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Based on a comparative approach, this article reports content analyses of news articles about a devastating earthquake that occurred in Sichuan province, China, from six Chinese newspapers, indicating that the Chinese media, in reporting the government's emergency responses, had many similarities with the American media's coverage of Hurricane Katrina in 2005. Further comparisons, however, suggest that the claim of a 'watchdog' media culture during disasters, as measured by the frequency of media accounts of the government's responsibilities, is still relatively premature in China. Moreover, party-controlled and market-oriented media in China had different focuses in their coverage of natural disasters. The market-oriented media played an important role in making the Sichuan earthquake more transparent and the authorities more responsible. Provincial media in China may be less regulated by the central government and are in a good position to cover sensitive stories outside their own province. But they will not have a long-term impact without an overall government policy of open information and media deregulation. By contrast, fewer variations in story focus were observed in the American media, and the overall difference is relatively limited.

Keywords: risk; crisis communication; media reporting; Sichuan earthquake; Hurricane Katrina; China; USA; comparative study

Introduction

Communication scholars and emergency managers have recognised the capability of the mass media to act as a key channel for disseminating risk messages and emergency information before, during, and after a catastrophe (Lowrey *et al.* 2007, Tulloch and Zinn 2011). Citizens who are being exposed to external hazards expect timely and accurate information from authoritative sources in order to make informed decisions, make prompt responses, and maintain a higher level of personal safety and well-being. In this context, the World Health Organization has issued guidelines for 'effective media communication,' through which the authorities are able to disseminate information to the public (World Health Organization 2005).

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However, though the role of the mass media during disaster is acknowledged, paradoxically, the news media are frequently criticised for misleading reports, being sensational (Glik 2007) and underestimating their own negative impacts (Lowrey *et al.* 2007). For instance, media coverage of disasters has been found to report 'disaster myths', positing exaggerated representations of irrational human responses, such as large-scale panic, looting, criminal activities, and antisocial behaviour (Tierney *et al.* 2006). Liu (2009) suggests that the main emphases in the press statements of the emergency agencies are usually not covered by the mass media. These disparities between the mass media and the public health agencies may occasionally lead to disputes or conflicts (Lowrey *et al.* 2007) which pose challenges to effective communication during a crisis. There is a need to understand the diverse ways in which disasters are represented in the media and to explore the underlying determining factors (Glik 2007).

There is a lack of locally relevant and culturally sensitive studies of disaster communication in the People's Republic of China (hereafter referred to as China). According to a worldwide disaster registry (Centre for Research on the Epidemiology of Disasters 2008), only 4% of the global disasters took place in the United States from year 2004 to 2008, whereas more than 11% occurred in China. Despite these statistics showing that disasters occur frequently in China, research on disaster communication has predominately focused on the United States (Vasterman *et al.* 2005). This lack of knowledge may hinder China's effort to develop effective disaster-management strategies.

Media characteristics identified in the Western disaster communication literature may not be replicated in other cultures, and specifically in China. While the variations in media and political environments in America and China are well known, this study aims to examine whether or not these variations are reflected in their disaster reporting. We aim to juxtapose the roles of different types of media in China and their variations, if any, in reporting on disasters.

Media characteristics in China

China is globally ranked as a place where its citizens enjoy the least press freedom (Reporters Without Borders 2007). According to the Constitution of China, the interests of the ruling party, the Chinese Communist Party, can overrule individual's freedom of expression. The mass media in China are known to serve as the mouthpiece for the ruling party (Zhao 1998). All Chinese media outlets that are allowed to publish and report news are either directly or indirectly affiliated with the governmental agencies. Moreover, the Chinese government imposes strict media content regulation (Zhao 1998) on the printed press and on the Internet and social media (Fu *et al.* 2010).

However, since the open door policy in 1978, the media market in China has been undergoing rapid transformation toward commercialisation and market-orientation, alongside preexisting vigorous media regulation. Zhang and Fleming (2005) asserted that all media content in China, ranging from politically sensitive stories to news reports of public health hazards, was 'controlled, delayed and dysfunctionally underreacted to by the party-government'. Chinese media reporting during disasters are often strictly controlled. One example was the SARS (Severe acute respiratory syndrome) outbreak in 2003 (Abraham 2007).

Sichuan earthquake

On 12 May 2008, a severe earthquake, measuring 8.0 on the Richter scale, occurred in Sichuan province, China, with the epicentre located at Wenchuan County. According to the figures released by the Sichuan provincial government, 68,712 people were killed and 17,921 were missing. Almost 46 million people were injured or affected. The total monetary loss was estimated at more than US$30 billion.

Nevertheless, the Chinese government's immediate reaction to the media, shortly after the Sichuan earthquake, was drastically different from the past heavy-handed approach. The Chinese government allowed foreign and domestic media to visit the earthquake zones and file detailed reports on the devastation. As a result, images of severely affected regions in Sichuan were broadcast live on state-controlled television channels across the nation and were distributed through the Internet to other countries.

However, such media openness was short-lived. About two weeks after the earthquake had struck, restrictions on media content were enforced after issuing the guidance of public opinion by the central government (22 May 2008). Yet, the unprecedented, but short, period of uncensored mass communication during the disaster has offered us a window of opportunity for investigating the ways in which earthquake-related information was disseminated through the mass media to the public and in particular the survivors in the affected areas. Table 1 shows a chronology of events in relation to the media reporting of the Sichuan earthquake and the governments' responses to the media. This leads to the first hypothesis.

Our first hypothesis is that there was a change in the ways the media covered the Sichuan earthquake before and after the issuing of guidance of public opinion by the central government on 22 May 2008.

Covering disaster using attribution of responsibility framing

Media framing has been extensively used to investigate the ways in which media structures news. Such framing serves to select some aspects of a perceived reality

Table 1. A chronology of events in relation to the media reports on the Sichuan earthquake and the government's media policy.

Date	Event
12 May, 14:28	An earthquake occurred at the Sichuan province with epicentre at Wenchuan county.
12 May, 14:29–14:44	Uncounted messages about the earthquake were posted online.
12 May, 14:46	The Xinhua News agency issued a press release for the earthquake.
12 May, 14:50	The CCTV broadcast the rolling news about the earthquake.
12 May, afternoon	The Propaganda Department issued a directive to restrict journalists from heading to Sichuan.
12 May, evening	China's Premier Wen arrived in Sichuan. Many journalists disregarded the government's directive and rushed to the scene.
15 May	The Propaganda Department ordered the media to stop reporting the incidents of school collapse.
16 May	China's President Hu visited the devastating scenes in Sichuan.
19–21 May	National Memorial Days.
22 May	The central government requested establishing guidance of public opinion.

and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described (Entman 1993). Many studies have investigated the ways in which natural disasters were framed by the mass media. For instance, a study of American newspapers' coverage of the Hurricane Katrina (hereafter referred to as Katrina) (Barnes *et al.* 2008) suggested that media articles mainly emphasised a broader definition of problems that involved government responses and institutional supports, namely thematic frames, while paying less attention to the issues surrounding victims' perspectives and individual responsibilities, namely episodic frames. Choi and Lin (2008) analysed the newspaper coverage of several America hurricanes, concluding that the mass media frequently adopted the 'actions to prevent the risk' frame not the 'expected outcomes of taking actions' frame, suggesting that the former approach may be less effective in convincing people to take preventive actions.

As Vasterman *et al.* (2005) noted 'after a disaster or a risk event occurs, a variety of social actors, including the media, are involved in a struggle to define what happened and why, and what can be expected in the future'. They argued that, consequently, public and media attention to the questions of responsibility often arises. They found that attribution of responsibility framing was prevalent among frames used in disaster media coverage.

Attribution of responsibility framing is conceptualised as an approach to presenting an issue or problem in the media in which, implicitly or explicitly, the media attributes responsibility for the cause of that issue or problem to one or more than one parties and blame the involved parties for taking responsibilities (Semetko and Valkenburg 2000). It is found not only in the media coverage of politics and social issues (Iyengar 1991, Semetko and Valkenburg 2000) but also in the reports of risk, crises and disasters (Kuttschreuter *et al.* 2011).

Media accounts using an episodic frame may encourage people to attribute the responsibility to individuals or groups rather than those structured by a thematic frame (Iyengar 1991). Furthermore, a study of news reports of Katrina found that the federal government was usually identified in the media articles as the major target of responsibility for various issues in relation to disaster management, recovery, prevention or preparation (Barnes *et al.* 2008). Susarla (2003) argued that the use of the blame frame in covering disaster, could escalate risk level in the society and heighten individuals' perception of risk.

In China, previous comparative study found that the use of the attribution of responsibility frame in covering crises or disasters in the Chinese media was less frequent than in other media systems (Beaudoin 2007, Hong 2007). Therefore, we seek to test the second hypothesis as follows:

Hypothesis 2: Chinese media coverage of the Sichuan earthquake exhibited less usage of the attribution of responsibility frame when compared to the America media reports of a US disaster.

Reporting emergency responses and activities

Mass media can play an instrumental role in disseminating and communicating timely disaster-related information to the public and providing essential information about personal protective actions and public safety during an emergency (Lowrey

et al. 2007). Informing the public about the disaster, responses and emergency management plans can help people better understand their risk level, make informed choices associated with personal safety, build trust with the government, and stay calm. While focusing on the governments' emergency responses, the mass media can shape the public perception about risk as well as public policy priorities in relation to disaster management (Barnes *et al.* 2008).

According to emergency management theory (McLoughlin 1985, Burkhart 1991), there are four components for an integrated approach to emergency management. These components include mitigation, preparedness, response and recovery (McLoughlin 1985). They are briefly described as follows:

Mitigation activities attempt to reduce the degree of long-term risk to human life and property from natural or man-made hazards;

Preparedness efforts aim to develop operational capabilities for responding to an emergency;

Response consists of the activities taken immediately before, during, or directly after an emergency that save lives, minimise property damage or improve recovery;

Recovery includes the short-term activities that restore vital life-support systems to minimum operating standards and long-term activities that return life to normal;

However, there are few studies that analyse media articles using this framework. A study showed that American newspapers covered the disaster response and recovery more frequently than the activities of mitigation and preparation when reporting on Hurricane Katrina (Barnes *et al.* 2008). Thus, the third hypothesis we intend to test is as follows:

Hypothesis 3: Chinese media coverage of the Sichuan earthquake had a similar media focus on the disaster responses and activities when compared to the America media reports of US disaster.

Party media vs. market-oriented media in China

A unique characteristic of the media market in China is the coexistence of state-controlled 'party organs' and market-oriented 'mass appeal media' (Chan 2003). Since the beginning of the commercialisation of media market, both types of media have been competing with each other for readers and advertising business. Zhao (1998) described the relationship between them as an intrinsic tension between market logic and traditional state regulation.

Despite being owned and controlled by the state, market-oriented papers in China have become increasingly influential, often acting in the role of 'watchdog journalism' (Zhao 1998, Lee 2000). Departing from mainstream propaganda-oriented media practices, market-oriented papers are characterised by their extensive usage of mass-appeal, reader-oriented, sensational and tabloid-style reporting (Huang 2001). Previous studies show that market-oriented media were more likely to report SARS related articles with attribution of responsibilities frames than did the party media (Hong 2007). Therefore, the last hypothesis focuses on variations in the media characteristics between both types of media.

Hypothesis 4: Party media and market-oriented media in China reported the Sichuan earthquake with different emphasis on the issue of responsibility and on the coverage of disaster responses and activities.

Method

The research was based on a comparison of the US newspapers' coverage of the reporting of Hurricane Katrina with Chinese newspaper coverage of the Sichuan earthquake. For the US part of the study, we use existing data derived from a study by Barnes *et al.* (2008). This focused on four American newspapers, two locally circulated in Louisiana, the Times-Picayune, the Baton Rouge Advocate, and two national papers, the Washington Post, and the New York Times. Barnes and his colleagues analysed all Katrina-related articles for a month from the onset of the disaster (25 August to 25 September 2005). They developed a frame for coding the content of these articles.

We collected equivalent data relating to the Chinese newspaper articles' coverage of the Sichuan earthquake. We selected six newspapers: one national paper (the People's Daily), three Sichuan-based papers (the Sichuan Daily, the Chengdu Commercial Daily and the West China Metropolis Daily) and two province-based papers originating in Peking and Guangzhou (the Peking Youth Daily and the Southern Metropolis Daily).

The People's Daily is a national newspaper that represents the interests of the Chinese Communist Party. The Sichuan Daily is a local newspaper affiliated with the Sichuan provincial government. The Chengdu Commercial Daily and the West China Metropolis Daily are known as two major Sichuan-based market-oriented newspapers. The Peking Youth Daily and the Southern Metropolis Daily are two market-oriented newspapers originated in Peking and Guangzhou, respectively, where the cities are among the most commercialised, vigorous and pluralistic media markets in China (Lee *et al.* 2007).

We collected all six newspapers with earthquake-related articles for a month after the earthquake, (from 13 May to 12 June 2008). Relevant articles were identified using a search in the Chinese language for 'earthquake' from digital newspaper archives. Those articles with the keyword 'earthquake' but not referring primarily to the Sichuan earthquake were excluded. A total of 12,685 news articles were identified.

We recruited two native Chinese coders in China and they were trained by the first author who had developed the coding protocol and the training instructions. We used a training set of articles from Chinese newspapers that were not included in this study. Three rounds of pilot tests were conducted to develop the coders' comprehension of the protocol and to enhance their consistency.

Each Chinese news article was initially coded to record its basic characteristics, including date of publication, name of paper, position (front page, inside front page or inside page), primary source (staff report, news agencies, other media, international media or not mentioned), news genres (news, feature, commentary/editorial, caption story or none of the above), article length (number of Chinese characters), and number of photographs attached.

We adapted a coding frame developed by Barnes *et al.* (2008) using the English version and translating it into Chinese. The translated coding sheet was locally adapted, piloted, and revised to avoid linguistic misconception. Using this frame, we categorised each news article by the nature of emergency responses and activities on the basis of the typology of disaster-management practices: preparation, response, mitigation, or recovery, and by deaths, injuries and destructions. Furthermore, each article was coded by answering the following questions about the issues of responsibility: Was any party identified in the article to take responsibility or

accountability (yes or no)? What was the major target (individuals, non-profit organisations, business or corporations, or local, state, or federal government)? What was the tone of the article (negative, positive, or neutral)?[1]

Quality checks were undertaken to guarantee the quality of coding and the accuracy of data entry. One hundred and fifty-six randomly selected articles from the whole dataset were parallel coded by both coders to assess inter-coder reliability. All variables with manifest nature reached 100% or close to 100% of agreement. Percentage of agreement and kappa coefficients (in brackets) of other latent variables were listed as follows: primary source, 80% (0.6); news genres 76.4% (0.52); emergency responses and activities, 60% (0.51); taking responsibility 99% (0.66). Kappa coefficient, known as the worst case value of agreement in the assessment with multiple observes, ranging from 0.4 to 0.6 could be considered as moderate agreement (Landis and Koch 1977). Overall, the inter-coder reliability could be regarded as acceptable.

Results

Hypothesis 1

Among the 12,685 Chinese news articles collected, 181 were stories related to the issue of responsibility, and of those articles 157 (86.7%) were positive or neutral tone and 24 (13.3%) were negative. Table 2 presents the change in tone of articles associated with taking responsibility before and after 22 May 2008. When comparing the frequency of stories between 13 and 22 May and between 23 May and 13 June, there was a statistically significant drop in negative-tone articles and an increase in neutral-tone articles, $\chi^2(1) = 38.6$, $p < 0.01$. The frequency of positive-tone articles increased slightly. Thus, Hypothesis 1 is supported.

As shown in Table 2, there was a statistically significant increase in reporting disaster recovery and a drop in reporting disaster response, and mitigation, and deaths, injuries, and destructions, $\chi^2(3) = 1200$, $p < 0.01$. The number of stories of disaster preparation increased marginally.

Table 2. Changes in Chinese media coverage before and after issuing the guidance of public opinion on 22 May 2008 (%).

	13–22 May	23 May–13 June	Total
Total number of Chinese articles associated with responsibility issues = 181			
	%		
Tone			
Positive	28.9	33.1	32.0
Neutral	31.1	62.5	54.7
Negative	40.0	4.4	13.3
Total number of Chinese articles = 12,685			
	%		
Emergency response and activities			
Preparation	4.5	5.8	5.3
Response and mitigation	69.1	52.9	59.1
Recovery	8.1	35.6	25.0
Deaths, injuries and destructions	18.3	5.7	10.5

Hypothesis 2

Table 3 compares the Chinese newspaper articles of the Sichuan earthquake and the American newspapers' articles on Katrina. A significantly lower percentage of Chinese articles that identified any party that should take responsibility, when compared with the American articles on Katrina, $\chi^2(1) = 1073.2$, $p < 0.01$. Therefore, Hypothesis 2 is supported.

With respect to the identified party to take responsibility in the media accounts, the federal government was the primary target in the American newspapers. On the contrary, the Chinese newspapers tended to direct the issue of responsibility toward provincial governments and businesses/corporations but less frequently toward individuals. Moreover, Chinese newspapers run markedly more positive-toned articles and fewer negative-toned ones when compared with the American papers.

Hypothesis 3

Table 3 shows the media coverage of emergency responses and activities of both Chinese and American newspapers. Their overall differences in percentages were statistically significant, $\chi^2(3) = 282.8$, $p < 0.01$. However, when comparing each category across two settings, Chinese and American newspapers differed slightly in

Table 3. Comparisons between the Chinese newspaper articles of the Sichuan earthquake and the US newspapers articles of Katrina (%).

Items		Covering the Sichuan earthquake	Covering Hurricane Katrina
		Total number of Chinese articles = 12,685[a] %	Total number of US articles = 1590 %
Needed to take responsibility[b]	Yes	1.4	16.5
Target of responsibility[c]	Central government	9.2	48.5
	State/provincial government	26.2	11.8
	Local governments	17.1	10.3
	Individual	6.7	17.2
	Business or corporations	25.6	6.8
	Non-profit organizations (e.g. school)	15.2	5.3
Tone[c]	Positive	32.0	7.6
	Neutral	54.7	56.1
	Negative	13.3	36.3
Emergency response and activities[b]	Preparation	5.3	7.0
	Response and Mitigation	59.1	37.6
	Recovery	25.0	42.8
	Deaths, injuries and Destructions	10.5	11.9

Notes: [a]Excluded the item of 'none of above' in the following variables: emergency response and activities (17.6%), and target of responsibility (17%); [b]$p < 0.05$ in χ^2 test; [c]The percentages are calculated from the total number of articles that mention the need to take responsibility.

the articles depicting disaster preparation and the deaths, injuries and destruction. The major variations stemmed from the stories of government's response, mitigation and recovery. Thus, we claim this hypothesis is partly substantiated.

Hypothesis 4

Table 4 contrasts coverage in all Chinese newspapers. The People's Daily ran fewer articles about taking responsibility than did the others. The Southern Metropolis Daily and the West China Metropolis Daily had a markedly larger share of these articles among all. Moreover, most articles about taking responsibilities targeted the state, provincial or central governments. The Sichuan Daily, with strong ties with the Sichuan provincial government, demonstrated a remarkably lower share of articles depicting the responsibility issue when compared to other market-oriented papers in Sichuan, including the Chengdu Commercial Daily, and the West China Metropolis Daily. Most of the negative-toned articles were published by the market-orientated papers, especially the Southern Metropolis Daily and the Peking Youth Daily.

Regarding the emergency responses and activities, the People's Daily rarely reported articles about deaths, injuries, and destruction, whereas over 70% of its articles covered the governments' response and mitigation. By contrary, nearly one in five articles of the Southern Metropolis Daily reported about deaths, injuries, and destruction but less than half of its articles concerned the governments' response and mitigation. When considering other newspapers, there was no apparent pattern between party media and market-oriented media in terms of the media accounts of emergency responses and activities. This hypothesis is thus partly supported.

Discussion

There have been previous studies and comparison of US and Chinese newspaper coverage of a disaster (Luther and Zhou 2005, Beaudoin 2007, Houston *et al.* 2008). These comparisons, however, must be interpreted cautiously because the potential confounding factor, that the degrees to which a disaster had an impact, could vary markedly across settings. For example, the SARS pandemic had more severe impacts on China in terms of death toll and the extent of its outbreak than on other places (Lewison 2008). The discrepancy in severity might confound the comparative results because any observed variation might be linked to this discrepancy rather than the difference in setting.

Our cross-country comparisons were, however, conducted to examine media articles about each country's corresponding domestic crisis, which was recognised as one of the representative examples of severely devastating local natural disasters in the beginning of the 21st century. This approach has enabled us to capture and contrast local characteristics of news reporting of disaster in each geographical setting.

Another methodological concern is the selection of media for study. Most of the previous studies selected a limited set of media outlets and failed to diversify the media outlets in China (Luther and Zhou 2005, Beaudoin 2007, Houston *et al.* 2008) and thus the samples may not be representative. No previous study sampled the province-based newspapers whose readers are mostly local citizens.

Chinese media have experienced an unprecedented openness during the initial period of the Sichuan earthquake. This move, though short-lived, was praised by the

Table 4. Comparisons between the Chinese newspaper articles of the Sichuan earthquake, Total number of Chinese articles = 12,685[a] (%).

Items		People's Daily (%)	Peking Youth Daily (%)	Southern Metropolis Daily (%)	Sichuan Daily (%)	Chengdu Commercial Daily (%)	West China Metropolis Daily (%)
Needed to take responsibility[b]		0.1	0.5	2.2	0	0.1	5.0
Target of responsibility[c]	Central government	50.0	0	16.0	NA	50.0	7.0
	State/provincial government	0	16.7	12.0	NA	50.0	28.9
	Local governments	50.0	0	4.0	NA	0	20.3
	Individual	0	16.7	28.0	NA	0	2.3
	Business or corporations	0	50	8.0	NA	0	28.9
	Non-profit organizations (e.g. school)	0	16.7	32.0	NA	0	12.5
Tone[c]	Positive	0	0	7.1	NA	0	39.7
	Neutral	50.0	16.7	42.9	NA	50.0	58.9
	Negative	50.0	83.3	50.0	NA	50.0	1.4
Emergency response and activities[b]	Preparation	3.5	8.2	13.7	8.1	4.6	1.7
	Response & Mitigation	70.7	60.0	47.6	48.0	44.2	77.7
	Recovery	24.9	23.6	17.2	32.6	34.6	12.1
	Deaths, injuries & destructions	0.9	8.2	21.5	11.3	16.7	8.6

Note: NA – non-applicable. [a]Excluded the item of "none of above" in the following variables: emergency response and activities (17.6%), and target of responsibility (17%); [b]$p < 0.05$ in χ^2 test; [c]The percentages are calculated from the total number of articles that mention the need to take responsibility.

international press.[2] Some laud this as a successful step in crisis communication (Chen 2009). Our result demonstrates a change during the observed time period with a reduction in negative-toned articles that mentioned responsibility, but an increase in neutral-toned articles after the issue of guidance of public opinion by the central government. It is reasonable to attribute such an outcome to state pressure on the media. It could be argued that this shift reflected a natural shift in media focus over time but it was at least not the case for international and Hong Kong media. For example, the responsibility for large-scale collapse of Sichuan schools was one of the major media concerns at that moment on 25 May 2008.[3] The shift in Chinese media coverage to disaster recovery and the reduction of articles on deaths and destructions appears to reflect a shift in government priority for responding to the disaster to reconstruction.

Furthermore, our comparisons reveal some patterns of the Chinese newspapers that came closer to the ways in which local disasters were covered in the Western media. As Liu (2009) has noted, the dominant media framing of disaster is in terms of the harm caused, deaths, injuries, and destruction, namely the severity frame. Our findings show that the Chinese and American newspapers had almost the same level of use of the severity frame. There was little difference in the articles of disaster planning between the two settings.

There was a major difference between the Chinese and the American newspapers in the use of the attribution of responsibility frame. American newspapers used this frame 10 times more frequently compared to Chinese papers. Only a handful of Chinese articles commented on the government's responsibility negatively. In contrast, a larger portion of the American articles identified the responsibility of the US federal government in a negative tone.

This result suggests that, despite the development of a more open media in China, the Chinese media did not deploy attribution of the responsibility frame in similar manner to their Western counterparts and might fail to inform readers about some important social concerns. The reason could be understood within the unique context in China. While aiming at drawing reader's attention, Chinese media remained reluctant to cross the 'party line' and be openly critical of government. Though the media reporting during the initial period of the earthquake was relatively open, our results suggest that there are many challenges for publishing media articles with sensitive topics during emergency period in China.

Another characteristic is the variation in presenting earthquake-related responsibility between different types of newspapers in China. No apparent pattern was observed in the articles describing the emergency responses and activities. As the central and the local governments were major responsible targets for emergency responses, it is not surprising to see that the People's Daily, the mouthpiece of the central government, rarely ran articles about government responsibility. Similarly, the Sichuan Daily, locally affiliated with the Sichuan provincial government, did not report any such articles. In contrast, the market-oriented newspapers tended to feature these articles more. The most obvious example was the Southern Metropolis Daily, a Guangzhou-based market-oriented newspaper, in which approximately one of every 46 earthquake-related articles reported on issues of responsibility. Half of these media accounts were presented in a negative tone.

However, the two Sichuan-based market-oriented papers, the Chengdu Commercial Daily and the West China Metropolis Daily, were not keen to publish articles about responsibility when compared to their Guangzhou and Peking

counterparts. The Chengdu Commercial Daily rarely reported such topics and the West China Metropolis Daily ran a few articles in relation to attributing responsibility but most of them were presented in a positive way.

Several limitations need to be mentioned. Firstly, the comparisons were made between media outlets rather than media systems and thus institutional and systemic factors were not directly taken into consideration. Secondly, the American figures were obtained from a secondary data source. This may pose a challenge to the cross-country reliability. This study took only one single local disaster in each country as case study. Different results may be found if another pair of disasters is investigated.

Both Hurricane Katrina and the Sichuan earthquake were very disruptive disasters but a hurricane is relatively more forecastable than an earthquake. Indeed, Hurricane Katrina was forecasted to strike and there was some time for individuals and government to make use of disaster planning, whereas the Sichuan earthquake occurred without warning. It seems possible that the nature of disaster may partly account for the differences between the Chinese and American media content. It is also possible to argue that the reference point for comparison, American media coverage of Katrina, would particularly invite a huge amount of criticism from the media as a result of some isolated factors, for example, the post-9/11 restructuring of the federal emergency units and the disproportionately underprivileged population in the affected areas (Dynes and Rodríguez 2007). But, when considering similar studies (Luther and Zhou 2005, An and Gower 2009), the proportion of articles using the attribution of responsibility frame in the American media was found to be consistently higher than that of the Chinese media. By the same token, media coverage of the Sichuan earthquake may be exceptional. Caution is needed when attempting to generalise the findings.

Moreover, some variables had relatively lower inter-coder reliability, even though they were considered as acceptable. Only two out of 156 pilot articles mentioned the issue of responsibility. Because of small sample size, kappa coefficient of the variable 'Tone' was not evaluated and this variable may be sensitive to inter-coder reliability.

Conclusion

Our findings indicate that some Chinese media have successfully served as the agenda setters of the government's emergency response, a role usually performed by their American counterparts during disasters (Barnes *et al.* 2008). The Chinese media have communicated with the general public about various issues surrounding human injuries and destruction brought by the disaster as well as the governments' emergency responses and activities during the aftermath of the Sichuan earthquake, which was a communication process aimed at assisting the public to make informed decisions during crisis. Yet, there is room for improvement, for example a de-emphasis on the governments' disaster preparation efforts (Barnes *et al.* 2008).

While America and China are countries with different political systems, emergency policy, and practices, they share similarities in the role of media in disseminating emergency information. However, media in both places have strong variations in covering government's responsibility in managing disaster and its consequences. Public health officials and emergency managers have acknowledged the 'watchdog' role of the media in monitoring government bodies during an emergency period, understanding the journalistic practice of demanding a higher level of transparency in policy decision-making, and questioning government

responsibility (World Health Organization 2005). But this media 'watchdog' role may unintentionally trigger undesirable consequences during disasters, heightening public perception of risk (Kasperson *et al.* 2003) or distracting public attention from more important areas of concern (Liu 2009). We found that the overall 'watchdog' media culture in China, as reflected by the extent to which the attribution of responsibility media frame is utilised during disaster, was relatively under-developed. Even under a relatively unrestricted circumstance, the Chinese media ran fewer articles about the governments' responsibility than did their American counterparts. As long as news reporting in China is strictly controlled by the authorities, despite occasional relaxation of media control, political influence and media censorship will continue to be overwhelming factors that dictate the media to cover responsibility during disasters.

This result may have dual meanings. First, unlike the Western press, the mass media in China seem to be relatively more cooperative with the authorities during disaster and thereby the official emergency announcements could find it much easier to channel through the mass media to the public and both parties have less chance to be perceived as lacking coordination, whereas there were long-standing conflicts between emergency managers and the Western media in the past (Lowrey *et al.* 2007). But on the other hand, at the expense of a cooperative relationship, the media's role in performing the role of 'the fourth estate' and their capacity to provide positive feedback from the communities in the face of widespread criticism may have been undermined. The media's function and capacity can potentially contribute to the success of a two-way transparent dialogue during crisis between the government departments and the stakeholders in various communities through which both are able to provide consent to some controversial decisions, and that is one of the key effective risk communication strategies advocated by the World Health Organization (World Health Organization 2005) and the United Nations (Coyle and Meier 2009). Therefore, the Chinese authorities should review all possible contributing factors that could have strengthened the Chinese mass media in helping governments make better-informed policy decisions.

Party-controlled and market-oriented media in China had different focuses in their coverage of natural disasters. The market-oriented media played an important role in making the Sichuan earthquake more transparent and the authorities more responsible. Provincial media in China may be less regulated by the central government and are in a good position to cover sensitive stories outside their own province. But they will not have a long-term impact without an overall government policy of open information and media deregulation. By contrast, fewer variations in story focus were observed in the American media, and the overall difference is relatively limited.

Acknowledgements

Notes

1. For example, a 'negative-tone' article criticised those to whom responsibility was attributed. A 'positive-tone' one discussed responsibility without criticisms. Articles were coded as neutral if it was difficult to identify tone.

2. See Dorn, James A. 2008. Disasters and development. The Washington Times, May 29, A16; Ford, Peter. 2008. China enjoys rare moment of global support. Christian Science Monitor, May 27, 1; The Economist. 2009. Silence on the square; Twenty years after Tiananmen. The Economist. May 30.
3. See New York Times. 2008 Chinese Are Left to Ask Why Schools Crumbled, May 25 online http://query.nytimes.com/gst/fullpage.html?res=9902E3DC163BF936A15756C0A 96E9C8B63

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