcomes primarily show that: (1) authorities, celebrities and the public actively adopted social media for the purpose of information dissemination and resource mobilization; and (2) social media users are both content consumers and content generators in the times of earthquakes. The study concludes that social media as a backchannel communication tool is helpful for government institutions, corporations, and nonprofit organizations to build relationships with their stakeholders in the disaster management cycle. The result will interest academics and emergency management practitioners who are concerned with improving disaster communication.

*Keywords:* Social Media, Disaster Management, Micro-blogging, Weibo, Earthquake.

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<sup>1</sup> This study is funded by "The Project Sponsored by the Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry" (2103[693]).

## **Introduction**

The most recent 6.5-magnitude earthquake striking southwest China's Yunnan province on August 3, 2014 resulted in a death toll of 617, while a further 112 people remain missing and 3,143 were injured by August 8 (Xinhua, 2014). This catastrophe brings the attention to the claim that China is a country prone to a variety of natural disasters. Storms, floods, and earthquakes have dominated other types of natural disasters with the occurrence of 200 storms, 188 floods, and 98 earthquakes from 1980 to 2010 (The United Nations Office for Disaster Risk Reduction). Droughts, floods and earthquakes cost China 421 billion yuan (\$69 bln) in the year 2013 (Reuters, 2014). Earthquakes, however, are considered to be the most damaging type of disaster. According to China's Ministry of Civil Affairs, there were 21 earthquakes ranging between M5.0 and M8.0 in the first six months of 2013. The Ya'an earthquake (Lushan earthquake) occurred on April 20, 2013 in the Sichuan province with a magnitude of 7.0 and killed over 196 people, injured 13,384, and affected 2.31 million. It cost China about 100 billion yuan (Li, 2013). Five years before this, the 2008 Sichuan earthquake (the Great Sichuan Earthquake, or the M7.9 Wenchuan earthquake) struck China, and was the most damaging earthquake since the M7.8 Tangshan earthquake in 1976. The numbers who died or were missing because of this earthquake was approximately 88,223, with approximately 374,171 injured, and the economic losses reaching 850 billion yuan (Zhao, Li, & Liu, 2009).

Earthquakes are highly likely to occur unpredictably and swiftly without sufficient warning and preparation. They affect a large number of people and causes a huge loss of human lives and resources. The public, therefore, requires up-to-date and free flowing information for the purpose of remaining informed about evacuation and other support activities. Social media on the basis of its convenience and interactivity serves as a popular and efficient means of disaster management. This study, hence, explores the role of social media in disaster management, and in particular investigates how the stakeholders utilized social media in the Ya'an earthquake and the Wenchuan earthquake.

## **Disaster Management and Social Media**

A disaster refers to a “serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources” (National Science and Technology Council, 2005, p. 21). Disasters can be differentiated from crises by the fact that disasters are normally community-based, but crises are organization-based (Seeger, Sellnow, & Ulmer, 1998). Disasters could result in crises, which can be managed providing that the public is concerned about the approaches that organizations undertake to manage the disasters (Coombs, 2010). There are two categories of disasters, consisting of natural and manmade (technological) disasters. Natural disasters are caused by natural forces, such as earthquakes, floods, hurricanes, typhoons, fires, tsunamis, or volcanic eruptions. Manmade disasters take place as a consequence of human activities, including war, explosions, fires, the release of toxic chemicals or radioactive materials, bridge or building collapse, or nuclear reactor accidents. According to Fraustino, Daisy, Liu, and Jin (2012), disaster communication involves the flows of information about the disaster between the public, governments, emergency management organizations, and disaster responders; and the reporting of disaster information between journalists and the public. Disaster management, termed as emergency management, commonly consists of four stages: mitigation, preparedness, response and recovery (Green, 2002; Waugh, 2000, as cited in Altay & Green, 2006).<sup>2</sup> Disaster response means “the employment of resources and emergency procedures as guided by plans to preserve life, property, the environment, and the social, economic, and political structure of the community” (Altay & Green, 2006, p. 480). Accordingly, disaster communication could be described as the ways that disaster information is communicated in the different phases of an emergency event.

Social media is known as a number of Internet-based applications that enable people to communicate and share information, despite the fact that the definition of the term “social media” is not standardized. According to Kaplan and Haelein (2010, p. 61),

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<sup>2</sup> Mitigation involves measures that either prevent a disaster from happening or reduce the damages led by unavoidable emergencies; preparedness is the activities that aim at enhancing a community’s ability to respond to a disaster; and recovery is relating to long-term actions taken to return the community to normal or near normal conditions (Altay & Green, 2006).

social media is “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content.” The term Web 2.0 was first used in 2004 to describe the way software developers and end-users started to use the World Wide Web; and as a result, content and applications are created and published by all users in a participatory and collaborative manner rather than by particular individuals (Kaplan & Haelein, 2010). The term User Generated Content was popularly coined in 2005, referring to various forms of media content that are produced by end-users and publicly accessible (Kaplan & Haelein, 2010). Social media can be classified into six categories, comprising social networking sites (e.g., Facebook and Twitter), collaborative projects (e.g., Wikipedia), blogs, content communities (e.g., YouTube and Flickr), virtual game worlds (e.g., World of Warcraft) and virtual social worlds (e.g., Second Life) (Kaplan & Haelein, 2010). Users are able to access social media applications via computers, tablets, smart phones, and mobile phone text messaging.

The use of social media has become widespread and is gaining increasing prominence in disaster management. This platform creates opportunities for message consumers and creators to establish timely, two-way and wide-scale communication and dialogues (Seltzer & Mitrook, 2007; Taylor & Perry, 2005; Wright & Hinson, 2009, as cited in Fraustino et al., 2012). It performs as “back channels” of communications to interact with official disaster management messages distributed via traditional media. Backchannel communications, in contrast with the official or “formal” communications, are characterized by unofficial sources and peer-to-peer (P2P) communications; and “They are becoming adopted as useful, viable sources of information not only by at-risk populations, but also by conventional media and some emergency management personnel-actors that traditionally comprise the ‘front channel’” (Sutton, Palen & Shklovski, 2008, p. 6). Social media functions as back channels of communications through two areas: It is replacing traditional media outlets to become the first option for the public who are searching for up-to-date emergency information, and it feeds into the broadcasters through providing information earlier than that supplied to them via official channels (Mersham, 2010). The emergence of social media use is introducing changes in the official-to-public information dissemination model, as well as in the institutional and organizational arrangements of disaster management (Sutton et al., 2008).

Recent research concentrates on how and what motivates the stakeholders to adopt social media in disaster management. Lindsay (2011) evaluates the use of social media in disaster management on an organizational level, and finds out that it happens on two occasions. The first one refers to passive use of social media by most emergency management organizations to disseminate information and receive user feedback via messages, wall posts, and polls. The second is to use social media systematically as an emergency management tool in order to produce event awareness and warnings; to receive victim requests for assistance; to oversee user activities and postings so as to provide ongoing situational awareness; and to upload images or other types of texts so as to create loss estimates. Regarding social media use on an individual level, Jin and Liu (2010) suggest that three types of motivations can trigger individuals to rely on social media use, which are issue relevance, information seeking and sharing, and emotional support.<sup>3</sup> Based upon empirical relating studies, the primary roles of social media in disasters could be summarized as information dissemination and resources mobilization (e.g. Tseng, Chen, & Chi, 2011; Peary, Shaw, & Takeuchi, 2012). As a consequence, social media applications are believed to be able to facilitate disaster management via resolving complicated issues in a collaborative approach (Underwood, 2010; Tseng et al, 2011).

### **Social Media in China**

Chinese Internet users establish social connections, get involved with public affairs, and follow celebrities via social media devices. The popular foreign social media applications (e.g. Twitter, Facebook, Youtube, Vimeo, and Google Docs) are blocked in the Chinese social media landscape. Domestic social media platforms, however, are widely used among the Chinese, which comprise blogging platforms (e.g. [blog.sina.com.cn](http://blog.sina.com.cn), [blog.sohu.com](http://blog.sohu.com), [hi.baidu.com](http://hi.baidu.com)), BBS (e.g. [bbs.sina.com.cn](http://bbs.sina.com.cn), [tianya.cn](http://tianya.cn), [bbs.qq.com](http://bbs.qq.com), [club.sohu.com](http://club.sohu.com)), social networks (e.g. [renren.com](http://renren.com), [douban.com](http://douban.com)), and micro-blogging services ([weibo.com](http://weibo.com), [t.sohu.com](http://t.sohu.com), [t.qq.com](http://t.qq.com)). Micro-blogging services have started to dominate other social media applications since late 2009. Sina Weibo

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<sup>3</sup> Issue relevance means that social media followers are interested in the topics generated by influential social media content creators; information seeking and sharing refers to the following that social media followers look for information that is not displayed by other public channels, and share this information with others; and emotional support is described as the situation in which social media followers adopt social media applications to seek emotional support in the post-disaster period (Jin & Liu, 2010).

(Weibo), known as China's Twitter, is considered to be the largest and the most influential micro-blogging tools in China. The site is well-known for releasing breaking stories and political commentary, and boasted over 61.4 million users by the end of December in 2013 (Reuters, 2014).<sup>4</sup> Users are allowed to post text messages with a 140-character limit, and/or attach images, videos, voice, music, and links; talk to other people, comment on or repost other users' posts, and follow discussions of chosen topics. The majority of Weibo users are well-educated Chinese and white-collar workers with three dominant age groups, including under 18, between 18 and 25, and between 26 and 35 (Fischer-Schreiber, 2012). Celebrities from film to sports and intellectuals have opened accounts on Weibo to express and exchange their views on social affairs or disclose their personal stories.

As Chinese users increasingly adopt Weibo to participate in social affairs, individual officials, government at all levels, and conventional media institutions have rushed to set up their own Weibo accounts in order to distribute messages and engage the public in conversations with the authorities. Official micro-blogging accounts have experienced a rapid growth since 2010, and the number of verified government users of Weibo reached 60,000 by October 2012 (Lin, 2012). They are registered and managed by a variety of authorities, such as government and party administration, legal enforcement, or state-owned media. In the meantime, a number of policies are launched by the Chinese government to supervise online content on Weibo, including Real Name Policy, Blacklists, Search Censorship, and Tweet Censorship.<sup>5</sup>

### **Methodology**

Content analysis involves structuring texts into a variety of categories by taking into account a variety of shared properties. This research method can be applied qualitatively and quantitatively. A qualitative approach pays attention to decoding

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<sup>4</sup> Weibo is now facing competition from Wechat, another Chinese mobile messaging service launched by Tencent Holdings Ltd. The user numbers for Chinese microblogs, including Sinaweibo, have decreased 9 percent in January 2014, as users flocked to WeChat (Reuters, 2014).

<sup>5</sup> Real Name Policy requires users to use their credential identity including their legal name to the network service center when signing up for a Weibo account. Weibo's blacklist contains words and URLs that are not permitted in tweets. Search Censorship means that users are not allowed to search for posts containing sensitive keywords via Weibo. Tweet Censorship means that tweets on Weibo containing sensitive topics, abusive language, pornography or rumors can be deleted (Chen, Zhang & Wilson, 2013).

embedded intentions of the content or its effects on the audience (Berelson, 1952) with the focus of gaining theoretical significance of the research (Fields, 1988). In contrast, a quantitative approach is useful to map features of a large body of texts and chart a long-term change in media coverage, which aims at revealing statistical significance of the research (Fields, 1988).

This study used a qualitative content analysis approach through collecting and analyzing tweets and comments from active Weibo users during the earthquake period. It looked for theoretical instead of statistical significance, and hence, did not aim to generalize the outcome in a statistical sense. As discussed, earthquakes are regarded as the most damaging type of disasters in China in which stakeholders look for real time and free exchange of information on emergency status, and social media meets this need in disaster management. This study, therefore, investigated how stakeholders adopted social media in the response phase of earthquake management. Since Weibo is the largest and most influential micro-blogging services in China, this study mainly examined posts on Weibo rather than QQ or Sohu. It focused on the ways that Weibo users reacted to the 2008 Wenchuan and 2013 Ya'an Earthquakes, which resulted in the biggest loss of human lives and resources in China since the 1976 Tanshan Earthquake. The study aimed to resolve the following research questions:

**RQ1:** What were the stakeholders that used Weibo in the earthquake management?

**RQ2:** How did they adopt this means in response to the earthquakes?

**RQ3:** What were the outcomes of utilizing social media represented by Weibo with regards to public engagement and collaboration in an emergency event?

### **Findings**

In terms of the first research question, the findings show that the stakeholders during the two earthquake periods included, but were not limited to, the authorities, the public, and celebrities. The authorities referred to governmental organizations and traditional state-owned media; the public basically meant Internet users, which could be volunteers, victims, civilians or non-governmental organizations; and celebrities were mostly

entertainment stars. The following section illustrates how these actors utilized Weibo in the response phase of earthquake management, which is relating to the second research question.

### **Authorities**

Official micro-blogs were largely used by authorities in keeping the public informed about the earthquakes. They tended to communicate emergency information faster than traditional media. At the same time, traditional media outlets adopted Web 2.0 and syndicated their content on popular social networks through the creation of official micro-blogging accounts and fan pages. For instance, Xinhuanet.com and CCTV.com, the official websites of Xinhua News Agency and CCTV, frequently released reports on casualties, epicenter, magnitude and longitude of the earthquakes, and evacuation progress. The coverage was displayed on the front pages of the websites in addition to a variety of investigative journalism and discussion forums. In comparison to traditional media that utilize a strict news-making system to produce news, social media are able to deliver emergency messages to the online community straightaway. This enabled the public to retrieve real-time reports as the events unfolded.

The Wenchuan earthquake struck China on 14:28pm, May 12, 2008. The first medium responding to this quake was not any micro-blogging services or traditional media outlets, but Xinhuanet.com, which is sponsored by the Xinhua News Agency as the information center of the Chinese central government. It published that "M7.6 Earthquake Hits the County of Wenchuan in the Sichuan Province," 17 minutes after its outbreak. In contrast, the traditional media reacted to this event at least 16 minutes slower than Xinhuanet.com. For instance, CCTV News Channel broadcast this breaking news on 15:02pm, and Voice of China run by China National Radio on 15:03 pm, both of which were not as fast as the way Xinhuanet.com responded. The research did not find any official micro-blogs delivering earthquake messages at this stage.

The prompt response to disasters via the Weibo platform became evident during the Ya'an earthquake. According to the report conducted by Pangu Search Engine (2013), a total of 14,767,221 messages were released in the first 24 hours after the quake's occurrence via micro-blogging services, blogging platforms, BBS, and news

websites. The messages delivered through micro-blogging services accounted for 59%, which was 25 percentage points more than those through news websites (34%). When this disaster jolted Sichuan's Ya'an city on 8:02am, April 20, official micro-blogs released this information just one minute after the earthquake occurred. The "@China Earthquake Networks Center Report (CENCR)," the official Weibo account of China Earthquake Networks Center (CENC), announced at 8:03am that "CENC detected an approximately 5.9 magnitude earthquake (longitude 30.1, latitude 103.0) near Ya'an's Yuchun area in Sichuan province. More reports are coming soon." It became the medium that reacted quickest to this earthquake. Simultaneously, at 8:04am "@Chengdu Business Daily," the official micro-blogging account of the local newspaper Chengdu Business Daily (CBD), documented that "A strong earthquake hits Sichuan," and Xinhuanet.com reported this earthquake on 8:08am. At 8:14am, CENC wrote the second post on a detailed description of the earthquake that "CENC detects that a M7.0 earthquake hits Lushan county of Ya'an city in Sichuan province at 8:02am, April 20, with longitude 30.3, latitude 103.0, and depth 13km." At 8:29am, the China International Search and Rescue Team posted on Weibo, suggesting victims were communicating with the team with regards to their location and damage that they had witnessed via mobile phones. This message was reposted more than 465,649 times and received 51,041 comments. Other official micro-blogging accounts, such as "@Government Affairs Service Center of Ya'an City People's Government," "@Sichuan Press Release," "@National Bureau of Statistics of the People's Republic of China-Ya'an Investigative Group," "@Sichuan Transport," "Sichuan Weather," and "@Sichuan Communist Young League," also served as vehicles to assist the process of disaster management by governmental authorities.

In contrast, traditional media's reaction to this tragedy was much slower. Sichuan Satellite TV did not start running programs relating to the earthquake until 10:30am, which was nearly one and a half hours after the quake occurred. The satellite TV channels in other provinces were all broadcasting programs irrelevant to the event. In the meantime, traditional media outlets made efforts to integrate with micro-blogging services in order to provide better coverage. For instance, it looked for newsworthy sources originating from official micro-blogs. CENC's tweet at 8:14am in relation to the accurate details of the disaster was re-posted by official micro-blogs of traditional

media numerous times. A post capturing “A truck driving rescue workers falls off the cliff” released at 12:55pm, April 20 was re-tweeted over 28,000 times with more than 3,000 responses. Within half an hour, traditional media got involved to verify this incident. Reportedly, this incident was due to the fact that the truck tried to give way to a private car, and consequently, one rescue worker died, and another died on the way to the hospital.

### **The Public**

Sutton (2008) notes that disaster management planning and policy implementation usually concentrate on the role of official response and their management of public-side activities rather than the public’s spontaneous participation in rescue and relief work. The public, however, make quick “on the spot” decisions and use whatever is available to help with rescue activities (Tierney, et al.; Kendra & Wachtendorf; Palen & Liu, as cited in Sutton et al., 2008). They rely on their social networks to seek and provide information outside official channels to aid the decision-making process (Mileti, et al., as cited in Sutton et al., 2008). Hence, how the public reacts to earthquakes via micro-blogging services raises attention in this research. The findings showed that the public were driven to use micro-blogging services in order to search for information on the earthquakes, to get in touch with friends and family who were affected, to seek support from others, and to monitor rescue practice and online content or behaviors. As micro-blogging platforms give them freedom to create contents in a combination of video, audio, and written texts, the users have shifted their role from content readers to content generators.

During the Wehchuan relief mission, Chinese netizens made great use of Weibo. Local eye-witnesses documented this tragedy on the social media service before traditional journalists arrived to cover the event. QQ Love Wall was a virtual wall set up by Tencent Inc for the netizens to make notes on to express condolences to the dead and encouragement to the living. A board named “May 12 Sichuan Earthquake, Lost Searching and Support Providing” was set up online by the Sohu Club for users to look for assistance in searching for friends and family suffering from the earthquake.

The power of Weibo in response to disasters was fully demonstrated in the Ya'an earthquake. When "@CENCR" released the first post one minute after the earthquake hit Ya'an, Chinese users flocked to micro-blogging tools to tweet about the breaking news. They discussed things happening during the earthquake and fundraising campaigns.

Firstly, the public sought the latest information on the abrupt emergency via Weibo. By 5pm the day of the earthquake, a total of 64 million messages had been posted in reference to CENC's original Weibo 8:03am post, including 2.3 million posts searching for the status of the people affected by the disaster and 10 million posts exchanging information on the safety of the people (Want China Times, 2013).

Secondly, Weibo served as a lifeline for the online community or affected individuals to request rescue support. A post written by the Weibo user known as "meaningless wordless (批话多)," saying that a person was pinned under a collapsed wall, attracted lots of attention online. This post was forwarded nearly 10,000 times and received over 2,000 comments. Another post distributed by "N\_insanity" narrated that scores of people trapped under debris were looking for help via the Internet as phone services were cut off. This message raised the attention of netizens and the media, being reposted over 60,000 times with over 4,000 comments. In addition, a number of leading Internet companies, such as Google, Baidu, Sohu, and 360 Search, set up "People Finder" boards shortly after the quake to assist the disaster management.

Thirdly, volunteers used Weibo to offer rescue assistance. Weibo user @Zuoyeben (@作业本), posted that:

*"If any of my followers is waiting for rescue or have not been contacted, if you see this tweet, you can immediately send me a message via micro-blogs, I'll tell you my account and password and you can tweet rescue message from my account (as cited in Hui, 2013)."*

Fourthly, the public monitored rescue practice and inappropriate content or behaviors via online public sphere provided by the micro-blogging services. For instance, some users questioned whether public donations would reach the people affected by the earthquake. Other users criticized China's control over traditional media in disaster coverage, and asked journalists to provide truthful coverage instead of becoming the

mouthpiece of the government. With regards to People's Liberation Army units assigned to assist in rescue operations in the earthquake zone, Ye Gongmo (@叶恭默), noted that:

*The primary mission of the army and police is to control the site and monitor the situation, search and rescue come second. First of all, [the government] is worried that the anger would shift and the situation would spiral out of control; secondly, they are afraid that civil society would develop; thirdly, they can gain valuable moral authority through search and rescue efforts; and fourth, they can bury the evidence of potential official wrongdoing that may have exacerbated the destruction caused by the natural disaster (as cited in Hui, 2013).*

## **Celebrities**

Many celebrities are dedicated to disaster relief and humanitarian work. They relied on their fame and influence to reach out to fans and the public so as to promote awareness of the emergency situation. Hence, how celebrities, as one of the stakeholders independent of the authorities and the public, used social media during the periods of the earthquakes became one of the focuses of this research. The analysis of Weibo's posts found that Chinese celebrities frequently updated their bulletin boards in the times of the earthquakes, in which the messages concentrated on four areas: to express words of comfort to the casualties, to motivate followers and Internet users into giving support for the victims, to share experience in aiding the relief operations, and to shape public opinion.

In the Wenchuan earthquake, Ziyi Zhang, a Chinese film actress and model, wrote in her blog on May 15th and 16th to give her voice on the disaster and to raise funds for the earthquake relief. Hanhan, a Chinese professional rally driver, best-selling author, singer, and China's most popular blogger, used his Weibo account to notify the public with regards to the emergency status. He informed the public of what was needed in the disaster zone, and asked the public not to enter the quake site in order to avoid causing traffic and blocking the road, which could stop rescuers from entering the site. This post was read by 1.6 million netizens, and induced more than 20,000 comments.

Following the Ya'an earthquake, there were a growing number of celebrities adopting Weibo to assist in the rescue efforts. Li Yuchun known as Chris Lee, a Chinese pop singer and actress, donated 300,000 RMB to Ya'an, and posted on Weibo to provide strong moral support for the people subjected to the tragedy:

*I haven't logged onto Weibo in three years. Today I want to use this platform to pray for my hometown! Because I am from Sichuan, strength flows through my blood. No matter how heavy the disasters may be, I believe in the tenacity of my hometown's fertile land, and in the optimism of my hometown's people. We can definitely get through this crisis together! At the moment, I can do too little, so I entrust my hometown's Chengdu Business Daily to bring my donation of 300,000 RMB directly to Ya'an. I hope that the intention behind my meager contribution can immediately transform into something that the victims most need. Sincerely praying for blessings, Heaven protect Sichuan! (as cited in Jo, 2013)*

Some celebrities constantly presented their views through Weibo to guide public opinion, which helped relief works go according to plan. He Jiong, an anchor, singer, and actor, articulated that actions of assistance speak louder than words of complaints. He mentioned the following in his Weibo account:

*If you're like me and can't go to the scene to rescue our compatriots, and can only be concerned from a distance, then please do less scolding and suspecting, less complaining and bad-mouthing. When our compatriots run into misfortune, they need more support and warmth. Our combined encouragement will be a great power. What little we can do, at least we can give this (as cited in Jo, 2013).*

With enterprises and individuals making generous donations to the victims, the amount of donations given by institutions and individuals were ranked. Sina Finance ran and updated the ranking on a daily basis. As a consequence, public opinion online suspected that donation turned into competition, and enterprises and individuals took advantage of donation to advertise themselves. Regarding this issue, Chen Kun, a Chinese actor and singer, posted that a donation is supposed to be viewed as an

approach to express our support and sympathy to the victims, rather than as a means to show off wealth and status or to practice other intentions via competing for the amount being donated. Chen Kun wrote on his Weibo as below:

*Please do not use the sum of donations to weigh benevolence. For every question of right and wrong, there will always be a test and opportunity to examine the kindness of your own heart. Observe yourself more, and don't inspect other people. Only a solidification of benevolence can bring good fortune to others. If we make a vain attempt to turn kindness into a decoration, you will miss out on the chance to your own kind heart, even if you stick [decorations] all over your body! Be prudent! Don't forget, pure kindness has nothing to do with numbers. Those who donate 1 RMB and those who donate more have the same benevolent heart! (as cited in Jo, 2013)*

Other stars who donated to disaster relief operations included, but were not limited to, Xiaoming Huang, Bingbing Li, Vicki Zhao, Sally Jing, and Cecilia Cheung.

## **Discussion and Conclusion**

The findings of this paper display that social media use in disaster management has advanced rapidly during the five-year period between the Wenchuan and Ya'an earthquakes. The year 2008 when the Wenchuan earthquake took place, could be viewed as the breakthrough year when micro-blogging services started to become a tool used by the public to get involved with social affairs and raise social concerns. Traditional media, however, still dominated the coverage of this tragedy during that period of time. In the five years since then, micro-blogging services have taken over the control by traditional media and become a powerful force in the Ya'an earthquake. This means was adopted by a wider scale of actors in the 2013 Ya'an than the 2008 Wenchuan earthquakes. To be specific, the utilization of micro-blogging services by the authorities, which was almost absent in the Wenchuan quake, became prevalent during the 2013 quake. The remaining stakeholders, such as the public and celebrities, were active in using social media in their response to both disasters. With the reliance on this medium, all actors were able to seek and share information, to check in with family or

friends, to offer support to victims and evacuation work, and to supervise rescue practice in the disaster response period.

As demonstrated above, authorities and celebrities opened themselves up to the public by having a Weibo online presence to disseminate information on the quakes and to provide rescue work and support, which in turn improved the public perception of the events. Simultaneously, the public were actively engaged in the earthquake relief process via the same platform in terms of safety information, rescue actions and donations. In the meantime, news-worthy information distributed by actors, including the public on Weibo, triggered news-gathering agendas for traditional broadcast and print media, while the traditional media outlets were involved to verify the news reported on social media. Consequently, the dialogue between authorities, celebrities, and the public, in addition to the interchange of public discourse on Weibo and on traditional media, was reinvented. The public, who were information receivers in a traditional media landscape, have “transformed themselves from content disseminators into active rescue and relief workers” (Morales, 2010, p. 23). The communication mode between power and the public in disaster management, as a result, has shifted away from being a one-way to being a two-way communication process in today’s social media dominated landscape. This research outcome is consistent with the study by Bortree and Seltzer (2009) that social media allows two-way communications and interaction among organizations, the public and individuals; and exemplifies the discussion above that social media is characterized by user generated content and back channels of communications. Therefore, regarding the third research question, this study proposes a two-way communication mode in which disaster information flowed interactively between all communicating actors in a social media presence. It draws the conclusion that utilization of social media has the potential to greatly enhance the public engagement and collaboration in an emergency event, and to establish cooperation between authorities, the public and the third party, such as celebrities.

Although Weibo as an advanced communication means enables users to develop and publish content on their own, and has a certain level of self-policing, it could be used to lie or spread rumors, or to create widespread panic and chaos in disasters. There were users who wished that the earthquake could attack their areas, or

pretended to be victims by lying that they were in great need of help, or who set up fake fundraising accounts and created misleading information in order to receive donations. This research outcome presents evidence to the opinion of Mersham (2010) that social media as a means of backchannel communications is viewed as being likely to spread misinformation and rumor and so threaten public safety. Apart from that, users restricted by the 140 character limits in Weibo posts have difficulty wholly communicating complicated information and filtering and identifying valuable information from a huge amount of tweets. Despite the concerns about legitimacy of information flowing via this medium, the advantages of social media use in disaster management outweigh its disadvantages.

This study is limited by the fact that it was based upon a qualitative research approach, which did not generate any statistical significance. It, however, does provide an insight into how actors in China have adapted to the emergence of social media, and taken advantage of this tool in disaster response. Future research into social media use in the remaining stages of disaster management, such as mitigation, preparedness, and recovery, in addition to the ways that this medium could strategically be incorporated with conventional communication modes such as traditional media (e.g., newspaper, TV, radio) and word-of-mouth (e.g., phone calls, face-to-face, group) would present a comprehensive view on how social media could be further utilized to enhance emergency event management.

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Date of the submission: 2014-08-12  
Date of the review result: 2014-08-20  
Date of the decision: 2014-08-25