The Chinese Media Framing of the 2015's Tianjin Explosion

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Abstract: This study compares the framing's patterns of the Chinese traditional media and social media in reporting the incident of Tianjin explosion in 2015. Applying frame-building and frame-setting theory, this study explores the interplay between online opinions available on Weibo and the Chinese newspapers in different phases of the crisis event. Moreover, it examines the differences in framing the incident between the state-owned party media and the commercial media. The results reveal that various frames applied by different Chinese media in reporting the incident. A complex interplay between Weibo, the Communist-owned and the commercial happened, including frame-building, frame-setting, and frame-interacting effects.

Keywords: comparative media, frame building, frame setting, media framing, Tianjin incident

Abstrak: Penelitian ini membandingkan framing dari media konvensional sosial di Cina dalam memberitakan insiden ledakan di Tianjin pada tahun 2015. Menggunakan teori frame-building dan frame-setting, penelitian ini mengeksplorasi hubungan antara opini online dalam Weibo dengan surat kabar Cina, baik yang dimiliki oleh pemerintah maupun swasta dalam fase krisis yang berbeda-beda. Hasil penelitian menunjukkan bahwa berbagai frame digunakan oleh media Cina dalam pemberitaan yang memengaruhi satu sama lain, termasuk frame-building, frame-setting, dan frame-interacting effects.

Kata Kunci: frame building, frame setting, insiden Tianjin, media framing, media komparatif

With the proliferation of various social media platforms, the journalism has been redefined (Lin, 2013) and online discourses have become an important research topic (Luo, 2014). Media scholars have raised the questions, whether or not the agenda-setting and framing theories could be applied continuously in the era of new media (Matei, 2010). As such, they question on how online public opinions would impact on traditional media coverage such as newspapers (Gamson & Modigliani, 1989). Previous studies have examined the interplay between the traditional media and the new media platforms such as Twitter (Conway, Kenski & Wang, 2015), Facebook (Etter & Vestergaard, 2015), online forum (Zhou & Moy, 2007) and political blog (Meraz, 2011). Those researches demonstrate that the social media have influenced the public opinions, but how they function remains unclear, since the convergence between the new and the traditional media are blurred (Lin, 2013).

The social media like Twitter and Facebook are officially blocked in China.

There is one local social media application, Weibo that is considered as Chinese version of Twitter, becomes the alternate and one of the most important platforms for online public opinions. As we acknowledged that, the media system in China is less open than in western countries under the strong censorship of the Chinese government. For so long, the Chinese media have been considered as "mouthpiece" of the Communist party (Zhao, 1998). However, some researchers have argued that Chinese media no longer merely serves the Party, nor are the Chinese audience (Yu, 2011; Wang, 2013). Under this context, it is necessary to compare and examine the relationship between the online public opinions on Weibo and the news coverage on mainstream Chinese media in order to see whether there are any differences in interpreting the same issue. It is also important to look at how those media influence each other.

To answer the above questions, this paper conducted a case study of China's biggest national crisis event in 2015, which is China Tianjin Explosions tragedy. It occurred on 12 August 2015 and killed 173 people, including 95 firefighters (Tianjin explosion, 2015; Sun, 2016). Weibo played an important role throughout this national incident. The posts related to Tianjin Explosions on Weibo added to 66,941,357 in the first month. Some of the victims released original videos, photos of the explosions and shared their own experiences through Weibo, which aroused heated discussion and reflection among netizens (Accountability in China, 2015).

Researchers found that when reporting a crisis event, media not only transmit crisis message but also interpret the story (Driedger, 2008), and social media have different focus in presenting the crisis compared with traditional media (Driedger, 2008; Littlefield & Quenette, 2007; Zhou & Moy, 2007). Therefore, the paper took this important crisis event for case study, and applied frame analysis to discover whether there is any difference between Weibo and traditional mainstream newspapers in framing this incident. The study analyzed the pattern of frames presented in different phases, which started from the beginning, middle and end of the crisis. It aims to demonstrate how the media frames salience evolves on both Weibo and the traditional newspapers, and to what extent online opinion on Weibo influences the newspaper coverage or vice versa.

Both of the agenda-setting and framing theories examine the influence of media toward the public. The former focuses more on issue salience, and the later focuses on frame salience in interpreting the issue (Zhou & Moy, 2007, p.81). The two approaches have certain common grounds where McCombs, Shaw & Weaver (1997) considered framing as second-level agenda setting.

Entman (1993, h.51) describes framing as selecting and emphasizing certain aspects of experience or ideas over others. With this, journalists can set the priorities for information related to relevance, newsworthiness and create agendas (Norris, 1995). Frames are like a "story angle"

which is significant and helps audience to interpret, evaluate and judge the event, helps audience to think and discuss the events (Price & Tewksbury, 1997). Similar to agenda-setting effect, frame-setting researchers have also found evidence for news frames' affect on people's perception and understood an issue (Pan & Kosicki, 1993; Jasperson, Shah, Watts, Faber & Fan, 1998). Exposure to "differently valence news frames" could lead to opinion change, and repetition of a news frame especially a negative frame strengthens the framing effect and makes it durable (Lecheler, Keer, Andreas, Schuck & Hänggli, 2015).

According to de Vreese (2005, h. 51-52), frame building is about the factors that influence the structural qualities of news frames. Both internal (i.e. journalistic routines, professionalism, etc.) and external factors (i.e. political values, cultural backgrounds, etc.) influenced frame-building process (Zhou & Moy, 2007; Hong & Choi, 2010). Meanwhile, online public opinion is one of the important external factors influencing journalists' framing process of news coverage, especially in today's new media era. When examining the relationship between online opinion and media coverage, Gamson and Modigliani (1989) described the online discussion as a "value-added process". Frame building is conceptualized as the impact of online public opinion on traditional media coverage, since social media could serve as sources for media practitioners and play an important role in news production. In turn, frame-setting describes the power of media

frames used by journalists in influencing netizens' interpretation of a certain issue (Zhou & Moy, 2007, p.82). Zhou and Moy (2007, p.93-94) also argued that in China, the external pressure from the party and the government might exert a greater impact on news framing. Thus, this study applied frame analysis to explore how the online opinion on Weibo and media coverage in mainstream newspapers interact, framed and interpreted during Tianjin explosions crisis in 2015.

When it comes to frame analysis, there were several different approaches utilized by scholars to examine framing effect even though some conceptualization and operationalization process remained scattered in current literature. Main types of frame analysis include the examination of issue-specific frames, generalizable frames and combination of these two. There are several ways to categorize the generalizable frames. Firstly, Semetko and Valkenburg (2000) who used five frames to analyze European politics (attribution of responsibility, human-interest frame, conflict frame, morality frame, and economic frames). Secondly, this approach also appeared in Wasike's (2013) study of news in Twitter. Another categorization is gain-based versus loss-based frames as well as self-referential versus other-referential frames (Boydstun & Glazier, 2013). Last, there is Entman's (1993) classic clarification of frames in four dimensions, which are about defining problems, diagnosing causes, making moral judgments and suggesting remedies.

Among those different frame-analysis devices, this study chose Entman's frame clarification that is suitable for exploring crisis frames. Some researchers also applied Entman's method and conceptualized crisis frames as the frequency and association of an actor with an attribution and analyzed the problem, the responsibility of the cause, and the solutions of the crisis (Etter & Vestergaard, 2015). Besides, inspired by Boydstun & Glazier's (2013), two-tiered method for identifying media framing, this study combined analysis of generic frames and issue-specific frames, and clusters of issue-specific frames were categorized into four generalizable frames (Entman, 1993).

Meanwhile, with the rise of the Internet, the question has been raised up, whether agenda-setting or framing theories still apply to social media (Matei, 2010). Social media are being used to circulate information without having to rely on traditional media to act as gatekeeper, fact-checker, or moderator (Metzgar & Marrugi, 2009). But when examining the influence of social media toward traditional media, this power is so complex that one cannot say that the new media completely reverses traditional media's agenda setting ability. No one also can describe who the real agenda setter is, since diverging results occurred according the different choices of social media tools (Etter & Vestergaard, 2015).

Conway et al. (2015) assessed the relationship between newspaper articles and Twitter feeds of political candidates and parties during 2012 US presidential

primary. They found that the influence between the two was symbiotic and reciprocal, and the Twitter feeds succeeded in predicting newspaper agendas in some specific topics. Furthermore, Jungherr (2014) has compared Twitter and traditional media in political communication and raised the notion of different logic of political coverage in this hybrid media system. Particular characteristic of a certain media platform allows for specific modes of information production and consumption. It is necessary for exploring the peculiarity of a certain media platform under different political and social contexts in various countries.

Studies (Sayre, Bode, Shah, Wilcox & Shah, 2010) have done examination about the impact of another prominent new media platform, YouTube, toward online and conventional news coverage and found out that correlation between YouTube and media news changed dramatically along with the timeline. Korean researchers examined the influence of internet bulletin boards on newspapers in covering 2000 general election of South Korea (Lee, Lancendorfer & Lee, 2005). Results demonstrated that newspapers remain the main influencer of online bulletin regarding issue agendas, whereas the impact of internet bulletin toward newspaper coverage was found when examining attribute agendas. Therefore, the interaction between social media and traditional media could differ when social media platforms and examined subjects are different. For example, Meraz (2011) affirms that

agenda-setting ability of political blogs and its resistance of traditional media's agenda-setting effect. Whereas another study (Etter & Vestergaard, 2015) investigating how Facebook and news media frame a corporate crisis indicates that news media remains a stronger frame-setter while little evidence was found for Facebook's impact on traditional media. Different from findings in political field, this result indicates that though great in number, Facebook turns out to be less influential in framing corporation crisis.

We applied frame building and frame setting perspectives to explore the interplay between social media and traditional news media. Frame-building was relatively less investigated because of the difficulty to test (Hong & Choi, 2010), but the flourish of online communities provides another public opinion field to assess the frame-building process. A bidirectional relationship was found between news media and social media, and frame setting effect was supported with news media mainly setting crisis frames of online public (Etter & Vestergaard, 2015). Facebook netizens apply different crisis frames compared with conventional media but its frame-building power remains limited. It is rather the news media that exert the frame-setting effect on social media (Etter & Vestergaard, 2015). In political field, politicians frame political issues in social media through the frequency of talking about certain issues and the use of hashtags within them (Hemphill, Culotta & Heston, 2013). An evidence was been found for frame-setting effect that repetitive news frames have

a strong and persistent impact on people's political opinions (Lecheler et al., 2015).

Regarding to the Chinese online discourse, Weibo, the most influential microblog in China, is also examined by scholars (Wu, Atkin, Mou, Lin & Lau, 2013). They investigated the agenda-setting process between Weibo and newspapers in reporting Wenzhou train crash accident in 2011. Study found that Weibo became the main information sources of newspapers shortly after the national accident, and the agenda-setting power of Weibo was found with one-day time lag. Researcher Ying Jiang examined how the trending topics on Weibo affected the stated-controlled media in China and found out that Weibo served as an important platform for citizen participation and expression of public opinion. However, the state still set the boundary for what is allowed for criticism (Ying, 2014). Another study tested the correlation between online public opinion (online forum) and media coverage in different phases through both generic and issue-specific frame analysis of the controversial BMW case 2003 in China (Zhou & Moy, 2007, p.92-94). Findings suggested online opinion could exert frame-building function for new issues when there is inadequate information at the beginning of the incident and found significant frame-interacting effect. However, online opinion frames remained independent from media frames, which indicated little frame-setting effect of traditional media. Researchers partially attributed this result to netizens' low level of trust in Chinese media entities.

In the context of reporting of the crisis events, not only do the media transmit crisis messages, they can also actively interpret the story by selecting elements of a story that they reported and deciding how a story can be packaged (Driedger, 2008). For instance, traditional media tend to highlight macroeconomic impact, victims, governments' handling and lessons learned, as all these can capture attention and add news values in crisis reporting (Driedger, 2008; Littlefield & Quenette, 2007). This study chose a Chinese crisis event to explore the differences that have appeared in reporting the event between a social media, Weibo, and the Chinese mainstream newspapers.

Besides, it is important to point out that Chinese media landscape is different from the western countries and media have been considered as the "mouthpiece" of the government and the Party (Zhao, 1998). After the 1970s reforms and transformations, Chinese media is characterized by the fusion of Party control and market power (Zhao, 2004). For example, *People's daily* is considered as the official newspaper of the Chinese Communist Party that provides information on policies and government standpoints. There are also other regional or trans-regional commercial newspapers (i.e. *Beijing News*) aiming at profit-making while responding to public opinion. These media were considered as engaging in a "tug of war" between Party and capitalism (Zhao, 1998, p.17-18). Taking this dual system of Chinese media into consideration, this paper also explores whether there is any difference between Communist party media and commercial media when reporting a crisis event.

Taking into account the specialty of Chinese media system and aiming at exploring how Chinese-characterized social media, Weibo differs from and influences Chinese mainstream media, this study puts forward three research questions (RQ):

1. Did Chinese commercial media (*Beijing News*) use more attributions of responsibility frame than the Chinese party owned media (*People's daily*)?

2. Were there any differences on their framing pattern between the mainstream newspapers and a social media, Weibo, in covering the issue within the different phases of the accident?

3. To what extent does a social media, Weibo, has influenced the mainstream newspapers, or vice versa, in the frame building and frame setting processes?

METHODS

This research is a cross-sectional case study between a social media (i.e. Weibo) and the traditional media in framing the 2015's China Tianjin Explosion. Through a combination of generic and issue-specific frame analysis, the clusters of issue-specific frames were categorized into four generalizable frames according to Entman's (1993) clarification: defining problems, diagnosing causes, making moral judgments, and suggesting remedies.

The Tianjin explosion occurred on 12 August 2015. To analyze the frame patterns

along with the time line, the researcher collected data for a period of 15 days, from 12 until 26 August 2015 then divided it into five phases with a time span of 3 days. In both framing and agenda-setting research, determining the time span for examining the potential correlation or interaction effects has been part of methodological controversy. The time span for examining framing or agenda-setting effects of new media varies from one to seven days (Roberts, Wanta & Dzwo, 2002), which is much shorter than the time lag of traditional inter-media effect. After searching for number of newspaper articles and Weibo posts in this half of a month, we found on both platforms the number of articles or online posts peaked in the first three days, and then started decreasing with a little fluctuation. Figure 1 and 2 illustrate the number of articles and Weibo posts from the 1st until 15th day, and Figure 3 shows the trend of online posts from the 4th to 15th day when the number slumped significantly compared with the first three days.
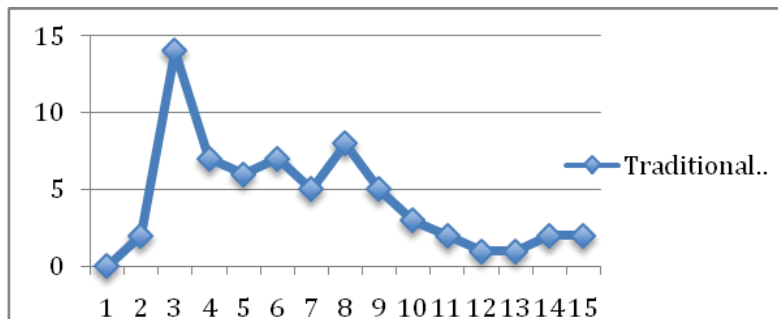

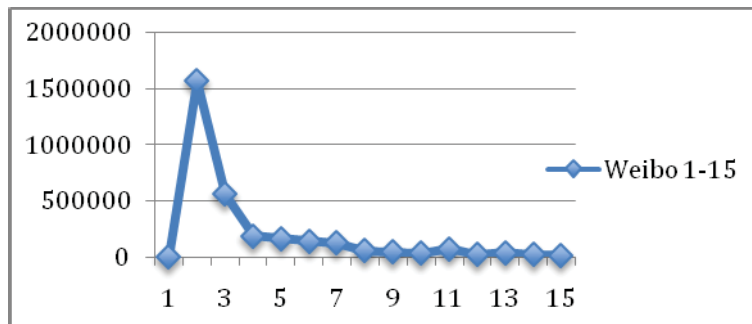**Figure 1 Number of News Article in Traditional Media from 1st until 15th day**

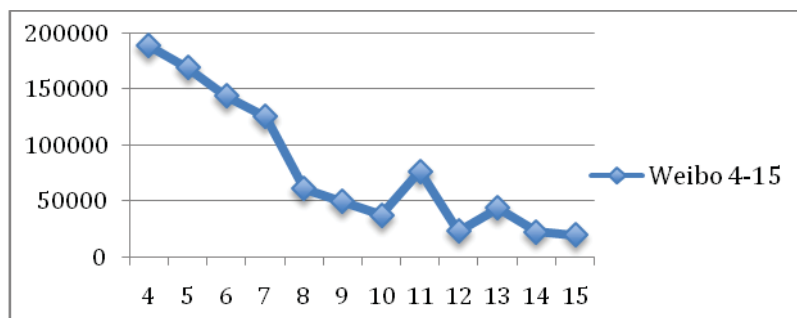**Figure 2 Number of Weibo Post from 1st until 15th day**

Figure 3 Number of News Article in Traditional Media from 4th until 15th day

There is a relatively obvious change of number on both platforms every three days. Taking all above into consideration, we divided our research period into 5 phases with a 3-day time span as shown in the chart below to investigate possible interaction between various phases.

Table 1 Five Phases During the Period of the Tianjin Explosion Event

Phase	Date (Traditional Media & Weibo)
Phase 1	Aug. 12-14,2015
Phase 2	Aug. 15-17,2015
Phase 3	Aug. 18-20,2015
Phase 4	Aug. 21-23,2015
Phase 5	Aug. 24-26,2015

Source: Primary data

To investigate the interplay between traditional media and Weibo, as well as the difference between Communist party media and commercial media, news articles in *People's daily* and the *Beijing News* (*Xinjing Bao*) were collected and coded. *People's daily* is the biggest newspaper group in China and an official newspaper of the Chinese Communist Party, while The *Beijing News* is one of the best-selling and trans-regional newspapers that paid great attention to Tianjin blast with a high number of related articles being published. After searching with key word "Tianjin Explosions in Chinese" in Huike database, we collected 21 news articles in *People's daily* and 44 in The *Beijing News* in total.

As for Weibo posts, we used a web crawler software (Gooseeker) to collect all the Weibo posts containing key word Tianjin Explosions. After manually filtering all the official government, media and corporation accounts, we selected the most reposted 30 Weibo posts each day, which represented the most popular online opinion, and obtained 450 posts (15 days) in total for content analysis.

The unit of analysis of this study is newspaper articles and Weibo posts. When the post turned out to be a link of an article, the article was coded as unit of analysis. As mentioned previously, this study applied the two-tiered method for framing analysis through categorizing several issue-specific frames into four generic frames. The chart below shows our definition of four generic frames and issue-specific frames categorized into each.

Table 2 Coding Reference for Identifying Generic or Issue-Specific Frames

Generic fame	Issue-specific frames
Defining problems (Define the nature of the problem or clarify key facts related to the problem)	1. Illustrate facts related to the Tianjin Explosions 2. Echo and trust reports by the authorities. 3. Question the aforementioned facts and official statement
Diagnosing causes (Identify underlying forces of the problem)	1. Poor governmental regulation or government corruption. 2. Illegal operation of the corporation 3. Connection between corporation and authorities
Making moral judgments (Make moral judgments or portray from human interest perspective)	1. Express feelings of outrage, sympathy or compassion. 2. Indicate how individuals or groups are affected.
Suggesting remedies (Propose solutions or discuss possible results)	1. Call for a reinvestigation. 2. Emphasize the role of the media and the public opinion. 3. Advocate greater transparency and sense of responsibility in corporation and governmental rule. 4. Promote the development of social service systems, including compensation, insurance. Etc.

Source: Primary data

Besides identifying frames, length of the news articles, story types (these two only for newspaper articles), occurrence of responsibility frame, target of responsibility, and tone of articles or posts were coded as well. The occurrence of responsibility frame means the article or the post suggest that to some extent government or other groups or entities are responsible for the accident, and if the answer is yes, the coder was asked to further identify what was the main target of responsibility: government, corporations, specific groups or individuals, media and public opinion, or others.

The researchers used a binary coding strategy that is to use yes-no categories to measure the occurrence of each generic or issue-specific frame. The researchers coded the newspaper articles and Weibo posts according to the detailed codebook, and discussed with each other in case of uncertainty and disagreement. The inter-coder reliability test was conducted on a random 10% of the sample of both media articles and Weibo posts and the averaged reliability was 85%.

All data were analyzed through SPSS software. To answer RQ1, data of traditional media were displayed in Crosstabs with Pearson's Chi-Square test. To answer RQ2, all data were displayed in Crosstabs with Pearson's Chi-Square test. While, to answer RQ3, the researcher separated and reorganized all data by phase and media genre (e.g. reorganizing data of Phase 1 Weibo and Phase 2 Press to test framing building effect) and test their Cross-Correlation with Spearman's rank correlation coefficient.

FINDING

After comparing the frequency of responsibility frame, the frequency of this frame in *Beijing News* was 21.54% higher than in *People's daily* (9.52%), though chi-square test showed no significant power of this variance ($p > 0.05$). We further compared the target of responsibility in order to find which actors being blamed in this tragedy. *Beijing News* directed this responsibility to more types of actors including government (11.36%), corporations where the explosions occurred (9.09%), and specific groups or individuals (4.55%). On the other side, the party media *People's daily* only took government (9.52%) as their target though the percentage is lower than in *Beijing News*. These findings show that the commercial media was more critical than the party media when reporting this crisis event and took a stronger stance in directing the criticism.

To understand the difference of reporting style of these two newspapers, the researchers also compared the tone of news articles, story type, as well as story length and chi-square test proved significant difference in two newspapers regarding all these three important elements in news reporting. Firstly, these two newspapers used significantly different tone frames (i.e. positive, neutral, negative) ($P < 0.01$) in covering Tianjin explosions. The rank of tone frequency in *People's daily*: Neutral>Positive>Negative versus *Beijing News*: Neutral>Negative>Positive. Although they both applied neutral tone most frequently, *People's daily* tended to

report this event in a more positive way, while *Beijing News* tended to be more negative.

Secondly, they also showed extremely significant difference (P<0.01) in regard to the distribution of three news types (including news report, feature, editorial). Different story types were better distributed in *Beijing News,* while in *People's daily* the type of news report (57.14%) dominated the others. Meanwhile, *Beijing News* was more flexible in applying various story types besides the typical ones, for example, popular science articles.

Thirdly, the t-test showed significant difference of average length of the reports in two newspapers: the coverage in *Beijing News* was significantly longer than in *People's daily* (P<0.05), which implied that greater importance was attached to this crisis event in commercial media.

As Table 4 showed the frequency of four generic frames on Weibo and mainstream newspapers along with the 5 phases of the incident, the researchers detected and compared the tendency of frame patterns on two platforms.

The moral judgment frame dominated in the online discourse throughout the whole period though it decreased slightly as the event proceeded. Especially in the first three phases, the percentage of moral judgments frame was more than 35% during the first 3 days (phase 1) of the incident, later, this number even reached up to 40%. The netizens expressed feelings of outrage toward illegal operation of the company, compassion for victims and sacrificed firefighters.

In the second phase, the percentage of defining problems frame increased from 24.1% (phase 1) to 35.5% (phase 2). The netizens started to focus on the fact-related information and asked about what really happened. From phase 3 and phase 4, the use of both defining problems and moral

Table 3 Comparison of Frames between People's daily and Beijing News

		People's daily	*Beijing News*	Sig.
Responsibility Frames	No	90.48%	78.46%	0.104>0.05
	Yes	9.52%	21.54%	
Tone	Positive	33.33%	15.38%	
	Neutral	57.14%	61.54%	0.009<0.01
	Negative	9.52%	23.08%	
Target	No target	90.48%	75.00%	
	Government	9.52%	11.36%	0.392>0.05
	Corporations	0.00%	9.09%	
	Specific groups or individuals	0.00%	4.55%	
Type	News report	57.14%	25.00%	
	Feature	14.29%	27.27%	0.002<0.01
	Editorial	28.57%	13.64%	
	Others	0.00%	34.09%	
Length	Words average	940.62	1493.23	0.038<0.05

Source: Primary data

judgments frame decreased, while the diagnosing causes and suggesting remedies frame gradually mounted up. People switched their focus onto the "why" and "how" question, what was the reason of this tragedy, and how to solve this problem.

During the last phase, the number of diagnosing causes frame slumped, and problem and moral frame declined as well. Instead, we found a sharp increase of suggesting remedy frame up to 45.8% (phase 5), which then tripled the number in phase 2 (15%). Moreover, suggesting remedies was the only frame that kept increasing from the beginning (phase 2) of the event. The netizens were keen to provide their suggestions and expected them to reach the policy level, and they also called for the role of media and public opinion to push forward the investigation and reform.

The frame pattern presented by the mainstream newspapers was not the same as on social media. During the first phase, defining problems frame was the most prominent frame (45.5%) followed by moral judgment frame (27.3%). Throughout the first four phases, moral judgment frame remained in a relatively high level in traditional media and peaked in phase 3 (42.1%). Traditional media tended to apply issue-specific frames, such as "how individuals are affected" and "generate people's feeling of compassion". For example, one newspaper article went viral on social media, which highly complimented the courageous firefighters and deeply mourned for those who sacrificed

their lives. Traditional media managed to resonate with people's sympathy through these individual human stories. The results did not show any obvious rise of diagnosing causes and suggesting remedies frame as the incident went on.

It was the defining problems frame that increased dramatically up to 66.70% (phase 5) during the last phase, dominating other three frames. The traditional media used more diagnosing causes frame than Weibo in the middle of the incident. It turned out that regarding this case, instead of providing solutions as social media, traditional media focused more on the factual information and the reason of the tragedy, especially during the latter period of the incident. This could be partially due to complexity of this crisis event itself, since the explosions were triggered by complicated chemical products and it took almost a year for the government to issue the final investigation report.

So, as the online discussion over the incident evolved to the latter stage, netizens were inclined to suggest solutions such as how to punish the company's illegal operation, how to compensate the victim families, etc. Meanwhile, the traditional media still tended to provide factual information and insisted in asking the "why" question. Therefore, there was a clear difference between social media and traditional media regarding the frame pattern and salience, though chi-square test did not show significant power for this variance.

Table 4 Comparison of Frames used by Traditional Media and Social Media

		Generic Frames				
		Defining Problems1	Diagnosing Causes2	Making Moral Judgments3	Suggesting Remedies4	Sig.（Pearson Chi's square)
Phase 1	Press	45.50%	13.60%	27.30%	13.60%	0.12>0.05
	Weibo	24.10%	12.10%	40.50%	23.30%	
Phase 2	Press	26.10%	17.40%	30.40%	26.10%	0.56>0.05
	Weibo	35.00%	15.00%	35.00%	15.00%	
Phase 3	Press	15.80%	26.30%	42.10%	15.80%	0.64>0.05
	Weibo	28.00%	17.00%	39.00%	16.00%	
Phase 4	Press	14.30%	28.60%	28.60%	28.60%	0.96>0.05
	Weibo	22.00%	22.80%	28.50%	26.80%	
Phase 5	Press	66.70%	0.00%	16.70%	16.70%	0.08>0.05
	Weibo	21.20%	5.10%	28.00%	45.80%	

Source: Primary data

This study tested whether the opinion frames at certain point in time are correlated with media frames at the same (Table 5) or another point in time (Table 6). Moreover, the study thoroughly examined the framing mechanism including effective time lag and found strong framing effect with both one-phase (3 days) lag and two-phase (6 days) lag. There were in total 8 sets of significant framing relationships (Figure 1).

To test the frame building effect, we correlated Phase 1 Weibo with Phase 2 and Phase 3 Press; Phase 2 Weibo with Phase 3 and Phase 4 Press; Phase 3 Weibo with Phase 4 and Phase 5 Press; and Phase 4 Weibo with Phase 5 Press. Statistical analysis demonstrated a significant negative correlation between Phase 2 Weibo and Phase 3 Press in terms of Defining Problems frame ($r=-0.227$, $p<0.05$). Phase 3 Weibo had a significantly positive framing-building effect on Phase 5 Press in terms of Defining Problems frame ($r=0.231$, $p<0.05$). Likewise, Phase 4 Weibo had a significantly positive influence on building defining problems frame of Phase 5 Press ($r=0.238$,

$p<0.05$). As showed in Table 6, Spearman correlations were not significant between Phase 1 Weibo and Phase 2 Press ($p>0.05$), Phase 3 Weibo and Phase 4 Press ($p>0.05$), Phase 1 Weibo and Phase 3 Press ($p>0.05$), Phase 2 Weibo and Phase 4 Press ($p>0.05$), based on any generic frames. However, the researchers found some tendencies through the data:

1) Weibo's strong frame-building effect on press was demonstrated only on defining problems frame and its framing effect was negative on press in the middle period (Phase 2, 3, 4) while positive in the last period (Phase 5).

2) Weibo's making moral judgments frames in all phases are negatively correlated with press' in its corresponding phases, though the correlations were weak ($P>0.05$).

3) As to diagnosing causes frame, the framing effect of Weibo was positive on press in the middle phases (Phase 2, 3, 4) and then the effect became negative in the last period (Phase 5).

To examine frame-setting effect, we correlated Phase 1 Press with Phase 2 and Phase 3 Weibo, Phase 2 Press with Phase 3 and Phase 4 Weibo, Phase 3 Press with Phase 4 and Phase 5 Weibo, and Phase 4 Press with Phase 5 Weibo. Spearman correlation (Table 6) showed extremely significantly negative framing effect of Phase 1 Press upon Phase 3 Weibo regarding defining problems frame ($r=-0.259$, $p<0.01$). Phase 3 Press had an extremely significant negative frame-setting effect on Phase 5 Weibo, with regard to diagnosing causes frame ($r=-0.260$, $p<0.01$), while the framing effect became significantly positive between them when it came to suggesting remedies frame ($r=0.323$, $p<0.01$). Another significantly negative correlation was also found between the diagnosing causes frame of Phase 4 Press and Phase 5 Weibo ($r=-0.234$, $p<0.05$). There was no significant frame-setting effect ($P>0.05$) found in terms of making moral judgments. However, there was a tendency that press generally positively influenced the making moral judgments frame of Weibo across the time spans.

As to the frame-interacting effect, significant correlations between Weibo and press were found only during Phase 1 and Phase 5 with regard to defining problems frame. However, during Phase 1, the interaction was extremely significantly negative ($r=-0.279$, $p<0.01$), while significantly negative ($r=-0.253$, $p<0.05$) in Phase 5.

In general, results demonstrated a more sophisticated and powerful frame-setting strategy than frame-building. In Phase 1 online public opinion, though tremendous and overwhelming, could not change the news media frames. On the other hand, news media responded very quickly since the crisis occurred and the public opinion exploded. In the Phase 1, news media firstly focused on defining problems when online discussion mainly focused on making moral judgments to calm down the netizens. This framing-setting effect became strong on Phase 3 Weibo by strongly increasing Weibo's defining problems frame from Phase 1 to Phase 3. Thus, the researchers inferred that the direction of defining problems' framing effect in Phase 1 was mainly from Weibo to press.

In Phase 2, Weibo started to increase the defining problems, which then strongly decreased the news coverage about defining problem in Phase 3. Traditional media also increased its diagnosing causes and suggesting remedies frames in Phase 3, which succeeded in diverting the public attention to make less diagnosing causes and suggest more remedies in Phase 5. Also, the decrease of news media's use of diagnosing causes frame in Phase 4 confirmed its purpose to strongly decrease the online speculation of causes in the crisis. In the last phase, traditional media strongly increased the defining problems frame to make a summary of the crisis in response to online public opinion about the problem definitions in Phase 3. Thus, the researchers inferred that the direction of Defining Problems' framing effect in Phase 5 was from Weibo to press.

Table 5 Correlations between Weibo and Press Frames during the Same Phase

Weibo ↔ Press	Defining Problems1	Diagnosing Causes2	Making Moral Judgments3	Suggesting Remedies4
Phase 1	- 0.279**	- 0.0312	0.105	0.089
Phase 2	0.13	0	0.091	- 0.093
Phase 3	0.119	- 0.082	-0.008	0.011
Phase 4	0.071	- 0.012	0.028	0.017
Phase 5	- 0.253*	0.061	0.078	0.181

Source: Primary data

Note: The bi-directional arrow means the direction of effect between Weibo and Press is uncertain or they have frames interaction between each other.

 ** Correlation is significant at the 0.01 level (2-tailed).

 * Correlation is significant at the 0.05 level (2-tailed).

Table 6 Correlations between Weibo and Press Frames with One/Two-PhaseLag

	Generic Frames	Defining Problems1	Diagnosing Causes2	Making Moral Judgments3	Suggesting Remedies4
One-Phase Time Lag	P1 Weibo → P2 Press	-0.009	0.046	-0.133	0
	P2 Weibo → P3 Press	**-0.227***	0.071	-0.017	-0.031
	P3 Weibo → P4 Press	-0.076	0.088	-0.049	0.096
	P4 Weibo → P5 Press	**0.238***	-0.152	-0.087	-0.078
	P1 Press → P2 Weibo	-0.140	0	0.047	0
	P2 Press → P3 Weibo	0.009	-0.011	0.065	-0.118
	P3 Press → P4 Weibo	0.111	0.027	-0.042	0.158
	P4 Press → P5 Weibo	0.061	**-0.234***	0.017	0.131
Two-Phase Time Lag	P1 Weibo → P3 Press	-0.119	0.12	-0.058	-0.111
	P2 Weibo → P4 Press	-0.146	0.079	-0.065	0.079
	P3 Weibo → P5 Press	**0.231***	-0.110	-0.105	0.013
	P1 Press → P3 Weibo	**-0.259****	-0.010	0.024	-0.020
	P2 Press → P4 Weibo	0	0.094	0.031	0.054
	P3 Press → P5 Weibo	0.094	**-0.260***	-0.06	**0.323****

Source: Primary Data

Note: The direction the arrow points means the direction of the effect between Weibo and Press.

P is the abbreviation of "Phase" in the table, e.g. P1 means Phase 1.

 ** Correlation is significant at the 0.01 level (2-tailed).

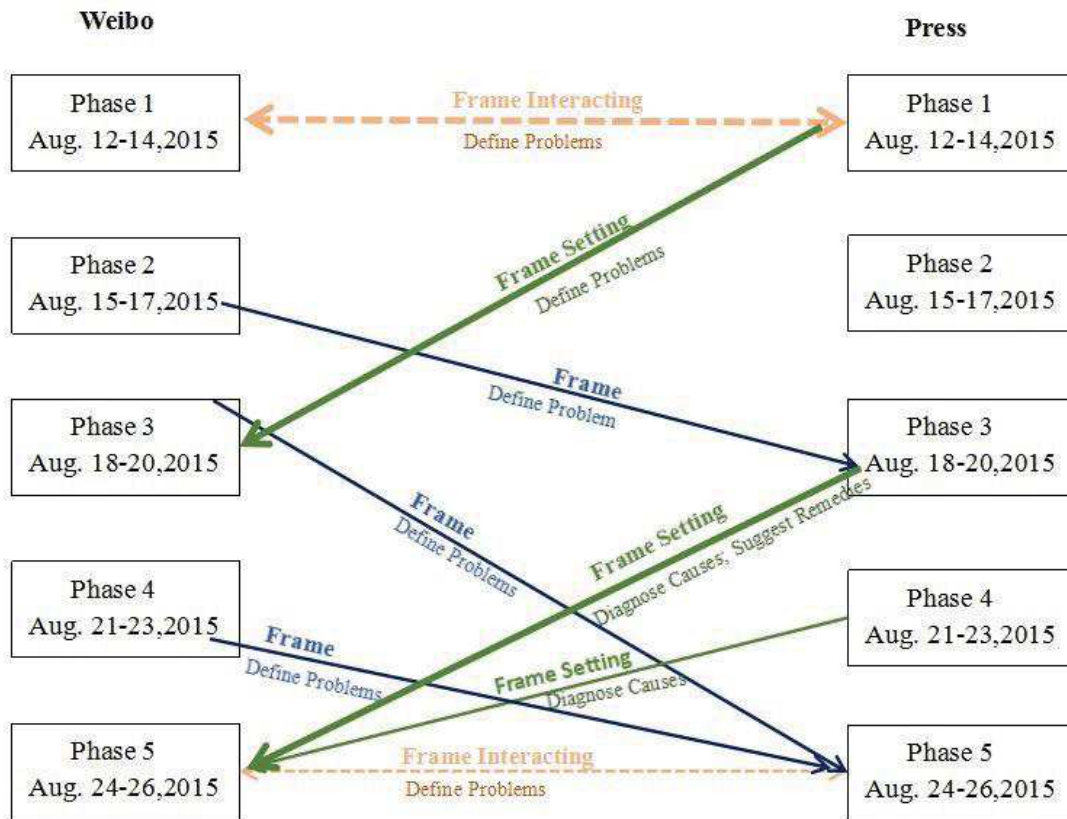 * Correlation is significant at the 0.05 level (2-tailed).

Figure 1 Methodological Model of Frame Interaction between Weibo and Press

DISCUSSION

Considering diversity of the media landscape in China, this study utilized frame analysis to compare the coverage of Communist Party's media, commercial media, as well as the online discourse in China's most popular social media platform, Weibo. The researchers firstly compared the frames between the Communist Party's newspaper and the commercial newspaper. In here, the researchers found a clear difference between the two on the coverage of the same crisis event (2015 Tianjin Explosions), regarding the story angle, tone and length. Commercial media served more as a critical fact-finder than the party media. The former applied more frequently the attribution of responsibility frame and directed the criticism more

equally to multiple actors. While the party media tended to portray the crisis event in a more positive way such as focusing on the compassionate human interest stories, and emphasized the role of government to build up a responsible government image. This difference between Chinese media outlets was consistent with former studies indicating that local media applied more frequently attribution frames to criticize government policies and cared more about audience's feelings. On the other side, Communist Party's media demonstrated more skillful in building government image (Yang, 2009; Yang, 2012). Furthermore, this trend is also consistent with China's media reforms and the specialty of Chinese media system: fusion of Party control and market power (Zhao, 2004). It is no

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longer negligible especially for local media to respond to public concerns and make profits.

In social media era, Weibo becomes the most important online discourse field. The study found some differences between online public opinion and traditional media frames. In the beginning of the crisis, social media and traditional media both frequently applied defining problems frame. Though on Weibo, moral judgments frame was more salient in Phase 1. This could be explained by the regular circulation of the information that people tended to ask about what happened in the beginning, then searching for the reasons and solutions. The frame pattern in the crisis also evolved from problem definition to remedy suggestion (Zhou & Moy, 2007; Entman, 1993).

But it is worth to notice that moral judgments frame was salient on Weibo throughout the whole period. A social media appeared quite emotional with people largely expressing their feelings such as anger, compassion, grief, etc. when a crisis event occurred. Moral judgments frame was also frequently applied by traditional media. Unlike social media, it was more about a sophisticated portrayal of some individual stories to resonate with the public such as compassion. But online opinions about this article were not exactly identical, though most of the netizens deeply grieved for the firefighters, there were also a large number of people criticizing the current firefighting system and appealing for a more strict and comprehensive training for the practitioners in order to reduce the number of casualties. Thus, the voices and frames on social media

were more diversified than in traditional media, which portrayed the individual stories mainly in a positive manner. Wang (2013) pointed out the diversity of online opinion and competing of different frames reflected the fragmented Chinese society and publics. The prevalence of moral judgment frame in newspapers was also consistent with prior studies indicating traditional media frequently used human interest frame to resonate with audiences' compassion for victims (Yang, 2009).

The researchers also notice that in the beginning and the end of the event, traditional media mainly focused on defining problems. While in the middle of the event, it utilized more diagnosing cause frame, which correspond the journalistic norms of providing factual information about what happened, and digging out the buried reasons behind the story, especially when the incident was complicated and rumors could easily spread in online sphere. In this regard, Chinese traditional media plays an essential role in informing the public and keeps a rational image in crisis reporting (Hong & Choi, 2010).

As the event went on, the use of suggesting remedies frame increased distinctly on social media. The netizens provided solutions and tried to push forward the investigation process and even some social reforms relying on the power of online community and public opinion. But, it remains unclear whether the online public opinion could effectively influence the policy-makers, since Zhou and Moy (2007, p.93) suggested that in authoritarian

system, the frame-building power may not reach the policy level.

As to the last research part, this paper demonstrated strong frame interplay between online public opinion and news coverage on national crisis especially regarding fame building and frame setting, which was consistent with prior findings (Hong, 2009). In this study, traditional media's frame-setting effect was more dominant than social media's frame-building effect. Traditional media served as important information sources for Weibo and exerted framing strategies in different phases to guide or shape the public opinion in a way that the government or news organizations hoped (Meraz, 2009). However, social media played an important role in transforming the original event into an influential issue (Zhou, 2007). Thereby, it prompted crisis managers to take measures as soon as possible.

Although China's social media, Weibo, owns large popularity in China whose online discourse imposes more or less influence on media coverage, the platform is censored by the Chinese government, meanwhile the traditional media is controlled by authorities or interest groups (Zhao, 2000; Auer & Fu, 2015). Thus, the influence of social media on traditional media is limited just as the study demonstrated that it only significantly influenced defining problems frame of traditional media during the middle period (Phase 2, 3, 4).

However, traditional media appeared more salient than social media in this frame interplay, for traditional media could effectively set the frames of defining problems,

diagnosing causes, and suggesting remedies to social media at different phases. On the other hand, the crisis event itself attracted more netizens' attention to read media coverage to track the issue and government's crisis management. News reporting also served as essential sources of information for online discussion. Thus, over a crisis event, social media's framing effect is less influential than traditional media. This just confirms and expands Etter and Vestergaard's (2015) study on Facebook's framing effect on news media that traditional media takes the dominance in the crisis event over social media, no matter in a democratic or non-democratic discourse. We suggest future research on how the degree of democracy influences the framing interplay between social media and traditional media.

In addition, the findings of significant framing effect with both one-phase (3 days) lag and two-phase lag (6 days) in the study expand prior studies (Zhou, 2007; Etter & Vestergaard, 2015), applying 7-day time lag. Framing interplay could happen within fewer days between social media and traditional media and the phase setting could influence the statistical analysis.

This study sheds light on the framing strategies for both the public opinion and news media. The public frames could push news media and policy makers to take responsibilities in specific phase. The media and policy makers apply targeted frame to control the flow of public opinion. In addition, policy makers or crisis managers could gain insight into public frames and predict future "reputation threats" among the public opinion (Coombs, 2011).

CONCLUSION

This study found some differences of crisis reporting between the Communist Party's media and commercial media, demonstrating the bifurcation between Chinese media regulated by the government and by the market. The study also analyzed the framing process in social media and traditional media. Different framing patterns were also examined, as well as the complex interplay between the two including frame-building and frame-setting process.

The commercial media in China appeared more a critical fact-finder than party media by analyzing more of accountabilities. The party media, however, appeared more prudent by resonating with the public, to emphasize the role of government and to build a positive image.

Social media was more emotional and solution-oriented, with more remedy suggestions and moral judgments, than traditional media which more on to problems defining and diagnosing. Additionally, traditional media exerted more framing power than social media over the crisis event. Traditional media restructured the generic frames of social media by adapting its own frames, in order to manipulate the flow of public opinion. While social media could transform a crisis event into an influential issue to compel news media to track the event and crisis managers to take measures. However, this study is not free of limitations. This case study demonstrates different logics of crisis coverage, but it could also be lack of generalizability.

For future research, other than the content analysis of social media posts and newspaper reports, we suggest a complementary qualitative approach to examine how traditional media and social media quote each other during different phases over the event to understand this interplay better. Our finding might be influenced by the variance of phase settings. It is not clear yet about the methodologically decide regarding the optimum time span in frame-setting and agenda-setting studies (Lee et. al., 2005). Thus, it is necessary for future examination to tackle this problem both theoretically and empirically.

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