

Framing food safety controversy in China:

Online media vs. networked audience

by

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ABSTRACT

This study identifies and examines the news frames about lean meat powder, a food safety incident in China, carried by two types of online media outlets—the leading government-owned news website (*people.com.cn*) and the most popular and enterprise-owned website (*sina.com.cn*), as well as the audience frames present in a dominant Chinese social media or microblogging site (*Sina Weibo*). Five frames, *attribution of responsibility*, *human impact*, *economic consequences*, *solutions* and *public confidence*, are predefined. The visibility of each frame is detected, and four frames are established in *people.com.cn*, four frames in *sina.com.cn*, and also four frames at *Weibo*. The similarities and differences in the visibility of these frames among the three platforms are then compared. The differences between the two websites and the correlations between media and audience are also discussed.

Based on the results, the two most visible frames in *people.com.cn* are *solutions* and *human impact* and the top two observable frames in *sina.com.cn* are *solutions* and *attribution of responsibility*, while *public confidence* and *attribution of responsibility* are shown obviously in *Weibo*. The biggest gap between the two types of websites exists in of the presence of the *attribution of responsibility* and *solutions* frames. Besides, the results reveals that the correlation between enterprise-owned news website and the microblogging is stronger.

Key Words: Media Frames, Audience Frames, Food Safety, China

CHAPTER 1

INTRODUCTION AND STATEMENT OF THE PROBLEM

Despite advances in food technology, food safety threats are a common occurrence throughout the world. Food safety concerns and actual risk events can bring serious damage on human health. Food safety related topics always draw considerable media attention and public scrutiny (Dagevos & Hansman, 2004).

As in many parts of the world, the mass media in China work as important channels through which the public receives information about health and food risks. Traditionally the purview of newspaper and television news, food safety risks and threats are now the fodder of online media, in particular “social media,” where more and more people choose to get information, ask questions, and share comments on topics related to their health. In China, the popularity of these social network sites (SNS) continues to rise. As of February 2013, for example, there have been over 500 million registered users of the most popular Chinese social networking site, *Sina Weibo* (hereafter, *Weibo*; Zhou 2013). Tagged as “China’s Twitter that dwarfs Twitter,” *Sina Weibo* boasts 140 million users and 50 million active monthly users, with 10 million new accounts signed up each month (Cao, 2012). These sites are pockmarked with facts and details about specific food safety issues. Social media users have more freedom to talk and offer opinions about these topics. From these sites, one can have a glimpse of what people are thinking about when it comes to health and food safety-related topics.

Chinese audiences are very keen on health- and food-related topics perhaps because they have been subjected to serious food safety incidents in recent years. The most

memorable of these are the melamine-contaminated milk powder scandal in 2008 (*China News Net*, 2008), and the recycling of dangerous waste oil or “hogwash oil”—oil re-processed from waste animal parts or recycled from fryers—and resold to restaurants and other customers for use in food production (*Jinghua Times*, 2011). This study focused on another understudied incident occurred in 2011, now infamously known as the “lean meat powder” incident.

The Chinese have long favored and are willing to pay good money for high-quality pork that contains less fat and is thus considered healthier to eat (*sina.com.cn*, 2011). It was soon discovered that the pigs from which the meat was derived were fed with lean meat powder, a food additive that is said to limit fat growth, but has been banned in China. Adding it reduces forage use in hog feeds, thus lowering feed costs and enhancing the income of pork producers. The additive has been banned because of its known adverse effects to human health. Among others, it is said to cause dizziness, nausea and even cause death (*Weekly Quality Report*, 2011).

The illegal practice was exposed in a TV program called *Weekly Quality Report* aired through China Central Television (CCTV), the largest state-owned television station in China, on March 15, 2011. *Weekly Quality Report*, launched in 2003, focuses on product quality and food safety issues. The report stressed that a large amount of pork containing this additive was discovered in the meat production facilities of the Shuanghui Group, a well-known supplier of fresh pork and other meat products. A popular brand, Shuanghui boasts of high quality assurance standards, declaring that its products pass through 18 inspection levels before they reach the public. The presence of the additive in their meat products, therefore,

angered loyal consumers who took to the social media to air their complaints.

The incident attracted heavy media attention. Media covered the illegal practices of the meat producer, government's role in dealing with the problem, the impact of the malpractice on the meat regulatory and administrative structure, to name a few. According to CCTV (March 15, 2011), 80% to 90% of the sample pigs in the farm they interviewed were fed with lean meat powder. These pigs easily passed quarantine inspection after hog producers paid an examination fee. As a result of the expose, Shuanghui Group's stock value dropped, and its brand reputation was damaged (*Jinghua Times*, 2011). The Ministry of Agriculture dispatched officials to Henan province, where the corporate headquarters were located, to investigate (*Xinhua Net*, 2011).

The Group's management went on crisis control drive and took steps to rebuild consumer confidence. It issued a recall of all products, telling consumers to return them to supermarkets with the receipts. Lacking receipts, they could call a service number to apply for return services (*The Mirror*, 2011). It held a staff meeting during which the Chairman apologized to consumers. To mark their renewed dedication to safe foods, the Group set March 15 as *Shuanghui Food Safety Day*. The Chairman also said, in a recent sampling inspection, no lean meat powder was detected in their products (*Shenzhen News*, 2011).

For its part, the Chinese central government stepped up efforts to investigate the production and sale of lean meat powder. The Food Safety Committee Office issued a proposal to strengthen the supervision and management of its use (*People's Daily*, 2011), specifying seven points of inspection, including production source, breeding, acquisition, slaughter, meat production, meat sales and catering, and import and export.

The views and opinions of consumers regarding this scandal were reflected in the social media where they now go to air their grievances. On *Weibo*, there were more than 15,000 posts about this topic on March 16, the day after CCTV's report. No doubt, the lean meat powder issue, a compelling food safety accident, was a very hot topic in both mass media and the social media. Because of the large number of pork products consumers, it was closely and directly linked to Chinese people's daily life and health. As a health risk event, media coverage may spawn several frames to explain the incident to their publics. Media frames applied to the coverage of risk events, in turn, help shape the way audiences come to understand, feel, and behave toward this risk event (Scheufele, 1999).

This study asked: what frames about this incident were visible in the online media (media frames)? Two types of online news websites were examined on their coverage of this event, government-owned and enterprise-owned. In this study, *people.com.cn*, the official website of the *People's Daily*, which is known for being the mouthpiece of the CCP, represented government-owned media. And *sina.com.cn*, an online news website owned by Sina Group, was considered to be of enterprise-owned type.

Besides, this study also asked what frames about this incident were present in comments on social media (audience frames). In other words, this study aimed to examine media frames by analyzing the content of online news-based portals in their coverage of the lean meat powder incident. Meanwhile, this study tried to determine the audience frames formed by their exposure to the mass media's coverage of this risk event, by analyzing the comments posted on *Weibo* about the topic. This study then attempted to determine whether media frames were also present in the audience's frames about the topic.

This study is expected to make contribution to the framing scholarship particularly concerning food safety issues. Framing analysis in this study focused on news frames in online news media not traditional print media because nowadays audiences are in a new Internet-based media environment. The comparative analysis conducted between two different types of websites in China and between media and audience sides in this study add more scholarly discussion about the role of framing in the Internet-based media environment. The findings of this study may also have practical implications for journalists who are responsible for creating an informed public, especially about issues that have a direct bearing on their lives. Besides, crisis situations tend to trigger greater public dependence on the mass media because people come to rely upon the media's structural connectedness with the best available sources of information (Ball-Rokeach & DeFleur, 1976). Then it is expected that the results of this study can verify whether it happened when a risky health incident occurred in China.

CHAPTER 2

LITERATURE REVIEW

This study aimed to determine and compare how two types of online news media cover the lean meat powder incident and how the audience members understand the same issue. Framing theory serves an appropriate theoretical framework to achieve the research goal. The axioms of other theoretical formulations, such as the media dependency theory, and the principles of risk perception as they relate to the research questions were also discussed. This chapter also differentiated between government-owned and enterprise-owned online media websites and the possibility of frame variation based on orientation and newsgathering principles. Previous studies on the mass media's performance in reporting food safety issues were also reviewed.

Framing theory

Frames, according to Goffman (1974), serve as “principles of organization that govern events—at least social ones—and our subjective involvement in them” (p. 10). Framing happens at every stage of the communication process, from sources to receivers. Framing occurs within the broader culture wherein communication takes place (Entman, 1993). Framing, however, is often studied as a function of the communicator or the source. Tankard (2001) defined a media frame as “a central idea for news content that supplies context and suggests what the issue is through the use of selection, emphasis, exclusion and elaboration” (p. 99).

In media reports, frames can be observed in verbal and visual elements of news. Frames in text “are manifested by the presence or absence of certain keywords, stock phrases,

sources of information, and sentences that provide thematically reinforcing clusters of facts or judgments” (Entman, 1993, p. 52). Texts can make bits of information more salient by placement or repetition, or by associating them with culturally familiar symbols (p. 54).

Gamson (1992) adds that framing is also accomplished by the use of visuals (e.g., photographs, diagrams, illustrations), including various condensing symbols such as metaphors and other graphics devices. The frames present in the mass media’s portrayal of issues and events are called “media frames.” Researchers analyze news stories to examine media frames (Scheufele, 1999).

Frames can also reside in people’s minds, also called “audience frames.” As people use information and presentation features gleaned from the information sources to which they are exposed, they form impressions about those topics and issues (Scheufele & Tewksbury, 1997). Audience frames are “mentally stored clusters of ideas that guide individuals’ processing of information” (Entman, 1993, p. 53).

Nelson, Oxley and Clawson (1997) posited that “media frames can be meaningful and important determinants of public opinion” (p. 224). Writing later, Scheufele and Tewksbury (2007), explained that framing is based on the assumption that how an issue is characterized in news reports can have an influence on how it is understood by audiences (p. 11). In other words, messages in the media can affect people’s different considerations and opinions by emphasizing some aspects of a problem (Vincent, Tewksbury & Elizabeth, 1997).

Framing research can be separated into research examining frames as an independent or dependent variable (Scheufele, 1999). As a dependent variable, frames are generally studied as direct outcomes of several factors that influence how the mass media portray or

depict an issue. Scheufele (1999) listed a number of these antecedent variables, including journalistic routines, political ideologies, pressure from external groups, and other forces that control the process of reporting and delivering the news. On the other hand, media frames as an independent variable is generally linked to audience frames. Studies that examined media frames as an independent variable focused on individual frames as “outcomes, given specific types of media frames” (p. 112). Thus, media frames as an independent variable is hypothesized as having an impact on attitudes, opinions, or individual frames.

Some researchers also examined that media frames can be affected by a number of situational factors just as listed by Scheufele in 1999. For example, in the study by Callaghan and Schnell (2001), they were trying to analyze the factors that influence media framing using the issue of gun control. They found that the interest group and the politicians played an important role in the news defining and framing process. Gandy, Kopp, Hands, Frazer and Phillips (2001) conducted a study to examine the factors that can influence the news frame about racial discrimination in risk information delivery. From their findings, journalistic traditions and political power were two powerful influencing factors that affected the patterns of news frame.

Looking at media frames as the independent variable, Huang (1996) compared the media and audience frames using the Hill-Clarence Thomas controversy. She measured media frames as independent variable by analyzing the related news stories in newspapers and measured audience frames as dependent variable using the answers of survey about the controversy. She found audience frames to be contrary to media frames, and “what was central to the media might be rather peripheral to most respondents” (p. 19). Sabir and Rasul

(2011) studied the media frames and individual frames to find the possible relationship between the two kinds of frames. They examined editorials and letters to the editors to determine the media and individual frames. They discovered a bi-directional influence: “media frames influenced public opinion and individual frames impinged on media content” (p. 48). Moreover, other researchers also examined media frames to influence the attitude, knowledge or opinions of the audience. Terkildsen and Schnell (1997) examined weekly print media’s coverage of the women’s movement as media frames and measured the effects toward public opinions. From the findings, they found that different frames had different effects on public opinion and “media frames not only alter issue conceptualizations, but also produce a net shift in citizens’ issue support” (p. 894). They believed that “the impact of the mass media reached beyond minimal effects” (p. 894). Besides, Shen (2004) conducted a study to measure effects of news frames and schemas on people’s attitude. He also found that news frames can affect attitudes.

With regard to the current study, it first examined media frames by analyzing the effect of two important contextual variables, the extent to which government exercises control over online media (i.e., whether the website is government- or enterprise-owned) and the editorial and newsgathering leanings of websites (i.e., whether they are government- or enterprise-owned as far as the Chinese political system allows) on media frames. Second, it examined the correlation between media frames and audience frames to better understand how audiences were possibly influenced by media to come to understand a particular food safety incident.

In this study, media frames were determined by examining two online news portals’

coverage of the lean meat powder incident. Audience frames were determined by examining people's postings in *Sina Weibo*. Postings on *Weibo* were simple opinion pieces that have been applied to determine audience frames and perceptions (Bulck & Claessens, 2012; Tian, 2010). According to Bulck and Claessens, these online opinions are more natural results than other types of audience responses such as questionnaires and experiments (2012).

News frames

Scheufele (2000) defined a frame as “an idea that supplies a context and suggests what the issue is through the use of selection, emphasis, exclusion and elaboration” (p. 523). Each news item has a theme that structures it (Gamson & Modigliani, 1989; Pan & Kosicki, 1993). This theme connects different semantic components of a story into a coherent whole (Pan & Kosicki, 1993). In the current study, a frame is the overarching thematic structure applied to present the story.

According to Entman (1993), “to frame is to select some aspects of a perceived reality and make them more salient in a communicating context in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation” (p. 52). Beside, other researchers also found and examined news frames in their studies. For example, the *economic*, *human impact*, *conflict and morality* frames were primarily used by U.S. media to cover a story, according to Neuman, Just and Crigler in 1992. Also, five generic frames, *attribution of responsibility*, *conflict*, *human interest*, *economic consequences* and *morality* were examined to be dominant in Semetko and Valkenburg's study (2000) on press and television news frames on European political issues. These generic and other issue-specific frames were used by many other researchers on examining news

coverage of political, risk and concrete food safety stories. Han (2007) adopted “*conflict and attribution of responsibility*” as generic frames and “*game, issue, ideology and military consequences*” as issue-specific frames in his study of Chinese mainland news coverage of Taiwan presidential election. When Luther and Zhou (2005) examined the different frames using by Chinese and U.S. media on the same topic of SARS, they analyzed *responsibility, human interest, conflict and economic consequences* frames. Liu (2012) employed four generic frames, *attribution of responsibility, human interest, conflict and economic consequence* and one issue-specific frame, *humanity*, in her study on the comparison of Chinese and U.S. TV news coverage on H1N1 influenza. *Economic, political/policy, health, ideological and image of ‘being cool’* were analyzed as frames in Kenterelidou’s study (2012) on news reporting of smoking in public places. McKeever (2013) measured frame-changing in news reports about autism from 1996 to 2006 and he found *science* frame decreased and *policy* increased over time and *solutions* were mentioned more than *causes*. *Loss, threat, cause, responsibility and solution* were analyzed in the comparative research between Japan and American media reporting on Japanese nuclear crisis by Chattopadhyay (2013).

Besides, some scholars paid attention to media coverage specifically of food safety related topics. Sun and Zhang (2010) analyzed the frames of *reason/ blame, solutions and aftermath* to compare the different coverage between two types of print media, China mainland and Taiwan, on the same topic, Sanlu contaminated milk powder incident. In addition, Laestadius, Lagasse, Smith and Neff (2012) selected *health risks, causes of the outbreak, means of addressing the outbreak and focus of coverage* to figure out the general picture of news media coverage of the 2010 Iowa egg recall event. Irlbeck (2009) found the

health frame was more common than the other three frames, *financial impact*, *FDA/government*, *farmers*, in the coverage of 2008 Salmonella outbreak by ABC, CBS and NBC because this incident can threaten public health. In another similar research on television news reporting of Salmonella outbreak incident in peanut products, researchers found that the most common frames were *informational* and *anti-Peanut Corporation of America (anti-PCA)* and *anti-FDA* where in *informational* frame the stories introduced briefly what to avoid and how to lower the risks and *anti-PCA* and *anti-FDA* reflected negative attitudes and blame to the two organizations (Irlbeck, Akers & Palmer, 2011).

Dependency of and trust in media

It is highly likely that Chinese audiences were made aware of the lean meat powder incident from the mass media. There is a strong possibility, too, that they will turn to the mass media to learn more about the issue. Studying the second-level agenda setting effects of the mass media in the case of the contamination of the Wuchang rice, Li (2012) found that her respondents, composed of residents in the city of Xi'an, learned about the adulteration of Wuchang rice primarily from mass media channels. Of the mediated sources, the most commonly cited were newspapers, television, and online news.

In times of crisis and during periods of great ambiguity, the mass media satisfy the information needs of people. Because of their resources and their structural connectedness to the best available sources of information about a threatening event, people come to depend on them during difficult times, according to Ball-Rokeach and Defleur (1976). Such a dependency has a more profound tendency to influence people's cognitions, attitudes, and behaviors.

A food safety crisis satisfies one of the conditions that heighten audiences' dependency on the media. According to Ball-Rokeach and Defleur (1976), first, people become dependent on the media when there is a need for information that directly affects their personal situations. These include the impact of a health threat on the individual, the family, and society. In the case of the lean meat powder incident, the health and wellbeing of people were placed at risk, enhancing people's dependence on the media for information about protective measures and government response, among others. The public's dependence on mass media is strengthened by the severity of the perceived harm that characterizes a risk event. Second, in the face of rapid social changes and considerable conflict, the dependency effects will be more salient (Ball-Rokeach & Defleur, 1976). However, if the connection between the public audience and the mass media is interrupted or when people are able to get adequate information from the surrounding environment, the mass media "may have little or no effects" (p. 19).

Fischhoff (1995), offering a brief history of risk communication, explains that during the early development stages of the discipline, the focus was on how to better communicate mostly technical information to the general public. Before, the prevailing notion was that disseminating accurate information to the public is enough to help them understand the risk and help allay their fears. At the early stages, the emphasis was to "get the numbers right, tell the public the numbers, explain what we mean by the numbers, show the public that they have accepted similar risks in the past, show the public that it is a good deal for them, treat them nice, make them partners, and all of the above" (Fischhoff, 1995, p. 138). In other words, at this stage, explaining risk data was considered the core problem in risk

communication (Sandman, 1994). Risk communicators, Sandman (1994) explained, were asked to pay attention to three aspects: motivation, simplification and orientation.

These judgments applied in assessing risk becomes evident in the case of food safety threats brought about by the accidental or deliberate contamination of food items with substances or ingredients that pose risks to human health. Indeed, food safety has increasingly become a major issue of public risk concern all over the world (Frewer, 2000; Yeung & Morris, 2001). When it comes to food safety issues, Frewer (2000) submits that public risk perceptions are influenced by factors such as ethical concerns and the extent to which audiences trust information providers. According to her, the old approach to communicating risk was too limited in its objective of increasing public exposure to, and enhancing public understanding of, risk information. Trust, she argues, is a very important element in determining public responses to risk communication. Balicer and Wiser (2005) support this argument.

This study assumed that trust in different information providers can affect people's risk perception and the frames they develop about a specific food safety issue based on their exposure to different information sources. Thus, it is hypothesized that different information sources, in this case online news media, will produce different frames in their coverage of the same topic or issue. This, in turn, will result in varying audience frames shaped by storylines or the valence of reports from websites with different orientations, newsgathering principles and degrees of freedom to express views. Besides, understanding how people depend and trust in mass media can help to predict and understand the relationship between media and audience frames in this study.

Mass media and social media in China

In China, most media content, including those related to food crisis events, can be restricted for several purposes. “When government censors, it aims at the content of speech or at its effects. Expression is suppressed because government fears or disagrees with what is being said” (Berger, 1985, p. 708). Under the ownership and exclusive control of the only party in power (the Chinese Communist Party or CCP), the media system in the country is mandated to work for and toward the government’s aims (Chu, 1984). After the People’s Republic of China was proclaimed in October 1949, the CCP began to organize all communication media, traditional and modern, for the purpose of building up socialism (Sun, 1992). Years of economic expansion have ushered in a desire to reform the communication system. The institutionalization of these reforms, however, is not being pursued systematically (Wu, 2006).

Today, although all media outlets in the country are still under government control, Luther and Zhou (2005) pointed out that the economic reforms in 1970s brought “new news-making incentives” to Chinese media system (p. 858). Chinese news media should not be simply considered as the mouthpiece of the Party, the journalists write news articles considering marketing elements while at the same time under ideological control of CCP (Chang, Wang & Chen, 2002; Luther & Zhou, 2005; Zhao, 1998). Winfield and Peng (2004) found that the Chinese media system is “moving from totalitarianism to market authoritarianism” based on research on Chinese media transition from economic reforms (p.1). News portal websites differ in terms of the extent to which they are being subjected to such control. There are websites that are owned by joint-stock company even with foreign

investments. The editorial policies and news-collecting principles of these websites differ in being slightly more liberal than the government-owned websites. Many, however, remain staunch supporters of government initiatives and refrain from criticizing those in positions of authority. Nowadays, a large number of Chinese people rely on the Internet to get news information and early in 2008, this number was up to 206 million, which represented 86% of Chinese netizens (Xie, 2008).

In this study, *people.com.cn* is the official website of the *People's Daily* which is a nationally circulated newspaper known for being the mouthpiece of the CCP and whose editorials and commentaries represent the viewpoints of the Chinese leadership. Beside, it is also a news-based online information interchange platform collecting news from many mainstream news outlets in China. It will represent the websites that can be considered very pro-government in their coverage of events. Thus, the *People's Daily* is central to understanding the Chinese propaganda state, as well as elite politics (Wu, 1994, p. 195).

There are news portal websites, however, that are relatively more liberal in their orientation and news-collecting principles. Among them is one of the largest portals in China, *sina.com.cn*. *Sina.com.cn* is one of the main products of Sina Group which is an online media company serving China and the global Chinese communities (*Sina.com.cn*, 2013).

Sina.com.cn aims to set up a multifunctional and easy-operating Chinese-based cyberspace through providing comprehensive and timely Chinese information and effective online tools. Customer, creative, constructive, change and confidence are the faiths of *sina.com.cn*.

With the rapid development of the Internet, there are several types of social media in China, such as *Renren* and *Microblog (Weibo in Chinese)*. *Weibo* has been regarded as not

only Chinese version of *Twitter*, but also a hybrid of *Twitter* and *Facebook* (Cao, 2012; Wan & Ma, 2012). According to the 29th statistical report of Chinese Internet development by China Internet Network Information Center in 2012, 48.7% of Chinese netizens are using *Weibo*. On *Weibo*, registered users communicate, interact and share the moments of their lives. They can also follow and excavate other people's lives and interested topics and celebrities open up their lives to attract more followers. Even Chinese independent political candidates also use *Weibo* as an effective tool to frame their political messages. *Weibo* also works as a news and information source for the traditional media (Liu & Pascual-Ferra, 2012; Wan & Ma, 2012). People talk and comment freely and equally on *Weibo*, which makes it be a good tool and channel to spread news (Wan & Ma, 2012; Yong, 2012).

Two types of news portals and *Weibo*

Two news portals will be examined in this study, including *people.com.cn* and *sina.com.cn*. *People.com.cn* represents the news websites and other media outlets that are pro-government in their coverage of events or their censorship and news selection principles. *Sina.com.cn* is product of Sina Group aiming at providing comprehensive and timely news information to Chinese people. It can be considered representative of China's enterprise-owned portals and other more liberal media.

People.com.cn is an official portal website launched by the *People's Daily* on January 1, 1997. *People's Daily* is the largest Party newspaper in China founded in 1948. It is a large-scale information interaction platform and it is also one of the largest comprehensive Internet media entities on the Internet. As a leading key news website in China, it upholds the belief "authority and strength originate from the people." With "authority, popularity and

credibility" as its tenet, it takes "multiple languages, all media forms, globalization and full coverage" as objectives, and "disseminating China's news and covering world news" as its mission. In 2008, President Hu Jintao pointed out that *people.com.cn* has played a unique role in advocating the Party's belief, guiding public opinion and warmly serving netizens since inception. *People.com.cn* offers 16 versions in 15 languages, including Chinese (simplified and traditional), Tibetan, Korean, English, Japanese, French, and so on. It publishes news in the form of text, picture, animation, audio and video, BBS, blog, microblog, podcast, talk bar, mobile phone, RSS, and webcast. Empowered by no less than 70 bureaus home and abroad, it publishes news events the moment they take place to global Internet users covering politics, economy, society, and culture around the clock (*people.com.cn*, translated from Chinese).

Sina.com.cn, launched in 1998, is one of the main products of Sina Group which is an online media company serving China and the global Chinese communities (*Sina.com.cn*, 2013). *Sina.com.cn* aims to set up a multifunctional and easy-operating Chinese-based cyberspace through providing comprehensive and timely Chinese information and effective online tools. It also offers advanced technology for users to communicate with the whole world comfortably and freely and makes it as an all-functional online living community for the global Chinese. Customer, creative, constructive, change and confidence are the faiths of *sina.com.cn*. Besides, *sina.com.cn* offers distinct and targeted professional content on each of its region-specific websites and a range of complementary offerings (*Sina.com.cn*, translated from Chinese).

The Sina microblogging site popularly known as *Weibo* was founded in 2009 by the Sina Group and has rapidly evolved to be the Chinese version of Twitter. Although also

owned by Sina, it is independent from other products of Sina. *Weibo* and the portal have different online access, service, and market positioning. Entertainment, life, and happiness are the main themes for *Weibo* users, while the portal forwards all types of news for the general public. Now Sina *Weibo* is the largest microblogging server in China, with more than 500 million users who issue postings, pictures, and source links accessible through webpages and mobile phones (*Xinhua Net*, 2013).

Weibo is a form of social media, featuring microblogging services and social networking services that allow users to connect and share information anywhere, anytime and with anyone on our platform. In *Weibo*, users share facts, opinions, comments, interpretations, and general messages that are no longer than 140 Chinese characters long. Those who follow these posts can forward or re-post messages in other sites following what *Weibo* developers call “an organic circulatory process” of information transmission. *Sina Weibo* provides a strong searching function. Users can set a particular topic using two “#,” which others can use to search all postings about the same topic. Users also take advantage of *Weibo*’s search engine to look for postings and more detailed information. *Weibo* users discuss every topic under the sun.

Media coverage of food safety issues in China

Food safety scandals that seriously threaten the wellbeing and health of consumers are not new in China. For instance, powdered milk was discovered tainted with melamine in 2008; adulterated wine was found in Guangdong province in 2004; media outlets around the world documented how restaurants were found using oil recycled from garbage in 2010. In numerous instances, the safety of food products has been threatened by improper

manufacturing and packaging processes. The spate of food safety scandals led the *Chongqing Morning News* (2011) to report that over 70% of the country's population do not believe that the Chinese food industry can be trusted to provide them with products that are safe to eat.

The results of recent content analysis studies indicate that food safety issues are getting the attention they deserve from the Chinese media. Analyzing the newspapers' performance in reporting about the contamination of milk powder in 2008, Chen (2009) found that 87.5% of the reports made the front pages. Most were straight news articles; the rest were in-depth reports, special news columns, interview stories, and readers' responses. These articles discussed solutions to the problem of food contamination, follow-up reports, and stories with related social topics. The author, however, was generally unimpressed about the quality of coverage, calling for more depth and investigative reports to get at the root of the problem.

In another study, Sun and Zhang (2010) examined news reports about the tainting of Sanlu milk powder in newspapers published in the mainland and Taiwan. The researchers found that all three newspapers adopted a political slant in their reports. However, the mainland newspaper attributed the issue to the low moral standards of business people and dairy enterprises, but the Taiwan newspaper placed the blame on the lack of government supervision. The mainland newspaper focused on government announcements, mainly about what the government was doing to solve the crisis, while the Taiwan paper stressed solutions and the health condition of victims (Sun & Zhang, 2010).

Investigating network media coverage of the same incident, Li (2010) found that TV news primarily presented very general messages, focusing on potential solutions to the

problem of milk contamination, including stopping production, recalling and destroying the tainted milk. The medical condition and treatment of affected children, as well as government measures to prevent the incident from happening again were two important topics discussed in the network media. Zeroing in on websites, Li (2010) observed that the main messages were from government and government officials. Some were from the mass media. There were very few other sources of information. Most key persons mentioned about the incident were government officials, followed by milk industry representatives and children who were victimized. A great majority of the website media reports (93.3%) took a neutral stance on the topic (Li, 2010). The generalizability of Li's findings, however, is severely limited by restricting the sample to reports published in Xinhua Net.

Based on the literature review discussed above, this study examines the extent to which the articles about the lean meat incident will exhibit the following frames: (1) *attribution of responsibility*, (2) *human impact*, (3) *economic consequences*, (4) *solutions* and (5) *public confidence*. The first four frames were generated based on previous literature pertaining to risk-, health- or food safety-related topics. The last frame was developed according to the factual basis and specific features of the lean meat powder incident. These frames are discussed in detail as follows:

Attribution of responsibility frame. This frame is applied by news articles focusing on who should be blamed and who should take responsibilities for the issues that happened (Beaudoin, 2007). In this study, articles that depict this frame discuss who are the individuals and/or entities to be responsible for this food safety breach. A cursory content analysis indicate that those being blamed are: scrupulous animal producers and meat processors;

farmers who feed their animals with lean meat powder; the governments for their lax and ineffective supervision and/or regulation of the meat industry, as well as corrupt practices; meat sellers who knowingly sell tainted meat to unsuspecting consumers; and other individuals and entities.

Human impact frame. This frame refers to the impacts toward human beings from the lean meat powder and the incident itself. In this study it is exhibited by stories that talk about the adverse impact of consuming meat from animals fed with lean meat powder on human health; diseases and disorders caused by eating tainted meat, such as dizziness, upset stomach, lethargy, and trembling hands. The stimulants the lean meat powder produces are especially dangerous to people with heart disease and high blood pressure. Long-term consumption may also cause chromosome abnormality. Besides, this frame also talks about the impact of the food safety incident on actual people known to have suffered from eating tainted meat.

Economic consequences frame. This frame focuses on the impacts toward economy caused by the risky event (Semetko & Valkenburg, 2000). Stories that display this frame discuss the impact of the illegal practice on the national, local and industrial economy.

Solutions frame. This frame refers to solutions taken or will be taken to solve the problems. In this study, this frame is evident in stories that discuss the steps being proposed or are being taken by the government or the meat industry to solve the problem, including recalling meats treated with lean meat powder, readjusting and/or strengthening the supervision of commercial enterprises that deal with meat, full disclosure of the meat

production process, apologizing to victims and compensating them for their suffering, punishing those who violated the law, and other solutions.

Public confidence frame. This frame refers to the losses of public confidence when health risky issues happen. This frame is employed because public confidence losing may happen when there has been a series of food safety incidents happened in China. In this frame, articles discuss the impact of the illegal practice on social life, including people's reluctance to eat meat; increased levels of anxiety and worry over the safety of basic food items; erosion of the credibility of the meat industry; erosion of the public trust in the government's policies to regulate the meat industry, and the government's general inability to guarantee the safety of food products.

Research questions

This study first tries to figure out how the lean meat powder incident was framed in both in media and among audiences.

RQ1: What frames were present in the coverage at *people.com.cn* (RQ1a) and *sina.com.cn* (RQ1b) concerning the lean meat powder incident (media frames)?

RQ2: What frames were present in the *Weibo* users' postings of concerning the lean meat powder incident (audience frames)?

The second purpose of this study is to compare media frames and audience frames. In former studies, Xu (2012) and Su (2013) found there exist differences in the contents of the two portals toward same news topics. Also, based on the statement that there are different political and economic constructions and news producing mechanism existing between the two types of websites (Xu, 2012). Although some differences were revealed in previous

studies, the results were not based on specific food safety topic. So this study asks the third research question.

RQ3: Is there any differences between government- and enterprise-owned media in terms of the frames present in their coverage of the lean meat powder incident?

This student then analyzes the possible associations between two types of media frames and audience frames.

RQ4: Is there a correlation between the government-owned media frames and audience frames regarding the lean meat powder incident?

RQ5: Is there a correlation between the enterprise-owned media frames and audience frames regarding the lean meat powder incident?

CHAPTER 3

METHOD

Data for this study were gathered by conducting a content analysis of two Chinese news portals' coverage of the lean meat powder incident to determine media frames, and a content analysis of users' postings on the *Weibo* that were related to the same incident to determine the audience frames.

Data source and time periods

To determine media frames, articles published within one month after the malpractice being covered by the two news portals were collected. Two key terms, “双汇” (Shuanghui) and “瘦肉精” (lean meat powder) were used by searching on the official news search engines of the two websites. Only straight news reports and feature stories were selected and analyzed. Opinions and commentaries were excluded from the sample because they did not necessarily reflect the websites' or news outlets' stance on the issue. If a news item appeared multiple times on the search result list with slightly different or the same content but different title, only one of them was kept for analysis. The whole article was analyzed and served as the unit of analysis in the examination of content.

According to the online preliminary search of this topic, there was an obvious time period, one month after the incident was exposed, which can represent the peak days of the coverage, regarding three main news points, scandal breakout, apology conference of Shuanghui and solutions and government investigations. After one month, the voices of news reports and discussions muted on both media and audience side. In this study, the time period for data collection was determined from March 15, 2011, to April 15, 2011, in which 690

articles were found on *people.com.cn* and 740 stories on *sina.com.cn* in the preliminary search. At last 116 articles from *people.com.cn* and 120 articles from *sina.com.cn* were randomly selected.

To determine audience frames, original (not forwarded) postings about this topic appearing in *Sina Weibo* one month (31 days in this study) after the malpractice was exposed were examined. Similarly, two key terms, “双汇” (Shuanghui) and “瘦肉精” (lean meat powder) were searched in Weibo’s official search engines and 130,192 posts were found. This study did not focus on individual audience member’s thinking but instead measured the public’s whole opinions as audience frames’ sources. Then a systematic sampling method was conducted to choose data. First, four random chosen hour of each day were selected. Second, the first ten posts the contents of which were talking about this food safety issue were kept and combined as one analysis unit which had compatible length with the average length of news stories. Third, this step was repeated in every day in the defined time period. Using March 18 as an example, the 11th hour (from 10am to 11am) was randomly decided and the first ten qualified posts were chosen and combined as one unit of analysis. Finally a total of 124 analysis units were selected.

Coding

To determine frames, coders were guided by Semetko and Valkenburg’s study (2000). All of the five frames were examined by their visibility and each of them was measured by five corresponding questions (Appendix A).

The coders were provided a code sheet with 25 questions in broken sequence without showing the correspondence between frames and questions. They answered all the 25

questions by yes (coded “1”) or no (coded “0”) for each unit of analysis. For example, one news story reported “The Ministry of Agriculture investigate lean meat powder in Henan province” (*Sina.com.cn*, March 16, 2011), the coders answered “yes” to one question concerning *attribution of responsibility* frame, three questions concerning *human impact* frame, two questions concerning *economic consequences* frame, two questions concerning *solutions* frame and they gave “no” to the rest of questions. After that, the numbers of “yes” and “no” for each frame were averaged to show the visibility. Examples of each frame were shown to the coders:

Attribution of responsibility frame. There are two important reasons for the current food safety problem, like the lean meat powder incident, in China. The first one is that some famous enterprises like Shuanghui Group purchased the contaminated pork, disregarding the public credibility. The second reason is the screening behavior of governmental supervisors (*sina.com.cn*, March, 15, 2011). This article answered “yes” to the second and third questions in the *attribution of responsibility* frame.

Human impact frame. Eating meat containing lean meat powder can bring damage to people’s health. It can cause muscle and the four limbs tremor and more serious symptom can make people feel dizzy and cannot stand. Patients already having low nerve function diseases such as hypertension, or coronary heart disease may have more salient symptoms. More seriously, eating lean meat powder for a long time might cause chromosome change and induce the growth of malignant tumors. In recent years, there have already been some reported death cases because of lean meat powder ingestion (*sina.com.cn*, March, 16, 2011). This paragraph answered “yes” to the first two questions in the *human impact* frame.

Economic consequences frame. The scandal of the Shuanghui Group using lean meat powder was exposed last week. Although till now it is only less than one week, this incident has already brought serious adverse influences to the national pork market. After the incident, the pork price has already dropped down a lot and the needs of forage and raw materials are also dropped. By roughly calculating, just in last week, the loss of the whole pork field has already been over three billions (*sina.com.cn*, March 22, 2011). This paragraph answered “yes” to the first and fifth questions in the *economic consequences* frame.

Solutions frame. The Ministry of Agriculture held a special meeting in Xi’an to arrange the readjust and supervision work of lean meat powder incident. They sent urgent notice to supervision departments of every government level to take steps to supervise each link of meat production such as breeding, purchasing and transportation. They are also working on a proposal to renovate the lean meat powder use and supervision (*people.com.cn*, March 24, 2011). This paragraph only answered “yes” to one question, does this story mention solutions from governmental organizations, in the *solutions* frame.

Public confidence frame. After Shuanghui was exposed to use pork containing lean meat powder, most of the consumers hesitated to purchase Shuanghui products. The consumers claimed that they tended not to believe in some famous brands like Shuanghui (*people.com.cn*, March 30, 2011). This paragraph answered “yes” to the first and third questions in the *public confidence* frame.

Two graduate students were trained on the coding protocols using 15% of the articles collected from the websites and 15% of the collected *Weibo* postings.

Scott's pi was used to measure inter-coder reliability. After tests, the Scott's pi value for *people.com.cn* was 0.92; the value for *sina.com.cn* was 0.94; and the value for *Weibo* was 0.94. The details of inter-coder reliability test results were shown in Appendix B.

Data analysis

Factor analysis. A principal component analysis with varimax-rotated factor solution was used to verify whether the coding questions or frame indicators could cluster to form independent and distinguishable frames (Han, 2007). The questions whose values are higher than .40 were kept for further analysis. Cronbach's alpha values were also calculated for each frame and frames with alpha values higher than .60 were kept.

To answer the first two research questions about what frames were present in the media side and audience side of the lean meat powder incident, mean and standard deviation of each frame was calculated to figure out the media frame for this issue.

To answer the research question about whether there was a difference between government-and enterprise-owned websites in terms of the frames they used to cover this incident, a series of independent samples t-test was employed.

The correlations between the government-owned media frames and audience frames, enterprise-owned frames and audience frames regarding this food safety incident were addressed in the last three research questions. Then a Pearson correlation statistical method was used to verify their correlations.

CHAPTER 4

RESULTS

The first research question asks what frames were present in the two types of online media coverage of the lean meat powder incident. The predefined frames were *attribution of responsibility*, *human impact*, *economic consequences*, *solutions* and *public confidence*. After factor analysis, six questions were therefore omitted. Table 1 shows the results of the final factor solution.

Cronbach's alpha was calculated to verify the internal consistencies within each frame. The alpha values were .71 for the *attribution of responsibility* frame, .82 for the *human impact* frame, .58 for the *economic consequences* frame, .60 for the *solutions* frame, and .63 for the *public confidence* frame. The *economic consequences* frame was omitted for not meeting the Cronbach's alpha threshold value of .60, leaving four frames for further analysis.

Table 2 shows the mean scores (M) and standard deviations (SD) for frame visibility by both websites. The percentages of frames found in the two websites are shown in Table 3. Then the presence of the indicators of the four frames were added and averaged to obtain a standardized value for each news article. General Linear Model (GLM) analysis (repeated measures) was used to reveal the presence of news frames within a website. The results shown in Table 4 and Figure 1 indicate that the visibility of frames applied by news stories found at *people.com.cn* differ significantly. Within this website, the *solutions* frame was the most prominent frame ($M = .50$), while the *attribution of responsibility* frame was the least visible frame ($M = .15$). As the results show in Table 5, there also existed significant

differences in the presence of the four frames present in the news stories from *sina.com.cn*. The most observable frame was also the *solutions* frame ($M= .41$), but, in contrast with *people.com.cn*, the least observable frame was *public confidence* frame ($M= .15$).

To determine whether the frames were also present on the audience side, the same factor analysis method was applied to show indicator-clustering on the audience side; the results are shown in Table 6. Eight indicators (including all the questions for the *economic consequences* frame) were omitted for the reason of loading values lower than .40. The last two indicators (Q24 and Q25) were also deleted because they did not cluster appropriately with the other three indicators within the *public confidence* frame, although they had high loading values higher than .80. The Cronbach's alpha values of the remaining four frames were .66 for the *attribution of responsibility* frame, .61 for the *human impact* frame, .61 for the *solutions* frame and .79 for the *public confidence* frame.

On the audience side, the most visible frame was the *public confidence* frame ($M= .72$), followed by the *attribution of responsibility* frame ($M= .44$) and the *solutions* frame ($M= .42$). The least observable frame was the *human impact* frame ($M= .21$) (See Table 7 and Figure 1).

The third research question asked whether there existed significant differences in visibilities of news frames between the two websites. Four independent samples *t*-tests were conducted to compare the means of each frame. The results are shown in Table 8. Based on the results, the *attribution of responsibility* frame was more visible in *sina.com.cn* than in *people.com.cn* ($p < .001$), and the *solutions* frame was more prominent in *people.com.cn* (p

<.05). There was no statistical difference between the two websites found in terms of the *human impact* and *public confidence* frames.

The last three research questions asked to verify whether there were correlations between *people.com.cn* and *Weibo* as well as *sina.com.cn* and *Weibo*. A series of Pearson correlations calculated correlations of the presence of each frame. The results indicated that there was significant correlation between *sina.com.cn* and *Weibo* in the visibility of *human impact* frame ($p < .05$) and *public confidence* frame ($p < .05$). There were no significant correlations found in the frames of *attribution of responsibility* and *solutions*. No significant correlations were found between *people.com.cn* and *Weibo* in all the four visible frames.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This study conducted a content analysis to examine media frames embedded in the online news posted on two different types of websites, *people.com.cn* and *sina.com.cn*, as well as the audience frames carried by public opinion (posts) on the microblogging site *Weibo*, regarding the lean meat powder incident that occurred in China in 2011. The goals were to identify how the lean meat powder incident was displayed in both media and audience sides, ascertain differences between the presence of frames applied by two different types of news portals and figure out whether there were correlations between the visibility of frames in media and audience side.

Findings revealed that four out of five predefined frames were observable in two types of news portals as well as in *Weibo*. This study indicated that there were significant differences between the two types of websites when they applied the *attribution of responsibility* frame and *solutions* frame. It also found correlations between one media type (in this case, *sina.com.cn*) and audience opinions as shown through *Weibo* in *human impact* and *public confidence* frame.

Frames used to analyze

This study asked 25 questions (five indicators for each frame) to figure out five frames in both media and audience side: (1) *attribution of responsibility*, (2) *human impact*, (3) *economic consequences*, (4) *solutions* and (5) *public confidence*.

On both media and audience sides, four frames were left for further analysis after the factor analysis: *attribution of responsibility*, *human impact*, *solutions* and *public confidence*.

The economic consequences frame was not proved to exist, possibly because there were no important economic consequences after this incident. Another possible reason might be that both media and audience paid less attention to this kind of information compared to other aspects of this event. Although the same predefined frames with the same indicators were kept, on the audience side, one point that was different across media was that the last two questions also had high loading values in factor analysis, but they clustered differently with the other three questions (see Table 6). The last two questions, asking whether erosion of the credibility of governmental organizations and mass media was mentioned, got observable positive answers on the audience side while getting almost all negative answers on the media side. This indicated that the Internet-based media scarcely reported the decline of government's and mass media's public credibility when such kind of food safety issues occurred because they are under government's control to avoid reporting the governments negatively. In the same situation, on social media, a platform with more freedom and less control, the public can express a lot about their worries and doubts about credibility.

Presence of frames

The *solutions* frame was the most visible one in both *people.com.cn* and *sina.com.cn*, which indicated that media paid much attention to how to solve the problem. In *people.com.cn*, this frame was displayed most by articles that mentioned or suggested the governments paid close attention to this incident and sent agents to investigate this issue, or the governments began to casual inspect the port products in market to confirm they did not contain lean meat powder and safe to eat. In *sina.com.cn*, articles employed *solutions* frame reported more comprehensively including governments' solutions, industry's solutions, and

actions dealing with current problematic products. The differences in content might result from different journalistic practices in gathering and presenting news coverage.

People.com.cn had a role of building and maintaining a positive and active image of government, while *sina.com.cn* reported comprehensively to attract a bigger audience.

The second-most visible frame in *people.com.cn* was the *human impact* frame, while in *sina.com.cn* the second-most visible frame was the *attribution of responsibility* frame.

People.com.cn paid more attention to the fact that the lean meat powder was harmful to human beings' health and was strictly prohibited by the Chinese governments. More human impact stories can also help form a positive image of taking care of the Chinese public. Different from *people.com.cn*, *sina.com.cn* paid more attention to that who should take responsibilities for this incident. For example, the news stories in *sina.com.cn* suggested that pork product manufactures and governmental organizations should take more responsibility for this incident. Some of the articles also suggested that the pig breeding industry and other entities were responsible, but the frequencies were much less than the two main responsible groups. Because of the more market-oriented characteristic of *sina.com.cn*, the responsibility topic can draw more attention from the audience.

With regard to the visibility of frames in the audience's postings on *Weibo*, the same four pre-defined media frames were also presented, which indicated that in this case the media can affect the audiences at least to some extent. Under such a health-risky situation, audience had a trend to get information from mass media and depend on media. However, in audience side, the most prominent frame was *public confidence*. Under such a situation that one more food safety incident, lean meat powder issue in this case, happened again following

a series of food safety incidents such as melamine-contaminated milk powder scandal and “hogwash oil”, it was understandable and reasonable that the public lost their confidences. In their postings, audiences expressed their worries of keeping eating pork and pork products, their doubts about the current food safety situation in China, their distrust about some recognized brands, their loss of confidence in the governments’ supervision and ability to guarantee food safety, and their worries about the mass media’s credibility. Although this incident was exposed by a famous product-quality program on CCTV, the audience viewed that mass media as only exposing these kinds of incidents around March 15 (Consumer Rights Day) to gain audience ratings and then paid little attention to consumer rights the rest the whole year.

Furthermore, the *attribution of responsibility* and *solutions* frames were also very visible. First, the audiences were exposed to a lot of media reporting about this incident and they can receive the solutions and responsibilities information from mass media. Second, after the issue was exposed, people had their own opinions about who should take responsibility, then they expressed that through a social network. Third, some solutions just happened in people’s daily lives that were observable and accessible for them such as recalling the problematic pork products. So the audiences also shared these experiences online.

In both media and audience sides, four out of five predefined frames were present that revealed first it was applicable to examine framing theory in new media, Internet-based news websites. And second, the results suggested the feasibility of using postings on social media to measure audience frames in the era when audiences have multiple information

sources. Also, the exist of public confidence frame revealed that when such a health risky incident happened, the public easily lost their confidence toward current Chinese food safety conditions, government and even mass media. Journalists should consider audience's confidence losing when reporting similar topics.

Differences in frame visibility between two portals

As noted in the data analysis, the biggest gap between the two types of websites was in the presence of the *attribution of responsibility* frame. This frame was more visible in *sina.com.cn* with more number of articles mentioning this frame and a higher mean value. By using the *responsibility* frame, the articles in *sina.com.cn* implied the responsible entities comprehensively and evenly, including the pig breeding industry, the government, and pork products manufactures like the Shuanghui Group. But in *people.com.cn*, the stories implied the pork products industry should mainly be held responsible for this incident. Although other entities were also mentioned or suggested, the pork products industry was the most prominent entity in *people.com.cn*.

Meanwhile, there was also a difference between the two websites in their depiction of the *solutions* frame. The *solutions* frame was more observable in *people.com.cn* than in *sina.com.cn*. Articles in *people.com.cn* frequently referred to the active actions taken by governments, manufacturers and even supermarkets to inspect the current selling pork and pork products, investigate the transaction source of lean meat powder, punishing those who violated the laws, and rebuild the consumers' overall confidence in food safety. These contents aimed to guide audiences to think once such kind of food safety accident happened, all related entities respond quickly to cut losses, protect the public's rights and health, and

prevent similar incident occurring again in the future. In *sina.com.cn*, the news stories regularly reported these themes, but proactive actions were not reported as much. One possible reason of these differences was the characteristics and roles of the two websites. One is party-run with a role of maintaining government's positive image and the other one is enterprise-owned and market-driven to report comprehensively to guarantee the website click rate. Another reason should be their different news coverage selecting guidelines and the extent they were controlled by party and government. When health risky issue happened, *people.com.cn* selected pro-government news while *sina.com.cn* selected more sensational news.

In addition, there were no significant difference seen in the use of the *human impact* and *public confidence* frames between the two websites. The news stories on both websites mainly focused on the incident itself and did not refer as much to audiences' or consumers' opinions about their confidence. In China, all types of media are under government's control to some extent, no matter if they are government-owned or enterprise-owned. It was not hard to understand they did not and could not report views that against or question the government. Besides, when covering risky topics, they avoided publishing negative public confidence which might cause more serious panic.

Similar to previous studies, this study also revealed some differences between *people.com.cn* and *sina.com.cn*. It added scholarly discussions on specific food safety topic about the different frames applied by the two different types of news websites.

Correlations between media and audience frames

As reported in Chapter 4, correlations existed between *sina.com.cn* and audience

opinions with respect to use of the *human impact* and *public confidence* frames. With regard to the same two frames, no correlation was found between *people.com.cn* and audience perceptions. This indicated when audiences formed, expressed and shared their knowledge and opinions which reflected the use of *human impact* and *public confidence* frames; they were affected by the news stories in *sina.com.cn* more than *people.com.cn*. One possible reason is that *sina.com.cn*, an enterprise-owned Internet-based online media, is under less control of government and provides more comprehensive and all-sided reporting, so it gains more audiences than *people.com.cn*. Another conceivable reason is that facing such a risky topic, the Chinese audiences tend to believe enterprise-owned media over government-owned media.

Meanwhile, in terms of use of *solutions* frame, the public's opinions were also closer to the articles in *sina.com.cn* than in *people.com.cn*. This also strengthened the deduction that audiences tend to accept information provided by enterprise-owned media more than government-owned media. Although these postings on social media were not instant reactions after the audiences read the relevant news, the correlations between online news contents and public opinions were still revealed. These results suggested again that it was applicable to use online news and postings to compare media and audience frames.

This study revealed different correlations between government-owned media frames and audience frames versus enterprise-owned media frames and audience frames for the first time. The results can make contributions to the scholarship of studying the current Chinese media situation and framing studies toward specific food safety topic.

Limitations of the study

Theoretically, this study did not consider the influences from the special characteristics of Chinese media toward framing theory. For example, the Chinese media's lack of freedom, governments' control and their special political roles might affect the results of studies verifying or using framing theory.

Methodologically, this study used audiences' online opinion pieces to study audience frames. These opinions were formed when the audiences were surrounded in a large media environment and were not instant mental reactions right after they read the news articles posted in *people.com.cn* and *sina.com.cn*. One of the main limitations is that this study did not exclude the influences from other media types. The other main limitation of this study lies in the wording of indicators used to measure visibility of frames. Some of these questions may not appropriately reflect the sub-angles of the frames or, conversely, what was asked in these questions did not actually happen in this particular incident or was not reported by mass media.

Additionally, the economic consequences frame was omitted due to the indicators' low internal reliability and low Cronbach's alpha value. First, this frame may not be a very important news angle and did not attract media and audience's attention. Second, the lean meat powder incident did not lead to noticeable economic consequences. Third, the questions generated to test this frame may not cover this frame comprehensively. All of these limitations call for the optimization of design and methodology in future studies.

Suggestions for further study

First, in this study, the audience was surrounded by a complex media environment,

then further studies should consider other media types' influences on audiences' perceptions to measure the correlations between media frames and audience frames.

Second, it would be better for further studies to conduct sufficient preliminary background search work for a specific topic. This will help to generate questions appropriately reflect sub-angles of the frames. Also, it will prevent some frames being omitted due to indicators' low internal reliability.

Table 1. Factor solution for the frame indicators on the media side

	Attribution of Responsibility	Human Impact	Economic Consequences	Solutions	Public Confidence
<i>Attribution of Responsibility</i>					
Does the story mention the wrongdoings of breeding industry?	.745	.196	.242	-.046	.061
Does the story suggest that meat-processing industry should be responsible for the incident?	.729	.176	.220	-.092	.131
Does this story blame that the governmental organizations are responsible for this incident?	.686	.201	-.090	-.076	.082
Does this story blame retailers for knowingly selling tainted meat to the public?	.528	-.126	-.035	.121	.023
Does this story suggest that other individuals and entities should be responsible?	.481	.206	-.067	.144	.118
<i>Human Impact</i>					
Does this story have a statement that eating tainted meat will bring adverse impact on human health?	.195	.864	.075	.029	.122
Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder?	.108	.863	.068	-.051	.112
Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health?	.296	.676	.045	.074	-.050
<i>Economic Consequences</i>					
Does this story mention the reduced sales of the products concerned in general?	-.242	-.064	.323	.170	.473
Does this story mention the influence of this incident on stock market?	.047	.063	.757	-.055	-.013
Does this story mention the economic losses of the industry or manufactory chain, such as from farmers to retailers?	.129	-.126	.782	.111	.120
<i>Solutions</i>					
Does this story mention any	.037	-.050	.167	.697	.158

actions to handle the product concerned in market?					
Does this story mention solutions from governmental organizations?	-0.089	.163	-.198	.693	-.183
Does this story mention what the concerned manufacturer did to protect brand credibility?	.114	-.206	.226	.544	.247
Does this story mention punishing those who violated the law?	.066	.127	-.217	.674	-.304
<hr/> <i>Public Confidence</i> <hr/>					
Does this story mention people's reluctance to use or eat the product concerned?	.002	.126	-.041	.055	.820
Does this story mention increased levels of anxiety and worry over the general food safety situation?	.110	.090	-.123	.000	.807
Does this story mention erosion of the reputation of the brands concerned?	.152	.001	.225	-.007	.468

* Only indicators with loading value higher than .400 were kept in this form.

Table 2. Visibility of news frames at two news websites

Frames	<i>people.com.cn</i>		<i>sina.com.cn</i>	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Responsibility	.15	.22	.25	.28
Human Impact	.21	.35	.18	.33
Solutions	.50	.31	.41	.33
Public Confidence	.17	.28	.15	.28

Table 3. The presence of news frames

Frames	<i>people.com.cn</i>		<i>sina.com.cn</i>	
	<i>N</i>	% of total number of frames found in the website*	<i>N</i>	% of total number of frames found in the website*
Responsibility	49	42	62	52
Human Impact	36	31	34	29
Solutions	99	85	84	70
Public				
Confidence	38	33	32	27

* The total percentage is more than 100% because more than one frame may be present in an article.

Table 4. General linear model (repeated measures) for the presence of four frames in *people.com.cn*

Frames	Mean (<i>SD</i>)	<i>F</i>	Significance
Attribution of responsibility	.15 (.22)		
Human impact	.21 (.35)	53.951	<.001
Solutions	.50 (.31)		
Public confidence	.17 (.28)		

Table 5. General linear model (repeated measures) for the presence of four frames in *sina.com.cn*

Frames	Mean (<i>SD</i>)	<i>F</i>	Significance
Attribution of responsibility	.25 (.28)		
Human impact	.18 (.33)	21.017	<.001
Solutions	.41 (.33)		
Public confidence	.15 (.28)		

Table 6. Factor solution for the frame indicators in audience side

	Attribution of Responsibility	Human Impact	Economic Consequences	Solutions	Public Confidence
<i>Attribution of Responsibility</i>					
Does the story mention the wrongdoings of breeding industry?	.436	.156	-.303	.042	.202
Does the story suggest that meat-processing industry should be responsible for the incident?	.531	.196	-.085	-.125	.191
Does this story blame that the governmental organizations are responsible for this incident?	.612	.158	.065	-.260	.284
Does this story blame retailers for knowingly selling tainted meat to the public?	.715	-.018	.016	.069	-.067
Does this story suggest that other individuals and entities should be responsible?	.675	-.157	-.011	.161	.019
<i>Human Impact</i>					
Does this story have a statement that eating tainted meat will bring adverse impact on human health?	.028	.800	-.109	.104	-.014
Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder?	-.047	.663	.181	-.144	.014
Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health?	.159	.625	-.173	.009	.000
<i>Solutions</i>					
Does this story mention any actions to handle the product concerned in market?	-.165	-.068	.022	.630	-.087
Does this story mention solutions from governmental organizations?	-.018	-.080	.119	.720	.031
Does this story mention what the	-.066	-.199	-.210	.622	.033
Does this story mention punishing those who violated the law?	.087	.191	.172	.572	-.008
<i>Public Confidence</i>					
Does this story mention people's reluctance to use or eat the product	-.078	-.042	.120	.047	.732

concerned?					
Does this story mention increased levels of anxiety and worry over the general food safety situation?	.241	-.063	.032	.031	.867
Does this story mention erosion of the reputation of the brands concerned?	.227	-.094	-.024	.010	.835
Does this story mention erosion of the credibility of government?	-.031	-.140	.822	.162	.182
Does this story mention erosion of the credibility of mass media?	-.036	-.050	.840	.006	-.022

* Only indicators with loading value higher than .400 were kept in this form.

Table 7. Visibility of news frames and presence of news frames at *Weibo*

Frames	Mean	<i>SD</i>	<i>N</i>	% of total number of frames found in <i>Weibo</i>
Attribution of responsibility	.44	.26	108	87
Human impact	.19	.28	44	35
Solutions	.42	.32	92	74
Public confidence	.72	.37	103	83

Figure 1. Visibility of news frames in all three sites

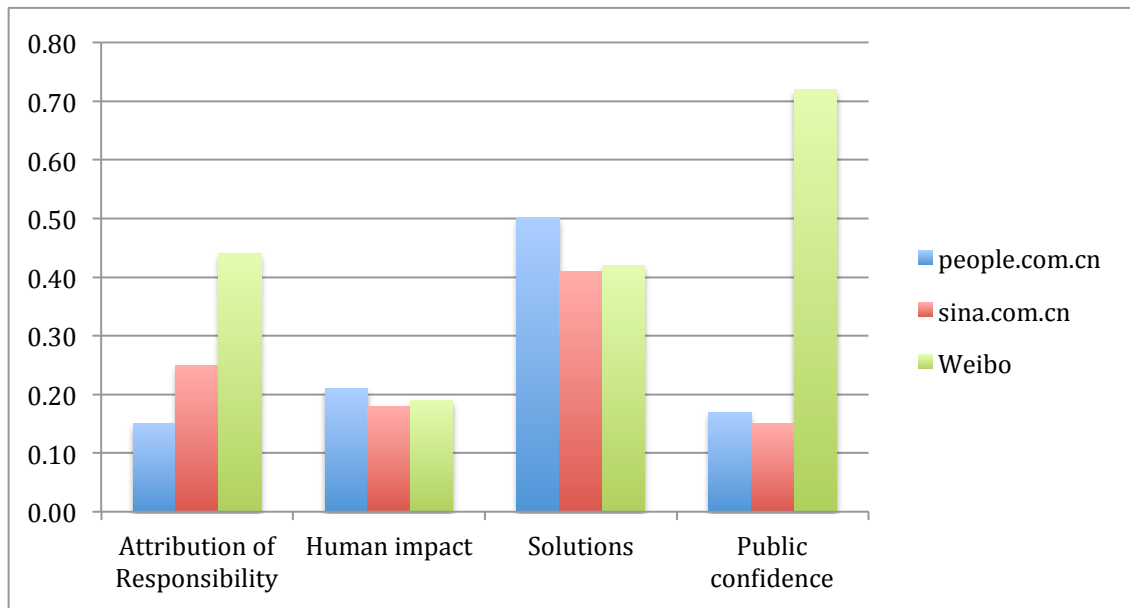


Table 8. Results of independent samples t-tests showing differences in the presence of frames in the two websites

Frames	<i>people.com.cn</i>	<i>sina.com.cn</i>	<i>t</i> -value	<i>df</i>	Significance
	(<i>n</i> =116)	(<i>n</i> =120)			
	Mean (<i>SD</i>)	Mean (<i>SD</i>)			
Responsibility	.15 (.22)	.25 (.28)	-3.24	234	.001
Human Impact	.21 (.35)	.18 (.33)	.60	234	.552
Solutions	.50 (.31)	.41 (.33)	2.27	234	.024
Public Confidence	.17 (.28)	.15 (.28)	.62	234	.536

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APPENDIX A

Coding sheet

Variable name	Variable label	Instructions	Codes or values	Missing values
Coder	Coder's name			
ID1	ID number of article			
Type	Website that published the article or Weibo	1= <i>people.com.cn</i> 2= <i>sina.com.cn</i> 3= <i>Sina Weibo</i>		
Frame1	Attribution of responsibility frame	1. Does the story mention the wrongdoings of breeding industry? 2. Does the story suggest that meat-processing industry should be responsible for the incident? 3. Does this story blame that the governmental organizations are responsible for this incident? 4. Does this story blame retailers for knowingly selling tainted meat to the public? 5. Does this story suggest that other individuals and entities should be responsible?	0=no 1=yes	9
Frame2	Human impact frame	1. Does this story have a statement that eating tainted meat will bring adverse impact on human health? 2. Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder? 3. Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health? 4. Does this story mention the victims' pain and suffering? 5. Does this story mention the inconveniences brought to regular consumers?	0=no 1=yes	9

Frame3	Economic consequences frame	<p>1. Does this story mention the reduced sales of the products concerned in general?</p> <p>2. Does this story mention any country-level economic losses, such as reduced meat imports?</p> <p>3. Does this story mention the influence of this incident on stock market?</p> <p>4. Does this story mention health care costs incurred by victims and their families, employers, and the government?</p> <p>5. Does this story mention the economic losses of the industry or manufactory chain, such as from farmers to retailers?</p>	0=no 1=yes	9
Frame4	The solutions frame	<p>1. Does this story mention any actions to handle the product concerned in market?</p> <p>2. Does this story mention solutions from governmental organizations?</p> <p>3. Does this story mention what the concerned manufacturer did to protect brand credibility?</p> <p>4. Does this story mention compensating the victims for their suffering?</p> <p>5. Does this story mention punishing those who violated the law?</p>	0=no 1=yes	9
Frame5	Public confidence frame	<p>1. Does this story mention people's reluctance to use or eat the product concerned?</p> <p>2. Does this story mention increased levels of anxiety and worry over the general food safety situation?</p> <p>3. Does this story mention erosion of the reputation of the brands concerned?</p> <p>4. Does this story mention erosion of the credibility of government?</p> <p>5. Does this story mention erosion of the credibility of mass media?</p>	0=no 1=yes	9

APPENDIX B

Inter-coder Reliability

For people.com.cn

Attribution of responsibility frame	Scott's pi
Does the story mention the wrongdoings of breeding industry?	0.78
Does the story suggest that meat-processing industry should be responsible for the incident?	0.87
Does this story blame that the governmental organizations are responsible for this incident?	0.87
Does this story blame retailers for knowingly selling tainted meat to the public?	1
Does this story suggest that other individuals and entities should be responsible?	1

Human impact frame	Scott's pi
Does this story have a statement that eating tainted meat will bring adverse impact on human health?	0.87
Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder?	0.85
Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health?	0.88
Does this story mention the victims' pain and suffering?	1
Does this story mention the inconveniences brought to regular consumers?	1

Economic consequences frame	Scott's pi
Does this story mention the reduced sales of the products concerned in general?	0.82
Does this story mention any country-level economic losses, such as reduced meat imports?	1
Does this story mention the influence of this incident on stock market?	0.88
Does this story mention health care costs incurred by victims and their families, employers, and the government?	1
Does this story mention the economic losses of the industry or manufactory chain, such as from	0.78

farmers to retailers?	
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Solutions	Scott's pi
Does this story mention any actions to handle the product concerned in market?	0.85
Does this story mention solutions from governmental organizations?	0.87
Does this story mention what the concerned manufacturer did to protect brand credibility?	0.87
Does this story mention compensating the victims for their suffering?	1
Does this story mention punishing those who violated the law?	0.88

Public confidence frame	Scott's pi
Does this story mention people's reluctance to use or eat the product concerned?	1
Does this story mention increased levels of anxiety and worry over the general food safety situation?	1
Does this story mention erosion of the reputation of the brands concerned?	0.88
Does this story mention erosion of the credibility of government?	1
Does this story mention erosion of the credibility of mass media?	1

For *sina.com.cn*

Attribution of responsibility frame	Scott's pi
Does the story mention the wrongdoings of breeding industry?	0.78
Does the story suggest that meat-processing industry should be responsible for the incident?	0.87
Does this story blame that the governmental organizations are responsible for this incident?	0.87
Does this story blame retailers for knowingly selling tainted meat to the public?	1
Does this story suggest that other individuals and entities should be responsible?	1

Human impact frame	Scott's pi
Does this story have a statement that eating tainted	0.87

meat will bring adverse impact on human health?	
Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder?	1
Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health?	0.87
Does this story mention the victims' pain and suffering?	1
Does this story mention the inconveniences brought to regular consumers?	1

Economic consequences frame	Scott's pi
Does this story mention the reduced sales of the products concerned in general?	0.87
Does this story mention any country-level economic losses, such as reduced meat imports?	1
Does this story mention the influence of this incident on stock market?	1
Does this story mention health care costs incurred by victims and their families, employers, and the government?	1
Does this story mention the economic losses of the industry or manufactory chain, such as from farmers to retailers?	0.78

Solutions	Scott's pi
Does this story mention any actions to handle the product concerned in market?	0.89
Does this story mention solutions from governmental organizations?	1
Does this story mention what the concerned manufacturer did to protect brand credibility?	1
Does this story mention compensating the victims for their suffering?	1
Does this story mention punishing those who violated the law?	0.85

Public confidence frame	Scott's pi
Does this story mention people's reluctance to use or eat the product concerned?	1
Does this story mention increased levels of anxiety and worry over the general food safety	1

situation?	
Does this story mention erosion of the reputation of the brands concerned?	0.78
Does this story mention erosion of the credibility of government?	1
Does this story mention erosion of the credibility of mass media?	1

For Weibo

Attribution of responsibility frame	Scott's pi
Does the story mention the wrongdoings of breeding industry?	0.89
Does the story suggest that meat-processing industry should be responsible for the incident?	1
Does this story blame that the governmental organizations are responsible for this incident?	0.75
Does this story blame retailers for knowingly selling tainted meat to the public?	1
Does this story suggest that other individuals and entities should be responsible?	0.85

Human impact frame	Scott's pi
Does this story have a statement that eating tainted meat will bring adverse impact on human health?	1
Does this story introduce the symptoms, diseases and disorders caused by eating animals fed with lean meat powder?	1
Does this story mention that the learn meat powder was banned by law because of its adverse impacts on human health?	1
Does this story mention the victims' pain and suffering?	1
Does this story mention the inconveniences brought to regular consumers?	1

Economic consequences frame	Scott's pi
Does this story mention the reduced sales of the products concerned in general?	0.88
Does this story mention any country-level economic losses, such as reduced meat imports?	1
Does this story mention the influence of this incident on stock market?	1

Does this story mention health care costs incurred by victims and their families, employers, and the government?	1
Does this story mention the economic losses of the industry or manufactory chain, such as from farmers to retailers?	0.89

Solutions	Scott's pi
Does this story mention any actions to handle the product concerned in market?	0.78
Does this story mention solutions from governmental organizations?	1
Does this story mention what the concerned manufacturer did to protect brand credibility?	1
Does this story mention compensating the victims for their suffering?	1
Does this story mention punishing those who violated the law?	0.72

Public confidence frame	Scott's pi
Does this story mention people's reluctance to use or eat the product concerned?	0.78
Does this story mention increased levels of anxiety and worry over the general food safety situation?	1
Does this story mention erosion of the reputation of the brands concerned?	0.89
Does this story mention erosion of the credibility of government?	1
Does this story mention erosion of the credibility of mass media?	1