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## Framing risk: how the People's Daily and the Straits Times covered the 2003 SARS epidemic in China and Singapore

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**Framing risk: How the *People's Daily* and the *Straits Times* covered the 2003 SARS  
epidemic in China and Singapore**

by

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A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of  
**MASTER OF SCIENCE**

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has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy

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**ABSTRACT**

Singapore and China are two countries hit hard by the severe acute respiratory syndrome epidemic (SARS) in 2003. This study investigates how the two nation's leading newspapers, the *People's Daily* (China) and the *Straits Times* (Singapore) covered the outbreak, and analyzed the risk communication strategies employed by the two governments in dealing with SARS.

Using content analysis, this study found that the Singapore paper reported the epidemic early, was more transparent with its coverage, and relied more on the use of health, economic, human interest, risk and morality frames to discuss the epidemic. On the other hand, the *People's Daily* reported the threat late, hid the real national situation from its audiences, and employed more political and responsibility frames in its SARS reports. The two newspapers cited government officials and local health reports the most as sources of information in their discourse about SARS.

## CHAPTER 1

### INTRODUCTION AND STATEMENT OF THE PROBLEM

On February 15, 2003, Chinese health authorities reported to the World Health Organization (WHO) 305 cases of a pneumonia-like illness in Guangdong province that people had been complaining about since November of the previous year. WHO officer Carlo Urbani called the condition severe acute respiratory syndrome or SARS, caused by a previously unrecognized corona virus called SARS-CoV. The disease is accompanied by either pneumonia or respiratory distress syndrome. Within 19 days, Urbani, who identified the first SARS case, died after contracting the disease.

Because there were no vaccines or treatment for the disease at the time of the outbreak, the SARS epidemic spread like wildfire. Within a week after a global alert was released by WHO in March 12, 2003, Canada, Hong Kong, Singapore and Vietnam successively reported SARS cases. Although from a medical perspective, a 14% case fatality is not high compared to that of smallpox, the SARS epidemic caused worldwide anxiety and fear.

By late July 2003, in the absence of newly reported cases, the WHO declared that the global outbreak had been contained. It reported that from November 1, 2002 to July 31, 2003, the total number of probable SARS cases worldwide reached 8,098; the confirmed death toll was 774 (WHO, 2003).

Although the first SARS case was recorded as early as November 2002 in China, it was not until April 2, 2003 that the country allowed world health experts to visit Guangdong, the province where the first SARS case was observed. On April 6, 2003, Chinese Premier Win Jiabao proclaimed in a national broadcast that the country was capable of controlling the



spread of SARS, and declared that China was safe for travelers. He made this proclamation fully aware that hundreds of SARS cases had already been reported nationwide. Obviously, the epidemic was far from being under control at that time. On April 20, the health ministry in Beijing suddenly raised the number of confirmed SARS cases significantly, even admitting that more than 300 cases had not been accounted for. It was not until SARS spread throughout Beijing—a full five months after the outbreak—that the official Chinese media began to report news related to SARS. By that time, SARS was already threatening every big city in the country.

To contain the epidemic, the government canceled one of the country's biggest national holidays, the week-long May 1st International Workers' Day celebrations. As a result, Chinese citizens sunk into deep anxiety and fear, something many of them had never experienced before.

Of the several Asian countries plagued by the epidemic in 2003, China was hit the hardest. Before the outbreak of SARS in the first quarter of 2003, China was experiencing an unprecedented economic boom in six years, registering a 9.9 percent growth with more than \$13 billion in foreign investments. Following the rash of SARS cases in the second quarter of the year, economic growth sunk to its slowest pace. The nation's gross domestic product dropped 6.7 percent from April to June 2003, the lowest recorded GDP since 1992. Many industries, especially in the service sector, suffered business losses. In Beijing, sales dropped 10 percent, the biggest decline since 1984. Foreign tourist arrivals declined by 94 percent.

To China, the SARS epidemic was not simply a public health problem. Indeed, the disease caused the most severe social-political crisis for the Chinese leadership since the 1989 Tiananmen crackdown (Huang, 2003). However, "the pattern of the Chinese

government's response to SARS was shaped by the institutional dynamics of the country's political system" (p. 130).

The world's media have criticized the Chinese government and, by extension, its media, for their silence about the outbreak. Five months after the first SARS case was diagnosed in China, the government did not release any information about the new disease. People were kept in the dark amidst a national health crisis. Not knowing what they were dealing with, people were unable to protect themselves from infection. Consequently, the disease spread rapidly throughout China and eventually became uncontrollable.

When the Chinese government finally started releasing SARS information to the public through the media it controls, citizens already knew the government hid the truth from them for more than five months. Yuan (2003) argues that although the economy has taken a severe hit, the greatest casualty has been the Chinese government's credibility at home and abroad. Epstein (2003) adds: "The crisis has cast a glaring spotlight on the government's secretive and often-duplicitous officials, its lack of accountability, its tightening grip on information and its inadequate public services" (p. 2).

Indeed, SARS exposed the shortcomings of crisis management institutions in China. Establishing a modern crisis management mechanism is therefore an urgent task. If SARS stayed unabated for many months, it could have crippled the fast-growing economy. China is now at a critical stage in its economic and social transformation. An unexpected health crisis, if not handled properly, may lead to social upheavals.

Another Asian country, Singapore, also succumbed to the epidemic. When its first SARS case was recorded on March 13, 2003, the Ministry of Health immediately issued a public medical alert. One week after the first case was registered in Singapore, the

government decided to centralize all probable cases of SARS in Tan Tock Seng Hospital to lessen the probability of spread. Two and a half months after that, Singapore was removed from the WHO list of affected countries. Thus, the SARS epidemic was already under control in Singapore eleven weeks after the first case was found.

What Singapore employed to deal with SARS represents the state-of-the-art in risk communication (Sandman, 2003). According to Lanard and Sandman (2003), the most important recommendation in dealing with an evolving crisis is to avoid over reassuring the public. They elaborated: “Acknowledging uncertainty rather than claiming to be confident, using anticipatory guidance and emotional rehearsal to help people get used to what may happen; treating emotional reactions with respect rather than contempt; sharing dilemmas so people come to understand the pros and cons of difficult pending decisions and offering suggestions for things people can do themselves” (p. 1) are significant strategies that risk communicators can employ in dealing with a health crisis of international proportions.

When several Asian countries warned people not to travel to Singapore, Prime Minister Goh Chok Tong did not take offense, saying his government also advised Singaporeans not to visit affected places. In contrast, when the WHO imposed a travel alert on Canada, Toronto Mayor Mel Lastman lashed out: “I’ve never been angrier in my life!” While others scoffed at the practice of wearing face masks to reduce the infection, Goh likened the practice to the Japanese custom of wearing masks when they catch a cold, a prudent protection practice.

Although the Singapore government guided its people through the crisis, government officials also acknowledged feeling afraid of SARS publicly. As such, the people felt their government understood their fear and shared their anxiety. The result was a public willing to



cooperate with the government in its efforts to curb SARS.

Because the public often first hears about risk information from the mass media, the media play a major role in shaping the public's view of risk. To administrators, technical and health professionals and communication specialists, the mass media are "key providers, interpreters, gatekeepers or channels of risk related information" (Lundgren and McMakin, 2004, p. 271). It is important for the media to report balanced and reliable risk information. Otherwise, constructive public engagement becomes more difficult (Gamson and Modigliani, 1989).

The Singapore media reported the SARS epidemic transparently and was consequently praised by the WHO. However, the Chinese media have been criticized for their silence about the outbreak and for failing to expose the failure of its own government to protect its citizens. In a communiqué to *Asia Times Online*, Fung (2003) wrote: "In risk-management terms, Singapore is singularly well positioned to respond to the SARS epidemic. For managing urgent health problems, you can't beat a country like Singapore that knows it can't hide the problem but genuinely can respond as strenuously as needed so that good risk management isn't such a surprise."

Because the media need to provide accurate and timely information to citizens in times of crisis, the degree of freedom they possess is important in the free flow of risk-related information. Singapore and China are two countries whose governments have tight control over the media. Hence, the media's role in providing "the extralegal check on government" common in many Western countries is generally in question.

As the official newspaper of the Communist Party, the *People's Daily* provides direct information about the policies and viewpoints of the government. All articles it publishes



must first be approved by the central government. On the other hand, Singapore's ruling People's Action Party controls most of the newspapers, including the *Straits Times*, the biggest and most dominant newspaper in the country. The SARS reports from these two newspapers, therefore, reflect the governments' strategies and policies on the epidemic.

This study aims to compare the two newspapers' response to the SARS crisis to begin an examination of the role of the media in risk communication. What were the differences and similarities of news coverage in China and Singapore regarding the SARS crisis? Did the media give this issue considerable coverage to inform the public about the SARS epidemic? What government strategies were applied in handling the crisis as presented in the newspaper stories? The results of this study are intended to assist health communication practitioners and risk communication experts in developing effective risk communication strategies that will assist nations in dealing with a health crisis like SARS.

## CHAPTER 2

### LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

According to Sandman (1993), risk is “hazard + outrage.” “Hazard” is considered as the technical component of risk, the product of probability and magnitude. “Outrage,” on the other hand, is the non-technical component of risk, an amalgam of perceived risk voluntariness, control, responsiveness, trust and dread (p. 1). Sandman (1993) identified four kinds of risk of which crisis constitutes the highest level. This study considers the SARS epidemic in 2003 as possessing the characteristics of crisis situations that involve a high-level risk.

In this study, risk communication refers to “the exchange of information and opinions concerning risk and risk-related factors among risk assessors, risk managers, consumers and other interested parties” (Food and Agriculture Organization and the WHO, 1998, p. 5). As one of the most important sources of information about risks, the media play an important role in risk communication. This study examines the media’s coverage of the SARS crisis from a risk communication perspective.

To many, the media are the most important sources of information about risks. From newspapers to the Internet, the media play a major role in influencing public risk perceptions. Generally, there are four functions of the media in a health crisis: “(1) to channel local public health information by connecting public health officials to citizens, and, to a lesser extent, serve as a channel for public health information between groups of professional stakeholders; (2) to provide a national and international conduit for news reports and analysis; (3) to document the economic impact of the crisis on businesses, front line health workers and the community as a whole; and (4) to offer a venue for public and political debate on the

handling of the crisis” (Feldman, Drache and Clifton, 2003, p. 7).

To study how the *People’s Daily* and the *Straits Times* reported SARS epidemic, three elements (information richness, risk messages and information sources) were examined in this study.

### **Information richness**

In this study, “information richness” refers to the quantity of SARS information present in each news story. During the health risk communication process, the most important responsibility of the media is to provide accurate, timely, and sufficient information about the disease. For a new disease like SARS, the public expects the media to inform them about the new disease and to explain how the disease spreads, among others. For example, researchers found that the lack of public information about AIDS hampered the development of treatment and prevention practices. The lack of medical information about SARS prevented citizens from taking precautionary measures against infection. In a very short time, the new and highly infectious disease caused worldwide panic.

Clearly, information is needed for citizens to make informed judgments about a health threat. Ali (2003) found that uncertainty and fear dominated the media’s coverage of SARS in most Asian countries. The media reports exaggerated the dangers associated with the disease, giving people the perception that it was much more dangerous than it actuality is. When people do not have first-hand experience with a disease, they tend to rely more on media reports (Petts, et al., 2002). What is the risk of being affected? What are the symptoms of the disease? What can they do to reduce the risk of infection? People are demanding more and better information form the mass media. News reports must therefore communicate “the magnitude of the threat, the symptoms of the threat, and measures that can



reduce the chance of being affected by the threat” (Roche and Muskavitch, 2003, p. 355). For many diseases that have the potential to burst into an epidemic, people need to know: (1) what it is, (2) how it gets transmitted, (3) its symptoms, (4) the risks of contracting it, and (5) where people can go for assistance. These are basic but essential bits of information people need to make intelligent assessments of how to deal with a health crisis.

### **Risk messages**

According to Brown (2003), a risk message is a written, verbal or visual statement containing information about risks. They may not necessarily include advice about risk reduction behaviors.

Meaning is not inherent in information and scientific knowledge should be interpreted to make it “real” to the public (Johnson, 1992). Since risk information is usually complex, a risk message should express clearly the probabilities of hazard and exposure so that they combine with psychometric processes in useful ways and offer a complete perspective of the issue.

### **Information sources**

Information sources are one of the factors that determine the quality and quantity of media content. According to Gans (1979), information sources are “the actors whom journalists observe or interview, including interviewees who appear on the air or who are quoted in articles” (p. 80). Although there are many possible sources for a specific issue, journalists do not contact all sources equally. Because those with economic and political power are more likely to influence journalists than other sources (Gans, 1979), it is important to ascertain who were being cited in news reports as expert or non-expert sources of information. To Covello (1993), good risk communication is established, in large part, when

audiences perceive the communicator to be trustworthy and believable. The factors affecting trust and credibility include: empathy and caring, competence and expertise, honesty and openness, and dedication and commitment. Communicators and managers, therefore, should try their best to gain people's trust because once credibility is lost, it is difficult to regain.

### **Risk communication strategies**

Early studies on risk communication mainly contrasted the viewpoints of experts and the public regarding what constitutes risk. This is just the first step, according to Sandman (1994), because risk communication aims "to reduce the gap between risks as the experts see it and risks as the public sees it" (p. 1). The function is crucial because more often than not, scientific risk assessment differs from public risk perception (Whitfield, 1997).

According to Sandman (1994), the core words about risk communication are "watch out" and "stop worrying." When experts think hazards are really serious but people ignore them, the risk communicators should try to get people's attention and persuade them to take the risk seriously. Conversely, when experts think hazards are not as serious as people think they are, the goal of risk communication is to calm people down and persuade them that the risk is smaller than they think.

Increasingly, researchers have been paying more attention to the limitations of technical risk assessments and risk management practices, which greatly changed the nature of risk communication research and application. The focus of risk communication has thus shifted from "educating an irrational public" to "exchanging information and opinions" (Belloc, 2005).

For the National Research Council (NRC, 1989), risk communication is "an interactive process of exchange of information and opinion among individuals, groups, and

institutions” (p. 1). It often involves multiple messages about the nature of risk, expressing concerns, opinions, or reactions to risk messages, or to legal and institutional arrangements for management. The fundamental goal of risk communication is to provide useful information to the target audience. Effective risk communication aims to reduce anxiety and fear as well as provide suggestions for risk assessment and the process of risk management. According to an FAO/WHO report (1998), the goals of risk communication are to:

- “1. Improve the effectiveness and efficiency of the risk communication process;
2. Promote awareness and understanding of the specific issues under consideration during the risk analysis process;
3. Promote consistency and transparency in arriving at and implementing risk management decisions;
4. Foster public trust and confidence in risk management; and
5. Exchange information among interested parties” (p. 4).

A number of risk communication principles have been developed to accomplish these core objectives. Among them are: (1) Knowing the audience because the audience should be analyzed to understand their opinions; (2) Involving the scientific experts because scientific experts are responsible for related knowledge; (3) Establishing expertise in communication because successful risk communication requires special experts in conveying information clearly and precisely to citizens; (4) Being a credible source of information; (5) Sharing responsibility; (6) Differentiating between science and value judgment; (7) Assuring transparency; and (8) Putting the risk in perspective.

According to Rowan (1996), risk communication is “more successful when people are empowered than when they are manipulated or coerced. Experts should understand public



concern and values, express a commitment to dialogue and power sharing, and develop accurate risk assessment information” (p. 1).

Risk communication is a relatively new area of study. Though researchers have developed a set of principles for good risk communication, the current limited number of empirical research is not enough to find a “right solution” to handle each case (Lundgren and McMakin, 2004).

### **Risk communication and the mass media**

Scholars have studied a set of risk communication failures, such as the case of mad cow disease in Europe, dioxins in America and polychlorinated biphenyls or PCBs in Canada and in the Far North in search of better risk communication strategies. In 1986, Bovine Spongiform Encephalopathy (BSE), also known as mad cow disease, was first discovered in the United Kingdom. From the mid-1980s to 1990, the British government insisted that meat and other products from cattle infected with BSE pose no risk to humans despite continued public concerns about BSE’s impact on people’s health. In 1995, a 19-year-old male died from Creutzfeldt-Jakob disease or CJD, a rare brain disease scientists have linked to BSE. In the face of public unease, the government announced “there is no evidence that BSE can cause CJD in humans.” By November 1995, although many similar cases were reported in the media, the government did little to prevent the public from consuming beef. There was no scientific basis for banning beef, it proclaimed, and insisted that mad cow would be eradicated soon in Britain.

On March 20, 1996, when British Health Secretary Stephen Dorrell publicly admitted that scientists had indeed found the link between CJD and BSE, the British beef market collapsed overnight. The European Union summarily banned the export of British beef so

that by 1996, beef consumption dropped 11 percent across the European Union. Franz Fischler, the EU's Agricultural Commissioner at that time, considered BSE the biggest crisis in the history of the European Union.

Like SARS, mad cow is a severe disease that caused huge economic and political repercussions. Some of the risk communication lessons of the mad cow crisis were : (1) Do not over assure citizens; (2) Treat frightened people with compassion and understanding, not contempt; (3) Release bad news immediately; (4) Lack of openness leads to public mistrust of government; (5) Involve critics and opposing voices; and (6) Acknowledge misbehavior and apologize (Ratzan, 1998; Sandman, 2000). Powell and Leiss (1997) observed that risk communication is serious business, and that failures in risk communication practices are costly. A risk communication vacuum is an important factor in the social amplification of risk so that regulators must recognize from the beginning that the "no risk messages" position is always untenable.

Compared to the British government's handling of mad cow disease, the Chinese government made a similar mistake in dealing with the SARS epidemic. The initial failure to inform the public fostered widespread anxiety and speculations. If there had been greater openness about the disease, the people at risk might have taken precautions to avoid infection. The mass media, therefore, have a role to play in fostering effective risk communication.

Journalists play two crucial functions in health crisis situations. (1) They interpret scientific information and government policies to the public and (2) they reflect public concerns to the national leadership. Journalists face two problems in reporting risk. First, the process of risk assessment is complicated and confusing, making it hard for reporters to



explain and simplify risk information to the public. Second, reporters usually “do not know the subtleties involved in risk assessment and the type of questions they need to ask to effectively relate risk issues to the public” (Friedman, 2004, p. 2). To perform their tasks well, health reporters should be more cautious in looking at new research results, develop areas of specialization, and must try to leverage the public’s doubt on risk issues (Levine, 1999).

Risk issues always compete with other newsworthy issues for the mass media to cover. To a journalist, the higher the risk, the higher the news value (Levine, 1999). This is perhaps why Siner and Endreny (1994) observe that the media tend to focus on “catastrophic” accidents. Hazards associated with deaths and injuries are often longer and more prominently covered than other related events. In many cases, the media’s coverage of risk is selective, and journalists are criticized for poor quality reporting.

More often, however, the media are criticized for not warning the public enough about a risky situation or issue or for exaggerating risks. “When it comes to risk coverage, it seems that the mass media can do nothing right” (Dunwoody, 1992, p. 75). For example, according to Fong, Rempel and Hall (1999), health reporting “has followed the same seemingly inexorable descent into sensationalism” (p. 174). Nevel (1999) observes that media reports are often shaped by advocates who seek to minimize or to maximize the risk associated with something. Some researchers (i.e., Petts et al., 2002) argue that the media can “amplify or attenuate risk only if they capture or resonate with an existing public mood, and even then the media are not alone in this function” (p. 23).

According to Dunwoody (1992), journalists have limited background in science and mathematics. Consequently, they are deficient in their understanding of risk and risk

analysis, which prevents them from having their own critical opinions about these subjects. Journalists also lack an understanding of the scientific method. “Journalists often see science as deterministic – something that can be summed up by a headline and leaves little room for qualifiers. Science, on the other hand, is fundamentally based on the principle that nothing is certain” (Tao, 1999, p. 1). Journalists also seldom provide in-depth descriptions of a given subject but instead emphasize events.

### **The media in China**

To understand how China’s and Singapore’s media covered the SARS crisis, a review of literature on the two countries’ media system and media-government relationship is helpful.

The government’s control of the media is one of the major characteristics of China’s political system, and this situation has not fundamentally changed in recent years. To many, the 2003 SARS crisis “highlights the media conundrum the Chinese government faces as well as their erratic methods of dealing with it” (Furrow, 2003, p. 1) .

Unlike in democratic countries where news media industries are relatively independent of government control, in China, the government owns all news agencies and has monopoly power over the press. The government controls the media through administrative sanctions and policies. Journalists who violate government regulations are warned or even put in prison. According to the Committee to Protect Journalists (2004), by the end of 2004, 42 journalists were in jail in the country..

The central concept that underlines the government’s control over the media is the “Party principle.” By virtue of this principle, the media accept the Party’s leadership, abide by the Party’s organizational rules (including its press policies), and propagate its programs,

policies, and directives (Zhao, 1998).

Despite strict adherence to this principle, the Chinese media, Chang (1994) observes, have undergone subtle and significant changes over the past 20 years. He notes that the media system in China has gradually transformed itself from a pure mouthpiece to an “amalgamation of various identities, including that of a social knowledge producer” (p. 56). He observes that in 2001, Chinese national TV finally behaved like a real news resource when it showed live and almost uncensored coverage of the war on Iraq.

Left largely uncensored, Chinese Internet sites and Bulletin Board Systems (BBS) also help erode the stranglehold of the Party-monitored media. As such, the Internet is expected to break the monopoly of the traditional media system and lead to a greater openness and free flow of information. Aware of this, the government has begun developing a censorship system for the Internet, so that today it is able to block websites, including those with pornographic content and those with news from many foreign sources, especially from Chinese citizens overseas.

### **The media in Singapore**

Singapore’s foremost modern-day leader, Lee Kuan Yew, once pronounced that “freedom of the press, freedom of the news media, must be subordinated to the overriding needs of the integrity of Singapore, and to the primary purposes of an elected government” (Lee, 1998). It comes as no surprise, therefore, that the media have also been under state control since the Lee’s People’s Action Party took control of the government in 1959 (Wong, 2001).

The Singapore Press Holdings (SPH) owns all of Singapore’s newspapers and the Media Corporation of Singapore (MCS) controls the broadcasting media. MCS is solely



owned by the government and SPH is partially under private management. Censorship in Singapore is undertaken by the Ministry of Information and the Arts. The state also passed a law restricting Internet publication in 1996. Media groups can be closed down and journalists may be put in prison if they violate Party policies.

According to Chu and Wong (1999), the Singapore media are also subject to government restrictions in the form of media laws, censorship and codes of practice. Under the country's Newspaper and Printing Press Act (NPPA), passed in 1974 and amended in 1986, the government could restrict the circulation of any publication, including foreign periodicals. Though it is widely held that the media are under tight control, the government does not admit to this, claiming that Singapore hosts the largest contingent of international media organizations and bureaus in the world. Despite this boast, the government puts an even tighter rein on the foreign press than on the local one.

Like China, however, this stranglehold on the media has been loosened by advances in information technology. As a result, government censorship is not as effective as many have been observed a decade ago (Chu and Wong, 1999).

The *People's Daily* is the official newspaper of the Communist Party of China. All stories published in the *People's Daily* must be approved for circulation by the Central Propaganda Department. As an organ of the Communist Party, the newspaper often provides direct information about the policies and viewpoints of the Party. In addition, editorials in the *People's Daily* are regarded as fairly authoritative statements of government policy.

The *Straits Times* is the largest and most dominant English-language paper in Singapore with a circulation of around 400,000 daily. It is generally recognized as one of the most outstanding English-language newspapers in the Far East. The paper is owned by the

Singapore Press Holdings (SPH). Even under government censorship, the *Straits Times* strives to be an authoritative newspaper. Compared to the *People's Daily*, the *Straits Times* is said to function under more democratic circumstances and has fewer restrictions on news coverage.

### **Framing theory**

According to Gamson (1989), news reporting is more like telling a story about the world than presenting information to the public even though factual elements are included in the stories. Because news stories are considered to be products of journalists' perceptions of the world (Goffman, 1974), journalists are able to "frame" a story or issue for their audiences. According to Entman (1993), the process of framing includes selection and salience: "To frame is to select some aspects of perceived reality and make them more salient in a communicating text in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (p. 52).

Vreese (2005) viewed framing as a process, and frames have several locations in this process. Frames can reside in the communicator, the text, the receiver, and the culture. The process of framing includes frame-building, frame-setting and individual and societal level consequences of framing (D'Angelo, 2002).

The framing of events or news affects how the public perceives the news or events. Different frames of the same issue or event might cause the same issue or event to be understood in different ways (Gandy, 2001). Framing analysis thus provides a way to understand how the mass media construct messages and people's perception of these messages (Miller and Riechert, 2001).

Framing studies are related to the general body of research on agenda-setting, gate keeping and priming. Both agenda-setting and framing focus on the link between the public's perception of the news and public policy issues in the news (Semetko and Valkenburg, 2000). Indeed, McCombs, Shaw and Weaver (1997) defined framing as second-level agenda-setting. However, while agenda-setting deals with the salience of issues, framing studies are also concerned with "what people talk or think about by examining how they think and talk" about issues in the news (Pan and Kosicki, 1993).

### **Media frames**

Scheufele (1999) distinguishes between media frames and individual frames. Previous studies have suggested that five factors influence how journalists frame an issue or event: social norms and values, organizational pressures and constraints, pressures of interest groups, journalistic routines, and ideological or political orientations of journalists (Shoemaker and Reese, 1996). Researchers have also examined media frames as either an independent variable or a dependent variable (Scheufele, 1999). Scheufele further describes a process model of framing composed of framing building, framing setting, individual-level effects of framing and the link between individual frames and media frames.

Entman (1993) suggested that frames can be identified by "the presence or absence of certain keywords, stock phrases, stereotypical images, sources of information and sentences that provide thematically reinforcing clusters of facts or judgments" (p. 52). Semetko and Valkenburg (2000) posit that news stories usually contain five frames: conflict, responsibility, economic consequences, morality and human interest.

Researchers have also examined the link between power relations and media frames. According to Edelman (1993), authorities and pressure groups can use the mass media to



construct certain frames and support their interests. As such, framing is central to the production of hegemonic meanings resulting from ideological struggles and contests.

This study aims to compare how the *People's Daily* and the *Straits Times* framed SARS as a national issue. Entman (1993) identified five traits of media texts that set a certain frame: (1) importance judgments; (2) identification with potential victims; (3) agency; (4) categorization or choice of labels for the incident; and (4) generalizations to a broader national context. A few studies have attempted to understand how the media framed the SARS epidemic.

Choi (2006) analyzed the media coverage of the SARS epidemic in Singapore and China and examined the relationship between political agenda and media frames. Unlike traditional agenda-setting studies, this study examined the public agenda when the media fails to give adequate coverage in its media agenda.

Examining the online news coverage of SARS, Lee (2005) found that although local incidents were mainly reported, these incidents were explained in terms of a global health crisis. Tian and Stewart (2005) compared how CNN and the BBC covered the SARS crisis and found similarities and differences in their framing. CNN and BBC framed SARS from a global perspective and focused on the effect of SARS on public health and the medical system. However, CNN was more concerned with the economic dimension of the crisis.

Huang and Leung (2005) examined how SARS was covered by the Western news media, specifically looking at whether China and Vietnam were presented differently in three international newspapers. The findings show that Vietnam was portrayed more positively than China. Also studying two Western newspapers, Oh and Zhou (2004) found that the *Toronto Star* used the conflict, responsibility, economic consequences, and human interest

frames more than the *World Journal*, while the *World Journal* relied more on the use of the risk frame.

### **Research Questions**

Based on the foregoing literature, the following research questions are posed:

**Research Question 1:** How rich in information were the two newspapers' coverage of SARS? How do they compare in terms of information richness?

**Research Question 2:** To what extent did the two governments and the two newspapers warned or reassured their respective publics about SARS?

**Research Question 3:** What were the dominant sources of information cited in the two newspapers' SARS-related reports? How do they compare in terms of sources cited?

**Research Question 4:** What frames did the two newspapers use to inform the public about SARS? Is there a difference between *the People's Daily* and *the Straight Times* in terms of the frames they used in covering the SARS epidemic?



## CHAPTER 3

### METHODOLOGY

#### **The research design**

This study aims to (1) determine the “information richness” of the newspapers’ SARS coverage, (2) ascertain the extent to which the two governments released information that warned or reassured their people about the epidemic, (3) determine the dominant information sources used in the news reports, (4) describe what frames the two newspapers, China’s *People’s Daily* and Singapore’s *Straits Times*, used to explain SARS to their respective publics, and (5) determine the difference between the *People’s Daily* and the *Straits Times* in the frames they used to cover SARS. To gather data for this study, a content analysis of the *People’s Daily* and the *Straits Times* from November 2002 to July 2003 was conducted.

Content analysis is a method used to study communication in a systematic, objective, and quantitative manner for the purpose of measuring variables (Wimmer and Dominick, 2000). Holsti (1969) defines content analysis as a process “in which communication content is transformed, through the objective and systematic application of categorization rules, into data that can be summarized and compared” (p. 3). It is an appropriate data gathering method for this study that aims to compare and contrast the coverage of two newspapers from two countries with a government-controlled media system. Because the study also aims to decipher the risk communication strategies deployed by the two governments to combat SARS, content analysis provided a good venue with which the nature, characteristic and intensity of SARS coverage can be explored.

#### **The sample and the unit of analysis**

News stories about SARS from the *People's Daily* and the *Straits Times*, the newspapers-of-record in China and Singapore, respectively, were analyzed. The *People's Daily* is the official newspaper of the Communist Party of China and is published worldwide with a circulation of four million. The *Straits Times* is the dominant English-language paper in Singapore, with a circulation of around 400,000 daily.

The period of analysis covers November 1, 2002, the month when SARS was first detected in China, until July 7, 2003, one week after the WHO declared China SARS-free.

The *People's Daily* is a Chinese language newspaper. SARS translates to “fei dian” in Chinese. News stories from the *People's Daily* were collected from the paper's web-based archives (<http://search.peopledaily.com.cn/>) using “fei dian” as the search term. “SARS” was used as the search term in the headlines and lead paragraphs of all SARS and SARS-related news stories published in the *Straits Times* retrieved from LexisNexis. News stories less than 200 words in length, photo items, news briefs and editorials were not included in the sample.

The search yielded a total of 2,748 articles from the *People's Daily* and 1,580 articles from the *Straits Times* over a period of eight months. To be representative of the entire time frame, a sample of 1,000 articles for each newspaper was selected following a stratified random sampling technique. In the study, the date of publication was used as the stratification factor so that at least one story each day was picked from each newspaper each day starting November 1, 2002 until July 7, 2003. To do this, a list of all SARS stories retrieved was grouped according to date of publication. At least one story was selected from each available date using a random start. To be more representative of the population, the number of stories per month was ascertained for each newspaper. Then, a specific number of stories for each date was chosen, proportional to the number of articles published per month,

until a sample size of 1,000 stories per paper was reached.

### **Variables and their measurement**

**Information richness** refers to the quantity of SARS information present in each news story. Each complete story was analyzed to determine whether it:

- (1) explained what SARS is (SARS)
- (2) explained how SARS gets transmitted among humans (TRANSMIT);
- (3) mentioned the symptoms associated with SARS (SYMP);
- (4) mentioned the risks of contracting SARS (RISK);
- (5) provided information about how people can protect themselves against SARS (PROTECT);
- (6) provided information where people can go for assistance (HELP);
- (7) mentioned or implied that SARS was under effective control (CONTROL); and
- (8) indicated that the government can effectively handle the epidemic (GOVT).

Each of the above items was represented as binary dummy variables. The presence of each information item was coded 1. Its absence was coded 0. To measure information richness, the presence of each item was counted (0-8).

The **extent to which an article warned or reassured** the public about the dangers associated with SARS, a quantitative variable, was measured by counting the number of times these two types of messages were mentioned in each news report. Then, these were added up to get the sum for each of the two newspapers.

**Information source** refers to the attributions of general knowledge present in the stories from a variety of sources. Each source cited in the report was coded as being:

- (1) a local health expert, such as a medical doctor, health specialist or scientist;



(2) a government official, such as the minister of health or a local government official.

This includes all government office-holders other than a medical or health expert;

(3) an international health expert or scientist, such as a specialist from the WHO and other foreign governments, agencies and bodies;

(4) ordinary citizens;

(5) media reports, such as local or international media outlets, including television, Internet websites, radio programs and reports, and other newspapers, magazines, brochures or any printed product;

(6) others. This source category includes every source not listed above.

The first three information sources cited in the story were identified and coded.

A **frame** is a central organizing idea or story line that provides meaning to events (Gamson and Modigliani, 1987). Semetko and Valkenburg (2000) identified five frames used frequently in news stories: conflict, responsibility, economic consequences, morality, and human interest frames. This was used as the initial list of potential frames that can be found in the stories. However, this did not preclude the addition or subtraction of frame items from this original list. The complete article was analyzed in this study to determine these overarching patterns of SARS discourse. Each story was analyzed to determine what other frames may be present. Because a story may contain more than one frame, each article was analyzed to determine the three most dominant frames it exhibited. Frames, like risk messages and information sources, were treated as categorical variables.

### **Intercoder reliability**

Coding was done by four graduate students. Two students whose native language is Chinese coded all articles from the *People's Daily*. The other two students coded news

stories from the *Straits Times*. Prior to the actual coding, they practiced coding on-line SARS stories from the *Global Times*, a Chinese-language newspaper and the *New York Times*, an English-language newspaper. In addition, they read news stories about SARS to get familiar with the coding categories. Inter-coder reliability for the frame and risk messages variables was calculated using Holsti's formula,

$$\text{Reliability} = \frac{2M}{N1 + N2}$$

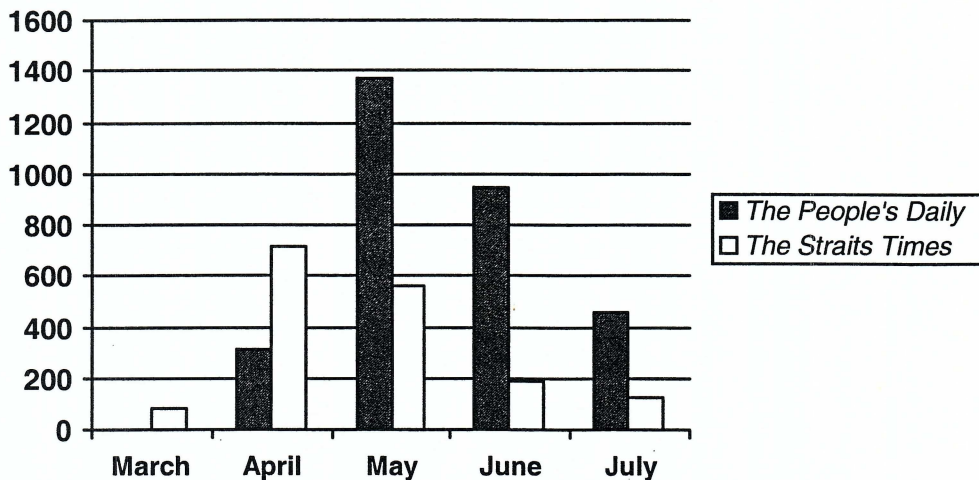
where M is the number of coding decisions on which the two coders agree, and N1 and N2 are the total number of coding decisions by the first and second coder, respectively (Wimmer and Dominick, 2000).

## CHAPTER 4.

### RESULTS AND DISCUSSION

A total of 2,000 stories published in the two newspapers (1,000 from the *People's Daily* and 1,000 from the *Straits Times*) from November 1, 2002 to July 7, 2003 were analyzed in this study. Figure 1 shows the breakdown of stories in the *People's Daily* and the *Straits Times* over a five-month period. It demonstrates that majority of the stories about SARS were published in the *People's Daily* from May to June 2003. In the *Straits Times*, the peak period of coverage occurred from April to May 2003.

Figure 1. Intensity of SARS coverage in the *People's Daily* and the *Straits Times*, March to July 2003.



As Figure 1 exhibits, the *People's Daily* did not report its first SARS story until April 2003, although the cumulative number of clinically confirmed cases in China was already 1,153 by the end of March. On the other hand, the *Straits Times* reported its first SARS story on March 18, 2003, five days after the first SARS case in the country was diagnosed on March 13. Therefore, it can be said that the Chinese government and media



chose to “cover up” the epidemic while the Singapore government and media informed the public immediately.

Critics have pointed out that because the Chinese government intentionally withheld information, SARS spread faster throughout China and all over the world. Moreover, the initial failure to inform the public about the disease fostered widespread anxiety and speculation. On the other hand, Singapore informed the public promptly and honestly, which helped the government gain credibility and public trust.

According to Lundgren and McMakin (2004), risk communication should begin as soon as the risk has been identified and should progress as new information becomes available. However, there is no simple rule on when risk information should be released. In the case of rapidly evolving events that characterize an outbreak, governments and the media are likely to face criticism no matter what (Sandman, 2005). Generally, early is better, even in cases of uncertainty because: “(1) Early release of information sets the pace for the resolution of the problem because communicators can better control the accuracy of information, (2) strategists are more apt to earn public trust if they release information promptly, (3) people are more likely to overestimate the risk if information is withheld, and (4) people are entitled to information that affects their lives” (Sandman, 2005, p. 1).

### **Research Question 1**

*How rich in information were the two newspapers’ coverage of SARS? How do they compare in terms of information richness?*

In this study, “information richness” refers to the quantity of SARS and SARS-related information present in each news story. Table 1 details the number of specific information about the disease mentioned in the *People’s Daily* and the *Straits Times*,

including what SARS is, how SARS gets transmitted, the symptoms associated with SARS, the risks of contracting SARS, how people can protect themselves against SARS, where people can go for assistance, whether the SARS epidemic was under control and whether the government is handling the situation effectively.

Table 1 shows that the most frequently mentioned SARS information in both newspapers were the government's handling of the disease (n=705), where people can go for assistance (n=540), and how people can protect themselves against SARS (n=483). These were followed by information on how SARS is transmitted (n=425), the risk of contracting SARS (n=370), and the symptoms of the disease (n=313). The least mentioned information was about the disease itself (n=121), as only 6.1 percent of the 2,000 articles examined explained this new and relatively unknown malady.

As the first epidemic that emerged in 21<sup>st</sup> century, SARS was also the first truly airborne epidemic in history as air travel carried it worldwide in weeks. Facing a new disease, one of the media's tasks was to provide all kinds of information about it. Table 1 shows that the two newspapers provided relatively little information about SARS, the symptoms associated with it, and the risk of contracting it.

Table 1 also shows that the *People's Daily* had a slightly greater percentage of information regarding SARS (6.4%) and how people could protect themselves against it (25.8%), compared to 5.7% and 22.5% of the same information, respectively, in the *Straits Times*. On the other hand, the *Straits Times* provided much more information than the *People's Daily* on how SARS gets transmitted, the symptoms associated with SARS, the risks of getting infected with SARS, and where people can go for assistance.



There was a vast difference in the number of articles that implied or mentioned that SARS was under control. In the *People's Daily*, 55 articles said so, most of them appearing during the initial coverage and near the end of the coverage. Only 15 of such articles appeared in the *Straits Times*, all of which came near the end of the coverage. Moreover, 577 articles from the *People's Daily* mentioned or implied that the government could effectively handle the crisis, compared to only 128 stories implying the same in the *Straits Times*.

According to the chi-square test results in Table 2, there was a significant difference between the two papers in terms of the information they contained regarding how SARS is transmitted ( $\chi^2=38.15$ ,  $p=.000$ ,  $df=1$ ), the symptoms of the disease ( $\chi^2=9.44$ ,  $p=.002$ ,  $df=1$ ), the risks related to the disease ( $\chi^2=47.75$ ,  $p=.000$ ,  $df=1$ ), where people can go for help ( $\chi^2=6.34$ ,  $p=.012$ ,  $df=1$ ), whether the epidemic is under control ( $\chi^2=23.69$ ,  $p=.000$ ,  $df=1$ ), and the government's handling of the disease ( $\chi^2=441.63$ ,  $p=.000$ ,  $df=1$ ). The *Times* contained more information about how the disease gets transmitted, its symptoms, the risks it engenders, and where people can seek assistance, obviously outperforming its Chinese counterpart on these aspects. The *Daily*, however, had a demonstrably larger number of stories that claimed the epidemic is under control and that the government is handling the situation well.

As shown also in Table 2, no significant difference was not found in the two newspapers' content about the disease ( $\chi^2=0.431$ ,  $p=.511$ ,  $df=1$ ), and how to protect people from the disease ( $\chi^2=2.97$ ,  $p=.085$ ,  $df=1$ ).

Table 1. Number of SARS-related information in the two newspapers (N=2,000).

Specific information	Paper	n	Total count
The disease	<i>The Daily</i>	64	121
	<i>The Times</i>	57	
How it is transmitted	<i>The Daily</i>	156	425
	<i>The Times</i>	269	
Symptoms of the disease	<i>The Daily</i>	132	313
	<i>The Times</i>	181	
Risks related to the disease	<i>The Daily</i>	125	370
	<i>The Times</i>	245	
How to protect people from the disease	<i>The Daily</i>	258	483
	<i>The Times</i>	225	
Where people can go for help	<i>The Daily</i>	245	540
	<i>The Times</i>	295	
Is the epidemic under control	<i>The Daily</i>	55	70
	<i>The Times</i>	15	
Government handling of the disease	<i>The Daily</i>	577	705
	<i>The Times</i>	128	

Table 2. Results of chi-square tests showing the difference between the *People's Daily* and the *Straits Times* in terms of information richness.

Specific information	Paper	n	Pearson chi-square value	df	Asymp. Sig (2-sided)
The disease	<i>The Daily</i>	64	.431	1	.511
	<i>The Times</i>	57			
How it is transmitted	<i>The Daily</i>	156	38.152	1	.000
	<i>The Times</i>	269			
Symptoms of the disease	<i>The Daily</i>	132	9.445	1	.002
	<i>The Times</i>	181			
Risks related to the disease	<i>The Daily</i>	125	47.753	1	.000
	<i>The Times</i>	245			
How to protect people from the disease	<i>The Daily</i>	258	2.973	1	.085
	<i>The Times</i>	225			
Where people can go for help	<i>The Daily</i>	245	6.342	1	.012
	<i>The Times</i>	295			
Is the epidemic under control	<i>The Daily</i>	55	23.686	1	.000
	<i>The Times</i>	15			
Government handling of the disease	<i>The Daily</i>	577	441.635	1	.000
	<i>The Times</i>	128			

Over the course of a week since the *People's Daily* reported its first SARS story, the paper repeatedly mentioned that the SARS epidemic was effectively under control. In reality, the epidemic has already spread to Beijing when the first report was released on April 2. Although officials acknowledged that the disease was relatively unknown, they remained silent about the extent and severity of the outbreak. At some level, the government underestimated the seriousness of the situation and believed it can handle the crisis effectively (Huang, 2003). On April 2, Premier Wen Jiabao chaired an executive meeting of the State Council to discuss the issue but again insisted that the outbreak was effectively under control. A week later, Premier Wen was forced to tell the nation that “the situation is grave.”

Considering China's resulting economic losses, the price of lying and deception was indeed costly. The long period of dishonesty allowed SARS to spread far and wide. As unsubstantiated rumors filled the information vacuum, in the eyes of its own public and the international community, the government lost credibility.

### **Research Question 2**

*To what extent did the two newspapers warned or reassured their respective publics about the epidemic in their reports?*

Following the results of RQ1, Table 3 shows the number of times messages that warned or reassured the public were detected in the news reports. It indicates that the *People's Daily* contained more messages that reassured the public that the epidemic is being effectively dealt with by the government. On the other hand, the *Straits Times* contained more warnings. This suggests that the two governments applied vastly different risk communication strategies in handling the outbreak.



The independent samples t-tests (Table 3) conducted to determine if the two papers differed in this regard show a significant difference in terms of the risk messages they chose to disseminate to their respective publics through the media ( $t=2.56$ ,  $p=.010$ ,  $df=1956$ ).

Table 3. Number of messages that warned or reassured the public about the epidemic in the two newspapers (N=2,000).

Newspaper	Warn	Reassure	Mean	Std. dev.	t	df	Sig. (2-tailed)
<i>The People's Daily</i>	114	330	.7740	.91420	2.565	1956.66	.010
<i>The Straits Times</i>	272	202	.6760	.78971			

According to Lanard and Sandman (2003), during an evolving crisis, the most important risk communication recommendation is to avoid over-reassuring people. That is, it is better to warn the public than to drum up false confidences. At this stage, people needed to be more knowledgeable about the uncertainties and the potential risks rather than be bombarded with unsubstantiated claims of assurance. For example, it was vital for the public to know that the SARS virus can be transmitted through the air and that patients can die within a few days if left untreated. Both the *People's Daily* and the *Straits Times* treated the epidemic as a serious disease. However, compared to the *Straits Times*, the *People's Daily* claimed more often that the disease was not a serious one and that the risk of contracting SARS was low.

Both the *Straits Times* and the *People's Daily* mentioned similar measures to protect the public against SARS, including wearing masks, washing hands and not sharing towels. These measures, however, were more frequently mentioned in the *Straits Times* than in the *People's Daily*. Moreover, more Singapore government officials, including the president and

the premier, went on national media to persuade the public to follow these infection prevention measures.

From April 10 to April 17, the sources cited in the *People's Daily* suggested that people should calm down and go about their normal every day lives. Residents in Beijing were encouraged to go out instead of staying at home. For example, one article said: "It is ridiculous to avoid going to the hospital and other public places. People don't need to worry too much about the epidemic...It is not easy to contract SARS" (Titan, 2003). In reality, at that time, the epidemic was already spreading fast all over the country and the best way to prevent spread was to isolate and quarantine already affected individuals.

Both governments demonstrated confidence in controlling the SARS epidemic and both realized they were facing not only a public health problem but also a political and economic crisis. According to the *People's Daily*, the Chinese government cooperated fully with the international community to contain SARS and that the WHO was satisfied with the Chinese government's efforts on this regard. The *Daily* reports also stressed that the Chinese government always places the people's health and safety above everything else, and had provided many effective anti-SARS assistance measures. In contrast, the Singapore government officials shared feelings of anxiety with its own public while it outlined the measures it has taken to contain the outbreak. Unlike the *Daily*, it did not make any blatant statement that the epidemic was under control.

### **Research Question 3.**

*What were the dominant sources of information cited in the two newspapers' SARS-related reports? How do they compare in terms of sources cited?*

Because more than one source was often used in a story, each article was analyzed to determine the three dominant sources to which first-hand information was attributed. Table 4 shows the distribution of six sources cited in the two newspapers. As shown in Table 4, the most frequently cited sources in both papers were government officials and local health reports (n= 1,983); these were followed by other media sources (n=836). The least frequently cited sources were ordinary citizens (n=325) and international health experts (n=254).

The findings of this study echo those of other studies that examined the media coverage of outbreaks in different countries. These studies show that journalists generally rely heavily on official government sources in fashioning their news reports. This is especially true during a crisis that entails high risks (Dunwoody and Peters, 1992).

Another major news source was local health reports. Although the SARS epidemic was a worldwide disaster, the two newspapers focused mainly on local health news (n=945), eschewing those from international sources (n=254). This implies that both newspapers were more concerned with their local situations than the global ramifications of the epidemic.

The *People's Daily* cited government official sources most frequently (28.7%), followed by other media sources (25.5%). The *Straits Times* referenced local health reports (28.4%), government sources (28.2%), and other media sources (20.4%) most often. In both newspapers, the least often cited sources were international health experts and local citizens. Tables 5 to 7 outline the results of the chi-square tests conducted to test the difference between the two papers in source use.

**Source 1:** As shown in Table 5, there was a significant difference between the two newspapers in the first dominant source cited ( $\chi^2=75.42$ ,  $p=.000$ ,  $df=5$ ). In the *People's Daily*, the most frequently cited source was government officials, department or unit,



followed by the local health reports and other media sources. The least frequently cited sources were ordinary citizens and international health experts. In the *Straits Times*, the most frequently cited source was local health reports, followed by government officials and other media sources. As in the *People's Daily*, the least frequently cited sources in the *Straits Times* were ordinary citizens and international health experts.

**Source 2:** As shown in Table 6, the *People's Daily* and the *Straits Times* also differed in terms of the second most dominant source of information cited ( $\chi^2=35.68$ ,  $p=.000$ ,  $df=5$ ). The most frequently cited source in the *People's Daily* was other media sources, followed by local health reports and government officials. The least frequently cited sources were international health experts and ordinary citizens. On the other hand, the most frequently cited source in the *Straits Times* was other media sources, followed by government officials and local health reports. The least frequently cited sources were the same as in the *People's Daily*.

**Source 3:** As can be seen in Table 7, the two papers also differed significantly in terms of the third most cited information source ( $\chi^2=35.09$ ,  $p=.000$ ,  $df=5$ ). The most frequently cited sources in the *People's Daily* were international health experts and government officials, followed by other media sources. The least frequently cited were ordinary citizens and local health reports. On the other hand, the most frequently used sources in the *Straits Times* were international health experts and other media sources. The least cited sources were local health reports and ordinary citizens.

Table 4. The most frequently cited sources of information in the two newspapers' coverage of SARS.

	Total	<i>The People's Daily</i>		<i>The Straits Times</i>	
		N	% of total	N	% of total
Local health reports	945	428	23.4	517	28.4
Government officials or agencies	1,038	524	28.7	514	28.2
International health experts	254	139	7.6	115	6.3
Citizens	325	139	7.6	186	10.2
Media	836	465	25.5	371	20.4
Others	247	129	7.1	118	6.6

Table 5. Chi-square test showing the difference between the two newspapers in terms of the first source cited.

Source 1	Paper	N	Total
Local health reports	<i>The Daily</i>	285	671
	<i>The Times</i>	386	
Government officials or agencies	<i>The Daily</i>	367	702
	<i>The Times</i>	335	
International health experts	<i>The Daily</i>	80	154
	<i>The Times</i>	74	
Citizens	<i>The Daily</i>	26	91
	<i>The Times</i>	65	
Media	<i>The Daily</i>	225	336
	<i>The Times</i>	111	
Others	<i>The Daily</i>	17	46
	<i>The Times</i>	29	

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-square	75.418	5	.000
Likelihood ratio	76.845	5	.000
Linear-by-linear association	22.759	1	.000
N of valid cases	2000		

Table 6. Chi-square test showing the difference between the two newspapers in terms of the second source cited.

Source 2	Paper	N	Total
Local health reports	<i>The Daily</i>	125	254
	<i>The Times</i>	129	
Government officials or agencies	<i>The Daily</i>	94	266
	<i>The Times</i>	172	
International health experts	<i>The Daily</i>	34	45
	<i>The Times</i>	11	
Citizens	<i>The Daily</i>	67	169
	<i>The Times</i>	102	
Media	<i>The Daily</i>	192	428
	<i>The Times</i>	236	
Others	<i>The Daily</i>	87	162
	<i>The Times</i>	75	

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	35.684	5	.000
Likelihood ratio	36.318	5	.000
Linear-by-linear association	1.145	1	.285
N of valided cases	1324		

Table 7. Chi-square test showing the difference between the two newspapers in terms of the third source cited.

Source 3	Paper	N	Total
Local health reports	<i>The Daily</i>	18	20
	<i>The Times</i>	2	
Government officials or agencies	<i>The Daily</i>	63	70
	<i>The Times</i>	7	
International health experts	<i>The Daily</i>	79	109
	<i>The Times</i>	30	
Citizens	<i>The Daily</i>	11	30
	<i>The Times</i>	19	
Media	<i>The Daily</i>	48	72
	<i>The Times</i>	24	
Others	<i>The Daily</i>	25	39
	<i>The Times</i>	14	



Table 7. continued.

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	35.088	5	.000
Likelihood ratio	35.918	5	.000
Linear-by-linear association	14.974	1	.000
N of validated cases	340		

#### Research Question 4.

*What frames did the two newspapers use to inform the public about SARS? Is there a difference between the People's Daily and the Straight Times in terms of the frames they used in covering the SARS epidemic?*

Because a story may contain more than one frame, each article was analyzed to determine the three most dominant frames it exhibited. Table 7 shows the frequency distribution of the seven frames identified in both newspapers. From the original list of frames culled from Semetko and Valkenburg (2000), two more frames were identified: the health and political frames. As shown in Table 8, the most frequently used frame was the health frame (n=1,401), followed by the economic frame (n=535). The use of the risk and responsibility frames was the same for both newspapers (n=489). The least used was political (n=316), morality (n=365), and the human interest frames (n=382).

The health frame was the most dominant frame found in both newspapers, focusing on the effect of SARS on public health and the medical systems. The frame revolves around the new disease, how people can protect themselves against SARS, how the disease gets transmitted, the risk of contracting SARS, and where to go for help.

The economic frame was the second most dominant frame detected. This frame stresses dramatic economic effects on Singapore, China and the world. In 2003, SARS

infected 8,436 people in 30 countries and killed 812 since the first case was reported in China on November the year before. The epidemic also had a far greater impact on the global economy than expected. Besides its adverse effects on direct costs for medical care, SARS caused worldwide social disruption and economic losses. International travel fell by 50 percent to 70 percent; hotel occupancy dropped more than 60 percent. According to a widely cited estimate by the investment firm Morgan Stanley, SARS cost the global economy \$40 billion in 2003.

The negative impact of SARS on the Asian economies was also evident in the report. Singapore's economy was hit hard, with the travel and tourism sector particularly taking a heavy beating. Reports showed a 67 percent decline in visitors in April, when the epidemic was at its peak outbreak stage. A sharp 4.3 percent drop in GDP was recorded in the second quarter, and GDP growth in 2003 declined by 1.1 percent. China was hit most heavily by the SARS epidemic in 2003. It was estimated that the economic loss caused by SARS was around 48 billion in US dollars. Indeed, the economic impact of the disease was far more serious than that of the Asian financial crisis in 1997 and the Yangtze flood in 1998.

Table 8 also shows that the *Straits Times* used more health, economic, human interest, risk and morality frames. Its Chinese counterpart, on the other hand, employed more political and responsibility frames. Compared to the *People's Daily*, the *Straits Times* focused much more heavily on the economic frame, especially SARS' impact on tourism. In other words, the *Straits Times* seemed to be more concerned with the economic dimension of the SARS crisis than the *Daily*.

In general, the *Straits Times* also made more use of the human interest frame than the *People's Daily*. In the *People's Daily*, the human interest frame mostly dealt with themes

such as “SARS-fighting heroes,” referring to the doctors and other medical personnel who took care of SARS patients. However, in the *Straits Times*, the human interest frame dealt more specifically with individual SARS cases. The *Straits Times* used risk frames more frequently than the *Daily*. It was also evident that the *People’s Daily* was more careful in covering SARS-related risks. Compared to the Singapore government, the Chinese government created relatively little alarm and reassured the public more frequently. Tables 9 to 11 exhibit the results of three chi-square tests conducted to test the difference between the two papers in frame use.

**Frame 1:** Table 9 shows a significant difference between the two papers in the first frame used ( $\chi^2=119.43$ ,  $p=.000$ ,  $df=6$ ). In the *People’s Daily*, the most frequently used frame was the health frame, followed by the political frame. A close third is the human interest frame. The least frequently used frames were risk and morality. In the *Straits Times*, the most dominant frame was the health frame, followed by the economic frame. The least frequently employed frames were the risk and political frames.

**Frame 2:** The second most frequently used frame in the *People’s Daily* was the risk frame, followed by the health frame and the responsibility frame. The least employed were the morality frame and the human interest frame. In the *Straits Times*, the health frame was the second most common frame, followed by the risk and the economic frame. The least discussed were the responsibility and the political frames. The results of a chi-square test shown in Table 10 indicate that the two papers markedly differ in terms of the second frame they used ( $\chi^2=150.89$ ,  $p=.000$ ,  $df=7$ ).

**Frame 3:** The third most frequently used frame in the *People’s Daily* was the responsibility frame, followed by the risk and the morality frame. Mentioned the least were



the economic and the political interest frames. In the *Straits Times*, the third most abundantly used frame was the responsibility frame, followed by the morality and the risk frames. The least mentioned were the economic and the political frames. The chi-square test results shown on Table 11 indicate that the two papers differed substantially in terms of the third frame they used ( $\chi^2=35.36$ ,  $p=.000$ ,  $df=7$ ).

Table 8. The frames used in the SARS coverage by the *People's Daily* and the *Straits Times*.

Frame	Total	<i>The People's Daily</i>		<i>The Straits Times</i>	
		N	% of total	N	% of total
Health	1,401	657	22	744	36.7
Economic	535	170	5.7	365	18
Political	316	130	7.7	186	4.2
Risk	489	261	8.7	228	11.2
Human Interest	382	174	5.8	208	10.3
Responsibility	489	310	10.4	179	8.9
Morality	365	146	4.9	219	10.8

Table 9. Chi-square test showing the difference between the two newspapers in terms of the first frame used.

Frame 1	Paper		Total
	<i>The People's Daily</i>	<i>The Straits Times</i>	
Health	483	510	993
Economic	103	216	319
Political	139	35	174
Risk	40	14	54
Human interest	105	98	203
Responsibility	83	66	149
Morality	47	61	108
Total	1,000	1,000	2,000

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	119.438(a)	6	.000
Likelihood ratio	125.226	6	.000
Linear-by-linear association	4.205	1	.040
N of valid cases	2,000		

Table 10. Chi-square test showing the difference between the two newspapers in terms of the second frame used.

Frame 2	Paper		Total
	<i>The People's Daily</i>	<i>The Straits Times</i>	
Health	163	201	364
Economic	62	147	209
Political	82	35	117
Risk	171	175	346
Human interest	54	74	128
Responsibility	152	53	205
Morality	50	108	158
Total	734	793	1,549

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	150.891(a)	7	.000
Likelihood ratio	163.453	7	.000
Linear-by-linear association	3.836	1	.050
N of valid cases	1,549		

Table 11. Chi-square test showing the difference between the two newspapers in terms of the third frame used.

Frame 3	Paper		Total
	<i>The People's Daily</i>	<i>The Straits Times</i>	
Health	11	33	44
Economic	5	2	7
Political	9	16	25
Risk	50	39	89
Human interest	15	36	51
Responsibility	75	61	136
Morality	49	50	99
Total	214	237	461

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	35.365(a)	7	.000
Likelihood ratio	40.049	7	.000
Linear-by-linear association	1.502	1	.220
N of valid cases	461		

## CHAPTER 5.

### CONCLUSIONS

In the last two decades of the 20<sup>th</sup> century, new diseases emerged at the rate of one per year, and this trend is expected to continue (Woolhouse and Dye, 2001). People can reasonably expect, therefore, that SARS is not the last epidemic that will create a worldwide crisis. The countries that bore the brunt of the epidemic definitely differed in terms of their health monitoring and regulatory mechanisms, their capacity to extend immediate assistance, and their ability to communicate to their publics about the disease. The lessons on effective risk communication they learned as they struggled with the epidemic, therefore, are worth documenting in preparation for the next threat. This task is crucial as risk communication experts must construct and cumulatively build an evidence-based, field-tested body of guidelines to promote the public health goal of rapid outbreak control with the least possible disruption to society.

This study analyzed two newspapers, the *Straits Times* and the *People's Daily*, to determine the risk communication strategies employed by their respective governments in dealing with SARS. The results provide empirical evidence to the common observation that, compared to China, Singapore offered a first-rate communication strategy with features strongly associated with communication effectiveness. Although both newspapers are under strict government censorship and directly reflect their government's stance on issues of national importance, they responded to the SARS crisis quite differently. Indeed, the findings of this study indicate in many ways that Singapore was a test case of outbreak communication best practices through the media.



First, this study finds that the Chinese government obscured the true national situation at the beginning of the outbreak. Although the first SARS case was recorded as early as November 2002, the first article about the disease did not appear in the *People's Daily* until April 10, 2003, a full five months after it was initially confirmed. As the nation underwent a health ordeal, the government continuously misled the public through media reports stating that the epidemic was under control. In contrast, the Singapore government released information immediately after diagnosing its first SARS case.

According to Powell and Leiss (1997), a risk communication vacuum is always untenable because the absence of credible information often foments rumors and speculations that can seriously amplify or attenuate the objective risks. Based on years of experience worldwide as a risk communication expert, Sandman (2003) reminds communication practitioners that in a public health crisis, “the credibility of those in charge may well translate into people’s trust in official information and compliance with official instructions, and thus into lives saved or lost” (p. 1). The parameters of trust are established in the outbreak’s first official announcement. This message’s timing, candor and comprehensiveness may make it “the most important of all outbreak communications” (WHO, 2005, p. 3). People are more likely to overestimate the risk if information is withheld. Evidence also shows that the longer officials withhold worrisome information, the more frightening the information will seem when it is revealed, especially if the revelation is done by outside sources. In downplaying the risks, therefore, the Chinese government delayed outbreak control, undermined public trust and compliance, and unnecessarily prolonged economic, social and political turmoil.

Second, the *Straits Times* coverage was not only early, it was also characterized by more information. This richness in content is displayed in terms of how the newspaper abundantly handled such information items as how the disease gets transmitted, the symptoms of the disease, the risks related to SARS, and where people can go for help. In these areas, the *Straits Times* demonstrably outperformed its Chinese counterpart. On the other hand, the *People's Daily* contained more information about the epidemic being under control and the government's handling of the disease. Compared to the Singapore paper, therefore, the *Daily* offered a more Party-oriented point of view, expressing a desire to project an image of competence. This penchant for self-orientation, however, obscured the government's concern for the people's welfare.

Studies have shown that maintaining the public's trust throughout an outbreak requires transparency—communication that is candid, easily understood and factually accurate. By providing the public with the most information about the disease, the *Straits Times* allowed people to almost experience the risk assessment and decision-making processes the government undertook in its efforts at outbreak control. Because of the high degree of transparency this mode afforded, there was a stronger incentive for government risk managers to be deliberative and accountable for their actions.

Third, as a direct extension of the government's general attitude, the *People's Daily's* coverage was replete with information that reassured rather than warned people about the probability of contracting the disease and to convince the public of the government's position on SARS. Again, this practice ran contrary to expert advice (i.e., Lanard and Sandman, 2003) that, in dealing with an evolving crisis, it is best to avoid over reassuring the public. In contrast, the Singapore newspaper featured more precautionary measures, urging citizens to



take steps that will keep them from harm, and empathizing with them during a prolonged period of uncertainty. This practice is in accord with the tenet that risk communication messages should include information about what the public can do to make themselves safer. This affords people a sense of control over their own health and safety, which in turn allows them to react to the risk with more reasoned responses.

Fourth, the frames gleaned from the news reports indicate that the two newspapers (and their respective governments) focused mainly on the local health situation although SARS was clearly a disaster of global proportions. This finding supports the results of Lee (2005) who examined the online news coverage of SARS in several Asian countries and found that the newspapers mainly reported on local incidents compared to the international ones. This finding is perhaps due to the overwhelming local situations that dominated the coverage. It also demonstrates that Asians, like the Americans, have a general propensity and a natural curiosity to understand what is happening “within their backyards” as a characteristic of what news gatekeepers call incidents that have inherent “news values.”

Fifth, Singapore’s *Straits Times* relied more on the use of health, economic, human interest, risk and morality frames while the *People’s Daily* employed more political and responsibility frames. The *Times* focused much more heavily on the economic frame than the *Daily* even though the Chinese economic losses due to SARS was by far larger than Singapore’s. The Chinese government’s reluctance to pay attention to economic losses is perhaps a result of its strongly held belief that economic indices of growth are a direct reflection of the government’s ability to manage the country. This frame was very much downplayed by the Chinese newspaper to diminish the backlash. The dominance of the political and responsibility frames in the *Daily’s* coverage exemplifies how authorities and



pressure groups can use the mass media to construct certain frames and support their interests. This ability makes framing a central practice in the production of hegemonic meanings resulting from ideological struggles and contests (Edelman, 1993).

Sixth, in the combined coverage of the two newspapers, the most frequently cited sources were the government officials and local health reports while the least often cited sources were citizens and international health experts. This study also found that the two newspapers relied heavily on government sources. According to Dunwoody and Peters (1992), reporters usually depend heavily on official government sources in their news reports, especially during a crisis that entails high risks. On the other hand, the dependence on government and official sources is understandable because both newspapers are mouthpieces of their respective governments.

In summary, the results point to the best practices nations can follow in dealing with a health crisis like SARS. The content analysis findings indicate that the pattern of media's response to the epidemic was shaped by the institutional dynamics of both countries' political system (Huang, 2003). As China has experienced, risk communication failures are costly. The lessons learned from such an experience, therefore, bear repeating: (1) do not over-reassure the public, (2) release information immediately, (3) do not hide bad news; (4) work toward maximum transparency.

For risk managers and public health officials who use the media to communicate to citizens, such lessons are expected to enhance their capacities for crisis management. For journalists and health reporters, these lessons provide guidelines to promote public resilience and guide appropriate public participation to support the rapid containment of an outbreak, thus limiting morbidity and mortality. In addition, effective risk communication minimizes

the damage to a nation's international standing, its economy, and its public health infrastructure.

The results of this study also provide empirical evidence that communication expertise has become as essential to outbreak control as epidemiological training and laboratory analyses.

### **Limitations and future directions**

This paper analyzed the content of only two newspapers in two countries affected by SARS. The sampling universe thus constrained the ability to generalize the results to other areas of the world. The study also limited its analysis to newspapers. The risk communication field will certainly benefit from the analysis of the content of various news media such as television, radio and the Internet.

Further, this study analyzed media frames as influenced by different government systems that controlled the media industry. To fully understand the framing process, it is important to observe the impact of media frames on individual frames or the audience's perception of critical health issues.

Third, this study did not provide a time series analysis of frames and sources used. Actually, in both Singapore and China, the SARS struggle can be divided into three distinct periods: the initial outbreak, the release of the WHO travel advisory, and the second outbreak. It would therefore be beneficial to analyze frame and source use across these three time periods to help assess the evolution of the content of news reports especially in periods of protracted crises.

## REFERENCES

- Agency for Toxic Substances and Disease Registry (ATSDR). (2005). A primer on health risk communication principles and practices. Retrieved April 1, 2005, from <http://www.atsdr.cdc.gov/HEC/primer.htm>.
- Aspinwall, L. G. (1999). Persuasion for the purpose of cancer risk reduction: Understanding responses to risk communications. *Journal of the National Cancer Institute Monographs*, 25, 88-93.
- Akin, E. B. (1999). Cancer risk communication: What we know. *Journal of the National Cancer Institute*, 25, 182-185.
- Ali, I. (2003). SARS and the role of government. Retrieved May 1, 2006, from <http://www.taipetimes.com/News/editorials/archives/2003/05/23/2003052302>.
- Belloc, H. (2005). Risk communication. Retrieved February 2, 2005, from <http://www.soc.iastate.edu/soc235Sec2/RiskCom.html>.
- Bengtson, P. (1994). Straight from the Sandman: An outspoken risk communication expert offers an unvarnished view of Hanford. Retrieved March 5, 2005, from <http://www.psandman.com/articles/hanford.htm>.
- Berg, C. R. (1998). Processing quantitative data about risk and threat in news reports. *Journal of Communication*, 48, 87-106.
- Billings, A. C., & Eastman, S. T. (2003). Framing identities: Gender, ethnic, and national party in network announcements of the 2002 winter Olympics. *Journal of Communication*, 53, 569-585.



Bork, E. (2003). China's SARS problem and ours: How China's totalitarian government put the rest of the world at risk to the new virus. Retrieved October 21, 2004, from <http://www.weeklystandard.com/Content/Public/Articles/000/000/002/504jlpnl.asp>.

Bloomberg News. (2003). SARS put a break on China GDP. Retrieved March 10, 2005, from <http://www.iht.com/articles/103009.htm>.

Carragee, K., & Roefs, W. (2004). The neglect of power in recent framing research. *Journal of Communication, 54*, 214-233.

Chang, W. H. (1989). *Mass media in China: The history and the future*. Ames, IA: Iowa State University Press.

Chee, S. J. (2002). *Media in Singapore*. Retrieved July 5, 2005, from <http://www.sfdonline.org/chee/mediasing.html>.

Chu, Y. L., & Wong, M. Y. (2003). Asia media project: Singapore. Retrieved August 15, 2005, from [http://jmsc.hku.hk/students/jmscjournal/critical/elainandmargaret\\_01.htm](http://jmsc.hku.hk/students/jmscjournal/critical/elainandmargaret_01.htm).

Covello, V. T. (1983). The perception of technological risks: A literature review. *Technological Forecasting and Social Change, 23*, 285- 297.

D'Angela, P. (2002). News framing as a multi-paradigmatic research program: A response to Entman. *Journal of Communication, 52*(4), 870-880.

Donald, S. H., Keane, M., & Hong, Y. (2002). *Media in China: Consumption, content and crisis*. London & New York: RoutledgeCurzon.

Drache, D., Feldman, S., Centre, R., Clifton, D. (2003). Media coverage of the 2003 Toronto SARS outbreak: A report on the role of the press in a public crisis. Retrieved Nov 5, 2005, from <http://www.google.com/search?hl=en&lr=&q=media+coverage+of+the+2003+toronto>.

Dunwoody, S., & Peters, H. P. (1992). Mass media coverage of technological and environmental risks: A survey of research in the United States and Germany. *Public Understanding of Science, 1*, 199-230.

Dunwoody, S. (2005). Community structure and media risk coverage. Retrieved March 10, 2005, from: <http://www.fplc.edu/RISK/summer/dunwoody.htm>.

Entman, R. M. (1993). Framing: Toward a clarification of a fractured paradigm. *Journal of Communication, 43*(4), 51-58.

Entwistle, V., & Hancoc-Beaulie, M. (1992). Health and medical coverage in the UK national press. *Public Understanding of Science, 1*, 367-382.

Epstein, G. A. (2003). Crisis: A deadly disease that worries the public and threatens the economy poses a crucial test for Beijing. Retrieved November 13, 2004, from <http://www.baltimoresun.com/news/health/bal-sars-package,1,4180640.special?coll=bal-health-utility>.

Feldman, S., Drache, D., & Clifton, D. (2003). Media coverage of the 2003 Toronto SARS outbreak: a report on the role of the press in a public crisis. Retrieved May 1, 2006, from [http://www.robarts.yorku.ca/pdf/gcf\\_mediacovertureSARSto.pdf](http://www.robarts.yorku.ca/pdf/gcf_mediacovertureSARSto.pdf).

Fischhoff, B. (1983). Acceptable risk: The case of nuclear power. *Journal of Policy Analysis and Management, 2*, 559-575.

Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO) (1999). The application of risk communication to food standards and safety matters: Report of a joint FAO-WHO expert consultation. Rome, February 2-6, 1998.

Fridman, K. (2005). Understanding risk numbers. Retrieved April 1, 2005, from <http://www.lehigh.edu/kaf3/public/www-data/risk/risknumb.html>.

Friedman, S. M., Villamil, K., Suriano, R. A., & Egolf, B. P. (1996). Alar and apples: Newspapers, risk and media responsibility. *Public Understanding of Science*, 5, 1-20.

Friedman, S. M. (2005). The media, risk assessment and numbers: They don't add up. Retrieved April 1, 2005, from <http://www.fplc.edu/risk/vo15/summer/friedman/htm>.

Fong, G. T., Rempel, L. A., & Hall, P. A. (1999). Challenges to improve health risk communication in the 21<sup>st</sup> century: A discussion. Retrieved July 5, 2005, from <http://jncicancerspectrum.oxfordjournals.org/cgi/content/full/jncimono;1999/25/173>.

Fung,, A. (2003). SARS: How Singapore outmanaged the others. Retrieved May 17, 2006, from <http://www.atimes.com/atimes/China/ED09Ad03.html>.

Furrow, L. M. (2003). Media in China: Opening up or still covering up? Retrieved July 5, 2005, from [http://www.hoffmanasia.com/ap/rev2/html/articles/amcham\\_jun03.htm](http://www.hoffmanasia.com/ap/rev2/html/articles/amcham_jun03.htm).

Gan, F., Teo, J. L., & Detenber, B. H. (2005). Framing the battle for the White House: A comparison of two national newspapers' coverage of the 2000 United States presidential election. *Gazette: The International Journal for Communication Studies*, 67(5), 441-467.

Gans, H. (1979). *Deciding what's news*. New York: Pantheon.

Gandy, O. (2001). Epilogue – framing at the horizon: A retrospective assessment. *Framing public life: Perspectives on media and our understanding of the social world*.

Mahwah, NJ: Lawrence Erlbaum Associates.



Gamson, W. A., & Modigliani, A. (1987). The changing culture of affirmative action. *Research in Political Sociology*, 3, 137-177.

Goffman. (1974). *Frame Analysis: An essay on the organization of experience*. New York: Harper and Row.

Groth, E. (1998). Risk communication in the context of consumer perceptions of risks. Retrieved March 2, 2005, from <http://www.consumersunion.org/food/riskcomny598.htm>.

Gerrard, M., Gibbons, F. X., & Reis-Bergan, M. (1999). The effect of risk communication on risk perceptions: The significance of individual difference. *Journal of the National Cancer Institute Monographs*, 25, 94-100.

Hall, A. (2000). The mass media, cultural identity and perceptions of national character: An analysis of frames in US and Canadian coverage of audiovisual material in the GATT. *Gazette*, 62(3-4), 231-249.

Henderson, J. C. (2003). Managing a health-related crisis: SARS in Singapore. *Journal of Vacation Marketing*, 10(1), 67-77.

Holsti, O. (1969). *Content analysis for the social science and the humanities*. Reading, MA: Addison-Wesley.

Hornig, S. (1993). Reading risk: Public response to print media accounts of technology risk. *Public Understanding of Science*, 2, 95-109.

Howkins, J. (1982). *Mass communication in China*. New York, NY: Longman Inc.

Huang, K. S. (1996). A comparison between media frames and audience frames: The case of the Hill-Thomas controversy. Paper presented at the annual conference of the International Communication Association, Chicago, IL.

Huang, Y., & Leung, C. C. M. (2005). Western-led press coverage of mainland China and Vietnam during the SARS crisis: Reassessing the concept of “media representation of the other.” *Asian Journal of Communication*, 15, 302-318.

Huerta, E. E., & Macario, E. (1999). Communicating health risk to ethnic groups: Reaching Hispanics as a case study. *Journal of the National Cancer Institute Monographs*, 25, 23-26.

Johnson, B. B. (1992). Advancing the understanding of knowledge’s role in lay risk perception. Retrieved April 4, 2005, from <http://www.fplc.edu/risk/vo14/summer/johnson.htm>.

Klapper, J. (1960). *The effects of mass communication*. New York, NY: Free Press.

Lee, A. Y. (2005). Between global and local: The glocalization of online news coverage on the trans-regional crisis of SARS. *Asian Journal of Communication*, 15, 255-273.

Lerbinger, O. (1997). *The crisis manager: Facing risk and responsibility*. Princeton, NJ: Lawrence Erlbaum.

Levine, J. (1999). Risky business: Communicating scientific findings to the public, *Journal of the National Cancer Institute Monographs*, 25, 163-166.

Lind, R. A., & Salo, C. (2002). The framing of feminists and feminism in news and public affairs programs in the U.S. electronic media. *Journal of Communication*, 52, 211-227.

Lipkus, I. M., & Hollands J. G. (1999). The visual communication of risk. *Journal of the National Cancer Institute Monographs*, 25, 149-163.

Li, S. J. (2003). It’s not the Chinese media’s fault. Retrieved February 20, 2004, from

<http://the.honoluluadvertiser.com/article/2003/May/20/op/op05a.html>.

Lundgren, R., & McMakin, A. (2004). *Risk communication: A handbook for communicating environmental safety, and health risks*. Columbus, OH: Battelle Press.

Ma, R. (2005). Media, crisis, and SARS: An introduction. *Asian Journal of Communication*, 15, 241-246.

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: Sage Publications, Inc.

McCombs, M., Shaw, D. L., & Weaver, D. (1997). *Communication and democracy: Exploring the intellectual frontiers in agenda-setting theory*. Mahwah, NJ: Erlbaum.

McLeod, D. M., & Detenber, B. H. (1999). Framing effects of television news coverage of social protest. *Journal of Communication*, 49, 3-23.

McQuail, D. (1994). *Mass communication theory: An introduction*. Thousand Oaks, CA: Sage.

Moore, M. (1989). *Health risks and the press: Perspectives on media coverage of risk assessment and health*. Washington, D.C.: The Media Institute.

Mills, A., & Edwards, I. R. (1999). The combined oral contraceptive pills: Are poor communication systems responsible for loss of confidence in this contraceptive method? *Human Reproduction*, 14 (1), 7-10.

Miller, M. M., & Riechert, B. P. (2001). The spiral of opportunity and frame resonance: Mapping the issue cycle in news and public discourse. In Reese, S. D., Gandy, O.H., & Grant, A. E. (Eds.), *Framing public life: Perspectives on media and our understanding of the social world*. Mahwah, NJ: Lawrence Erlbaum Associates.

Nelikin, D. (2005). Reporting risk: The case of silicone breast implants. Retrieved



April 5, 2005, from <http://www.fplc.edu/risk/vol15/summer/nelkin.htm>.

Nelson, T. E., Clawson, R. A., & Oxley, Z. M. (1997). Media framing of a civil liberties conflict and its effect on tolerance. *The American Political Science Review*, 91(3) 567-583.

Nevel, J. P. V. (1999). Introduction of section: Implications for improving risk communication through various channels. Retrieved May 1, 2006, from <http://www.jncicancerspectrum.oxfordjournals.org/cgi/content/full/jncimono;1999/25/123>.

Nicholson, P. J. (1999). *Communicating health risk*. Newcastle Upon Tyne, UK: Protector & Gamble.

Oh, D. C., & Zhou, W. (2004). Framing SARS in Toronto: A comparative analysis of the World Journal and the Toronto Star. Paper presented to the Mass Communication and Society Division, Association for Education in Journalism and Mass Communication. Syracuse, NY.

Pan, Z., & Kosicki, G. M. (1993). Framing analysis: An approach to news discourse. *Political Communication*, 10, 55-75.

Parrott, R. (2004). Emphasizing "communication" in health communication. *Journal of Communication*, 54, 751-787.

Petts, J., Homan, J., Breakwell, G., & Barnett, J. (2002). Understanding public perception of an environment agency workshop. Retrieved Nov 5, 2005, from [http://publications.environment-agency.gov.uk/pdf/SP5-040-TR1-e-p.pdf?lang=\\_e](http://publications.environment-agency.gov.uk/pdf/SP5-040-TR1-e-p.pdf?lang=_e).

Peters, H. P. (2005). Mass media as an information channel in the public arena. Retrieved March 12, 2005, from <http://www.piercelaw.edu/risk/vol15/summer/peters.htm>.

Powell, D., & Leiss, W. (1997). *Mad cows and mother's milk: The perils of poor risk*

*communication*. London, England: McGill-Queen's University Press.

Potter, W. J. (1998). Misperception of risk. *Journal of Communication*, 48, 162-167.

Reed, A. C. (1996). Understanding risk: Informing decisions in a democratic society.

Retrieved April 1, 2005, from [http://www.riskworld.com/Nreports/1996/risk\\_rpt/html/nr6aa045.htm](http://www.riskworld.com/Nreports/1996/risk_rpt/html/nr6aa045.htm).

Reksnes, H. O. (2005). Risk communication: An important tool in risk analysis.

Retrieved March 12, 2005, from <http://www.fmh.no/ifeh/English/Abstracts/RISK%20COMMUNICATION.htm>.

Roche, J. P., Muskavitch, M. A. T. (2003). Limited precision in print media:

Communication of West Nile virus risks. *Science Communication*, 24, 353-365.

Rowan, F. (1996). The high stakes of risk communication, *Preventive Medicine* 25, 26-29.

Rowe, G., & Frewer, L., & Sjoberg, L. (2000). Newspaper reporting: Reporting of hazards in the UK and Sweden. *Public Understanding of Science*, 9, 59-78.

Rothman, A. J., & Kiviniemi, M. T. (1999). Treating people with information: An analysis and review of approaches to communicating health risk information, *Journal of the National Cancer Institute Monographs*, 25, 44-51.

Sandman, P. M., & Lanard, J. (2003). Fear is spreading faster than SARS—and so it should! Retrieved March 5, 2005, from <http://www.psdman.com/col/SARS-1.htm>.

Sandman, P. M., & Lanard, J. (2003). Duct tape risk communication. Retrieved March 5, 2005, from <http://www.psdman.com/col/duttape.htm>.

Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication Research*, 49, 103-122.

Semetko, H. & Valkenburg, P. M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, 50, 93-109.

Shoemaker, P. J., & Reese, S. D. (1996). *Mediating the message*. White Plains, NY: Longman.

Singer, E., & Endreny, P. M. (2005). Reporting on risk: How the mass media portray accidents, disease, disasters and other hazards. Retrieved April 5, 2005, from <http://www.fplc.edu/RISK/vo15/summer/singer.htm>.

Slovic, P. (2000). *The perception of risk*. Sterling, VA: Earthscan Publications Ltd.

Smith K.V., Desvougues, W., & Payne, J.W. (1995). Do risk information programs promote mitigation behavior? *Journal of Risk Uncertainty*, 10, 203-21.

Stallings, R. A. (1994). Hindsight, organizational routines and media risk coverage. Retrieved April 5, 2005, from <http://www.fplc.edu/risk/vo15/summer/stalling.html>.

Tao, S. (1999). Ending the war: How scientists and journalists do (and don't) communicate. Retrieved Nov 10, 2005, from <http://www.journalism.ubc.ca/thunderbird/archives/1999.01/frontpage/science.html>.

Tian, Y., & Stewart, C. M. (2005). Framing the SARS crisis: A computer-assisted text analysis of CNN and BBC online news reports of SARS. *Asian Journal of Communication*, 15, 289-301.

Trauth, J. M. (2005). A case study of health risk communication: What the public wants and what is gets. Retrieved April 1, 2005, from <http://www.fplc.edu/RISK/vo15/winter/trauth.htm>.

Trumbo, C. (1996). Constructing climate change: Claims and frames in US news coverage of an environmental issue. *Public Understanding of Science*, 5, 269-283.



Valenti, J., & Wilkins, L. (1995). An ethical risk communication protocol for science and mass communication. *Public Understanding of Science, 4*, 177-194.

Van Dijk, T. A. (1985). Structures of news in the press. *Discourse and communication: New approaches to the analysis of mass media discourse and communication*. London: Sage Publications.

Vernon, S. W. (1999). Risk perception and risk communication for cancer screening behaviors: A review. *Journal of the National Cancer Institute Monographs, 25*, 101-119.

Van Nevel, J. P. (1999). Implications for improving risk communication through various channels. *Journal of the National Cancer Institute Monographs, 25*, 123-124.

Vreese, C. H. (2005). News framing: Theory and typology. *Information Design Journal, 13*(1), 51-62.

Weingart, P., & Engels, A., & Pansegrau, P. (2000). Risks of communication: Discourses on climate change in science, politics, and the mass media. *Public Understanding of Science, 9*, 261-283.

Whitfield, A. (2005). Mad cows or crazy communications? Retrieved August 16, 2005, from [http://www.foodsafetynetwork.ca/animal/mad\\_cow\\_or\\_crazy\\_communications.htm](http://www.foodsafetynetwork.ca/animal/mad_cow_or_crazy_communications.htm).

Wilkins, L. (2005). Plagues, pestilence and pathogens: The ethical implications of news reporting of a world health crisis. *Asian Journal of Communication, 15*, 247-254.

Wimmer, R. D., & Dominick, J. R. (2000). *Mass media research: An introduction*. Belmont, CA: Wadsworth Publishing Company.

Woolhouse M., & Dye C. E. (2001). Population biology of emerging and re-emerging pathogens. *Philosophical Transactions of the Royal Society for Biological Sciences*

(356):981-2.

Wogalter, M. S., Dejoy, D. M., & Laughery, K. R. (1999). *Warnings and risk communication*. Philadelphia, PA: Taylor & Francis Inc.

Wong, K. (2001). *Media and culture in Singapore*. Cresskill, NJ: Hampton Press.

Yuan, J. D. (2004). Will SARS be the catalyst for change in China? Retrieved July 2, 2005, from <http://www.nyu.edu/globalbeat/syndicate/yuan060203.html>.

Zhang, E., & Fleming, K. (2005). Examination of characteristics of news media under censorship: A content analysis of selected Chinese newspapers' SARS coverage. *Asian Journal of Communication, 15*, 319-339.

Zhao, Y. Z. (1998). *Media, market and democracy in China: Between the party line and the bottom line*. Urbana, IL: University of Illinois Press.

**APPENDIX**  
**CODING SHEET**

Variable Name	Variable definition	Values
ID	Article ID number	Enter article ID number
PAPER	Newspaper	1 = <i>The People's Daily</i> 2 = <i>The Straits Times</i>
FRAME1	First frame applied to the article	1 = health 2 = economic 3 = political 4 = risk 5 = human interest 6 = responsibility 7 = morality
FRAME2	Second frame applied to the article	1 = health 2 = economic 3 = political 4 = Risk 5 = human interest 6 = responsibility 7 = morality
FRAME3	Third frame applied to the article	1 = health 2 = economic 3 = political 4 = risk 5 = human interest 6 = responsibility 7 = morality
SARS	The report defined or explained what SARS is	0 = no 1 = yes
TRANSMIT	The report explained how SARS is transmitted	0 = no 1 = yes
SYMP	The report explained the symptoms associated with SARS	0 = no 1 = yes



## Coding sheet, continued

Variable Name	Variable definition	Values
RISK	The report mentioned the risks of contracting SARS	0 = no 1 = yes
PROTECT	The report told people how to protect themselves against SARS	0 = no 1 = yes
HELP	The report told people how they can get help	0 = no 1 = yes
CONTROL	The report mentioned or implied SARS is under government control	0 = no 1 = yes
GOVT	The report indicated that government can effectively handle SARS	0 = no 1 = yes
WARN	Number of messages that warned the public	enter number
ASSURE	Number of messages that warned the public	enter number
SOURCE 1	First information source cited	1 = local health report 2 = government official 3 = international experts 4 = citizens 5 = media 6 = others
SOURCE 2	Second information source cited	1 = local health report 2 = government official 3 = international experts 4 = citizens 5 = media 6 = others

SOURCE 3

Third information source cited

- 1 = local health report
- 2 = government official
- 3 = international experts
- 4 = citizens
- 5 = media
- 6 = others