COVERAGE OF THE FUKUSHIMA CRISIS IN THE TWO MAJOR ENGLISH-LANGUAGE NEWSPAPERS IN JAPAN: A CRITICAL ANALYSIS

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I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

__________________________ __________
SIGNATURE DATE

DEDICATION AND ACKNOWLEDGEMENTS

This dissertation is dedicated to the best K.

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ABSTRACT

This study uses a mixed-method approach to analyse the coverage of the 2011 Fukushima nuclear crisis in Japan's two major English-language newspapers – *The Japan Times* and *The Daily Yomiuri*. Quantitative coding is combined with critical discourse analysis to determine whether the coverage was, overall, predominantly alarming, reassuring, or relatively balanced and neutral. This is done to ascertain whether the newspapers were sensationalising the crisis, echoing the official government and industry communication thereof, or reporting in a critical, responsible manner as the fourth estate. To answer the research question, key aspects of the coverage like foci, framing, sources, narratives, actors and agency, and criticisms are closely examined. It is revealed that the coverage was neither predominantly alarming nor reassuring, but was problematic in other ways. The implications of the complex findings, both for the Japanese media industry and international disaster reporting, are discussed. The study is situated in a broad literature framework that draws on agenda setting theory, research about the roles and responsibilities of the media, the field of risk communication and the reporting of radiation events in history.

KEYWORDS: Fukushima, content analysis, critical discourse analysis, The Japan Times, The Daily Yomiuri, radiation, risk communication, disaster reporting, fourth estate, media.

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CHAPTER 1: INTRODUCTION

"We're dying in a sea of silence here …." Bill Ruland, Nuclear Regulatory Commission, on initial communication about the Fukushima crisis (Mufson, 2012).

On March 11th, 2011, Japan was struck by what would become known as the Great East Japan Earthquake. The ensuing damage was devastating. Tsunamis swept away entire villages, millions of people were left without water and electricity, and, to make matters worse, a nuclear power plant suffered meltdowns and began releasing radiation into the environment. All eyes in and outside of the "land of the rising sun"[1] were on the media over the following days and weeks. The world anxiously waited for updates and advisories as embattled Japanese authorities struggled to contain and communicate the nuclear crisis that was unfolding in Fukushima Prefecture, in addition to dealing with the multiple other crises caused by the earthquake.

In times of disaster, the media play a crucial role in disseminating information to concerned publics. Since it is not possible for most people to physically go to the site of a crisis and do their own fact-finding and assessments, they must rely on the media for news. Teun van Dijk (1995: 28) notes that the media's definition of a breaking situation is the main factor in the immediate manufacturing of public opinion thereon. Thus, media coverage may impact people's decisions and actions at such times. Because of this potential for influence, the accuracy, framing and effects of disaster coverage have been the subject of many communication studies. Relevant examples include the extensive analyses of the coverage of the nuclear accidents that occurred at Three Mile Island in 1979 (Rubin, 1987), Chernobyl in 1986 (Friedman, Gorney & Egolf, 1987), as well as the disaster reporting research of Eleanor Singer and

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[1] The Japanese word for Japan is *Nihon*, which is often translated in the West as "Land of the Rising Sun", and as such is commonly used to refer to the country (Spacey, 2012).

Phyllis Endreny (1993) and the Fukushima coverage study of T. Perko, C. Turcanu, D. Geenen, N. Mamani and L. Van Rooy (2011).

In the wake of the Great East Japan earthquake, both the Japanese and global publics were confused and fearful about the risk of radioactive contamination from the Fukushima nuclear power plant. More than 20 foreign embassies in Tokyo temporarily relocated to more southern parts of the country, away from perceived danger zones (Embassies closing … 2011). Some offered repatriation assistance to their citizens in Japan. Bullet train platforms were crowded as pregnant women and even entire families from Tokyo, Saitama and other prefectures close to Fukushima fled to more western and southern areas of the country (Johnston, 2011e; McNicol, 2011; and Nakamura, 2011). A number of foreign residents left Japan entirely (Budmar, 2012), with a mass exodus depicted in the Japanese media.[2]

In the first days after the disaster, residents had urgent concerns: was it safe to stay at home or better to go somewhere safer; should children be kept indoors; was the food and water safe to consume; should they invest in potassium iodide[3] pills? Questions like what could happen, how likely that was, and if it did happen, what the consequences would be are natural in disaster situations and reflect the rational "set of triplets" idea understood to be the basis of any risk analysis (Kaplan & Garrick, 2013: 91).[4] For answers, people turned to many sources for information and guidance – acquaintances, government and nuclear energy officials, and – above all – the mass media. All forms of traditional mass

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[2] It is worth noting, however, that one analysis of immigration data found that the departure rate of foreign residents was in fact only slightly higher than normal rates (Tollefson, 2013: 17). The number of foreign residents reported to have fled Japan varies widely, with cited figures ranging between 160 000 and 500 000.

[3] Potassium iodide can be taken to prevent radiation damage to the thyroid, but it comes with serious health risks.

[4] The "triplets" are the following three questions: What can go wrong? How likely is it? What are the consequences?

media saw marked increases in use during the first stages of the crisis (Tollefson, 2013: 6). However, the information that was available on television, the internet and in newspapers was often conflicting, with the result that it was difficult to know what to believe, or what the best and safest thing to do was. Accusations that Japanese authorities were under-reporting risks were rife, but so were accusations that the media were mongering fear. Facts changed as rapidly as the situation, and no one knew who or what to trust.

Reflecting on that state of affairs, where the public was largely reliant on the media for information and guidance on the nuclear crisis, it is pertinent to investigate what exactly some of the media were saying, and the manner in which they were saying it. This dissertation will, thus, critically examine the coverage of the Fukushima crisis in the two major English-language newspapers in Japan, to determine the kind of messages they were disseminating and whether these messages were on the “side” of the alleged under-reporting, fear-mongering, or neither – being instead relatively balanced and fair.

While a study of the Japanese-language media in a country where Japanese is the only official language may seem more relevant, I have chosen to focus specifically on English-language newspapers. The main reason for this is that Japan’s English-language newspapers, while providing a significant, and, as will be detailed in later chapters, trusted source of information for both English-speakers inside and outside the country, have been largely ignored in critical communication studies, creating a niche and need for research.

1.1 Background information

To begin, it is necessary to set the context for the study by providing more detailed information about the earthquake and subsequent nuclear accident, as well as the communication thereof. This will ensure that the reader has a comprehensive understanding of the events that formed the basis of this study.

The Great East Japan Earthquake was a magnitude nine quake that occurred off the eastern coast of Japan, triggering a series of tsunamis that struck the country's Pacific coastal areas. It was the strongest quake ever to hit the country, and was classified among the world's five most powerful earthquakes (One Year Later ... 2012). It is estimated that more than 15 000 people were killed, with thousands more injured or left missing (International Atomic Energy Agency, 2011: 11). More than a million buildings were damaged (Fukushima Accident 2011, 2013).

The extensive crisis in the wake of the natural disaster was quickly compounded by the events that happened at the Fukushima nuclear power plant complex – situated about 180km from the earthquake's epicentre – reportedly as a result of the tsunamis. According to the International Atomic Energy Agency (IAEA), the earthquake first caused a loss of off-site power at the Fukushima Daiichi section of the plant. Thereafter, 14-metre high waves knocked out the section's emergency power systems. This left the reactors of the first three of the six units, and the spent fuel pools of another unit, without cooling systems. Although they automatically shut down, residual heat caused fuel meltdowns in the three reactors.

At the time of the quake, Reactor 4 had already been de-fuelled, while 5 and 6 were in cold shutdown for planned maintenance (Perko et al, 2011: 13). Daniel Aldrich (2012: 6) explains that during the first day after the earthquake and tsunami, temperatures soared above 1 000 degrees Celsius, melting the zircalloy tubes containing the fuel pellets in the reactors. In order to reduce pressure in the containment units, engineers vented the reactors to the atmosphere, thereby releasing radiation into the air. They also pumped in seawater to cool the reactors, resulting in 100 000 tons of contaminated water in the basements; this water started flowing into the ground, and large quantities were dumped into the sea as days passed. In addition, hydrogen explosions that happened later (due to the water reacting with the zircalloy) in the buildings housing Reactors 1, 3 and 4 destroyed part of the roofs, resulting in the further release of radioactive materials (cesium-137 and iodine-131) into

the environment (International Atomic Energy Agency, 2011: 11-12). A different explosion damaged Reactor 2's containment, and there were also multiple fires at Reactor 4.

The cause and sequence of the initial events have been disputed. A report by an investigating commission for the Japanese parliament points to the earthquake itself, and not the tsunamis, as the cause of the problems (Shukman, 2012). According to the report, required seismic safety checks had not been carried out at the power plant in the months before the quake, indicating negligence on the part of Tokyo Electric Power Company (TEPCO) - the private utility company in charge of the Fukushima plant.[5]

At 7.03pm (Japan Standard Time) on the 11th of March 2011, roughly 4.5 hours after the earthquake, Japan declared a nuclear emergency. At 8.50pm, Fukushima Prefecture authorities ordered the evacuation of people within a 2km radius of the Daiichi section of the nuclear power plant. The evacuation zone was extended to 3km just 30 minutes later, then 10km and 20km the following day (Fukushima Accident 2011, 2013). However, not all of the area's residents got the message immediately. Those who did had to leave their homes with what little they could carry, in some cases being shunted from one shelter to another.

As the days passed, areas as far as 30km away from the plant were found to be contaminated, but those residents were reportedly only relocated a month after the earthquake (Shukman, 2012). It was later realised that some evacuees had

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[5] The repeated claims that the tsunami was the cause of the accident, and the disputation thereof, are of crucial importance in the representation of the crisis. The reputation and reconstruction of the authority of TEPCO and the country's nuclear regulators hinge on the order of events; if it was indeed the tsunami that caused the problems, the Fukushima crisis can still be portrayed as a "natural event that could not have been anticipated" (Tollefson, 2013: 10) or prevented (Shukman, 2012) and thus one that no one can be held responsible for. If it were to be agreed that the earthquake was to blame, it would be more difficult for TEPCO to distance itself from the situation.

mistakenly fled directly into the path of the radiation, due to insufficient information and guidance from the authorities (Onishi and Fackler, 2011a). The American military's radiation monitoring indicated levels significantly higher than TEPCO's measurements, leading the United States to recommend, in a diplomatically controversial move, an 80km exclusionary zone (Cleveland, 2014). Food was initially found to be contaminated in areas 30-50km from the plant and was subject to monitoring and bans. Later, radiation-contaminated food was found in areas much further away too.

The nuclear accident was initially rated, on the 18th of March, as a Level 5 event on the International Nuclear Events Scale (INES). To put that in perspective, that was the level of the Three Mile Island nuclear accident in 1979. However, on the 12th of April, the Japanese authorities reclassified Fukushima as a Level 7 event – the highest level on the INES. Up until then, Chernobyl had been the only nuclear accident with a Level 7 rating (Fukushima Nuclear Accident Update Log, 2011). Level 7 indicates a "Major Accident" in which there is major release of radioactive materials, with widespread health and environmental impact (Flory, 2011).[6]

Although the INES reclassification announcement might have been viewed by some as a positive sign of transparency by the Japanese authorities, it did not bolster trust in them; the move was seen by many as coming too late. The authorities had long been criticised for their perceived reluctance to admit to the seriousness of the situation (Fukushima Nuclear Crisis Timeline, 2013). The Japanese government and TEPCO were accused of withholding information (Slodkowski & Saito, 2013) and downplaying radiation data (Onishi & Fackler, 2011b). This was problematic, especially upon recalling the 1992 United Nations Rio Declaration on Environment and Development, which, although not

[6] It should be noted that the amount of radioactive materials released into the air as a result of the Fukushima nuclear accident was estimated to be 10-15% of the 5 300 petabequerels estimated to have been released from Chernobyl (Steinhauser, Brandl and Johnson: 2014; Fukushima Nuclear Accident Update Log, 2011).

legally binding, was adopted by consensus at the United Nations Conference on Environment and Development (Kubiszewski & Cleveland, 2012). The Rio Declaration states that environmental issues are best handled with the participation of all concerned citizens, and as such it is required that they have access to relevant information held by public authorities (Cox, 2013: 83).

It is believed that then Prime Minister Naoto Kan's well-publicised distrust of TEPCO, reluctance to accept offers of American assistance in managing the crisis, and his unilateral decision to bypass the country's existing crisis management system all exacerbated the poor public communication situation (Onishi & Fackler, 2011a). On June 6th, the Japanese government admitted that they would have to adjust their initial estimates of the amount of radioactive materials released in the first week of the accident (Friedman, 2011: 61) – to twice the original figures. This lent credence to public scepticism of the radiation data; further undermining trust in the Japanese authorities.

In the interests of fairness, it is important to note that the Japanese government itself struggled to obtain information from TEPCO (Kushida, 2012: 34; Cleveland, 2014), whose handling of the crisis could be described as inept at best. The recreant utility company was harshly criticised for its failure to provide timely, truthful information to the public in the days after the accident. It took them two months to admit that three of the six reactors at the plant had actually suffered meltdowns (Slodkowski & Saito, 2013), apparently out of fear of triggering mass panic (Tollefson, 2013: 9). Reports of TEPCO's past scandals and safety lapses that soon emerged (Sovacool, 2011: 281) further tarnished the utility company's image. Then, in 2014, it was quietly revealed that the majority of the radiation measurements taken at Fukushima would have to be reviewed, because, according to TEPCO itself, "they were taken improperly and are probably too low" (Tepco: No.1 plant … 2014).

In addition, TEPCO apparently "significantly undercounted" radiation in 164 water samples collected at the plant over the course of 2013, with the result that these too had to be reviewed (Adelman & Suga, 2014). The utility company also reportedly withheld record-level radiation data taken from Fukushima

groundwater in July 2013, releasing the figures only in February 2014 (Tepco hid … 2014). Reports such as these have worsened the public's already tenuous trust in TEPCO, and confirm that initial accusations of under-reporting and omission were not unfounded.

Meanwhile, the crisis at Fukushima remains far from resolved. At the time of submission, the water used to cool the reactors is being stored on the site of the power plant (Mathieson, 2016), but the tanks used to hold it are reaching capacity. There have been multiple leaks of contaminated water into the environment (Ferris, 2016), with a 2013 leak of 300 tonnes of highly radioactive water classified as a Level 3 event on the INES scale (McGrath, 2013).

It can be said that in a disaster situation, opacity and silences like the above on the part of managing authorities breed confusion and doubt, creating a vacuum for speculative, alarmist reporting by the media. Whether this was actually the case in the media or not, there was strong criticism of the coverage of Fukushima (Yamakoshi, 2015: 7), with alleged anxiety-inducing reports being viewed as more harmful than the radiation itself. The foreign media, in particular, were lambasted for what was seen as sensationalist, inaccurate coverage (Harper, 2011; Tollefson, 2013: 11). Coverage by the foreign media has also been described as being more pessimistic (in other words, less reassuring) than Japanese media coverage, and praised for providing more concrete details and citing a greater range of sources. The Japanese media seemed to depend on the prime minister's office and TEPCO for information (Harper, 2011), the divulgence of which, as mentioned above, was problematic. The Japanese media were called out for being vague in their later reporting of radiation clean-up efforts (Brasor, 2012).

A somewhat damning sentiment about media reporting of Fukushima remained at the time of submission, effecting a kind of pseudo-censorship on dialogue about the situation - where critical opinions are silenced as being fear-mongering. In Japan, the dominant mindset seems to be that "everything is under control and fine now." This attitude was noticeable as early as 2012, when the mayor of Minamisoma in Fukushima Prefecture "blasted the Japanese

government, business community and media for acting as if the accident were a tragedy the country has already gotten over" (Brasor, 2012).

A consideration of the mechanics behind the shift in public opinion from deep concern to seemingly blind optimism[7] would make for a valuable analysis in and of itself, but the scope of this dissertation is limited to an examination of the coverage of the Fukushima crisis in the two months following the earthquake.

It is in the context of both allegations of under-reporting and fear mongering described above, that this study has been undertaken.

1.2 Research objectives

The risk communication by TEPCO and the Japanese government was found to be problematic in several ways (Perko et al, 2011: 49). Failure to speculate and forewarn people about how the nuclear crisis could worsen (Sandman, 2011) and empty assurances that things were under control (Cleveland, 2014) caused distrust and suspicion, doing little to allay or guide public fears. People required timeous, reliable information about radiation in their food, water and environment, so that they could take precautions accordingly. However, such information was not forthcoming.

In 2013, Japan was demoted from 22nd down to 53rd place on the World Press Freedom Index of non-profit watchdog organisation *Reporters Without Borders*. The reason for the fall was reported in the online *Japan Times* as follows:

> Japan 'has been affected by a lack of transparency and almost zero respect for access to information on subjects directly or indirectly related to Fukushima,' the group said in a statement,

[7] Coverage of the situation at Fukushima might have petered out due to the on-going lack of resolution, which, according to Galtung and Ruge's (1965: 66) foundational and still used criteria for news selection, would see a resulting dip in newsworthiness. However, it could also have been due to "symbolic annihilation", a term for the media's marginalisation of an issue by ignoring or de-emphasising it (Cox, 2013: 166).

> referring to the nuclear catastrophe. 'This sharp fall should sound an alarm,' (Japan falls far … 2013).

Japan's system of press clubs, *kisha* clubs (Cf. page 54), was also denounced as discriminatory and restrictive. *Reporters Without Borders* not for the first time criticised these clubs, whose members are the only journalists given coveted accreditation and access to government and industry sources and press briefings, in its 2014 report, stating that discrimination by the clubs has increased since Fukushima. Due to the enactment of secrecy legislation and pressure from the government on media outlets, Japan's ranking has since fallen further, slipping to 59th place on the index in 2014 (Kodera, 2014), 61st in 2015 (https://rsf.org, 2015), and all the way down to 72nd by 2016 (https://rsf.org, 2016; Adelstein, 2016).

The risk communication of Fukushima will be discussed in the literature review chapter. However, the primary objective of this dissertation is not to examine the actual risk communication strategies of TEPCO and the Japanese government, but instead to look at the media reporting of these communications and the crisis. More specifically, the study seeks, through critical analysis, to answer the following question:

Did the coverage of the Fukushima crisis in the two major English-language newspapers in Japan reflect the reassurance and opacity that characterised the communication of the Japanese government and TEPCO, or was it "alarmist", fuelling fear? Alternatively, could it be said to have occupied a relatively balanced middle ground?

The two major print English-language newspapers in Japan are *The Japan Times* (which merged with the *International New York Times* in 2013) and *The Daily Yomiuri* (which underwent a name change in 2013 and is now *The Japan News*).[8] Data about these publications will be presented in the methodology

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[8] The names for *The Daily Yomiuri* and *The Japan News* will be used interchangeably in this study.

chapter (Cf. page 105-109). While a study of print newspapers may be considered old-fashioned and lacking in significance in contemporary digital times, it remains both relevant and valuable in the Japanese context.

Although most daily newspapers have experienced steady declines in readership and profitability in recent decades (McCombs, Holbert, Kiousis & Wanta, 2011: 13) Japanese newspapers, while seeing some reduction in readership, continue to have among the highest circulation figures in the world (Newspaper Circulation in Japan … 2014).[9] Also, “despite a well-developed Internet system throughout urban Japan, newspapers and other publications have been slow to make the shift to digital, and their websites remain relatively under-developed” (Huffington Post launches … 2013). Even though this is changing,[10] print newspapers remain a popular form of media and an important vehicle for the dissemination of information in Japan, and, accordingly, a significant area for communication research.

The scope of this study may be narrow, being limited to only a segment of the available English-language media in Japan, but it is not without impact. This research problem has not been tackled before. Considering the dearth of existing English-language research on the Japanese media in general (Gamble & Watanabe, 2004: x), the study will make a significant contribution to communication research on one of the world’s most economically powerful nations.[11] Secondly, the study has direct relevance to, and impact on, global research into the “watchdog” role and other social responsibilities of the media (Freeman, 2000: 161). Furthermore, it is hoped that it will prove useful for future

[9] The total circulation of Japanese newspapers was 43 million in 2013; a drop of 4 million from 2003 (Newspaper Circulation in Japan … 2014).

[10] Both *The Japan News* and *The Japan Times* continue to rapidly improve their websites and grow their readership; adding old articles to archives and developing subscription plans for access to content. I have noticed a difference since beginning my research in 2011.

[11] Japan is the world’s third-largest economy (behind China and the United States of America) and is a key player in global capital, credit and aid (Japan profile, 2014).

studies on the English-language media in Japan, as well as for comparisons and contrasts with the coverage of Fukushima in Japanese-language newspapers.

It should be noted that many of the articles in *The Daily Yomiuri* are in-house translations of articles published in the Japanese-language *The Yomiuri*, implying that any institutional bias is likely to be preserved (Tan & Zhen, 2009). The findings of this dissertation may therefore have impact for Japanese-language media too. Because it considers the media's representation of the risk communications of Japanese government and industry authorities, the study is also of relevance, albeit indirect, to the risk communication field.

1.2.1 Research question

This dissertation carefully explores the following compound research question:

> Did the coverage of the Fukushima crisis in the two major English-language newspapers in Japan reflect the reassurance and opacity that characterised the communication of the Japanese government and TEPCO, or was it "alarmist", fuelling fear? Alternatively, could it be said to have occupied a relatively balanced middle ground? What are the implications of the answer?

An answer in the positive to the first part of research question would not necessarily mean that the newspapers were consistently reassuring or not at all alarmist; the coverage will be examined in sufficient depth that multiple, complex conclusions may be derived.

A cursory glance at the newspaper coverage would indicate reassurance reflective of the Japanese authorities. Such suspicions could be reinforced by the proven existence of establishment bias in the Japanese media – including the English-language versions thereof. The research of Laurie Anne Freeman (2000: 4), which will be discussed in more depth in the literature review (Cf. page 53-54), shows that the types of news and information that get covered, as

well as the sources used therein, are limited in Japan due to the close ties that exist between the media and official sources of news. She argues that the Japanese press responds to and maintains an agenda of political discourse that has already been set, rather than shaping the news agenda itself, and asserts that the previously-mentioned *kisha* clubs serve political and industry interests by allowing them a “convenient means of filtering news and information and socially constructing the worldview held by the public” (Freeman, 2000: 5). In other words, it would seem that the messages political and industry representatives want disseminated, are disseminated, and those they don’t, are not.

Reinforcing this idea is the work of Singer and Endreny (1993: 12), who point out how journalists (around the world) are often criticised for readily and uncritically accepting as news what are really public relations press releases. They describe the gatekeeping effect that sources in news stories can have, with the choice of sources and what those sources say influencing the content (1993: 12). Singer and Endreny (1993: 12) argue that government officials and industry spokespeople are the most frequently cited sources in news media, with the result that news is often dubbed “official” news; biased by journalists’ reliance on the official version of events communicated by the government and industry spokespeople (1993: 130). This occurrence is referred to in McCombs et al’s (2011: 27-28) discussion of reporters’ overreliance on established routines. Furthermore, James Tollefson (2013: 2-3) argues that *The Yomiuri* newspapers are not politically neutral and have “played a central role in promoting nuclear energy since the mid 1950s.”

The evidence of establishment bias, and the extent thereof in the two newspapers, forms the core focus of this study. Whether or not the newspapers actually echoed the government and TEPCO’s versions of events will be determined in the following chapters. While one may be reminded of Orwellian ideas about a controlled “mouthpiece” function of the media for governments

and big industries, reminiscent of the novel *1984*,[12] it is important to remember that such assumptions are overly simplistic and negatively bias researchers. Michael Stubbs (1997: 3) reminds us that critical text analysts have often been criticised for displaying a kind of confirmation bias; finding what they expect to find. Thus, while hypotheses have their place in many a study, in mixed-method research like this, it is necessary to keep an open mind and attempt to be as objective as possible when examining texts. The real results can only be determined after in-depth analysis.

1.2.2 Sub-problems

In order to adequately address the research question expressed above, several sub-problems will need to be addressed. Phrased as questions, they are:

- What was the number of articles (where "articles" here refers to all types of written coverage) about the Fukushima crisis published in each newspaper over the determined period?
- How have those articles been classified – as news articles, opinion pieces, letters, or another category?
- What was the tone of the accompanying headlines to the articles?
- What was the focus of the content of the articles?
- Which sources were quoted in the articles, and with what frequency?
- What was the overall tone of the articles?

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[12] *1984* is a politically oriented novel by George Orwell. It was published in 1949. In the book, citizens of a futuristic England are subject to absolute control and surveillance, to the point where even their thoughts are policed. The mass media are a propaganda tool of the government; it toes the ruling party's line at all times. The widely used term *Big Brother* originated in the book.

- What was the framing of the Fukushima crisis in the articles?
- To what extent could each newspaper's overall coverage be classified as reassuring, alarming or neutral?
- What were the main differences, if any, between the coverage in the two newspapers?

Techniques for answering the above questions will be dealt with in detail in the methodology chapter, and the subsequent results will be presented and discussed in the data chapters.

1.3 Research methodology

The study uses a mixed method approach to media content analysis, incorporating qualitative and quantitative elements. Heidi Julien (2008: 120-121) notes that quantitative and qualitative approaches can be combined and used together effectively, explaining that, while quantitative content analysis seeks to answer "what" questions, qualitative content analysis is useful for answering "why" questions, through close reading and interpretation of texts. This study's quantitative component comprises the counting and basic coding of the newspaper articles, including the classification of sources used and the frequency thereof. The qualitative element involves the critical analysis of the tone, framing and focus of the articles and headlines.

Critical discourse analysis, focusing on the ways discourse creates, reinforces or challenges relations of power and dominance in society (Van Dijk, 1998a), provides an appropriate and practical strategy for dissecting the coverage of the Fukushima crisis in the newspapers. While there is no one method of critical discourse analysis (Wodak & Meyer, 2009: 31), it typically examines framing, perspective, intensification, implications and insinuations, symbolism, vocabulary, style, omission, presupposition, allusion, vagueness, polarisation, exaggeration, inclusion and exclusion, among other considerations (Van Dijk, [sa]: 29-30).

The research methodology and underlying theories will be explained extensively in the methodology chapter (Cf. Chapter 3).

1.4 Key terms

This study is situated within the larger discipline of Communication Science, with its theoretical framework constructed from concepts like critical discourse analysis, risk communication, and the notion that the mass media have influence and responsibility. These key ideas will be discussed in detail in the literature review, but are briefly outlined below, along with often-used terms.

Agenda setting: This study uses Max McCombs as a seminal resource on agenda setting. McCombs is associated with agenda setting because he has popularised and proven the theory in his five decades of work on the subject. McCombs (2014: 118) defines agenda setting as the influence of the media on the salience of issues, and adds "attribute agenda setting" as a second level, wherein the focus shifts to the media's influence on how we interpret and think about issues.

Chernobyl: The Chernobyl disaster was an INES Level 7 nuclear accident that occurred on April 26th, 1986 in Ukraine (then part of the Soviet Union). Large amounts of radiation were released into the atmosphere due to reactor explosions and fires; the exact amount is unknown, but the radiation spread over Europe. Chernobyl is recognised as the worst nuclear accident in history.

Critical discourse analysis (CDA): A type of discourse analysis that examines the way "social power abuse, dominance and inequality are enacted, reproduced and resisted by text and talk in the social and political context" (Van Dijk, [sa]: 352).

Discourse: This can be defined in many ways. As Ruth Wodak and Michael Meyer (2009: 3) explain, discourse can mean anything from a building to a speech, written text, narrative, conversation or even policy. In this study, "discourse" is used to refer to the constructions of the crisis at Fukushima (e.g. alarmist, reassuring, or neutral) – and the manner in which these narratives

(which may evidence power relations) are presented in the copy and headlines of the newspaper articles and opinion pieces.

Establishment bias: Bias of news towards government and industry versions of events, due to reporters' over-reliance on press releases, as well as their emphasising of government and industry spokespeople as sources in stories. The term was propagated by Singer and Endreny (1993: 12).

Framing: Robert Entman (1993:56) defines framing as the selection and presentation of some aspects of a perceived reality, thereby making them more salient in a communicating context. This understanding is complemented by Hansen (2010: 31), who explains that frames set the boundaries for how we should interpret or perceive something that is being presented.

Gatekeeping: In the context of news production, gatekeeping refers to the complex process by which news stories are selected and constructed. Stories are moved through a series of "gates" (White, 1950), from the first gate of story selection, along a network of gatekeepers, including reporters, sub-editors and editors (with varying individual and organisational influence) to publication and distribution (Shoemaker & Vos, 2009: 22-27).

Hegemony: The cultural, political, economic and/or ideological dominance of one group over another in society (Gramsci, 1971; Exoo, 2010).

Risk: Many definitions exist, but the one used for the purposes of this study is: "risk = uncertainty + damage" (Kaplan & Garrick, 2013: 89-90). Singer and Endreny (1993: 6-7) prefer to explain it as the probability of property damage, illness, injury or death associated with a hazard, with a hazard being defined as a threat to humans and what they value.

Risk communication: Very basically, risk communication is the dissemination (or, ideally, exchange) of information about the likelihood and potential consequences of dangerous events. It is sometimes distinguished from crisis communication, which is seen to occur once a "risk" has become a "situation";

at other times the two terms are conflated. Peter Sandman (2006: 257) sees the distinction as insignificant. No distinction is made between the two in this study.

Media as "watchdog": The news media are often dubbed "the fourth estate"; seen as ideally being independent of, and thus with the potential to be critical of and keep in check, the various authorities in a country – government, industry, church – or others (Freeman, 2000: 3).

INES: The International Nuclear Events Scale, a ranking system that indicates the significance of a nuclear accident.

Interpellation: Very rudimentally, this means positioning the readers ideologically; calling them into specific roles through direct and indirect linguistic devices (Althusser, 1971; Glapka, 2014: 22-23).

Public: Going beyond the obvious, McCombs et al (2011: 1) define a public as "a well-defined group with clear boundaries that actively engages in discourse about the major issues affecting the group".

Public opinion: Collective consensus about political and civil matters reached by groups within larger communities (McCombs et al, 2011: 2).

Text: "Text" can be defined so broadly as to include everything in the world, as well as the world itself, but is often seen as synonymous with discourse in Critical Discourse Analysis (Cobley, 2010: 342). Halliday (1978: 109) understands it as "actual meaning potential" and a collection of semiotic signs, while Barthes (1977: 126) sees text as "a production of significance". It can be thought of as a "semiologically discursive field where author and reader meet each other" (Kim, 1996: 114), a deliberate instance of communication.

TEPCO: The acronym for Tokyo Electric Power Company, the utility in charge of the Fukushima nuclear power plant complex.

Three Mile Island: The Three Mile Island nuclear accident was a partial meltdown that occurred on March 28th, 1979 in one of the Pennsylvania, USA plant's reactors. Radioactive materials were released into the environment, but

the amount is not thought to have caused any long-term health effects. The accident was classified as Level 5 on the INES scale.

1.5 Overview of chapters

What follows is a brief outline of each of the remaining chapters.

Chapter 2: Review of the literature

In this chapter, the theory and research base that forms the foundation of this study is discussed. Specifically, the following are explored: roles and responsibilities of the mass media; risk communication and perception; critical studies of the Japanese media industry; coverage of previous nuclear accidents; and existing analyses of the coverage of the Fukushima nuclear accident.

Chapter 3: Methodology

This chapter outlines the methodological framework of the study, discussing the background, benefits and limitations of both quantitative content analysis and critical discourse analysis, which together comprise the mixed method used. Examples of related studies that have employed various combinations of methods are presented before the provision of an overview of the specific steps taken in this study.

Chapter 4: Quantitative analysis

Quantitative data gleaned from the coding process are presented in this chapter. Meta-data (basic information about the newspaper articles) is provided before turning to the geographic and issue foci, keywords used, technical details of the reporting of radiation and the level of risk depicted, sources used, and inclusion of criticism of TEPCO and the Japanese government. Graphs are used for clarity and ease of interpretation, and the findings are briefly discussed.

Chapter 5: Critical discourse analysis

Here the findings of the critical discourse analysis component of the study are presented and discussed. Insights are revealed regarding framing, the reporting of radiation, and criticisms of authorities. The newspaper headlines receive dedicated separate analysis. The implications of the findings from the critical discourse analysis are explored in brief, with further discussion reserved for the following chapter.

Chapter 6: Implications of findings

In this chapter, the implications of the findings of the quantitative content analysis and critical discourse analysis are discussed. The main differences between the coverage of the nuclear crisis in the two newspapers are highlighted, and the research question is at answered in full.

Chapter 7: Conclusion

In this final chapter, the study's main findings and the implications thereof are succinctly summarised. The significance of the research conducted is given consideration. Limitations of the study are then identified, and finally recommendations are made for further research.

1.6 Conclusion

In this introductory chapter, I have presented background information on the Fukushima nuclear crisis to establish the context for this dissertation. I have provided not only technical details but also described the response of the Japanese energy and political authorities, as well as the public, to the crisis. I have briefly considered the role of the media in times of disaster and the allegations made against them during the Fukushima crisis.

The research objectives of this study have also been laid out, and I have presented the guiding research question (and sub-questions), given a basic

overview of the methodology used, and provided a list of key terms. The following chapter provides an extensive review of research that is relevant to this study, drawing insight from the fields of mass media research, risk communication, nuclear reporting, and several others.

CHAPTER 2: REVIEW OF THE LITERATURE

"Any social phenomenon lends itself to critical investigation, to be challenged and not taken for granted," (Wodak and Meyer, 2009: 2).

Before venturing any further into the study, it is necessary to consider the various threads of theory and research that comprise the framework within which it has been conducted. In this chapter, I present and discuss key works of literature considering the roles, influence and responsibilities of the mass news media; risk communication and perception, as well as the media's role therein; and the political economy and criticisms of the Japanese media. I also discuss coverage of the Three Mile Island and Chernobyl nuclear accidents; and provide crucial insights into the communication and coverage of the Fukushima nuclear accident.

Following the order above allows me to begin with a broad overview of general concepts that are relevant to any media study, gradually bringing more directly applicable literature into focus as the chapter progresses. By the conclusion of this chapter, I will have demonstrated the significance of my study in light of the (as will become apparent, dearth of) existing literature. The lack of existing English-language studies on the Japanese media generally, and Fukushima specifically, pose a challenge; extensive searches of the literature drew up just a handful of titles, with the result that it is difficult to compare or counter research findings. Because of this, I summarise the main points of these articles in more detail than one may normally see in a literature review; and in so doing it is possible to contextualise the study and provide the guidance necessary to understand the findings and their implications. It is hoped that this study will help to fill this gap in the literature for future media studies.[1]

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[1] For the purpose of clarity and cohesion, a review of the literature pertaining to the theory and practicalities of content and discourse analysis will be undertaken briefly in the next chapter (Cf. page 86), which is concerned with the methodology of this study. Profiles, complete with facts

2.1 News media: role and influence in society

This section discusses the role and impact mass media have in the construction and interpretation of news, and relatedly, social realities. I begin by unpacking the notion of society as something that is shaped rather than a fixed structure; then consider the mechanics, power and problematic elements of the mass media's influence therein. Framing and agenda setting - key concepts in any media study - are explored at length, with a focus on nuclear reporting as this is central to the dissertation. Establishment bias is also discussed.

It has been argued that language and images influence our perceptions of the world and what we understand to be issues therein (Cox, 2013: 1). Norman Fairclough (2008: 229-230) writes of texts (broadly and basically understood as deliberate instances of communication) having a range of potential social and political effects, contributing to changes in beliefs, attitudes, actions and social relations. Myra Macdonald (2003: 9) affirms this, suggesting that words, by their definition and labelling of social phenomena, may frame the terms in which we think about such phenomena and may influence policymaking. Echoing Michel Foucault's (1972) sentiments on the powerful role that discourse has in society, Ewa Glapka (2014: 7) writes that language regulates social life. However, like Stubbs (1997), she points out that the processes by which it does so often go unrecognised, and highlights the subsequent need for analyses that promote greater recognition of these processes.

These concepts tie into the theory of social constructivism, the idea that much of what we perceive to be reality, much of society, is a product of human construction (Fairclough, 2008: 229-230) – not something fixed or a system that has been imposed upon us by external forces. Following from this is the understanding that the meanings of texts are not neutral and objective, but

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and figures, of both *The Daily Yomiuri* and *The Japan Times* will also be provided in the next chapter.

created and interpreted. Chandler (2007: 11) emphasises that awareness of this can be empowering both intellectually and in that it facilitates greater control over the social realities we inhabit. Deconstructing the social realities that are taken for granted reveals which, and whose, realities are privileged and whose are suppressed.

The potential role of the media in the creation and maintenance of social realities and power structures is well known (Gamson, Croteau, Hoynes & Sasson, 1992: 374; Macnamara, 2005: 1). Freeman (2000: 7) explains this as stemming from the media's ability both to transmit information and ideas to and from elites and the public, as well as to influence the setting and framing of political and social agendas. In this way, the media help to legitimise certain political, economic and social groups and ideas while delegitimising others. Van Dijk (1995: 10) describes the power of the media as symbolic and persuasive.

Singer and Endreny (1993: 21) see the news media as constructing events, by selecting, emphasising and arranging elements thereof, rather than simply presenting them. Anders Hansen (2010: 72) sums it up well when he notes that news does not appear out of a void; it is manufactured or constructed; it is a mediated representation of reality (Reid, 2012: 199). Following this line of thought, Perko et al (2011: 22) comment that journalists not only report about reality, but also influence it. Risk communication and socio-environmental risk governance experts Catherine Butler, Karen Parkhill and Nicholas Pidgeon (2011: 12-13) confirm the above ideas, noting that the role of the media in "framing, (re)circulating and solidifying cultural meanings has clear interconnections with the development of public opinion".

While ideally the media would play an objective, critical role in society, this is not always the case. Perko et al (2011: 10) note that the mass media, despite obligations to serve as an information channel to the public and act as a watchdog, are used for communication by different stakeholders. This is echoed by Cox (2013: 31) when he writes that the media not only report events, but crucially act as "conduits for voices seeking to influence public attitudes". The news media have been described as battlegrounds where participants "vie for

advantage" (Kasperson R.E, Renn, Slovic, Brown, Emel, Goble, Kasperson & Ratick, 2013: 262).

From the early 1990s, Singer and Endreny (1993: 170) were alerting us to the "increasing manipulation of media content … in a deliberate attempt to mould public opinion and even behaviour". It is widely thought that media owners' political objectives influence the reporting of stories (Macdonald, 2003: 22). One manifestation of such influence may be in the selection and representation of sources in news stories. Singer and Endreny (1993: 128) describe sources as "managing" information; deciding what should be revealed, concealed, and highlighted, as well as when a story should be offered.[2] The comment is made by Philo (2007: 107) that in any contentious area, competing interests present their ideas in ways that justify their own positions. Similarly, William Freudenburg and Susan Pastor (2013: 114) observe that official spokespeople from industry and government, like most people, tend to speak for their own interests, but their official pronouncements generally assume the status of fact, rather than mere statements. Ortwin Renn (2013: 89) reminds us that "the widely accepted rule of fairness in news coverage demands equal treatment for all viewpoints". Despite the existence of this rule, there is a trend towards establishment bias in the media – that is, an emphasis on industry and government sources. This will be discussed in more detail later (Cf. page 35).

One of the ways in which both news journalists and the sources they quote can potentially influence public opinion is through framing, a term mentioned earlier and one that refers to the selection and presentation of certain aspects of an event; certain angles, certain details, certain characters. Gamson et al (1992: 384) see the role of frames in media discourse as analogous to schema in the field of cognitive psychology; a way of organising and giving meaning to diverse information. It could also be said that framing is to news articles what cropping

[2] As will be shown, this control is taken to extremes in Japan's *kisha* clubs (Cf. page 54-57).

is to photography; an action that limits and directs the reader's interpretation of the story being depicted.

Robert Cox (2013: 61) illustrates how the use of "terministic screens", or selective, delineating frames, can mediate our understanding of issues. As an example, he offers the case of the naming of sewage sludge in the media: the term "toxic sludge" is alarming, while "biosolids" is vague and somewhat reassuring. Cox (2013: 67) points out that different interests in a controversy may use competing frames in attempting to influence news coverage or gain public support.

Perko et al. (2011: 59) confirm the significance of framing in news media, focusing on the demonstrated impact and importance of the emotional connotations of words in press reports related to nuclear events. This reflects earlier research; in their foundational text which explores the relationship between media discourse and public opinion by analysing media discourse on nuclear power, William Gamson and Andre Modigliani (1989: 3) find the media to be central in framing issues. Examining American television and magazine news and editorial coverage of nuclear issues and events, they identify the use of interpretive packages with central themes that use metaphors and catch phrases. These nuclear energy packages are, in order of ascending recency and popularity (Butler, 2011: 11):[3]

1) a positive progress frame focused on the potential of nuclear fission (the most prominent package until the Three Mile Island accident)
2) a positive energy independence discourse focused on weaning dependency from fossil fuels
3) a negative soft paths frame that sees modern society as wasteful and insensitive to its ecological consequences

[3] These packages will be discussed on page 147-149 in relation the coverage of the Fukushima crisis.

4) a negative public accountability frame which is highly anti-corporate
5) a negative frame focused on how nuclear energy may not be cost effective
6) a partly negative frame that uses a runaway narrative, where there is a sense that the public has to grin and bear the development of nuclear energy
7) a devil's bargain frame that combines the first, second and sixth frames and portrays nuclear energy as being necessary to fight climate change.

Some packages are more prevalent than others. Gamson and Modigliani (1989: 6-7) caution that interpretive packages like the above often have sponsors, and that sources in news stories – often public officials - deliberately provide key catch phrases to suggest the frame they want. David Rubin (1987: 53) reminds us that, because nuclear power is "an intensely political issue", every source speaks from a particular, non-neutral viewpoint – something that is important to keep in mind in any news analysis. For example, as Cox (2013: 369) points out, government and industry tend to characterise nuclear accidents, like other risk events, in terms of official assessments and safety assurances. Richard Alexander (2009: 19) comments that, "the representatives of companies involved in the nuclear industry aim to transmit reassurance and calm".

One way in which certain interpretive packages or framings may come to dominate the depiction of a news event is through official news releases, press briefings or other mediations between officials and journalists. It has been suggested that public information officers and other public relations practitioners "subsidise the efforts of news organisations to cover the news by providing substantial amounts of organised information, frequently in the form of press releases prepared in the exact style of news stories" (McCombs et al, 2011: 115). However, it is also important to remember that, as McCombs et al (2011:

15) argue, journalists are neither passive recipients of information, nor soft targets for spin doctors; they have agency and discernment abilities.[4]

Perhaps because of this journalistic agency, nuclear power often seems to be framed in a very negative manner. Attention has been called to the designation of villains and victims, as well as the use of emotive images such as doomsday, hubris, battles and graveyards in media reports on risk, particularly those concerning nuclear risks (Kasperson JX, Kasperson RE, Perkins, Renn & White, 2013: 232-3). Powerful symbols such as these in messages have been shown to be "key factors in triggering the attention of potential receivers and shaping their decoding processes" (Kasperson et al, 2013: 257). It is thus important to distinguish between a news story's substantive content on risk and the image that it conveys (Kasperson JX, Kasperson RE, Pidgeon & Slovic, 2013: 277) – be it a calm, reassuring one or an alarming, apocalyptic one. This point will be taken into account in the data analysis chapters.

The significance of framing in news stories becomes clearer when the influential agenda setting role of the mass media is considered. The agenda setting effects of the media have been acknowledged (Cox, 2013: 31) and are thought to be widespread (McCombs et al, 2011: 79). These days it is largely accepted that the news media shape the topics of discourse in public affairs; telling us, to an extent, what to think about even if they cannot tell us exactly what to think (Cohen, 1963: 13; McCombs, 2014: 75-76; Richardson, 2007: 13). The news media have also been shown to have the potential to influence public attitudes on these topics (Van Dijk, 1995: 15).

In the past 48 years, more than 400 studies from around the world, including Tokyo,[5] Spain, Germany, Argentina and all across the United States, examining

[4] At the same time, John Richardson (2007: 36) notes that journalists may unwittingly accept the way authorities' frame events and subordinate other opinions due to their own internalisation of ideas of who is powerful in society.

issues as diverse as economics, civil rights and the environment, have seemed to confirm that agenda setting is a "robust and widespread effect of mass communication" (McCombs et al, 2011: 79). Perko et al (2011: 22) and Van Dijk (2001: 358) corroborate these findings, emphasising that political and public salience of issues is driven by media coverage thereof. However, prominent communications scholar Denis McQuail (2010: 513-514) is a critical voice; emphasising that more concrete, wider evidence of agenda setting is required before it can move beyond the realm of mere hypothesis.

Agenda setting is not only something that the media do, it is something that it experiences too. Research shows media coverage itself is affected by inter-media agenda setting mechanisms, leading to parallel increases and decreases in the attention of media on an issue – pack journalism, as it were (Perko et al, 2011: 22). This inter-media influence is not equal, however; McCombs et al. (2011: 128) observe that the "elite" news media, the big names, exert a strong influence on the agenda of other news media. Looking within media organisations themselves, McCombs (2014: 39) also lists sources of internal influence that shape news reports. These include: news routines, the established news values of the organisation, the culture of the organisation, gatekeeping procedures, the news sources relied on, and, to a lesser extent, journalists' personal beliefs and backgrounds.

McCombs et al. (2011: 30) identify several aspects of media coverage that are susceptible to influence, both external and internal, and potentially exert an influence on readers: the selection of issues and public figures that get covered; the aspects of stories that get covered or highlighted; framing of issues and people; the tone of the coverage; sources used; how sources are quoted; visuals; placement; and choice of words. Cues about the salience of topics on the news agenda can be found in the lead story on the front page, the size of

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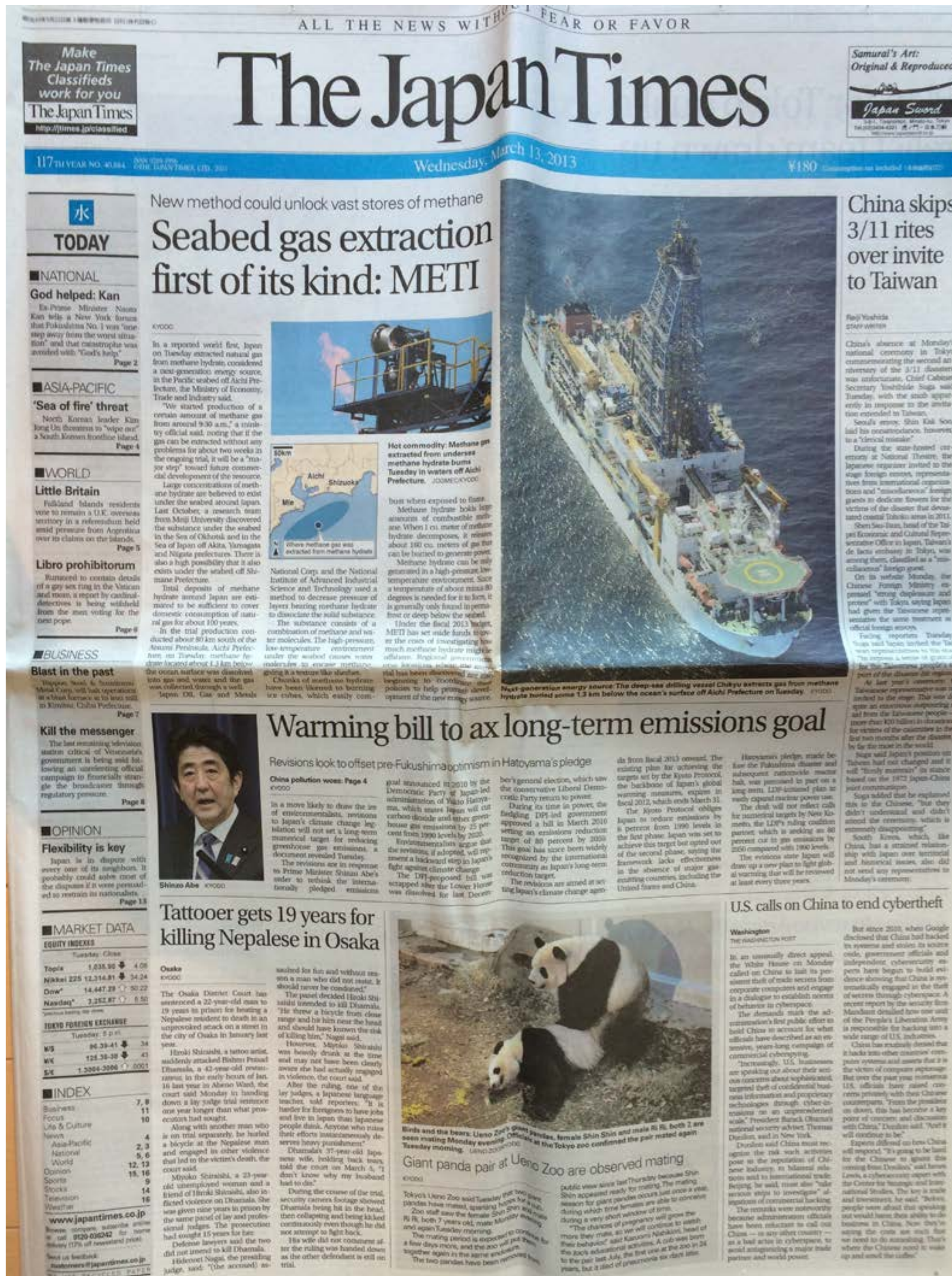
[5] Two Tokyo studies found that agenda setting occurred in the 1986 mayoral election in Machida City (McCombs, 2014: 15) as well as during the build-up to the 1992 UN Conference on Environmental and Development (McCombs, 2014: 50-51).

the headlines, and even the length of the articles (McCombs, 2014: 1-2). However, the last point is not always applicable to Japanese newspapers, where every article tends[6] to be located on a single page, not running on to other pages. Related articles are generally found grouped together. Furthermore, articles tend to be shorter than their Western counterparts (Freeman, 2000: 19).

To give the reader a better understanding of the layout of a typical front page of *The Japan Times* and *The Daily Yomiuri*, images have been included on the following pages. The covers photographed had no particular significance for the study; the date was selected at random.

[6] This is not always the case. I did a random sampling of 13 issues of *The Japan Times* from 2012 and 2013, finding run-on articles on the front pages of seven of them; a random sampling of 13 issues of *The Japan News* from 2015 found run-on articles on the front pages of four; and a random sampling of 13 issues of the Japanese-language *Yomiuri* showed run-on articles on three front pages (though these all seemed to be opinion pieces positioned in the top-left corner of the paper and separate from the main articles). All of the newspapers indicated page numbers for related articles.



ALL THE NEWS WITHOUT FEAR OR FAVOR

The Japan Times

Wednesday, March 13, 2013 ¥180

Make The Japan Times Classifieds work for you

Samurai's Art: Original & Reproduced — Japan Sword

TODAY

NATIONAL — God helped: Kan

ASIA-PACIFIC — 'Sea of fire' threat

WORLD — Little Britain

Libro prohibitorum

BUSINESS — Blast in the past

Kill the messenger

OPINION — Flexibility is key

MARKET DATA

INDEX

New method could unlock vast stores of methane

Seabed gas extraction first of its kind: METI

China skips 3/11 rites over invite to Taiwan

Warming bill to ax long-term emissions goal

Revisions look to offset pre-Fukushima optimism in Hatoyama's pledge

Tattooer gets 19 years for killing Nepalese in Osaka

Giant panda pair at Ueno Zoo are observed mating

U.S. calls on China to end cybertheft

www.japantimes.co.jp

Figure 2.1: Photograph of the front page of the March 13th, 2013 issue of *The Japan Times* (Finn-Maeda 2015).

The Japan News
by The Yomiuri Shimbun

MONDAY, FEBRUARY 2, 2015

Video claims Goto killed

Abe: Japan will never yield to terrorism

The Japan News

A video purporting to show the execution of hostage Kenji Goto was posted early Sunday morning by the Islamic State of Iraq and the Levant (ISIL) militant group.

Prime Minister Shinzo Abe strongly condemned the apparent killing and reiterated Japan's stance against terrorism, saying, "Japan will never give in to terrorism."

"As a government, we have pursued every possible means to save their lives. We feel greatest sorrow and profound grief. I am infuriated by these inhumane and despicable acts of terrorism, and resolutely condemn these impermissible and outrageous acts," Abe said in a statement. "We will further expand our humanitarian assistance in the Middle East in areas such as food and medical care." The statement was also released in English and Arabic.

In the 67-second-long video, a masked ISIL militant says in English: "Abe, because of your reckless decision to take part in an unwinnable war, this knife will not only slaughter Kenji, but will also carry on and cause carnage wherever your people are found.

"So let the nightmare for Japan begin."

The government called a meeting of ministers concerned at the Prime Minister's Office on Sunday morning.

"Taking everything into account, [the image] is highly likely to be that of Mr. Goto," Chief Cabinet Secretary Yoshihide Suga said at a press conference shortly before noon.

The government learned of the video at about 5 a.m. and contacted Goto's family. Suga arrived at the Prime Minister's Office about half an hour later to gather and analyze information with government officials including Deputy Chief Cabinet Secretary Katsuhiro Sugita and Yasuhiko Nishimura, deputy

Obama strongly condemns heinous act

WASHINGTON (AP) — President Barack Obama is calling the killing of a Japanese journalist by an Islamic State militant a "heinous murder" and declaring that the United States stands in solidarity with the Japanese people in denouncing a "barbaric act."

In his statement, Obama calls Goto courageous and says the U.S. applauds Japan's steadfast commitment to advancing peace and prosperity in the Middle East as well as around the world.

Abe talks with Jordan king

The Japan News

Prime Minister Shinzo Abe had a teleconference with Jordanian King Abdullah II on Sunday night, expressing his gratitude for Jordan's cooperation in the Japanese hostage crisis.

In the telephone conversation, Abe said Japan "will expand humanitarian assistance" for the Middle East.

Jordan: Militants rejected all efforts

AMMAN (Reuters) — Jordan strongly condemned on Sunday the killing of a second Japanese hostage by ISIL and said the militant group had rejected all efforts made by the kingdom to release him.

ISIL militants released a video on Saturday which purported to show the beheading of journalist Kenji Goto, whom the Al-Qaida offshoot had been holding captive along with a Jordanian pilot.

"The Jordanian government strongly condemns the execution of the second Japanese hostage by the terrorist organization Daesh," Jordan's government spokesman told state media, using a pejorative Arabic acronym for the group.

Security heightened against terrorism, Page 2

We must not let ISIL tactics divide Japan, Page 3

World leaders decry killing, Page 4

Nation should never be intimidated by terrorism

Kentaro Nakajima

The nation should never be cowed by terrorists who played with the lives of hostages and brutally killed them in the end. Prime Minister Shinzo Abe underscored this stance, saying, "Japan will steadfastly fulfill its responsibility in the international community combating terrorism."

It is essential that Japan pursue further cooperation with other nations fighting terrorism and extend assistance to people affected by acts of terrorism.

Beginning with the outbreak of the crisis on Jan. 20, when two Japanese nationals were found to

INSIDE

Satellite lifts off
Japan launches a new satellite which aims to bolster the nation's surveillance capabilities.
Nation, Page 2

Former German president dies
International, Page 5

Back to the streets
Asia-Pacific, Page 6

Piketty versus Abenomics
Economy & Business, Page 7

Today's editorial
Editorial, Page 8

The power of speed
Sports, Page 18

Opinion & Analysis 9 TV & Radio 10 Los Angeles Times World Report 11-16

Weather
Tokyo
Osaka
Niigata
Fukuoka

Figure 2.2: Photograph of the front page of the February 2nd, 2015 issue of *The Japan News (Daily Yomiuri)* (Finn-Maeda 2015).

A discussion of agenda setting would be incomplete without consideration of what McCombs et al (2011: 59) refer to as “attribute agenda setting”. This second level of agenda setting cannot be separated from the concept of framing. McCombs (2014: 85) explains that in addition to influencing topic salience (regular agenda setting), news media can also influence how people

think about topics by selecting and emphasising certain attributes and ignoring others. Peter Vasterman, Joris Yzermans and Anja Dirkswager (2005: 111) confirm that the media can play a “frame-setting” role, shaping the lens through which we look at news events. The experimental research of Shanto Iyengar (1991: 11) indicates that emphasis on certain details or aspects of events in news stories influence the readers’ impressions thereof. Despite the need for consideration of the readers’ backgrounds and socio-cultural influences, research shows that agenda setting effects are shaped more by characteristics of the media’s message than characteristics of the message recipients themselves (McCombs et al, 2011: 95).

While it may be tempting to view agenda setting as a conspiratorial act, McCombs (2014: 22) notes that for the most part, it is an inadvertent by-product of the media’s necessity to focus on only a few topics in the news every day. Gamson et al. (1992: 374) note that media messages “can provide images for interpreting the world whether or not the designers are conscious of this intent”.

However, regardless of whether it is deliberate or not, agenda setting and attribute agenda setting need to be examined in news media; firstly in the interests of fairness and the media’s fourth estate role; and secondly in a risk communication context. Media form a link between emergency managers and risk perceptions among the general population (Perko, 2011: 389; Perko et al, 2011: 10). Thus, from a risk point of view, as Singer and Endreny (1993: 171) explain, “given the ideological and policy implications of reporting on hazards and risk, it is worth asking who sets the agenda for the media”.

As has been shown above, that the media have some influence on the construction of social reality is undeniable. However, the media are far from all-powerful. The old one-way transmission model of communication from the media to the masses has been widely criticised. It is crucial to acknowledge the agency of readers (Van Dijk, 1995: 11); like journalists, “they are not simply a passive object on which the media work their magic,” (Gamson & Modigliani, 1989: 10). As Macdonald (2003: 11) notes, it is necessary to conceptualise the

relationship between media and public discourses as one that is multi-directional and interactive.

In his seminal essay on audience reception of texts, Stuart Hall (1980: 128) describes mass communication as a multi-faceted process affected by and affecting multiple social actors. Hall (1980: 136-138) also argues that while media texts carry a preferred, dominant hegemonic, reading, which Van Dijk (1995: 14) would call a preferred model, encoded by their producers, readers may reject that reading in favour of an alternative interpretation. This could be done in a negotiative way that accepts part of the preferred reading, or one that rejects it entirely. It must thus be kept in mind that media texts are polysemic – they potentially have multiple different meanings for different consumers (Fiske, 1986: 394; Gamson et al, 1992: 373; Macnamara, 2005: 5), with context, social position and previous experiences shaping the readings (Gamson et al, 1992: 375).[7]

Macdonald (2003: 11) further cautions against exaggerating the media's role and influence, commenting that "it is useful to refer to the media as helping to construct versions of reality" (2003: 14), rather than referring to the media as solely responsible for such constructions. More than a decade earlier, Gamson and Modigliani (1989: 2) wrote of media discourse being only part of the process by which individuals construct meaning, and public opinion in turn being part of the process by which journalists and public authorities develop and crystallise meaning in public discourse. Furthermore, mass media are only some of the forums for public discourse on an issue (Gamson and Modigliani, 1989: 3). This point is pertinent in the contemporary social media-saturated world (and thus the context of Fukushima, which will be discussed later – Cf. page 73-74). While Althusser's (1971) labelling of the mass media as an Ideological State Apparatus through which dominant ideologies are reinforced

[7] Reader interpretation falls outside the scope of this analysis, however, and the study focuses on what has been presented to readers.

still has validity, the influence of the mass media is greatly tempered by the existence of vast online networks of easily accessible digitised information.

A further criticism related to the influence of the media (and agenda setting) is one that targets the commonly-held view that media can only be for or against something, not neither or a combination. The binary notion has been disputed (Connell, 1982: 19), with many media practitioners claiming that they adopt a "neutral" position and strive to merely report what has been said and done. Such ideals of objectivity themselves are often disputed (Cox, 2013: 169); the prevailing idea is that all reporting describes situations in a way that contains an attitude toward them (Wilkins and Patterson, 1987: 81).

Perhaps the key question is whose voices and perspectives have been given more space in news stories. As a rule of thumb, in the interests of fairness and balance, especially when reporting on crises, reporters are expected to use multiple sources (Perko et al, 2011: 76) and remain independent of them (Richardson, 2007: 83). Gamson and Modigliani (1989: 7-8) point out that in the United States, like many other western countries, interpretation of events is generally provided through quotations, with balance achieved by quoting competing views. However, Sandman (1994) notes the tendency of reporters to rely heavily on official sources, with government being the most used, followed closely by industry spokespeople. He remarks that very significant stories generally start with government sources.

Singer and Endreny (1993: 130) have the above in mind when they discuss establishment bias, also known as "official news" – a trend commonly found in news coverage. As Leon Sigal (1973: 120-129) showed us almost two decades earlier, this phenomenon arises from dependence on the official versions of events put out by government and industry spokespeople. Herbert Gans (1979: 271) suggests that while this may be considered an efficient way for journalists to gather news, it also influences what is deemed to be news.

Perko et al. (2011: 79) further explain that official sources of high prestige lend credence to information in news stories. "Establishment critics" or "responsible

spokespersons" are sought out; journalists tend to give their official proclamations the benefit of the doubt. Despite earlier assertions that public authorities generally engage with the media in a calculated manner, it is important to consider the possibility that risk communicators (such as those drafting media releases) and sources may not actually be aware of biases in their communications (Gwin, 1990: 10), but, like the public, may be "prisoners of their perceptions" (Sandman, 2006: 262).

To draw all of the above threads together, it can be said that while the mass media's role is ideally that of fourth estate, communicating important information to (and from) the public, they are simultaneously used as a battleground for different biased (though perhaps unconsciously) views, and tend to have a heavy reliance on official sources. Because the mass media set the public agenda (through topic selection and salience) and the attributes thereof (through framing and other strategies), its potential influence on our social realities, especially in times of crisis, requires careful consideration. For this reason, the role and impact of the media in high-risk disaster situations will be explored in detail in the following section.

2.2 Risk communication in the nuclear context: overview and issues

Risk has been said to be both real (grounded in material reality) and discursively constructed (Beck, 1999). Thus, the study of the communication thereof is significant. While it is not the focus of this dissertation, risk communication is a key concept that is often referred to herein and, for a complete understanding of this study, requires some discussion. Definitions differ, but a useful contemporary understanding of risk communication can be found in its conceptualisation as an interactive process of exchange of information and opinions about risks and related concerns among publics and institutions (Rimer, 1997: 17). The term "crisis communication" is sometimes encountered as distinct from "risk communication". However, Sandman (2006: 257) describes it as being risk communication that deals with a hazardous situation that has already happened or is happening, rather than one that is

trying to be prevented. There is a good deal of overlap, and as such the terms can be used interchangeably.

Risk communication is of critical importance in times of disaster. It has been observed that although good risk communication may not necessarily ameliorate a crisis situation, poor risk communication will almost certainly exacerbate it, generating confusion and provoking conflict (Rimer, 1997: 24). Perko (2011: 388; Perko et al, 2011: 10) explains that bad risk communication can fan emotions, undermine trust, create stress and worsen the crisis situation, while good risk communication can rally support, calm a nervous crowd, build trust and encourage cooperative behaviours. Joseph Arvai (2001: ii) summarises the objective of risk communication as being to “improve people’s ability to make informed decisions in light of technological risks and their associated benefits”.

Calling for the further development of the modern “prescriptive” approach to risk communication, as opposed to a more traditional, one-way “descriptive” approach (which typically disregarded recipients’ context and concerns), Arvai (2001: ii) argues for increased public engagement in the process, emphasising the need for both detailed risk information and guidance to help people make difficult choices. In their overview of risk definitions, assessments, perceptions and communications, Frederic Bouder and Ragnar Lofstedt (2013: 16) acknowledge that there has indeed been a significant shift in risk communication from a one-way, top-down process to a two-way process with exchanges between “experts” and lay audiences. However, they note (Bouder & Lofstedt, 2013: 9-10) that in policy areas where regulators enjoy higher levels of trust, an “antiquated” one-way, descriptive style remains the norm. Despite the erosion of public trust by scandals in the energy companies and nuclear regulators, this certainly seemed to be the case in Japan’s nuclear industry at the beginning of the Fukushima crisis.

In his brief chronology of the evolution of risk communication practice, William Leiss (1996: 86) points out that risk communication is often the focus of

controversy, surrounded by accusations of: media bias or sensationalism, distortion or selective use of risk information, hidden agendas or irrational viewpoints, and regulatory authorities lacking willingness or ability to communicate essential information in a language that the public can understand easily. The need for critical considerations of risk communication lies in its potential influence. In the words of Alonzo Plough and Sheldon Krimsky (1987: 4): "those who control the discourse on risk will most likely control the political battles as well". This is a succinct summation of the significance of risk communication as an area of study.

Plough and Krimsky's (1987) seminal work examines the emergence of risk communication as a distinct field of study in the mid 1980s, and offers several points of relevance to this dissertation. First is the observation (Plough & Krimsky, 1987: 5) that the legitimacy of a modern state is derived in part from its claim to protect its people from harm, from which it can be inferred that were a state to fail at this, its legitimacy could be called into question – and the population justified in anger. Applying this observation to the case of Fukushima, where the Japanese government, for a few days at least, seemed unable to contain or effectively communicate the nuclear crisis, one sees a different kind of meltdown – a political one – that could easily have happened. This serves as a reminder of the importance of good risk communication. Second is the point that, when risk communication enters the political arena, it becomes less about risks and more about responsibility (Plough & Krimsky, 1987: 6). Third and finally is their treatment of the notion of the "irrational individual", a concept still commonly found in discourse on environmental risk, and evident in media coverage of Fukushima - and thus necessary to discuss in-depth here. Plough and Krimsky's (1987: 6) definition of this is where an individual is thought to have an "exaggerated" fear of hazards which experts deem to be relatively safe. Such illogical, anti-scientific fears are seen to stem from a lack of information or failure to comprehend the facts (Rimer, 1997: 37). Plough and Krimsky (1987: 7) explain that "frequently, the exercise of local democracy and personal choice is at odds with the rationality of technical experts," indicating the power dynamics that exist within such terms.

Similarly, Paul Slovic (2013a: 314-315) observes that the "frustrated scientists and industrialists castigate the pubic for behaviours they judge to be based on irrationality or ignorance. Members of the public feel similarly antagonistic toward industry and government". Louis Gwin (1990: 9) speaks of a "technocratic arrogance" that sees supposedly objective expert characterisations of risk as more valid than public perceptions – a conflict between the values of scientific rationality and democracy. The notion of an irrational public is described as a problematically prevailing one by Freudenburg (2013: 312), who suggests that just as scientists' estimates "may need to be treated with something less than reverence, the views of the public may need to be treated with something better than contempt," and that citizen judgements can reflect a "deeper kind of prudence than is commonly realised" (Freudenburg, 2013: 315). Sandman (2006: 262) also dismisses the myth of an "irrational public", calling it a mistaken conviction that the public, like the crisis itself, requires management. Sandman (2006: 257) emphasises that in a crisis situation, people are genuinely endangered and rightly upset, and the task for risk communicators is to guide them through it, not patronise or insult them. Sandman (2004) calls for a revised understanding of the public as both rational and a potential ally in crisis management situations.

Rimer (1997: xiv) also expresses strong criticism of the "irrational public" myth; she argues that it is arrogant to assume that lay publics are wrong in their perceptions of or responses to risks. In defence of concerned publics, she refers (1997: 32) to the well-established idea that people tend to be most fearful of risks when their exposure thereto is involuntary, and where great numbers of people have been exposed. An example of such a situation would be a nuclear accident. Despite the acceptability of fear, anti-nuclear sentiment has historically been "rubbished", being depicted as extreme and mentally unsound in the mass media (Connell, 1982: 18; Gamson & Modigliani, 1989: 28). However, nuclear power risks continue to occupy distinct (Wilkins & Patterson, 1987: 88), "extreme positions in psychometric fear spaces" (Slovic, 2013b: 61); radiation is invisible, uncontrollable, potentially catastrophic and likely to affect

future generations (all of which are factors that negatively influence risk perceptions) (Slovic, Fischhoff & Lichtenstein, 2013: 46).

When considering public perception of nuclear risks, it should be recalled that nuclear power was introduced to the world through atomic bombs (Gwin, 1990: 9). “The culture of nuclear power has been indelibly marked by Hiroshima and Nagasaki,” (Gamson & Modigliani, 1989: 12). Friedman, Gorney and Egolf (1987: 58) posit that no technology has generated more public fear than nuclear power and point out that in 1980, about 80% of the American public believed nuclear energy to be more harmful than coal, despite studies to the contrary. Three Mile Island, Chernobyl and the other nuclear accidents over the years have not helped to shape a positive, safe image of nuclear power, nor have the controversial bomb tests that governments carried out.[8]

Since the beginning of the twentieth century, people have been bombarded with conflicting images of nuclear energy: promises of unlimited electricity, disasters, cures for diseases, missile silos, and of course, bombs and the devastation they wrought. As Gwin (1990: 149) asks, “Is it any wonder that the public’s reaction to a nuclear plant emergency differs so greatly from what is expected?” People are also afraid because they perceive disagreement within the scientific community regarding the dangers of low levels of radiation (Friedman, Gorney & Egolf, 1987: 59). Andrew Robertson and Andrew Pengilley (2012) emphasise that public perceptions of radiation hazards (as shown above to be long-established as a source of dread) combined with the lack of definitive information that may occur in the early stages of a radiation emergency can cause “significant” anxiety among the wider population (2012: 690). Corroborating (and indeed, influenced by) Sandman’s (2011) ideas about risk

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[8] There was much outcry over America’s series of Bikini Atoll tests in particular, as the 1954 hydrogen bomb test showered a passing Japanese fishing vessel with radioactive ash, resulting in the immediate death of one crew member and later deaths of 15 others. Residents of the Marshall Islands were repeatedly relocated in order for the tests to take place; they lost their homes and livelihoods (Bikini Atoll nuclear test … 2014).

communication, and echoing Butler et al in this instance, Robertson and Pengilley (2012: 691) argue that fear is rational in an incomplete understanding of a hazardous situation, underlining the need for public authorities to provide balanced information and commentary. Thus, in conclusion, fear could be seen as a normal, justifiable reaction to a nuclear accident in particular, and it is not surprising that people tend to judge the benefits of nuclear power to be small and the risks unacceptably large (Slovic, 2013b: 61). Sandman (2011) sees the most egregious error in any kind of crisis communication to be instructing the public not to be afraid; and the above illustrates why this is the case in the nuclear context specifically.

As has been shown, risk communication is a practice with great potential for power. However, audiences are not without agency; public perceptions of the risks being communicated need consideration as well. Trust seems to play a key role in the formation of risk perceptions. Javier Auyero and Debora Swistun (2008: 5), in their study of the perceptions of pollution and risks in the poor Argentinian town of Flammable (the environment of which has long been contaminated with high levels of toxic chemicals) note that the trust, or lack thereof, that people have in the organisations that produce hazards and the authorities tasked with protecting the public directly impacts risk perceptions.

Underlining the importance of trust, it has been observed that communities fear recreancy, defined as the failure of institutional actors to carry out their duties with sufficient vigour to merit social trust, in the management of technology more than technology itself (Clarke & Freudenburg, 2013: 5). Slovic (2013a: 315-316) highlights lack of trust as a major factor in divisive controversies that surround the management of technological hazards, pointing out how, although x-rays and medicines actually carry significant risks, our trust in medical practitioners makes them acceptable to us; while conversely, a lack of trust in government and industry officials in charge of nuclear power management leads to a magnified perception of risks. A demonstrated correlation exists between low perceptions of risk by the public and high levels of trust, and vice versa (Lofstedt, 2013: 35). This is relevant in the context of Fukushima;

TEPCO's recreancy hurt public perception of their risk communication and this may be why their data were treated with such suspicion.

Auyero and Swistun (2008: 8) emphasise that risk perceptions are also malleable; subject to filters of personal experience and belief, as well as the varying risk information people are exposed to (and the sources of this information). Singer and Endreny (1993: 2) confirm that most perceptions of risk are mediated by personal experience, contact with other people, and indirect contact via the mass media. This idea is also present in the work of Gamson and Modigliani (1989: 2), who note that when interpreting texts, "individuals bring their own life histories, social interactions, and psychological predispositions to the process of constructing meaning". Arvai (2001: 12) confirms that people interpret risk information within a broader social context and Rimer (1997: 37) posits that evaluating and communicating risks are social processes, with the cultural context of interpretation playing a role in risk perception. Perko (2011: 391) argues that in the nuclear field, crisis communication that is drily factual but fails to take into account recipients' knowledge (or lack thereof), perceptions of risks and experience (or lack thereof) is incomplete and ineffective. There have been calls for risk research focused on analysis of cultural factors that might influence public perceptions of risk (Gwin, 1990: 9).

Summarising the above points, it can be said that risk communication is of crucial importance in times of disaster; having the potential to ameliorate or worsen reactions to a crisis situation. Much risk communication is persistently problematic, addressing the public as irrational. Public fears need to be acknowledged as rational and reasonable, and risk perceptions understood as influenced by a variety of social factors – one of which is exposure to mass media, a key conduit for risk communication. The next section examines in detail the media's part in risk communication and perception.

2.3. News media: roles and responsibilities in risk communication and perception

In order to better contextualise this study, the function of the media in risk communication and the construction of risk perceptions need consideration. While the exact role of the mass media in risk communication is not clear, most scholars agree that the media have some responsibility to warn the public of impending dangers (Wilkins & Patterson, 1987: 80). While the role of the media cannot be conflated with that of official risk communicators, facilitating the communication of risks to the public cannot be denied as one function. Perko (2012) notes that while the principle of the public's right to know and participate in society is enshrined in contemporary regional, national and international laws, the precise role of the mass media in today's "risk society"[9] has yet to be determined, and requires greater research. What is clear is that journalists have a central, active role to play in reporting about a crisis, representing and interpreting it for readers (Perko, 2012).

However, before placing high expectations on reporters, Singer and Endreny (1993: 40) urge us to bear in mind that in reporting on risk, the media are constrained by the same considerations as their reporting of other news; knowledge and availability of sources, schedules, deadlines, and staff skills and knowledge. Despite these limitations, Cox (2013: 370) also points out that due to news media's conformation to the restraints of newsworthiness (magnitude, conflict and emotional impact among other considerations), some risk stories may be exaggerated, while others may fail to accurately translate technical risk assessments.

Nonetheless, great responsibility is given to the news media in times of disaster. Mitchell Stephens and Nadyne Edison (1980: 1) explain that "flaws in the information chain between official and citizen threaten the mental and physical

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[9] Referring to the term propagated by Beck (1999), with the idea that the concept of risk has become a prominent element of daily life.

well-being of the population"; thus, timely, responsible reporting is required. Perko (2012) notes that the media play a progressively more important role in crisis situations, helping to shape and even terminate a crisis. One reason for this is the functioning of the news media as a primary source of risk information for the general public (Perko, 2012; Freudenburg & Pastor, 2013: 111). Singer and Endreny (1993: 159) and Slovic (2013b: 51-52) confirm that most lay people's experience with hazards comes from the news media.

Kandice Salomone, Michael Greenberg, Peter Sandman and David Sachsman (1990: 117) highlight the role of the media in the realm of communication about environmental risks generally, arguing that since most of what Americans know about such risks comes from consumption of television and newspapers, the public communication of these risks has "high stakes" for industry, government and society. Alexander (2009: 3) comments that our perceptions of environmental problems are generally not formed by personal sensorial experiences, but by "the many-voiced discourse of scientists", as reported through the media. In the nuclear context specifically, Tanja Perko, Baldwin van Gorp, Catrinel Turcanu, Peter Thijssen and Benny Carle (2013: 1988) point out that, because the general population usually does not have direct contact with nuclear risks, their knowledge of the nuclear domain is limited, with information mainly gathered from the media. Perko (2011: 389) argues that the mass media play a dominant role at all levels of communication on nuclear emergency issues. It is also important to note that most people also understand nuclear issues in the terms employed by the media (Connell, 1982: 18).

Cox (2013: 366) agrees that the media play a key role in the communication of environmental risks, but points out that they are also a space in which downplaying and denial of risks occurs. He sensitises us to the presence of establishment bias in the media with the criticism that the dominance of government, scientific and industry sources in news media affects public perceptions of risk (Cox, 2013: 370). Freudenburg and Pastor (2013: 115), supported by Kasperson et al (2013: 259), point out that official viewpoints on

risks see much greater media access than do the views of critics or local communities.

Katherine McComas (2013: 50) notes that while lay people generally rely on interpersonal communication more than media coverage to assess public health risks, the mass media can sometimes influence risk perceptions more than interpersonal sources, particularly in times of heightened media coverage of an issue – such as a nuclear crisis. During these periods, the media may contribute to the social amplification of risk. Vasterman et al (2005: 110), in their study on the role of the media in the aftermath of disasters, argue that the media can have a "huge impact" on the way that a disaster and the risk issues involved therein are perceived by both the public and authorities, with the potential for risk amplification or attenuation (2005: 111).

Kasperson et al (2013: 263) once again concur, holding that the news media as risk articulators have received much attention for their critical role in public opinion formation and community agenda setting. In another paper, it is noted that the media, whether disseminating reassuring or alarming messages, frame discourse and perceptions in which the interpretation of risk occurs (Kasperson et al, 2013: 277). Dragana Lazic, citing Schudson (2007: 254), reminds us, importantly, that journalists tend to narrate crises in terms and metaphors familiar from previous crises. Because of the media's influential role in the communication and perception of risks, it is important to conduct and compare analyses of risk and crisis coverage.

The idea that the media influence both risk perceptions of hazards and actions in relation thereto is supported by agenda setting theory (Perko et al, 2011: 10; Singer & Endreny, 1993: 4-6) and ideas of framing as discussed in the previous section. Arvai (2001: 12-13) and Rimer (1997: 50) both note that the framing of risk messages can influence risk perceptions and even actions. Bouder and Lofstedt (2013: 11) confirm that "media risk signals to society, whether positive or negative, have been shown to play a key role in the framing of the public mind and the development of risk controversies. Arvai (2001: 13) observes that even the dissemination of a minimal amount of information intended to prevent

alarm can have the opposite effect by increasing the salience of an issue, resulting in an amplification of risk perception.

There is also concern that, should erroneous information make its way into the mass media, it could have a negative social impact (Kasperson et al, 2013: 262). Taking this into consideration, it is understandable that government and industry authorities often seem to want to keep potentially alarming information from their citizens. However, their usual strategies of reducing anxiety are in opposition with the purpose of risk communication, with its objectives of educating the public and helping them to identify, understand and deal with risks (Arvai, 2001: 13-14).

Sandman (2006: 258-261) criticises authorities' "fear of fear" as an obstacle in crisis communication and reminds us that failure to respect the public and acknowledge their rationality is a consistent problem. Furthermore, studies show that official assurances tend to make people more suspicious (Clarke & Freudenburg, 2013: 4). Sandman (1994) has found that explicit statements by official sources trying to minimise risks, such as "the levels are low", "it hasn't spread" and "don't worry" are construed as offensive, incredible and alarming by recipients.

For an example from the case of Fukushima, Aldrich (2012: 6) reports that many Japanese parents were angry over repeated reassurances that their children were safe despite blood and urine tests showing high levels of exposure to radiation even in areas as far removed from the nuclear power plant as northern Tokyo, Yokohama and Saitama Prefecture. Conversely, when the news media include information about the severity of risks, the public is actually more likely both to take the responsibility of seeking additional information and be willing to take protective action (McComas, 2013: 51). Sandman (cited in Grady, 2011) comments that inappropriate risk comparisons,

such as the use of bananas[10] as a measure of radiation in some Fukushima coverage, only serve to belittle people's fears and rubbish their radiation concerns. He points out that in such cases the condescension and obvious attempts at over-reassurance are immediately visible.

The coverage of risks is often emotive in other ways too. Looking at the coverage of various crises and disasters, Sandman (1994) has found that most of the media content is not actually about the risks themselves, but blame,[11] fear and anger – what happened, how it happened, and who caused it. Wilkins and Patterson (1987: 81-82), who conducted a content analysis of the media reporting of Chernobyl and the 1984 Bhopal chemical plant disaster, assert that news of disaster is portrayed as melodrama, with coverage often failing to include useful contexts that would assist risk interpretation. As a result, some scholars (Wilkins & Patterson, 1987: 83) see an inherent conflict existing between risk communication, thought to be characterised by precise, detailed information, and the news media, often characterised by saleable emotion more than precision (Singer & Endreny, 1993: 162-163).

Salomone et al (1990: 118) note that the media are often accused of exaggerating and sensationalising risks, omitting important information and distorting data. For example, it is Robertson and Pengilley's (2012: 693) opinion that the mass media focus on worst-case scenarios, thus "inflaming" disaster situations. Freudenburg and Pastor (2013: 111) note that because of such accusations, the media are often seen as being anti-technology. However, this common conception in risk communication is a misconception, with mass media historically tending towards reassuring coverage, as shown below.

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[10] Bananas technically contain small amounts of radioactive ingredients, but are not at all harmful.

[11] Graham and Luke (2010: 120-121) highlight the separation of accountability from responsibility that often occurs in environmental accidents. They comment on the difficulty of attributing personal responsibility and how blame is frequently shifted from executives, to other actors, to the vague culprit of organisational culture.

For example, during the Three Mile Island nuclear crisis, mass media coverage of the event was surprisingly more balanced and much less sensational than expected (Stephens & Edison, 1980; Rubin, 1987; and Salomone et al, 1990: 118). Sandman (1994) notes that it was more reassuring than alarming, and more reassuring than it should have been. Similarly, the press was found by and large not to have overdramatised the Chernobyl nuclear crisis (Renn, 1990: 160). Thus, it can be seen that the Fukushima crisis is not the first time that the media have been incorrectly assumed to be sensationalising coverage. More than a decade of research has found that "rather than showing a consistent bias toward sensationalism or negativism," the media tends to provide much more moderate reporting of risks (McComas, 2013: 50).

In line with Sandman's (1994) observations on the media coverage of Three Mile Island, Kasperson et al (2013: 277) have found that news media coverage of hazardous events in general tends to de-emphasise the severity of risks, with the result that it is reassuring overall. Freudenburg and Pastor (2013: 111) confirm that, at least initially, coverage of nuclear problems often seems to be aimed at reducing rather than raising public concerns. Sandman (1994) makes the point that alarming content about risks is in fact more common than reassuring content, except in crisis situations like the above, when attempts to prevent panic seem to have a moderating effect on the coverage.

Perhaps the above trend is related to the idea that journalists are often too deferential to science and scientists, too ready to accept uncritically media releases intended to serve public relations purposes – agents of establishment bias (Singer and Endreny, 1993: 12). This is a criticism that Freeman (2000) and others (Farley, 1996; Gamble and Watanabe, 2004) lobby against the Japanese media – which will be discussed in greater detail below. As Perko et al (2011: 10) note, since the media play a major role in communicating with the public, it is crucial to know what messages they are delivering and how they are framing them. Such analyses are relevant not only for risk communication (showing how to deliver risk information effectively through the media), but also reveal bias and problematic power dynamics operating in society.

2.4 The Japanese media: background and criticisms

Japan is one of the most media-saturated democracies in the industrialised world. It has the highest newspaper circulation of all such major democracies. Any of its several biggest newspapers dwarf any Western country's newspapers. Surely, the relationship between media and politics in one of the world's most influential polities is a significant subject (Krauss, 2004: ix).

The media have a vast following in Japan and enjoy great prestige, with both television and the press (which officially cannot endorse political parties editorially) well trusted, though newspapers are considered the most trustworthy (Pharr, 1996a: 4-5). The Japanese news media industry is dominated by six major entities; five daily newspaper companies (all of which have close ties to major TV stations), and the national broadcaster NHK (*Nihon Housou Kyokai*) (Gamble & Watanabe, 2004: 39). Newspapers are by far the most important media outlet in the news-making process (Freeman, 2000: 16) and have been described as "a Godzilla of the news" (Gamble & Watanabe, 2004: 34) in the country. Japan's five largest newspapers (this includes the *Yomiuri*, but excludes *The Japan Times)*, are all among the 20 largest newspapers in the world; Japan has a nearly 100% literacy rate; 86% of Japanese citizens read one or more of the 70 000 000 newspapers sold in the country every day; and a survey conducted in 2000 found that 88% of respondents trusted the information printed in the papers (Gamble & Watanabe, 2004: 34). This is pertinent considering that a survey in 2003 found that 82% of respondents did not trust politicians, yet the two, as will be shown, are closely related (Gamble & Watanabe, 2004: 5).

Japanese newspapers are frequently described as being homogenous in opinion and even headlines, due to a growth strategy that involves trying very hard not to alienate readers, while offering them as much as rival papers do (Freeman, 2000: 20; Gamble and Watanabe, 2004: 6; Westney, 1996: 77-78). The fact that 99% of all Japanese newspapers are delivered directly to homes means that they do not need to attract daily buyers with high-impact, hard-sell

headlines (Gamble & Watanabe, 2004: 41). Freeman (2000: 19) describes the country's core print media as quality-oriented; sober rather than sensational, but notes that this is because they avoid covering controversial topics that may earn ire from readers and avoid independently pursuing scandals among social elites. This results in a press that does not concern itself with challenging the status quo. Gamble and Watanabe (2004: 36) describe the mainstream establishment press as fact-oriented, authoritative, staid and dull, offering little in the way of interpretation or analysis of the news it reports. In addition to the aforementioned marketing strategies, the small number of players (six major companies, as mentioned above) in the Japanese news media industry for the past 80 years has been attributed as a factor in the uniform drabness of the newspapers (Gamble & Watanabe, 2004: 37). A highly concentrated media industry poses dangers to democracy; the conservative politics of the companies may influence the selection and presentation of news; constraining the depth and breadth of media discourse (Bagdikian, 2000: xii-xiii).

In any study of media texts, the professional ideologies of the text's producers (journalists) and their institutions (media companies) require consideration (Philo, 2007: 111). In Japan, journalists are generally not hired from media schools, but from general undergraduate programmes (Westney, 1996: 78) and then trained up from scratch in the company, generally with the assurance of lifetime employment (Freeman, 2000: 19). Only 200-300 of Japan's 20 000 working journalists have degrees in journalism (Gamble & Watanabe, 2004: 62). Reporting skills and an understanding of media roles, responsibilities and ethics are not prioritised, and many Japanese journalists are simply not adequately trained (Gamble & Watanabe, 2004: 63). There are only four schools of journalism (out of hundreds of universities) in the country, none of which actually focuses on hands-on reporting skills (Gamble & Watanabe, 2004: 62-63). However, it can be argued that the existence of established schools of journalism in a country is not a requirement for its media to successfully serve as a fourth estate in society – many European countries with effective, progressive presses do not have specific schools of journalism either (Gamble & Watanabe, 2004: 63).

The role of the media in Japan is a complex one. On one hand, the media are seen to serve as watchdogs, "powerful screening devices for vast flows of information", providing a critique of those in authority (Pharr, 1996a: 4-8), while bureaucracies and interest groups make efforts to "capture or deflect media attention". On the other, the media are seen as lapdogs - mere servants of the state; links between media conglomerates and economic and political elites evidence a bias that favours the status quo, and the *kisha* (press) club system only reinforces this (Pharr, 1996a: 9). Indeed, Japan's public broadcaster NHK, which has recently been accused of becoming even more loyal to the government, earned the disdain of the public and faced criticism for its coverage of the Fukushima accident, which was seen as "meekly complying with government efforts to cover up the extent of radiation releases" (Fackler, 2014).

The distinction between lapdog and watchdog is not always clear-cut, however. As a result, it is necessary to consider in more detail the position of the Japanese media on the spectrum. Pharr (1996b: 21) presents three major interpretations of the media's role regarding state and society in general: media as spectator and passive, neutral transmitter of information – an understanding that had faded into obscurity by the 1970s, when an agenda setting role had been accepted; media as watchdog – an independent, critical force acting on behalf of the public; and media as state servants or lapdog, forging consensus on social values and drumming up support for prevailing political arrangements. Pharr (1996b: 23) seems to think that both the second and third roles exist in Japan. He sees the lapdog understanding stemming from a view of Japan that sees the country as unique - undemocratic despite a legal framework similar to that of other industrialised nations - and elite-run, with subservient media.

Maggie Farley (1996: 133) writes of the need for a strong watchdog media in all democratic societies to keep authorities in check and expose wrongdoing. She remarks that only the media are autonomous from the state, but, as the below discussion of *kisha* clubs illustrates, that does not seem to be the case in Japan. To elaborate, Farley (1996: 134) draws attention to the fact that the Japanese press actually commits itself, in the Canons of Journalism kept by the

Nihon Shimbun Kyokai (NSK), or Japan Newspaper Publishers & Editors Association in English, to norms of independence, impartiality and truthfulness, and even to ensure the democratisation of the country. Some scholars do believe that the Japanese press lives up to this role and are even biased against government, bringing social issues like bullying into public view; however, others see the press as a subservient lapdog that is eager to please, only offering superficial criticism, if any at all (Farley, 1996: 135). Japanese editorial policy is often referred to as *fuhen futo* – “unbiased and non-partisan”, a phrase that has been used since the launch of the country’s newspapers in the Meiji period (1868-1912) (Gamble & Watanabe, 2004: 42). However, this may be mere lip service to ideals of objectivity. As has been observed:

> The bland assertion of objectivity and impartiality … serves only to obfuscate what is in fact the reproduction of the dominant assumptions about our society – the assumptions of the powerful about what is important, necessary and possible within it (Glasgow University Media Group, 1980: 115).

Ruth Wodak and Brigitta Busch (2004: 110) also note that, while media institutions often represent themselves as neutral spaces for public debate, reporting dispassionately on events and views, this is a fallacy; the media’s powerful role in news construction cannot be ignored.

Japan’s *fuhen futo* policy seems to have been used as justification for taking an uncritical approach to reporting. Generally only public figures or issues that have already been criticised by other media (such as tabloids) or by governments will be criticised in the establishment press (Gamble & Watanabe, 2004: 42). This can effectively result in the censorship of corruption and other scandals.[12]

The work of Freeman (2000)[13] provides valuable insights on the role, practice and problems of Japan’s media. I discuss her main findings at length. Freeman

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[12] For an example, see the Lockheed case later in this section (page 58).

[13] Considered an authority on the inner workings of Japan’s mass media and *kisha* clubs.

(2000: xvi) explains that while the formal institutions of the Japanese media may resemble those of other advanced industrialised countries in many respects,[14] and legally speaking, Japan has a free press, the prevalence of press group self-censorship sets Japan's media apart. This censorship stems from what Freeman (2000: 4) terms the "cartel-like" conditions of Japan's *kisha* club (press club) system, as well as problematic industry associations and inter-media business group influence. These allegations are corroborated by Gamble and Watanabe (2000: 1-2), who note that despite Japan's democratic constitution and many democratic institutions, a host of extra-legal relationships and institutional corruption negatively impact citizen sovereignty and support the rule of elites – that is, business leaders, bureaucrats and politicians.

Like Gamble and Watanabe (2004: 70), Freeman (2000: 3) emphasises the role of the media as "fourth estate", the watchdog guarding against the unrestrained exercise of power by vested interests in society, at the same time pointing out that to get the information that enables them to fulfil this role, the media must "locate themselves within the political and economic centres of state power" – a position that exposes them to co-optation by the very powers they are supposed to be watching. Freeman (2000: 4) observes this happening in Japan, where instead of anticipating stories and shaping news, the press "primarily responds to an agenda of political discourse that has already been set" (by political and industry elites). She explains that the country's cartelisation of information provides political, economic and intellectual elites with a convenient means of filtering news and information, and socially constructing (to an extent) public opinion; thanks to this, leaders and bureaucracies can be shielded from scrutiny (Freeman, 2000: 5). However, Freeman (2000: 7) does not view the media as agents of the state; instead she argues that the media play different roles in different situations.

[14] Many aspects of the media, including newspapers, were in fact imported from the West during the Meiji era (1868-1912).

Throughout her work on *kisha* clubs, Freeman (2000: 13) uses the image of cartels, because like cartels, she notes, they typically involve problematic reciprocal relationships among parties, to the exclusion of others. In *kisha* clubs, privileged relationships exist between elites and the media, while the public are the ones excluded. The cost of these cartels comes in the form of the people's right to know. I will move from summing up Freeman's (2000) work to a discussion of how *kisha* clubs operate, and why they can be so problematic.

Kisha clubs have long been attached to nearly every government office, ministry and major corporation in Japan (Farley, 1996: 135). The first *kisha* club was founded in 1890 (Freeman, 2000: 47), and today 700 – 1000 clubs are estimated to exist, loosely overseen by the NSK (Freeman, 2000: 15). Membership is restricted to an exclusive group of news organisations, which hold a monopoly over news sources (Freeman, 2000: 15). The clubs are often seen as mouthpieces, places where information is disseminated by news sources through press releases, briefings and conferences – a low-cost way for media organisations to fill their news content requirements (Gamble & Watanabe, 2004: 35).

At a *kisha* club, each member receives the same large quantities of information every day, which comes in the form of press releases, lectures, press conferences and the like. Reporters spend almost full days at *kisha* clubs, for years on end (Gamble & Watanabe, 2004: 56). *Kisha* clubs serve as a home base for most Japanese journalists (Freeman, 2000: 69), with basic working facilities (and sometimes gifts and other "perks", such as free beer and money) provided to them (Freeman, 2000: 80 - 81). Clubs have strict rules governing members' activities, prohibiting much of the independent investigative reporting found in less cartelised systems, and there are harsh sanctions against violators (Freeman, 2000: 15). The rules of conduct serve as powerful constraints on the content and slant of the media's messages (Freeman, 2000: 160).

Kisha clubs may be the basic element in the Japanese news-gathering process, but they are exclusive organisations that facilitate close ties between government and business officials and media organisers (Gamble & Watanabe,

2004: 35). Public relations departments tend to be located adjacent to *kisha* clubs, facilitating ease of information exchange and bonding (Gamble & Watanabe, 2004: 56). Staff of domestic and foreign state (like the BBC) or religious media, as well as freelance journalists, are denied membership, and membership of non-Japanese journalists is still restricted in general [15] (Freeman, 2000: 97). The clubs have come under fire from both Japanese and foreign media critics[16] (Freeman, 2000: 95), with the European Union notably calling for the abolition of the system entirely, deeming them a "competitive hindrance" (Gamble & Watanabe, 2004: 46). Freeman (2000: 101) is clear on the issue: "A newsgathering system that deliberately limits either the number or makeup of those having access to official information is in many ways no better than a system of official censorship". Gamble and Watanabe concur (2004: 46), denouncing the clubs' continued restriction of access to what they feel should be public information to a handful of private media organisations as undemocratic.

There are some advantages to the *kisha* club arrangement; the main one being that journalists constantly receive official announcements and have access to press conferences, making their work easier and ensuring equal coverage among media outlets. The disadvantages, however, include the above-mentioned monopoly on news and discouragement of independent investigation to counter balance official, invariably positively biased statements (Farley, 1996:

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[15] On the issue of foreign journalists, the NSK states the following: "As to foreign media organizations, already a number of press corps have registered with *kisha* clubs. The Committee therefore deems that the issue of excluding them should no longer be a basis for criticism about the "closed nature" of *kisha* clubs. There are two conditions for foreign media organizations to obtain a *kisha* club membership: (1) the journalist must have a foreign press certificate issued by the Ministry of Foreign Affairs and (2) the journalist must be a member of a foreign media organization that undertakes activity similar to that of NSK members," (Kisha Club Guidelines, [sa]). Membership seems to be at the discretion of each club.

[16] In response, the NSK apparently revised some of their guidelines for *kisha* clubs (Kisha Club Guidelines, [sa]), but whether there have been any substantive changes remains to be seen.

136). While journalists can and do supplement official materials with off-the-record comments from sources with whom they invest much energy and resources into developing rapport, the "symbiotic relationships" that develop can be problematic (Farley, 1996: 137-140). Singer and Endreny (1993: 127) remind us:

> Journalists are the public's eyes on the world, but journalists themselves are rarely eyewitnesses. Even when they are eyewitnesses, convention dictates that they tell the story primarily through sources rather than through their own observations.

In Japanese newspapers, bylines are uncommon, and to avoid negative impact for sources, they are often unnamed[17] – resulting in vague, unsubstantiated articles for which it is difficult to hold anyone accountable; although this trend is also a problem in other countries, it is especially so in Japan (Gamble & Watanabe, 2004: 65). One consequence of the friendly atmosphere cultivated in *kisha* clubs is the co-optation of journalists by their story sources; long years of club membership result in bonds and cooperation with sources, and even rival reporters (Freeman, 2000: 83). What this means is that while reporters in these clubs are well positioned to expose scandals and corruption, they do not (Farley, 1996: 159); the close relations political journalists have with their sources make it difficult to write unfavourable articles about them (Freeman, 2000: 115). As a result, the tabloid magazines do. Newspapers then follow, only pursuing such stories once their existence has been revealed elsewhere. A prime example is the involvement of former Prime Minister Kakuei Tanaka in the 1976 Lockheed bribery scandal, where American news investigations had to break the story overseas first before Japanese media would cover it (Gamble & Watanabe, 2004: 52). Fear of delayed breaking of scandals around the Fukushima accident is thus not unfounded.

[17] There is concern that sources may cut ties with journalists if they are discredited by articles that quote them.

Farley (1996: 159-160) concludes that the role of the establishment press in Japan is limited; perhaps that of a kind of muzzled guard dog, somewhere between watchdog and lapdog, with both Japan's pre-World War 2 tradition of press control and the post-war interpretation of the press as democratic critic in operation. Freeman (2000: 161-163), however, argues that the Japanese are neither watchdog nor toothless guard dog, and yet not lapdog either; but instead a co-conspirator with the state and business in the management of information in Japanese society – agenda maintenance rather than agenda setting. The effects of this include suppression of reports about national problems (Freeman, 2000: 168), prevention of issues being put on the agenda, marginalisation of alternative media, and the above-mentioned homogenisation of the news and opinion – in other words, cartelisation of information in Japan. The news is limited, narrowing the range of societal inquiry into issues and political processes (Freeman, 2000: 178).

It must be remembered that the media everywhere are bombarded with press releases from the management of businesses and industry. Furthermore, press club systems operate to some extent around the world. Freeman (2000: 173) notes that Thailand and South Korea (the latter having been influenced by the introduction of the *kisha* club system during Japanese colonisation) seem to have similar systems, though more research needs to be done on the topic. Freeman (2000: 63) likens *kisha* clubs to Britain's "lobby", but finds them far more pervasive. Sara Page (2003: 32) points out that, in general in the media industry, limited time and resources leads journalists to establish and maintain a group of sources they regularly use; fear of losing these sources or lack of confidence in a subject may lead the journalists to be uncritical of the information they receive from the sources and even conform to their views. Richardson (2007: 85) also mentions the above pressure felt by journalists; they strive not to alienate key sources. Furthermore, Page (2003: 32) notes that press releases and media events serve as convenient, fast ways of filling story quotas.

In the United States, where 50-60%[18] of *New York Times* and *Washington Post*[19] stories have been found to be substantially based on press releases, official proceedings and press conferences, journalists are likely to have routine relationships with officials, and it can be concluded that most American reporting is the product of ongoing news routines (Gamson & Modigliani, 1989: 8; McCombs et al, 2011: 115). The workings of these “routines”, which typically involve attending press briefings and sifting through press releases, are thus not dissimilar to the happenings of *kisha* clubs.

McCombs et al (2011: 27-28) warn that over-reliance on established news routines causes three major problems: reporters tend to cover events rather than issues (for example, a specific murder trial rather than the issue of crime in an area); reporters rely heavily on public officials as sources (leading to establishment bias); and reporters cover stories in nearly identical ways. Not unlike their American counterparts, in the United Kingdom 19% of five major newspapers’ articles were found to be derived mainly or wholly from public relations material or activity (McCombs et al, 2011: 116). However, the percentage in Japan is much higher – Freeman (2000: 63) estimates that 90% of news stories come from public officials. There seems to be greater reliance on “credentialed facts” than in many other countries – in other words, immense establishment bias, with official statements depicted as objective facts (Freeman, 2000: 165).

In sum, while Japan’s media system is, on the surface, democratic and capable of acting as a social watch dog (albeit a weak one); it remains institutionally corrupted by its *kisha* club system and, as a result, is dysfunctional as a fourth estate. If the findings of this dissertation reveal a high similarity between coverage in *The Japan Times* and *The Daily Yomiuri*, with significant positive

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[18] Freeman (2000: 63) claims that as much as 80% of American news stories come from public officials.

[19] Both highly regarded publications.

bias towards the Japanese government and nuclear authorities in both, this will exemplify the above-mentioned dysfunctionality of the country's media.

2.5 Coverage of Three Mile Island and Chernobyl: criticisms and lessons

Having discussed the functions (or, as above, dysfunction) and influence of the mass media in the production of news, with a focus on high-risk events; and having briefly referred to reporting on nuclear issues and public risk perceptions thereof, I will consider in detail studies of media coverage of past nuclear accidents to better contextualise my own study. An examination of media coverage of the two other major nuclear accidents in history reveals valuable insights for the analysis of Fukushima coverage.

Rubin's (1987) study of the English-language news media's coverage of the 1979 Three Mile Island and 1986 Chernobyl nuclear accidents is a significant work in the area of disaster and radiation reporting, and as such requires a fair amount of consideration. In comparing the coverage of the two nuclear accidents, Rubin points to parallels and differences between the two in terms of the flow of information. Both accidents were marked by an absence of emergency communications plans and the deliberate withholding of radiation data by authorities, but information regarding Three Mile Island was more quickly and freely accessible (Rubin, 1987: 42).

Rubin (1987: 44) suggests that by failing to provide concrete, reliable information to the media and public for more than two weeks after the accident, the Soviets yielded control over information to the West, which could only speculate as to what might be happening at the nuclear plant. The Soviets explained their silence with claims common in risk communication, namely that they did not want to "panic the population with incorrect information" (1987: 54). It can be suggested that in their initial opacity about Fukushima, the Japanese government and TEPCO too yielded, to an extent, control over information to the West, opening the gates to potentially alarmist speculation. Rubin (1987: 44) notes how officials briefing the media about Three Mile Island and

especially Chernobyl "put the best face on developments" and were "reluctant to confirm bad news", resulting in reduced credibility.

Governments in general do not have a good track record when it comes to releasing information about nuclear accidents. Rubin (1987: 52) notes the failure of France to inform its people of radiation levels 400 times higher than normal in some parts of the country for ten days as a result of Chernobyl; the Italian government's issuing of contradiction-filled information using confusing terminology; the British government's silence about the release and direction of radioactivity during the 1957 Windscale accident; and the U.S. government's lack of candour about its 1954 Bikini Island hydrogen bomb tests. According to Rubin (1987: 52), an estimated further 150 significant leaks of radioactivity around the world were also kept from the public.

The 1966 Fermi reactor "mishap" in Detroit, America, was another particularly disturbing nuclear incident (Gamson & Modigliani, 1989: 14). The reactor's cooling system failed and the fuel core underwent a partial meltdown as a result. The automatic shutdown system failed, but operators managed to shut down the systems manually. However, radiation escaped into the containment building, and for the next six months there was a major risk of a disastrous secondary accident occurring. Despite the gravity of the situation, and despite local journalists and officials being notified that something had gone wrong, the story went unreported in the media. Five weeks later, the *New York Times* carried a single, simple article on the matter, describing it as a mere "mishap". Energy officials termed it a "minor perturbation".

A history of such blasé attitudes and secrecy, together with the likelihood of governments having "vested interests" in nuclear technology, serve to breed suspicion on the part of the press and public (Rubin, 1987: 53). Indeed, during the Chernobyl accident, poor risk communication resulted in the public suspecting that the governments were withholding information and not revealing the truth (Renn, 1990: 155). In the words of Sandman (2011), "nuclear power proponents keep shooting themselves in the foot" when it comes to risk communication.

Renn (1990: 152) says that the major lesson from Chernobyl is to have a solid risk communication plan in place before a disaster strikes. Roger Kasperson and Ingar Palmlund (2013: 375) offer several other lessons in risk communication from Chernobyl: early reassurances are not always the best strategy for governments (the Japanese government ignored this); openness and candour are crucial for the building of trust; and, a single source of authoritative information can help prevent confusion. When considered with the fact that spontaneous evacuation[20] is a characteristic of nuclear emergencies, the last point is understandable from a risk communication and management perspective. However, it is controversial in the way that it marginalises alternative voices, and Sandman (2006: 261) sees such "enforced homogeneity" as leading to worse decision making. As Tollefson (2013) shows, in the case of Fukushima, efforts were made by both government and media to concentrate the source of risk information. Constricting information flow is a common response by governments and corporations to crisis situations due to the tendency of authorities to "misdiagnose" public caution as public panic (Sandman, 2011).

In the coverage of Three Mile Island, the news media were lambasted for their "frightening news reports" that made predictions that didn't amount to anything (Seymour, 2011), and misinforming their audiences (Cox, 2013: 367). While official investigations found that the accident released little radioactivity, the mental health consequences for nearby populations are viewed as having been significant (Freudenburg, 2013: 306). Slovic, Fischhoff and Lichtenstein (2013: 46) report that one industry estimate of the financial consequences of the

[20] The experiences of Three Mile Island indicate that in nuclear accidents more people will evacuate than are advised to, the reverse of what happens in natural disaster situations (Gwin, 1990: 14). More than 100 000 people ignored recommendations and spontaneously evacuated after Three Mile Island (Perko, 2011: 388). A spontaneous evacuation of Tokyo's 35 million residents would have been unthinkable, although evacuation orders were considered by officials during the early days of the Fukushima crisis.

public's fearful reaction to Three Mile Island is as much as 500 billion U.S. dollars. The accuracy of this figure is questionable, however.

Perko (2011b: 388) confirms that the Three Mile Island and Chernobyl accidents had long-lasting psychological, sociological and political effects on public perceptions of nuclear power. Many nuclear pundits see such public fears of radiation as being fanned by the media; accusing them of paying too much attention to radiation in reports, using inflammatory language such as "deadly radiation" and failing to put risks in perspective (Friedman et al, 1987: 59). As is shown below, however, there is not much truth in these assumptions. The media cannot be blamed.

Rubin (1987: 52) notes how the press at both Three Mile Island and Chernobyl "were roundly criticised for sensationalism and inaccurate reporting", accusations levelled at the media in the case of Fukushima too. He finds that the criticisms were largely misplaced, although he acknowledges that some journalists did publish stories without sufficient cross-checking of the information. Singer and Endreny (1993: 41) have found that the risk information included in news stories is usually inadequate and sometimes inaccurate. Renn (1990: 152) corroborates Rubin's (1987: 52) above finding in favour of the media, stating that while the media did intensify public concern, they did not distort risks or create confusion about what protective actions should be taken; he calls the coverage accurate and fair (1990: 161). Content analyses of media coverage of Chernobyl were conducted in many European countries, and the results confirm that the press neither sensationalised their stories nor distorted the facts (Renn, 1990: 160).

In the case of both Three Mile Island and Chernobyl, media reports on radiation were, however, accurately criticised for including improper comparisons, impossible statements and insufficient background information (Singer & Endreny, 1993: 89, Friedman, Gorney & Egolf, 1987: 58; Perko 2011b: 388). Perko (2011b: 388) points out that the emergency management communicators lacked knowledge of rhetorical strategies, and Rubin (1987) believes that many

of the accepted problems with the media's reporting arose from sources being misinformed, misleading or unavailable.

Rubin's (1987) conclusions on the reporting of Three Mile Island echo those of Stephens and Edison (1980). In their comprehensive study[21] of the coverage of the Three Mile Island nuclear accident by the main TV news, wire services and daily newspapers in the USA, they find that critical events were not exaggerated by the media (1980: 16), coverage was generally restrained as opposed to sensationalistic (1980: 17), and "distortions in the picture presented …were caused by faithful reporting of official statements" (1980: 11), with facts being "delayed, withheld or intentionally obscured by officials" (1980: 9). Reporters received most of their information in large press briefings (1980: 4), not dissimilar to the case in Fukushima. Similarly, in the case of Chernobyl, confusion was heightened by the authorities' inconsistent use of units of radiation measurement (Renn, 1990: 152). Dissent among scientific institutions regarding recommendations for action, as well as risk management weaknesses and contradictions, was covered by the media, and thereby amplified, contributing to public unease and scepticism; but this dissent was real, not something invented by the media itself (Renn, 1990: 160, 162).

Sandman (1994) raises the idea that relatively neutral coverage may seem biased as we all read it through the lens of our beliefs, and even balanced stories can seem alarming by virtue of covering frightening topics. McCombs (2014: 39) dubs the former "the hostile media effect", in which people perceive the media to be biased against their political views. Sandman (1994) suggests this is why many people found the news stories about Three Mile Island negatively biased or scary – though analyses reveal they were far from either. Sandman (1994) wonders whether "alarming" and "reassuring" might characterise the interaction between readers and news reports rather than the

[21] Conducted to ascertain how well the media did their "job" of keeping the public informed immediately following the accident. The study was conducted for the USA President's Commission on the Accident.

coverage itself. For example, while experts would consider low levels of radiation to be reassuring, the lay public would find the same reports of such to be frightening, because they might focus on the mere presence of the contaminant more than the amount. However, while the public's "overreactions" to Chernobyl, such as the buying up of potassium iodide, received strong press coverage, such responses were not typical of the majority of people, who were surprisingly found to be apathetic (Renn, 1990: 159). The picture of panic that was portrayed was thus skewed.

Media coverage of Chernobyl in Sweden and the United Kingdom around the 10th anniversary of the accident in 1996 was actually found to be alarming rather than reassuring, and – repeating a problem found in earlier reporting - rarely used statistics to explain degrees of risk (Perko et al, 2011: 11). Concerning the question of media influence, it is also pertinent to note that there was a sharp temporary increase in opposition to nuclear power following the flood of publicity about Three Mile Island, but when media coverage petered out, public opinion rebounded to pre-accident levels of support almost immediately. This was observed again six months later with the release of a commissioned report into the accident (Gamson & Modigliani, 1989: 31). It would seem that frequency of exposure to a topic might have more of an influence on public opinion than the reassuring or alarming tone of the coverage.

In addition to insight into assumptions pertaining to coverage being alarming or reassuring, Three Mile Island provided other important lessons for those involved in the communication of Chernobyl. Friedman, Gorney and Egolf (1987) examined the coverage of Chernobyl in American newspapers and television newscasts during the first two weeks after the accident. To determine whether the media had learned from Three Mile Island and improved their reporting, Friedman et al (1987: 60) considered how much radiation information was provided, how complete the radiation readings were, how much information was provided about public health and environmental effects of the radiation, and how the media had characterised radiation risks. There had been issues

with these points in the coverage of Three Mile Island. In addition, Friedman et al (1987: 63) took into account the Task Force (of which she was part) on Three Mile Island's finding that the most important information for the public in a nuclear accident is how much radiation is escaping, and whether it poses a hazard to health. The Task Force (Friedman, Gorney & Egolf, 1987: 64) recommended, as a bare minimum, the inclusion of the following data in reports on radiation: the amount and unit, the rate or time interval, the time and duration, the location of measurement, the nature and type of radiation, and the type of exposure (single release or continuous). Furthermore, definitions of technical radiation measurement terms such as becquerels needed to be given.

Based on the above criteria, Friedman et al (1987: 58) found that the press and television coverage of Chernobyl did not provide enough radiation or risk information,[22] but what was provided was appropriate, even-handed and conservative – not alarmist. Friedman et al (1987: 63) explain that the lack of radiation information was due to the difficulty in obtaining radiation readings during the Chernobyl accident. During the first week, as mentioned above, the Soviet Union was silent, while European governments mostly issued vague, conflicting statements. The paucity of available information together with reporters' lack of familiarity with radiation terminology resulted in radiation data in the media being infrequent and too general.

Friedman et al (1987: 64) elaborate that radiation levels were frequently termed high, moderate or low, without substantiating figures. Misleading radiation level comparisons were made with chest x-rays (which only involve partial body exposure and are thus a highly inappropriate unit of comparison), Three Mile Island levels, levels left by atmospheric nuclear weapons tests, levels from Hiroshima and Nagasaki and aeroplane levels. They call for the use of

[22] It is not just the coverage of Chernobyl and Three Mile Island that has been criticised for lacking radiation information; Friedman et al (1987: 60) note that reports on the 1982 Ginna accident in New York and radon exposure risks in 1985 had similar issues.

background radiation readings to be used instead (Friedman et al, 1987: 64). The above criticisms and coverage assessment guidelines will be kept in mind in the data analysis chapters of this study (Cf. Chapter 4 and 5).

A final observation is the fact that the communication of the Chernobyl accident became increasingly politicised as events progressed (Perko, 2011b: 388). Wilkins and Patterson (1987: 86-87) describe the Western media's coverage of Chernobyl as reflecting an old, much-used script from U.S.-Soviet relations in which the Soviets were portrayed as "low-tech bumblers" who did not care about human life. They note that the early stories in particular portrayed the Soviets as secretive and liars, and during the month after the accident, Soviet reassurances were repeatedly contrasted with precautions taken by other countries. At first glance, it would seem that parallels might exist in the coverage of Fukushima.

In conclusion, the above-referenced critical analyses of the coverage of history's two other major nuclear accidents provide key insights into the mass media's reporting of radiation, as well as repeated mistakes in risk communication and unfounded assumptions about the media sensationalising nuclear risk. The studies also offer clear, detailed guidelines for the assessment of later radiation coverage; these will be revisited in the data chapters. Now that consideration has been given to Three Mile Island and Chernobyl, I will discuss the case of Fukushima in more detail.

2.6 Fukushima: insight, communication and coverage

Nuclear power and the public have historically had a "tumultuous" relationship (Butler et al, 2011: 6), with support and opposition fluctuating, and the persistence of deep-rooted fear and mistrust stemming largely from nuclear energy's destructive wartime origins. In the late 1980s, after Three Mile Island and Chernobyl, public opposition to nuclear power was at an all-time high in many countries, due mainly to distrust that the regulators, government and the industry could manage nuclear risks effectively and provide truthful information

to the public (Butler et al, 2011: 7). Support then strengthened, leading up until Fukushima, a trigger which prompted Germany to cancel its nuclear power programme and sparked anti-nuclear protests around the world.

Discursively speaking, "the Fukushima accident can be seen as having provoked a critical discourse moment, wherein the culture, frames and interpretive packages of an issue become visible" (Butler et al, 2011: 11). These are the interpretive packages that were first identified by Gamson and Modigliani (1989), as detailed earlier (Cf. page 26-27). As Butler et al (2011: 11) note, studying the levels of representation of these frames and interpretive packages in the media is of interest, and they will be considered, albeit briefly, in the data analysis section of this dissertation (Cf. page 150-151).

Only a small number of research studies focused on the Japanese media and specifically Fukushima currently exist, but the points they make are pertinent and a detailed consideration thereof is necessary to understand the context in which this study has been undertaken. Serving as precedents for content analysis, they also guide this study's analysis of the Fukushima coverage in the two newspapers.

Over the past 50 years, Japan has developed one of the most advanced commercial nuclear power plant programmes in the world. 54 nuclear power plants have been constructed, largely due to top-down directives from the government (Aldrich, 2012: 1). As was the case with Three Mile Island in America, the Fukushima accident illuminated serious problems with the national system that manufactures, operates and regulates nuclear plants (Freudenburg, 2013: 307).

Jeff Kingston (2012), a frequent commentator in the Asian Studies field, describes the corruption and collusion within Japan's nuclear industry leading up to the Fukushima crisis. He makes a case against Japan's "nuclear village", using this term to refer to institutional and individual pro-nuclear advocates including the country's utility companies, members of the Diet (the Japanese parliament), big business, and members of the media and academia – Gamson

and Modigliani's (1989: 27) "nucleocrats". Kingston (2012) argues that the nuclear crisis could have been avoided were it not for the "incestuous" ties between TEPCO, the Japanese government and the nuclear regulators.

On relations with the media, Kingston (2012) suggests that, even without consideration of the effect of *kisha* clubs, the large advertising budgets of Japanese utility companies positively affect their coverage in the country's mass media. As an example of possible further influence, he notes that the chairman of TEPCO was in China, apparently treating members of some of Japan's largest media organisations to a "luxury junket", which happened to be during the initial stages of the crisis at Fukushima. While the timing of this sponsored event could not have been planned, the existence thereof raises issues of journalistic impartiality.

Kingston (2012) also discusses the conflict of interest that arose from the positioning of the former nuclear regulatory authority, the Nuclear and Industrial Safety Agency (NISA)[23], alleged to have close ties with the utility companies, within the strongly pro-nuclear government Ministry of Economy, Trade and Industry (METI). As evidence, he cites Haruki Madarame, former chairman of the separate Nuclear Safety Commission, who testified in February 2012 about the inadequate safety standards and ignoring of risks that such collusion between the nuclear industry and its regulators facilitated.

However, while perhaps longer-lasting than in other countries, such close ties between industry and regulators are not unique to Japan; many others had similar links and overlaps between various industries and their regulatory bodies. Indeed, prior to the Three Mile Island accident in 1979, the United States government had a protective regulatory relationship with the nuclear industry; this only changed after the accident (Gwin, 1990: xiii). In many other instances, such ties were not seen as problematic until the 1980s, when

[23] NISA was disbanded in 2012 and replaced with the autonomous Nuclear Regulatory Authority (NRA).

scandals such as the mad cow disease issue[24] arose in the United Kingdom and Europe in the 1990s (Lofstedt, 2013: 32-33). Governments and regulatory bodies seem to have a history of being largely reactive; that is, handling crises on a case-by-case basis as they occur instead of taking advance preventative measures (Singer & Endreny, 1993: 22).

Turning his attention to TEPCO, Kingston (2012) describes how the utility withheld from NISA until March 7th, 2011, four days before the earthquake, 2008 in-house research indicating that it (TEPCO) was aware of the Fukushima nuclear power plant's vulnerability to tsunamis but had decided against building a higher seawall because it was too expensive. Kingston notes that, in addition, TEPCO had actively lobbied for the downplaying of tsunami risks in a February 2011 government earthquake research report; the company was found to have falsified plant maintenance and safety records for 30 years; and there were stress cracks present in the back-up diesel generators at Fukushima, rendering them vulnerable in the event of a tsunami.

Kingston (2012) also mentions a disturbing incident in June 2011, three months after the earthquake, where NISA and METI were found attempting to fabricate public opinion favouring the restarting of a nuclear power plant shut down in the wake of Fukushima. Aldrich (2012: 6) elaborates that managers at Kyushu Electric Power Company were found to be tampering with a public opinion poll in June 2011, in an attempt to speed up the restarting of a plant in Saga (all nuclear power plants in Japan were shut down for safety checks after Fukushima and, at the time of going to print, many have yet to be restarted). Kingston (2012) concludes his study with the contention that despite the spotlighting of collusive ties and other "tawdry revelations", the so-called nuclear village in Japan has managed "surprisingly effective damage control" by spreading blame and blurring responsibility in public discourse on Fukushima.

[24] The epidemic of bovine spongiform encephalopathy (colloquially known as mad cow disease) was largely blamed on the cannibalistic feeding of contaminated bovine material to farm cows due to poor industry regulation.

In his paper on how the Fukushima accident has changed the nuclear energy landscape in Japan, Aldrich (2012) makes several pertinent points. Firstly, he (Aldrich, 2012: 2) directs attention to the past buying of local support for nuclear power through the contribution of “lucrative hand-outs”, in the form of grants, loans and jobs, to host communities. Then, like Kingston (2012), Aldrich (2012: 4) comments on the history of accidents and cover-ups in the Japanese nuclear industry, which came out in the 1990s-2000s.

One incident that stood out for Aldrich (2012: 5) was the Monju reactor fiasco of 1995. The experimental sodium-cooled reactor in Fukui Prefecture suffered a sodium leak, with the subsequent fire hot enough to melt various steel structures in the reactor’s chamber. The semi-governmental agency in charge of the plant at the time suppressed details of the accident and went so far as to doctor a videotape of the leak. Aldrich (2012: 5-6) also mentions the 1999 Tokaimura nuclear accident, in which three workers were exposed to extremely high levels of radiation; two later died. Hundreds of others were exposed to high levels of radiation. While neither the Monju nor Tokaimura reactors were managed by TEPCO, Aldrich (2012: 6) notes how TEPCO themselves hid at least 30 serious incidents since the 1980s.

In the following discussion I shift focus from nuclear cover-ups to nuclear coverage. Friedman (2011) conducted a brief comparison of traditional and new media coverage of Three Mile Island, Chernobyl and Fukushima. In her study, which is limited to English-language media outside Japan, predominantly in the USA, she highlights how today’s new media (i.e. online newspapers, blogs and social media) made a lot more information available to people during the Fukushima crisis than they had access to during the previous nuclear accidents. She notes that media coverage (in all forms) was massive, pointing to the more than 73 million results for the search term “Fukushima” on the internet four months after the accident. The world really was watching, and coverage of Fukushima far overshadowed other news of the earthquake and tsunami aftermath (Friedman, 2011: 55). Friedman is satisfied that the coverage of this nuclear accident was better than that of Three Mile Island and Chernobyl.

However, while the quantity of coverage may have increased compared to the previous accidents, it is pertinent to consider the quality too. Friedman (2011: 57) presents three major similarities in the coverage of the three accidents. First, because reporters were covering the crises in real time, for the first few days there wasn't much time to check accuracy, though this did improve as events progressed. Second, many reporters lacked technical knowledge about nuclear power plants and radiation, with the result that they struggled to ask impactful questions – weakening their stories. To compound matters, thirdly, many engineers and government spokespeople struggled to explain issues without obfuscating facts with technical jargon. Rubin (1987: 53) suggests that the communication of risk about radiation has always been difficult for journalists and their sources alike, due in part to a lack of expert agreement on long-term risks. In fact, it could be said that journalists and indeed the public are at a disadvantage from the start of technological controversies, due to the prevalence of jargon, the complexity of risk assessments, and a lack of trust in the purveyors (usually government and industry) of the risk communication (Perko et al, 2011: 72; Rimer, 1997: 19-20).

Friedman echoes Rubin (1987: 53) when she says that radiation reporting is “inherently complex”. She emphasises that during nuclear accidents, what people want to know is how much radioactivity has been released and what health hazards there are. Regarding Fukushima, Friedman (2011: 56) describes the news briefings of TEPCO and the Japanese government in the early days following the accident as providing “minimal and somewhat optimistic information”, and notes (2011: 62) the Japanese Foreign Ministry’s criticism of foreign media for their perceived excessive, dramatic reporting. Cleveland (2014), who also couches international coverage of Fukushima in terms that are critical, without defending the Japanese government or TEPCO, claims that what the latter was actually guilty of, more than anything else, was dumping huge amounts of almost unintelligible raw data onto attendees of its news briefings. In the end, with interpretative assistance, some of this data did make its way into newspaper reports. Friedman (2011: 58-59) reiterates the radiation data requirements drawn up by the Task Force on Three Mile Island, for a

report (news or other) on radiation to be complete, as outlined earlier, and includes an example of what she sees as accurate coverage in *The New York Times*. Overall, she is satisfied that the Fukushima coverage in her analysis meets the requirements. Lazic (2013: 31) agrees, noting that *The New York Times*, *Los Angeles Times* and *USA Today* provided sufficient information in their coverage of Fukshima.[25]

Echoing the findings of Friedman (2011) above, Junga Kim and Bijie Bie's (2013) study[26] on the coverage of Fukushima in *The New York Times, The Wall Street Journal* and *USA Today* concludes that the articles provided more quantitative, factual information than was the case in coverage of previous nuclear accidents. Kim and Bie (2013: 188) note that 85% of the analysed articles that reported numerical radiation levels included normal background levels to help readers make sense of the figures – an improvement from past reporting. In contrast to the studies on media coverage of Three Mile Island and Chernobyl, Kim and Bie (2013: 188) found that over half of the news articles on Fukushima were alarming, while only 20% could be categorised as reassuring[27]. In addition, 58% of headlines were deemed alarming, with 33% classed as reassuring. Considering the framing of the articles, Kim and Bie (2013: 189) determined that a frame of negligible risk, wherein the health consequences of radiation were depicted as insignificant, was most common in the coverage. While these results are worth considering, further analysis is required; the

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[25] Lazic (2013: 30-31) found that the biggest obstacle in reporting on the crisis was the conflicting opinions of nuclear experts and notes that such conflict was a common frame in the coverage.

[26] With a focus on risk communication.

[27] Kim and Bie (2013: 188-189) also observed that reporting on radiation risks for Japan or other countries was mostly alarming, while risk to the United States was conveyed in neutral or reassuring tones.

study's coding criteria[28] could be expanded upon, as could the authors' assessment of the news articles.

Celine-Marie Pascale's (2016) textual analysis of the coverage of the Fukushima crisis in *The New York Times*, *The Washington Post*, *Politico* and *The Huffington Post* between March 11, 2011 and March 11, 2013 confirmed the existence and dominance of Kim and Bie's (2013: 189) negligible risk frame. In her study of 2144 texts from these two prominent newspapers (the first two) and blogs (the latter two), which included features, editorials and letters to the editor, Pascale (2016: 8) found that the coverage minimised radiation risks. She identified three ways in which the publications did this: by excluding concerns raised by experts and affected communities; by making radiation levels appear tolerable, through comparison to other types of lesser risk; and by making the risk seem uncertain or undefined (Pascale, 2016: 8). In this way, the publications seemed to evidence Sandman's (1994) claim that newspapers err on the side of reassurance in times of nuclear crisis, and this must be taken into account to temper Friedman's (2011) largely positive conclusions.

A final lesson to draw from Friedman's (2011: 55) research is a reminder that "the mainstream media no longer rule the air"; people have access to many sources of news – blogs, social media, and more. This shows that the influence of newspapers, even in Japan, is not all-powerful; there are limitations. Indeed, online social media platform Twitter saw a surge of new users in Japan following the earthquake (Thomson, Ito, Suda, Lin, Liu, Hayasaka, Isochi & Wang, 2012: 1).

Despite a tendency for people to view information shared on Twitter as less credible than other sources, Thomson et al (2012: 8-9) find firstly that the majority of tweets containing information from a third party were based on

[28] In the articles, positive statements speaking of radiation risks decreasing were coded as reassuring, while negative statements that said it was increasing were coded as alarming (Kim & Bie, 2013: 187). This is a very narrow way of determining reassuring or alarming content; other features, such as lexical choice, also need to be considered.

"highly credible sources", such as online newspapers or well-known experts, and secondly that there was an absence of false rumours in tweets shared with the #Fukushima hashtag.[29] These findings help to discredit the image of an irrational public, and reinforce the importance of the media in disaster situations. The online sharing of radiation data collected by individuals via the *Safecast*[30] website is further evidence of a limitation of the influence of the mass media in contemporary risk communication. Aldrich (2012: 8) remarks that the *Safecast* data trumped that of TEPCO and the Japanese government, whose collection methodology was opaque and whose release, as previously mentioned, was slow.

Returning to the realm of risk communication research, a review of Butler et al's (2011: 11) study highlights several other lessons that can be drawn on in analyses of the media and wider public discourse surrounding Fukushima. These include: the importance of dialogue as opposed to one-way dissemination of information in risk communication; enabling public trust; exploring the divergent values of varied publics; and not treating publics as irrational, but acknowledging the legitimacy of their concerns. In the opinion of Butler et al (2011: 11), "many of the public and media statements about nuclear risk following Fukushima appear to have failed to take account of these research insights".

Sandman (2011) finds that the risk communication of the Japanese government did not enable public trust. Specifically, he considers their failure to speculate publicly about possible scenarios it was considering privately, such as a mass

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[29] On Twitter, terms demarcated by the hash mark are searchable on the platform, potentially exposing them to a much larger audience than the user's followers. For example, a search of #Fukushima would bring up all tweets with that hash tag.

[30] The website, no longer up to date, provided radiation data collected by volunteers at more than 600 000 points. One drawback was that the accuracy of readings could not be established. It will be interesting to see whether the two newspapers made any mention of in their coverage of Fukushima.

evacuation of Tokyo, a serious failure. Sandman is known for his advocacy of alarming speculation[31] in risk communication, where authorities need to acknowledge their uncertainties and guide people's fears about worst-case situations. He argues that the ability of the authorities to admit that "it's not actually as bad as we thought" after a worst-case scenario doesn't happen is a powerful trust builder. In Sandman's (2011) opinion, the Japanese government took the opposite approach, repeatedly providing reassuring speculation and then having to admit that things were worse than they had thought, causing confusion and fear.

At times, the government failed to provide any relevant risk information at all – such as when they neglected to warn Tokyo residents that their tap water would be temporarily contaminated. Water restrictions were only advised on the 23rd and 24th of March, when the water was already contaminated. Had they been notified in advance, residents could have stockpiled some tap water ahead of time. Sandman (2011) points out that despite the frequently cited fear of creating mass panic, there was little evidence of nuclear panic in the wake of Fukushima – mostly just scepticism and distrust.

Robertson and Pengilley (2012), however, differ, finding that the Japanese authorities' risk communication was satisfactory. In a short reflective paper on the challenges of risk assessment and communication in Japan in the first few weeks after the 2011 earthquake, they write from the perspective of expert radiation health advisors temporarily employed by the Australian embassy in Tokyo. They conclude that the official risk communication in Japan regarding Fukushima was sufficient, claiming that residents received the necessary information to protect themselves. However, it is not clear whether they are

[31] Sandman and Lanard's (2004) guidelines for risk communication include: not over-reassuring, erring on the alarming side, acknowledging uncertainty, legitimising people's fears and not aiming for zero fear, being honest and avoiding half-truths, apologising often for errors, deficiencies and misbehaviours, and being careful to avoid patronising or inappropriate risk comparisons, such as radiation doses measured in bananas.

referring to English-language or Japanese-language official communications, or both, nor is it clear whether they are assessing statements released by the Japanese government, foreign governments or TEPCO. Robertson and Pengilley (2012: 693) do criticise the use of Becquerels as a unit of radiation measurement as confusing, and, echoing Friedman's (2011) calls, highlight the need to convert radiation data into realistic figures for the public.

Turning again to existing analyses of newspaper coverage of Fukushima, Perko et al's (2011) media content analysis is one of the most significant pieces of literature for this study. Using a mixed method approach with elements of coding, discourse analysis and framing analysis, Perko et al (2011) examined the coverage of Fukushima in two leading Belgian newspapers, *De Standaard* and *Le Soir* for a period of two months from the first day of the accident. Their research thus serves as a structural guide for this study, as will be shown in more detail in the next chapter (Cf. page 102-103). It also provides several useful insights. The purpose of Perko et al's (2011) study was to assess the newspapers' possible influence on public opinion about nuclear energy in Belgium in the wake of Fukushima. As part of their analysis, Perko et al (2011: 59) counted emotive words like panic, apocalypse, distrust, danger, victim, solidarity, compassion, blame, chaos and dread in the articles. They identified five keywords that were used in a quarter of all articles: Chernobyl, nuclear accident, nuclear disaster, danger and dread. They found that keywords with positive connotations were hardly used at all. However, they found that most articles were relatively neutral, providing factual information and in-depth analyses of events at Fukushima and their consequences. The articles included quotes from emergency actors and local residents. The key insights from Perko et al's (2011) study are as follows:

- Only 8% of the total articles were about the earthquake and tsunamis.
- The nuclear accident itself was of secondary importance to the consequences thereof in the articles.

- Environmental contamination was the most reported topic, followed by emergency management issues, including access to and censorship of public information. The topic of the future of nuclear energy was also highly present.
- Contamination of inhabited areas remained a newsworthy topic for the duration of the study.
- Psychological consequences of the accident were an important topic.
- Six weeks after the accident, the media didn't discuss protective actions related to food anymore.
- In the seventh week after the accident, which marked the 25th anniversary of Chernobyl, articles addressing recovery and evaluation of nuclear issues peaked. There was also much reference and comparison to Chernobyl.
- Chernobyl was also referred to before the above period, despite the accident having very different characteristics to Fukushima.
- In the first week after the accident, the most presented information source was the Japanese government (45% of sources). TEPCO was also an important source.
- In the sixth week, TEPCO became the most important information source, quoted in 56% of the articles.
- Action groups also had a strong voice in the reports.
- After the sixth week, local residents vanished from reports as information sources. Opinion-makers received more space.
- The orientation of the articles toward nuclear energy was mostly neutral. However, *De Standaard* was slightly more positive about it.

While an examination of whether the above findings were also true of *The Daily Yomiuri* and *The Japan Times* falls beyond the scope of this study, they will be used as part of the analysis guidelines.

In a separate paper, Perko (2011: 392) outlines a list of questions that need to be addressed by risk communicators (usually via media) in the early phase communications of a nuclear emergency. Together with Friedman's (1987) radiation data requirements, these will be considered in the analysis of the two Japanese newspapers:

- How does the radiation spread?
- How far can the radiation travel?
- Will it contaminate the water and food?
- How long will the contamination last?
- How much radiation is "safe"?
- How are radiation levels determined?
- How are radiation levels monitored?
- What are the symptoms of exposure?
- What can individuals do to protect themselves?
- What are the long and short-term effects of contamination?
- How will sick and injured people be treated?
- What is the likelihood of becoming contaminated?
- What are the sources of information?
- Where can I get more information?

Perko (2011) hopes that by following these and other guidelines for risk communication, authorities will learn not to repeat the communication missteps of previous nuclear accidents.

Tollefson's (2013) analysis of the *The Daily Yomiuri* was the most relevant current literature available at the time of writing this dissertation and warrants

substantial consideration. Using techniques of critical discourse analysis to examine the newspaper's coverage of the Fukushima crisis for a period of 11 months from the day it began, Tollefson (2013: 1) identifies 11 main methods, which will be taken into consideration in my own critical analysis, whereby *The Daily Yomiuri* "discursively mitigates the risks from Fukushima and calls Japanese national identity into the service of the nuclear industry". While Tollefson's focus on "technoscience" (explained below) and identity is far removed from my own, his work nonetheless offers invaluable insight into *The Daily Yomiuri's* reporting on Fukushima, as well as the relationship of media, discourse and power in Japan.

Tollefson's (2013) findings indicate a bias towards both the Japanese government and TEPCO in the newspaper's coverage of the nuclear crisis. He notes, "through selective use of nuclear insiders as sources, the newspaper articulates the interests of the nuclear industry while positioning itself as an objective transmitter of information, working on behalf of concerned citizen-readers" (Tollefson, 2013: 15). Chan (2013) also finds *The Daily Yomiuri* to be biased, keeping its editorials in line with official, national narratives and discourses. Like Tollefson (2013), Chan (2013) examines the discursive construction and reproduction of national identity, but his study does not involve Fukushima; it looks at a small number of editorials in *The Daily Yomiuri* and the English-language Chinese newspaper *The China Daily* concerning a diplomatically tense territorial dispute between Japan and China,[32] and is thus of limited relevance here.

Similarly, Tan and Zhen (2009) find *The Daily Yomiuri* to be sympathetic towards the Japanese government in its coverage of statesmen's visits to the

[32] The trigger of the dispute was the collision of a Chinese fishing vessel with a Japanese coastguard vessel in the territorially disputed Senkaku/Diaoyu Island area of the East China Sea. Both newspapers took overtly political stances in their editorials, each supporting their own country and positioning the other as such.

controversial Yasukuni Shrine;[33] with the newspaper focused on mitigating international backlash and appeasing public concerns. However, they point out that the newspaper was not wholly uncritical of the issue. This is consistent with their view of the media serving not as a passive transmitter of state ideology, but an “active and autonomous propagator”.

As background to his analysis, Tollefson (2013: 2-3) looks at the history and status of *The Daily Yomiuri*, noting that: the owner from 1924 until the 1960s was Shoriki Matsutaro, the first president of Japan’s Atomic Energy Commission, a proponent of the nuclear industry and one of the founders of the Liberal Democratic Party (LDP)[34] - the party that has ruled Japan almost continuously since 1955 (with the exception of nine months in 1993-1994 and briefly again at the time of Fukushima); and the newspaper has, unsurprisingly, played a central role in promoting nuclear energy since the 1950s. However, Tollefson (2013: 3) also points out a limitation hindering the newspaper’s influence in that although it is “widely recognised” as being allied with the LDP and domestic nuclear industry, *The Daily Yomiuri’s* status as one of the most important newspapers in Japan depends on the maintenance of its reputation as a source of accurate and reliable news – constraining its ability to promote nuclear power.

Tollefson (2013: 2) explains that because of Japan’s long-standing reputation for advanced and reliable technology, the Fukushima nuclear accident was an unprecedented blow to the domestic nuclear industry, which had promised that such a situation could not happen. While the accidents at Three Mile Island and Chernobyl had worried many Japanese people, Japanese nuclear authorities had reassured them that such a situation would not be possible in Japan thanks

[33] A Shinto shrine in Tokyo where Japan’s war dead, including war criminals, are commemorated. Visits by Japanese prime ministers draw ire from Japan’s neighbouring countries.

[34] Which is commonly criticised as being neither liberal nor democratic (Gamble & Watanabe, 2004: 6).

to strong engineering skills, in-depth safety controls and excellent staff (Aldrich, 2012: 5). As a result, “the disaster disrupted the hegemonic ideology of ‘technoscience’ that positions official technical and scientific specialists and institutions as the dominant legitimate voice in policy debates about nuclear energy”. It has made people sceptical about information from government and corporate sources (Aldrich, 2012: 1). Tollefson (2013: 5) explains “technoscience” as the view of scientific and technological knowledge as socially constructed and historically situated, holding a hegemonic position since the mid-20th century. Cox (2013: 321) also comments that “the sciences acquired a kind of symbolic legitimacy, that is, a perceived authority or credibility as a source of knowledge”.

The ideology of “Technoscience”, says Tollefson (2013: 5), comprises three interrelated components, all of which he finds are visible in *The Daily Yomiuri’s* coverage of Fukushima: a hierarchy of information authority that delegitimises citizen’s opinions and concerns and legitimises those of state, industry and scientific “experts”; the representation of these “experts” as calm and rational in contrast to ordinary citizens, who are irrational and prone to panic; and technical jargon that limits public understanding.

Tollefson (2013: 7-9), furthermore, shows how the newspaper uses six techniques to downplay the risk of radioactive contamination: representing radiation as isolated and highly localised; representing radiation as posing no immediate threat to health; normalising radiation as part of everyday life; decontextualising technical information, directing attention to peripheral issues and using positive spin (for example, where a survey showed that 42% of Fukushima residents had been exposed to radiation beyond the government limit of 1 millisievert, inverting the information to focus on the 58% who had been exposed to less than a millisievert); using scientific information in a highly selective or inaccurate manner; and delegitimising concerns about the risks from radiation (for example by portraying worries about radiation as overblown or due to irrational panic). Tollefson (2013: 4) points out that almost all of the experts cited in articles about Fukushima support nuclear energy.

Additionally he finds that, in keeping with the idea that news discourses of the mass media emphasise the discourses of those in power, *The Daily Yomiuri* reflects the interests of the multi-faceted nuclear industry, reconstructing Japanese national identity in ways that "delegitimize opposition to nuclear energy, by representing such opposition as fundamentally 'not Japanese'". Kasperson et al (2013: 257) note that referring to a strong social value in risk communications might increase the receivers' tolerance for weak evidence. How do they do this? Tollefson (2013: 9-10) identifies five techniques, explained in the section below. These seem to reflect the five modes whereby ideology is imposed on society, identified by John B. Thompson (1990: 60-66): legitimation of dominant groups and power relations; dissimulation, where domination is obscured or denied; unification (particularly visible in the newspaper's reconstruction of Japanese national identity); fragmentation (like the Japanese-Other distinction); and reification, where power relations are portrayed as natural and obvious.

The first technique employed by *The Daily Yomiuri*, according to Tollefson (2013: 10) involves reconstructing the hierarchy of information authority, where the newspaper's articles counter independent news sources by recommending readers defer to technical experts and the Japanese government[35] because it is seen as difficult for readers to make their own accurate assessments. It can be argued that this positions the public as irrational and incompetent. The second technique involves delegitimising foreign media (perceived as challengers to the hierarchy of authority due to their criticisms of Japanese radiation data, evacuations and Japanese reports of events at the nuclear power plant); *The Daily Yomiuri*, like *The Japan Times*, published multiple articles lambasting and undermining foreign media coverage of the crisis (Tollefson, 2013: 11). The third technique is the delegitimisation of independent protective and cautionary actions by Japanese citizens; for example concerned parents who requested

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[35] Tollefson (2013: 10) notes that the urging of residents of Japan to rely on authorities for information is in fact a common theme in newspapers in Japan.

that their children be exempt from mandatory lunches provided by the schools due to concerns about radiation levels in the ingredients were portrayed as egotistical troublemakers (Tollefson, 2013: 11-12). Delegitimising non-Japanese people who left the country comprised the fourth technique; their departures were depicted as selfish, senseless abandonment of Japan, and discriminatory catch-phrases[36] proliferated (Tollefson, 2013: 12). Finally, the fifth technique involves the interpellative (Glapka, 2014: 22) articulation of "uniquely Japanese qualities" in response to the crisis by very strongly encouraging all Japanese people to stand in solidarity with and support the Tohoku region. For example, readers were urged to buy produce from Fukushima and surrounds, visit the disaster areas on holiday, and consider what it means to be a good Japanese citizen in times of crisis – which included being kind, supportive, and submissive to authority (Tollefson, 2013: 12). Tollefson (2013: 13) emphasises that this representation of Japanese national identity in *The Daily Yomiuri* is sharply contrasted with that of "others" who "fled" the country. Van Dijk (1998b: 33) identifies positive in-group description (in this case, the Japanese people) and negative out-group description like the above (the fleeing foreigner, and also foreign media) as highly problematic Us-Them polarisation.

He (Tollefson, 2013: 12) also comments on how the situation at Fukushima is described throughout the newspaper neutrally, as a mere "problem", and observes (2013: 14) that it has been discursively transformed from a failure and crisis into an opportunity and new source of pride in the country and its nuclear technology.

Despite the worrying implications of his findings for media independence and democracy, Tollefson (2013: 15) notes that "although *The Yomiuri* constructs a discourse that rationalises the government's pro-nuclear policy, it has not convinced the majority of the Japanese people that nuclear energy is safe",[37]

[36] One example was the word "flyjin", a play on the derogatory term "gaijin", meaning foreigner.

[37] 2012 polls showed that 70% of Japanese people wanted nuclear power reduced or eliminated (Tollefson, 2013: 15).

underlining the limitation, articulated in a different context by Friedman (2011: 55) above, of *The Daily Yomiuri's* influence in the context of the existence of other discourses in other media, particularly new media. However, Tollefson (2013: 15) comments that *The Daily Yomiuri*'s reconstruction of the ideology of technoscience needs to be read in the context of "a discursive regime that delegitimises citizens' independent discursive practices". He argues that this is problematically rationalised "within discourses of Japanese national identity that constrain citizens' opposition to official policies". Tollefson (2013: 15) explains how studies show that Japanese citizens' voices are generally excluded from coverage of policy debates and dialogue – and it is in this, in the nuclear context, that the *Daily Yomiuri* was successful, he says.

Tollefson (2013: 15) concludes with a call for further research into *The Daily Yomiuri,* its Japanese version *The Yomiuri*, and other media in Japan. A possible minor criticism remains to be made of his study; while his methodology seems sound, there is some evidence of anti-nuclear bias in his paper, and it is worth noting that some of his scientific references could perhaps be better substantiated.

In the above section I have discussed at length the relevant existing literature on the communication and coverage of the Fukushima nuclear crisis, showing how the studies are applicable to this dissertation and offering criticisms of their limitations. These works will be drawn on again in later chapters.

2.7 Conclusion

This chapter began with an overview of the role and influence of the mass media in society, discussing concepts like agenda setting and framing - key ideas in any critical media analysis – and situating them within a social constructivist view of reality, power and dominance. Risk and risk communication theory was explored insomuch as it falls within the scope of this dissertation; the role and influence of the media in crisis and disaster communication (both forms of risk communication) was also considered. Next, I presented both a background to and critical views of the Japanese media

industry, focusing on the culture of *kisha* clubs and the problems thereof. An examination of discursive studies on the coverage of Three Mile Island and Chernobyl followed, with a brief look at the history of nuclear reporting. Finally, I presented and discussed specific studies on the Fukushima crisis, communication and coverage thereof – all of which lend insight to my own study.

The literature reviewed in the six sections of this chapter represents the sum of several extensive searches of libraries and databases between 2012-2016. Although the studies, covering a broad range of concepts and issues in the discipline of communication, together constitute a framework in which to conduct the research of this dissertation, the limited number of them illustrates the dearth of English-language research into the Japanese media. This in turn shows the potential of this dissertation to help fill the gap in an important area of global communication research.

In the following chapter, I explain the combination of methods used in my analysis of the newspaper articles, providing a brief overview of literature relevant to media content analysis, and a more detailed discussion of critical discourse analysis.

CHAPTER 3: METHODOLOGY

As outlined in the introduction chapter, this study uses a mixed method approach to answer the core research question. For the sake of clarity, this question is restated below:

> Did the coverage of the Fukushima crisis in the two major English-language newspapers in Japan reflect the reassurance and opacity that characterised the communication of the Japanese government and TEPCO, or was it “alarmist”, fuelling fear? Alternatively, could it be said to have occupied a relatively balanced middle ground? What are the implications of the answer?

The research method is a media content analysis with both quantitative and qualitative elements, a combination of coding and critical discourse analysis techniques. In this chapter, I detail the methodology; beginning by discussing the basic tenets, benefits and limitations of content analysis (with a focus on quantitative coding) and critical discourse analysis[1], before presenting a brief overview of media studies that have successfully employed similar mixed method approaches. I then provide a profile of the publications under focus, *The Japan Times* and *The Japan News* (*The Daily Yomiuri*), so that the reader has greater insight into their background, size and structure. Finally, I explain the specific methodological processes of this particular study and consider its limitations.

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[1] In the interests of structural flow and cohesion, an in-depth discussion of critical discourse analysis was deliberately omitted from the previous chapter and will be covered in detail in this one.

3.1 Media content analysis: an overview

A consideration of the broad methodological approach of media content analysis is a useful starting point from which to discuss related terminology. Jim Macnamara (2005: 1) describes media content analysis as a well-established research methodology; one that has been increasing in popularity in communication studies over the past 30 years. Media content analysis was for a long time (and in some cases, still is) seen as a strictly quantitative method, where quantitative research, as explained in Chapter 1, seeks to answer “what” questions through relatively objective techniques like data coding (Julien, 2008: 120-121). Qualitative research, on the other hand, is useful for answering “why” questions; in the case of qualitative content analysis this is done through a close, but more subjective, reading and interpretation of texts (Julien, 2008: 120-121).[2] As will be shown below, while there may be disagreement around the classification of studies, it is now largely accepted that media content analysis can comprise both quantitative and qualitative aspects.

Weber (1990: 9) explains content analysis simply as “a research method that uses a set of procedures to make valid inferences from text”. While this definition is non-specific and Weber (1990) does advocate combining quantitative and qualitative methods, he tends to emphasise the use of coding – typically a quantitative technique. Neuendorf (2002: 41) is less ambiguous in his categorisation of media content analysis as quantitative, not qualitative, research and argues that qualitative dimensions are better categorised as semiotic, discourse or rhetorical analysis, or something similar. However, he too believes that the techniques can be integrated. Hofstee (2006: 124) notes that

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[2] In general, quantitative research, which has roots in the natural sciences, is focused on numbers and statistics, while qualitative research, which has roots in the social sciences, is focused on observations and impressions (Myers, 2009: 8). A more in-depth discussion of the differences between qualitative and quantitative research, and debates thereon, is beyond the scope of this study.

some forms of content analysis rely on a combination of qualitative and quantitative methods.

As Julien (2008: 120-121) points out, qualitative approaches can be useful for identifying conscious and unconscious messages in texts. Macnamara (2005: 5) similarly sees a qualitative dimension as being a necessary part of a complete media content analysis, in order to elucidate hidden meanings and potentially problematic effects of texts. Or, as Wodak and Busch (2004: 107) put it, rather than elucidating hidden meanings (a description that evidences an old, static understanding of readers and meaning construction), qualitative techniques are needed to “identify and analyse discursive strategies, argumentation schemes and means of realisation”. While quantitative analysis may produce sets of objective, reliable data, its primary limitation is its failure to evaluate non-obvious aspects of texts mentioned above. Qualitative methods fill this gap.

Wodak and Busch (2004: 105) confirm the increasing popularity of applying qualitative methods to media studies, a departure from the strict and limiting quantitative-only approach of the initial content analyses. They note that this trend reflects a shift in understanding of audiences from decoders of fixed meanings to readers - active negotiators of meaning (2004: 106), as discussed, with reference to Hall’s (1980) reception theory, in the previous chapter (Cf. page 34). They highlight the success of combined approaches in study areas as diverse as feminism, racism and violence. Specific examples of successful combined approaches include the news analysis work of the Glasgow Media Group (1980) and Van Dijk (1998c).

Taking a slightly different angle, Page (2003: 24) demonstrates how qualitative-only strategies can be used in content analysis, with her research focusing exclusively on *how* issues are represented in the media. In her study of the coverage of HIV/AIDS in Zimbabwean newspapers, she (Page, 2003: 25) foregoes a quantitative component entirely, using a combination of qualitative techniques, including critical discourse analysis, to examine themes, framing

and bias in articles. Her approach highlights the diversity of methods that can now be used acceptably under the umbrella term of media content analysis.

3.2 Media content analysis: quantitative aspects

Unlike Page's (2003) research, my media content analysis does include a quantitative component. As such, a more detailed consideration of the use of relevant quantitative techniques, specifically coding, is warranted. Macnamara (2005: 14) notes that quantitative and qualitative analyses of content can to some extent be performed simultaneously, but there is no clear-cut method to do this. As a first step, he (Macnamara, 2005: 9) suggests an initial exploratory examination of a sample of the media articles and then the creation of a coding scheme. Benaquisto (2008: 85) explains the coding process as the steps taken to identify, label and arrange key concepts and categories in the data. A coding scheme, or frame, contains the criteria for this process. In quantitative approaches, the coding scheme is generally set out before analysing the data. In contrast, qualitative approaches tend to develop the coding scheme over the course of the analysis. This study uses a pre-determined coding framework, which is detailed later.

Macnamara (2005: 9) favours the creation of a quantitative-style coding list that sets out all of the words or phrases to be researched (with both positive and negative versions included to ensure balance), as well as topics, categories of issues and sources. He (Macnamara, 2005: 10) emphasises the importance of using two or more coders to ensure reliability of results. The assessment of 50 articles each is considered acceptable as a minimum for each coder. Perko et al (2011: 17) take a similarly structured, quantitative approach to coding, cautioning coders to focus only on what is written in the articles and not draw on their own prior experiences and emotional responses to the stories, as this could threaten the validity of the data. However, while coding for media content analyses, it is common to take notes on insights, patterns, and other observations. This practice is called "memoing" (Benaquisto, 2008: 86) and was performed in this study.

Memoing lends itself well to the qualitative components of a mixed method content analysis; the initial quantitative coding can serve as a convenient first step from which to begin deeper, critical analysis of the media texts. Macnamara (2005: 16-17) recommends careful examination of the use of pronouns, adjectives, metaphors and similes, whether verbs are active or passive, the viewpoint of narrator, overall tone, and binaries in the media texts. This part of the analysis generally uses qualitative techniques, of which critical discourse analysis is a particularly useful one.

Macnamara (2005: 10) also identifies several variables that need to be considered for best practice in any kind of media content analysis. These are: the importance of the publications, the prominence of the articles (which was not possible to check in this study due to reliance on databases to retrieve the newspaper articles), the positioning of information within articles, the type and dominance of sources, and the length of articles. All of these points are also relevant in critical discourse analysis, as will be shown in the following sub-section.

3.3 Critical discourse analysis: an overview

"Another world is possible. It is the point of CDA to show how discourse conceals this from us, normalising inequalities and closing down the possibility of change," (Richardson, 2007: 45).

To Perko et al (2011: 16), discourse analysis, the wider field of which critical discourse analysis forms a part, can, like content analysis, be difficult to define in concrete terms. Perko et al (2011: 16) believe that the two methods overlap. For them, the main difference is that discourse analysis is more qualitative, while content analysis is quantitative. As explained above, this reflects an outdated, restrictive understanding of content analysis; rather than overlapping, content analysis may in part comprise discourse analysis. However, Perko et al (2011: 16) are right in that discourse analysis evades easy definition.

As Philo (2007: 102) notes, the body of literature on discourse analysis is extensive, with multiple theoretical strands. The word "discourse" itself is used

in many different ways, in broad and narrow senses. Wodak and Meyer (2009: 3) point out that discourse can refer to narratives, speeches, talk, text, policy, historical monuments, and language itself, among many more interpretations.[3]

As discussed earlier, it is theorised that discourse shapes the way we think about ourselves and society. Wodak (2012: 216) writes that language choice is an integral part of identity construction and presentation, and Wodak and Busch (2004: 108) explain that discourse is viewed (by critical discourse analysts, anyway)[4] as "socially constitutive as well as socially conditioned", defining situations, social identities and relationships. Richardson (2007: 10) says the same thing when he says that language is both shaped by society and shapes society. Hall (1980: 131) writes that "reality exists outside language, but it is constantly mediated by and through language", with the extent of what humans can know and say limited by discourse.

The researcher Philo (2007: 105) notes that "in Foucault's work, discourse is a social force which has a central role in what is constructed as 'real' and therefore what is possible," and "discourse is thus crucial in explaining how the social subject is positioned and limited". Tonario (2011: 186) also points to the significance of discourse as part of one's identity construction within society; discourse controls and organises what can be talked about, in what way, and with whom. Through repetition, discourse comes to shape reality (Tonario, 2011: 187). Glapka (2014: 11) agrees, writing that although we have self-determination ability and agency in our power to resist discursive constructions, our thoughts and actions are often shaped by available social discourses.

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[3] As mentioned in the introduction chapter, for the purpose of clarity, this study uses an understanding of discourse as being both the superficial text of the newspaper articles and the quotes contained therein, as well as the deeper narratives (which may include evidence of social forces and power) within these texts.

[4] Weninger (2008: 145) writes that in the field of critical discourse analysis, discourse is considered central in the construction of social reality; "most critical discourse analysis research operates within a moderate version of social constructivism".

This socially constructive (and constructed) effect of discourse can be problematic. Wodak and Busch (2004: 109) explain that discourse can help to produce and maintain “unequal power relations” through the ways in which people and events are represented. Van Dijk (2001: 355) argues that discourse influences people’s thoughts and actions, and the groups who control the most influential discourse have more impact than others in society (one might think of government and powerful industries here).

Encarnacion Tenorio (2011: 188) refers to the Gramscian (1971) notion of hegemony to illustrate how societal power and domination can result not only through direct repressive coercion, oppression and exploitation, but also through discursive persuasion leading to consensus and complicity. Glapka (2014: 25), also citing Gramsci (1971), describes hegemony as “not simply ‘domination’ but the ability to win the approval of a given ideology by impressing its ‘commonsensicality’”. It is worth bearing in mind Gamson et al’s (1992: 381) caution against understanding hegemony in terms of stark binaries; one dominant ideology and suppressed others. Rather, they urge us to see multiple powerful ideologies existing in a state of constant struggle and flux, with the dominantly positioned ones changing over time.

Van Dijk (2001: 357) finds that readers “tend to accept beliefs, knowledge and opinions (unless they are inconsistent with their personal beliefs and experiences) through discourse from what they see as authoritative, trustworthy or credible sources, such as scholars, experts, professionals, or reliable media. He (Van Dijk, 1998a) points out that readers may not have alternative discourses to turn to for other views,[5] or may not have the knowledge and beliefs needed to challenge the problematic discourses.

[5] Although in this era of social media and rapid sharing of news and information, it seems unlikely that people would not have access to alternative discourses, unless the media in their region were subject to censorship. In areas where this is not the case, perceived trustworthiness of media may be the central issue.

It is in this context, where discourse is understood to be socially influential (and influenced), and potentially problematically so, that critical discourse analysis has come to play a useful role.[6] Critical discourse analysis is distinguished from discourse analysis in one key way; the former is based on the understanding that discourse is linked to power and social interests (Philo, 2007: 104) and thus focuses on exposing hidden problematic power relationships (Wodak and Meyer, 2009: 15). While discourse analysis may focus on linguistic elements, critical discourse analysis focuses on them within a greater social context. Wodak and Busch (2004: 108) confirm that critical discourse analysis "takes a particular interest in the relationship between language and power" and examines language as social practice, with consideration of the context crucial. Philo (2007: 116, 120) emphasises the latter point, underlining the need to consider the production and reception, as well as the structures and relationships that influence the content, of a text under analysis in order to fully understand its construction and meaning.

Van Dijk (2001: 352) summarises critical discourse analysis as "a type of discourse analytical research that primarily studies the way social power abuse, dominance, and inequality are enacted, reproduced, and resisted by text and talk in the social and political context". Keywords commonly found in critical discourse analysis studies are: power, dominance, hegemony, ideology, class, gender, race, discrimination, interests, institutions and social structures (Van Dijk, 2001: 353).

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[6] In terms of history, Wodak and Busch (2004: 108) trace the roots of critical discourse analysis in part to classical rhetoric and linguistics. Weninger (2008: 145) confirms that it is "a theoretical approach to studying the role of language in society that originated within linguistics but has found widespread application across the social sciences". It became known through the work of European linguists in the late 1980s, notably Norman Fairclough, Ruth Wodak and Teun van Dijk.

The focus on abuses of power and on dominance, where power operates against others' best interests or will (Van Dijk, 1998a), is the thread that connects critical discourse analyses despite the lack of a specific unitary theoretical framework and the multiple variations in practice (Van Dijk (2001: 353; Weninger, 2008: 145; Tenorio, 2011: 184; and Glapka, 2014: 8). Wodak (2013: xxvi-xxvii) agrees, arguing that the method's potential to effect positive social change is one of three interrelated understandings of the critical component thereof; the other two being self-reflection and criticism on the part of the researcher (that is, being critical of one's critical approach), and making implicit meanings explicit.

How, then, does critical discourse analysis do the above? Rather than merely stating patterns and surface-level textual features, critical discourse analysis provides in-depth interpretations of texts, taking contexts into account and always acknowledging that meaning is constructed in different ways by different consumers (Richardson, 2007: 15). Various analytical techniques may be used to study the texts, but in general the following points are considered: actors, mode, time, tense, argumentations, insinuations, logic, idioms, clichés, references (e.g. to the sciences) (Wodak & Meyer, 2009: 25). Not only what is present, but also what is not present – omissions – is considered (Richardson, 2007: 38). These are looked at in the critical analysis component of this study.

While all forms of mass media can and should be subjected to discursive analysis, Michael Chan (2013: 11) highlights the need for the critical discourse analysis of newspapers in particular, as they "project a façade of objectivity and inclusiveness … yet they also proliferate the dominant ideologies of the ruling elite", and it is important to investigate how they do so in order to effect positive social change. Such change is a step towards levelling the civic playing field through exposure of problematic societal power structures and better representation of dissenting views.

Richardson (2007: 47-71) provides extensive guidelines on focus points for a critical discourse analysis of newspaper articles specifically. On a textual level, these include:

- Lexical analysis (the first stage, examining the choice of words used).
- Naming, reference and predication (different descriptions of people, groups and events have difference effects; positive or negative qualities may be highlighted).
- Sentence construction – focusing on verb transitivity (whether active or passive forms have been used) and inclusion of removal of agency.
- Sentence construction – focusing on modality (the use of words like may, could, should, will, must, certainly, etc.).
- Presuppositions (assumptions and implicit claims).
- Hyperbole, metaphors and metonyms.
- Narrative (bearing in mind that newspapers generally use the inverted pyramid narrative structure, where the most important information is positioned at the top of the article).

He (Richardson, 2007: 58) cautions researchers to focus on each article as a whole, not sentence-by-sentence, as may be the case in other types of textual analysis. Richardson (2007: 19) notes that coding can be a useful way to organise some of the data, such as lexical choice, but if used, is only a starting point. Wodak and Meyer (2009: 24) say that in critical discourse analysis, data collection does not need to, and cannot, be completed before analysis begins; multiple readings are required and new questions will almost certainly arise during the process. At such times, new data can be collected.

In addition to the above guidelines, Richardson (2007: 222-224) lists the following points to consider as part of the critical discourse analysis:

- Where the information in the article comes from.

- How much power and influence the sources have.
- Whether direct or indirect quotations are used, and the potential effects thereof.
- The order of sources and whether contrastive words like “but” and “however” are used to undermine sources.
- How much power and influence the actors in the article have.
- Argumentative and persuasive techniques used.
- The relations between the text and systems like markets, ownership, advertising, government, the law and religious beliefs.
- Who is othered by the reporting, if anyone.
- What the possible social consequences of the article may be.
- Who benefits and who may be harmed by the article.
- The length of the article.

Other scholars also provide useful considerations for performing critical discourse analysis. Wodak and Busch (2004: 112-113), for example, highlight the importance of paying extra attention to headlines in newspaper analyses; they note that Us - Them binaries and Othering is often identifiable in headlines through the use of active and passive verbs and naming or anonymity of actors. To this idea, Van Dijk (2001: 358) adds that the way of expressing a topic in a headline influences how it will be defined in the minds of readers. Page (2003: 31), likewise, emphasises the importance of headlines and lead sentences in news articles, as they summarise and convey the most important information. Van Dijk (1995: 14) cautions that the prominence and thus emphasis of information in a news report requires consideration in its totality, as the manipulation thereof may influence readers’ understanding of the news event.

Tenorio (2011: 193) points out how critical discourse analysis has been influenced by Halliday's Systemic Functional Grammar theory, and variations thereof. In this understanding of language, different lexical descriptions are thought of as evoking different realities, like the biosolids versus sewage sludge distinction mentioned in Chapter 2 (Cf. page 26). Alexander (2009: 18) notes that the renaming of issues, which happens frequently in the media, is a form of image management that may distract public attention from their severity or impact. Alexander (2009: 20-21) uses the term "linguistic engineering" to refer to this practice, as well as the manipulation of agency, citing the deletion of agents in articles on nuclear waste management as an example.

Weninger (2008: 147) also speaks of the importance of examining the agency or salience of people and events in texts. In addition he urges researchers to be alert to the use of euphemisms in texts. Van Dijk (2001: 359) similarly writes of how responsibility may be de-emphasised by "defocusing" in texts – that is, through the use of passive constructions and nominalisations. Tenorio (2011: 203) explains nominalisation as being a way of making something or someone abstract, thereby lessening its salience or agency and effectively removing responsibility. For example, using the phrase "the death of" instead of "X was killed" in news articles. Tenorio (2011: 189) notes that the use of passive constructions and nominalisations has been the focus of many critical discourse analysis studies.

Theo van Leeuwen (2013a: 291-292) further underlines the importance of the concept of agency in critical discourse analysis, noting that it is not always effected directly through use of active or passive verbs, but also through possessive pronouns such as "our" and "their" and prepositional phrases like "from". He (Van Leeuwen, 2013a: 297-298) also points out the difference between suppression and backgrounding in media texts; in the case of the former there is no reference to the event or person in question at all, and this is often realised through passive deletion of the agent or nominalisations. With backgrounding, the person or event is mentioned, but deemphasised.

While it is useful to keep these features in mind during analysis, Van Leeuwen (2013a: 299) cautions against examining such features in isolation; it is essential to consider the text as a whole to see the bigger picture and patterns therein. In addition to the above points, Van Leeuwen (2013a: 303-304) suggests researchers consider whether the social actors in the articles are referred to generically or as specific individuals. He (Van Leeuwen, 2013b: 327-328) also highlights the use of legitimation (of ideas, actions, systems, etc.) as a technique or effect in discourse. Van Leeuwen (2013b: 327-328) identifies the four main ways in which it happens as: referencing the authority of tradition, custom, law, people; referencing common morals or ethics; referencing societal goals; and mythopoesis, where narratives seem to reward the actions being legitimated and punish those depicted as not. Techniques of legitimation will be addressed in Chapter 5 and 6.

Additionally, Philo (2007: 109) emphasises the importance of distinguishing statements simply reported by journalists as being from a specific source and those they actively endorse through their descriptions. Finally, Plough and Krimsky (1987: 7) remind researchers to consider the use of technical phrases or jargon, noting that, "casting the issues in a technical language reduces the possibility of a dialogue between the public and elites". These points will also be referred to in Chapter 5 and 6.

3.4 Critical discourse analysis: concerns and credibility

While critical discourse analysis is, as has been shown above, a recognised, valuable method for in-depth analysis of texts, it is not without its limitations. Weninger (2008: 147) points out that every text contains multiple discourse structures that could potentially be analysed; thus, a complete analysis is impossible. Other criticisms mentioned by Weninger (2008: 147) include the possibility of bias on the part of the researcher, as well as a lack of real consideration of readers resisting or subverting problematic discourse. Glapka (2014: 14) adds that critical discourse analysis studies are often criticised on three other points: for lacking consistency in their methodologies, providing

insufficient language analysis, and having subjective, unverifiable results. Stubbs (1997: 1), Tenorio (2011: 195) and Macnamara (2005: 5) confirm this last point. It is important to bear in mind that any text is open to different interpretations, and therefore analyses thereof are too. However, one way of reducing ambiguity is by using multiple methods of data collection (Glapka, 2014: 16) and using comparative and quantitative methods (Stubbs, 1997), which I have done in this study through the inclusion of quantitative coding of two different newspapers.

Another often-cited argument against critical discourse analysis is how it could become institutionalised and could, in an ironic twist, itself become a dominant discourse (Tenorio, 2011: 195). Additionally, despite its emphasis on social change, critical discourse analysis has been charged with lacking practical solutions for social change, as well as limited in its audience – with studies being read by other critical discourse analysis researchers rather than the general public (Tenorio, 2011: 206). However, Alexander (2009: 17) counters this argument with the observation that the results of critical discourse analysis studies, while limited to academic realms in the short-term, may have a positive impact outside the academic world in the long-term. Furthermore, other types of studies also arguably have limited audiences.

The overt political nature of critical discourse analysis, due to its focus on uncovering patterns of social inequality and injustice, has also been subject to criticism from those who believe that politics should be kept out of academic studies. In response to this, Richardson (2007: 2) points out how all research has socio-political dimensions and research that attempts to be neutral does not only not solve social problems; it may contribute to the perpetuation thereof. Related to this, and returning to the fear of researcher bias mentioned above (Weninger, 2008: 147), it should be noted that it is impossible to be absolutely objective in any kind of analytical research (Macnamara, 2005: 2; Wodak & Meyer, 2009: 30), and qualitative research strives for trustworthiness and validity more than complete objectivity.

As Page (2003: 8) notes, a researcher's interpretation of texts is susceptible to influence by their environment, socio-historical context and personal experiences. It is thus necessary to declare personal details that may be relevant. With that in mind, it should be noted that I am a young white South African woman who spent several years working as an English instructor and editor in Tokyo. The newspaper articles in this study were collected and analysed while I was living in Tokyo.

In the above two sections, I have discussed the distinguishing characteristics and aims of critical discourse analysis as a qualitative research method, highlighting its focus on the role of discourse in society and how this relates to social activism. I have also outlined the main criticisms and limitations of critical discourse analysis, as well as defences thereof. In addition, I have presented the key points that critical discourse analysis researchers consider when examining texts; these informed my own analytical approach to the newspaper articles that are the focus of this study. In the next section, I briefly review several media studies that similarly used mixed method approaches to content analysis; these research examples helped structure the methodological framework of my study.

3.5 Examples of mixed method research

The following studies were influential in the design of the methodology for this dissertation; as a result, I will provide a basic overview of their methods. The findings of the major studies (Tollefson, 2013; Perko et al, 2011; Kim & Bie, 2013) have already been discussed in Chapter 2 and will not be dealt with again here. The studies below are presented in ascending order of relevance.

Firstly, Page's (2003: 34) study on the coverage of HIV/AIDS in four Zimbabwean newspapers involved, as mentioned earlier, a content analysis using mixed qualitative methods. Page collected all of the news articles containing the words HIV or AIDS over a period of nine months, resulting in a total of 396 articles. She states that she read each article carefully, then re-read

them to identify themes. While doing this, she examined the use of quotes and the information sources in the articles. For this initial part of the analysis, she used a simple paper coding system (without, it seems, a specified coding list). The results of this textual analysis provided the starting point for the critical discourse analysis component of her study, wherein she examined the use of descriptive language and metaphors in the articles to identify possible issues of power and discrimination. I use a similar approach in my analysis.

Secondly, Kim and Bie's (2013) research on the coverage of the radiation effects of the Fukushima crisis in leading American newspapers involved a combination of quantitative content analysis and qualitative framing analysis. Their study (Kim & Bie, 2013: 185) was guided by the following research questions:

> Question set 1: What kind of information was provided on the effects of radiation? Were there differences between the coverage of Fukushima and that of previous nuclear accidents in terms of the amount of factual and explanatory information provided?
>
> Question set 2: What was the tone of the coverage of the radiation effects? Was it predominantly alarming, neutral or reassuring? Were there differences in tone between the coverage of Fukushima and previous nuclear accidents?

A further question looked at the specific frames that were used in the coverage of Fukushima.

To begin, Kim and Bie (2013: 185-187) used online databases to collect all articles from *The New York Times*, *The Wall Street Journal* and *USA Today* containing the words "Fukushima" and "radiation" or "radioactivity". They restricted their range to a seven-month period starting from three days after the earthquake. After excluding articles focused on the recovery process[7] and duplicates, 277 articles remained. These were all coded to identify whether the

[7] These are not necessarily irrelevant; they probably should have been considered, at least in brief, as many articles covered multiple topics related to the earthquake.

radiation information provided was numerical or not (and whether the former included further explanatory information or not), and what the overall tone was (alarming, reassuring or neutral).

In addition, a sample of 60 articles was analysed to determine the frames used. As mentioned in Chapter 2, it seems that the overall analysis lacked depth, and while the basic structure has been useful to consider in the development of the methodology for my study, it should be noted that Kim and Bie's (2013) research paper has not been a particularly strong influence.

Lazic's (2013) content analysis similarly examines coverage of Fukushima in *The New York Times*, *Los Angeles Times* and *USA Today*, but used a different mixed methodology. Her research questions were:

- What were the most commonly used frames in the reporting of Fukushima?
- Were there differences in framing and content among the three newspapers?
- What were journalists' experiences of the reporting?

To answer the questions, Lazic (2013) retrieved 549 news articles (including opinion pieces) from online databases, using the search terms "Japan", "Fukushima", "radiation or nuclear" and "accident or disaster", and a date range of nine months from the day of the earthquake. The articles were first coded to identify the main topics and then analysed to determine the frames used (which were conflict, human interest, economic consequences and responsibility).

More so than in the above two studies of American newspapers, Perko et al's (2011: 16-19) examination of the coverage of the Fukushima crisis in two Belgian newspapers, proved very helpful in the construction of the methodological framework for this study. While the findings will not be considered again here, it is pertinent to discuss the methods they employed. Their content analysis comprised a combination of discourse analysis (although not critical discourse analysis), framing analysis and quantitative coding typical

of traditional media content analysis. They sourced the articles in their study from an electronic database, using the search terms "Fukushima" and "nuclear" (in English, French and Dutch). The search initially brought up 378 articles; after exclusions due to lack of relevance or duplication, 260 remained.

Data collection centred around a comprehensive coding scheme; each article was assessed by two people and coded for meta data, type of article, narrative codes, issue codes, tendency of article, sources of information, primary or secondary importance, focus and numeracy. Perko et al checked whether Fukushima was the main focus of each article; where it was not (in 15% of the articles), they evaluated only the paragraph or sentence where Fukushima was mentioned. I do the same. In the meta-data, Perko et al looked at the location of the reporters, and also whether the articles were taken from press agencies[8] or not. As mentioned earlier, Perko et al (2011: 59) also measured the frequency of use of keywords and phrases like: panic, apocalypse, distrust, danger, victim, solidarity, compassion, assistance, blame, chaos and dread.[9]

Despite the use of mixed methods, the extensive reliance on pre-set coding makes Perko et al's (2011) study more quantitative than qualitative; closer to the traditional media content analysis described by Macnamara (2005). A large amount of data was generated; all of it presented in graph form, without much analysis.

Perko et al's (2011) coding system has been drawn on for guidance in creating the code list for this study. Although my focus is slightly different and my resources limited (I did not have two coders for each article), I nonetheless code the articles in *The Japan Times* and *The Japan News* for some of the same

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[8] Richardson (2007: 106) notes that where press agency reports are used, they are invariably edited first to fit the publication and one may thus find different versions in different publications.

[9] They identified five words and phrases used in a quarter of all of the articles: Chernobyl, nuclear accident, nuclear disaster, danger and dread.

areas to help answer my core research question as well as sub-questions, one of which involves assessing the differences between the coverage in the two newspapers. Such extensive coding has resulted in the generation of incidental, extra data that falls beyond the scope of my research questions; this is presented in the data chapters in the hope that it may prove useful for further research in the field.

Tollefson's (2013) study of issues of national identity and technoscience discourses in *The Daily Yomiuri* (*The Japan News*) was particularly useful because it relied on critical discourse analysis (and also used a small amount of coding, to identify key themes in the articles). Tollefson (2013: 6) performed a search on Lexis-Nexis Academic for the term "Fukushima" in *The Daily Yomiuri* from 11 March 2011 to 12 February 2012. This period overlaps with, but is longer than that of my study. Tollefson's initial search brought up 1488 articles, but as he was restricting his analysis to texts focused primarily on the nuclear disaster, he excluded texts focused on related issues such as earthquake and tsunami damage to Tohoku, the search for victims, and political or economic consequences of the natural disaster (as opposed to the nuclear disaster).

On the 280 articles that remained, Tollefson (2013) performed initial coding for key themes guided by the following (very broad) questions:

- How are the events at Fukushima represented?
- How is the representation of Fukushima discursively linked to the future of nuclear energy in Japan?
- Which actors are identified in the texts and how are they represented (positive, negative, neutral)?
- How is Japanese national identity discursively linked with these major actors and with the Fukushima crisis?

After this cursory analysis, he performed multiple readings and revisions of the themes until they could be organised into meaningful clusters.

The methodologies of the content analyses outlined above have, as has been established, helped shape the mixed method approach taken by this study. The precise aspects that have been drawn on are apparent in the section explaining at length the method employed from start to finish. Before coming to that, however, a more detailed consideration of the two newspapers under focus in this study is warranted. Profiling the publications is a useful way of gaining a better understanding of their structure, background and potential impact. Deep description is also part of qualitative analysis.

3.6 Newspaper profiles

3.6.1 The Japan Times

The Japan Times, founded in 1897, is Japan's oldest English-language newspaper. It is also the country's only independent English-language newspaper, published by The Japan Times, Ltd (The Japan Times: About Us, [sa]). The newspaper has changed names several times over the decades, but always remained a broadsheet. The Japan Times, Ltd also publishes *The Japan Times ST*, a bilingual weekly with tabloid overtones, which seems to be aimed at English language study and has, therefore, been excluded from this dissertation. In addition, as of 2013, there is *The Japan Times on Sunday*, a tabloid-sized newspaper. The original *Japan Times* is published every day from Monday to Saturday.

Since October 2013, *The Japan Times* has been printed and sold with *The International New York Times* as a single publication. The newspaper comprises two sections; first *The Japan Times* as usual, followed by *The International New York Times* which draws on 50 international news bureaus. ("The Japan Times/International New York Times" to launch … 2013). The merger has not affected this study, but it does speak to the elite status and

prominence of *The Japan Times*, positioning it with a highly regarded American newspaper.

The circulation of *The Japan Times*, as of October 2013,[10] was over 45 000 copies, with 62% delivered directly to homes (The Japan Times/International New York Times Media Information, 2014: 6). The newspaper can be purchased at selected bookstores, station kiosks and convenience stores in metropolitan areas. The circulation figure has increased from 2012, when it was quoted as being 41 000 copies (Rausch, 2012: 20). It is important to note that actual readership figures tend to be two to three times higher, with one copy of the newspaper being read by several people. 60% of the readership is male, 72% are non-Japanese (except on Mondays, when the ratio of Japanese to non-Japanese readers is roughly equal), and of the foreign readers, 50% come from Western countries. The average reader has a high income and high level of education (The Japan Times/International New York Times Media Information, 2014: 7-8). The website of *The Japan Times* is rapidly growing, averaging an impressive 8.3 million views per month as of April 2014 (The Japan Times/International New York Times Media Information, 2014: 14).

The Publisher and Chairman of *The Japan Times* is Toshiaki Ogasawara, who is also Chairman of Nifco, Inc – a plastic parts manufacturer, and Simmons Co.Ltd. He also serves on the advisory boards of Avon, General Electric, LucasVarity, Prudential and NIKE, as well as various government committees including the Japan Committee for Cultural and Educational Interchange, and The Ministry of Energy and Trade Initiative’s Global Industrial and Social Program Research Institute (The Japan Times: About Us, [sa]).

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[10] This, as well as the online data presented on the following page, was still the most up-to-date information as of October 2016.

3.6.2 The Japan News (The Daily Yomiuri)

The Daily Yomiuri was officially launched in 1955,[11] originally as a tabloid sister newspaper to the well-established Japanese-language *Yomiuri*. It evolved into a broadsheet in 1958. After undergoing multiple name changes over the years, it was renamed *The Japan News* in April 2013. The newspaper has official partnerships with *The Washington Post, Los Angeles Times*, and *The Times* in the United Kingdom. It is the only Japanese-language newspaper with an English version, albeit a non-identical one (The Japan News – the best … [sa]). It is published every day of the week, including Saturdays and Sundays.

The Japan News makes use of the *Yomiuri*'s expansive newsgathering network to cover domestic and foreign stories; but the English-language newspaper's aim is purportedly to provide reliable, up-to-date information about Japan to the world (The Japan News – the best … [sa]). This is a significantly different approach to that of *The Japan Times*, and will be taken into account in my analysis.

As of 2015, the circulation of *The Japan News* was over 24 000 copies, with 75% delivered directly to homes (The Japan News Media Data, 2015: 6-7). The actual readership figures are estimated to be 1.4 times higher. The circulation has decreased from the 2012 figure of 37 000 copies quoted in Bausch (2012: 20). 40% of *The Japan News* readership is foreign, and of those 70% are from North America, South America and Europe; 70% are male, and the average reader has a high income and high level of education (The Japan News Media Data, 2015: 6-7). The website currently receives 867 000 monthly page views (The Japan News Media Data, 2015: 14).

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[11] The newspaper had actually come into existence in 1946, under a different name and different ownership.

The Japanese-language *Yomiuri* newspaper was founded in 1874. Its daily circulation of 9 million copies (a combination of morning and evening editions) is the highest of any newspaper in the world (Newspaper Circulation in Japan …, 2014). It dwarves its domestic competitors. The *Yomiuri* and *Japan News* have a foothold in the Asia News Network as the organisation's only representatives of Japanese newspapers. The network has a presence in 22 Asian cities.

The *Yomiuri*, described as conservative, right-wing (in other words, conservative) and nationalistic with ties to the Liberal Democratic Party (Gaulene, 2010), is published by Yomiuri Shimbun Holdings, which also owns the Chuokuron-Shinsha publishing company, Nippon Television Network and the Yomiuri Giants baseball team. The company President is Hitoshi Uchiyama, who also serves as president of the Nihon Shimbun Kyokai (NSK) – The Japan Newspaper Publishers and Editors Association. There is little other information about him. The overarching parent company, The Yomiuri Group, Inc, is Japan's largest media conglomerate.

Tollefson (2013: 2-3) notes that the owner of Yomiuri Shimbun Holdings from 1924 to the 1960s was Shoriki Matsutaro, one of the founders of the Liberal Democratic Party. Shoriki was also the first president of Japan's Atomic Energy Commission and a proponent of the country's nuclear industry, helping to establish it. The Shoriki family still owns shares in the newspaper company (Gaulene, 2010), though not a controlling percentage.

The table on the following page summarises key facts and figures for *The Japan Times* and *The Daily Yomiuri*.

	The Japan Times	***The Japan News***
Price	180 yen	150 yen
Slogan	"All the news without fear or favour"	None
Frequency	Monday - Saturday	Every day
Year Founded	1897	1955
Headquarters	Minato, Tokyo	Otemachi, Tokyo
Number of Staff	160	2 500 (Yomiuri)
Circulation	45 620	24 681
Readership	127 700	34 500
Associated Publications	*The International New York Times*	*Yomiuri*, *The Washington Post, The Los Angeles Times, The Times.*

Figure 3.1: Basic comparison of *The Japan Times* and *The Japan News*.

The background information presented on the two newspapers is necessary for proper comprehension of the data presented in later chapters. Profiles of the publications focused on in media content analysis provide valuable contextual insight. Now that this has been established, I will detail the precise methodology I used in the collection and analysis of data.

3.7 Methodology used

One of the first steps in the study was retrieving articles from *The Japan Times* and *The Daily Yomiuri*, using the electronic LexisNexis Academic and Factiva databases respectively. A search was performed for all articles containing the term "Fukushima", using the date range March 11th, 2011 to May 12th, 2011. This brought up a total of 200 articles from *The Japan Times*, and 432 articles from *The Daily Yomiuri*. Following Perko et al's (2011) broad approach to exclusion criteria, duplicates and unrelated articles, for example about sports teams "having meltdowns", were removed. After this, 137 articles remained

from *The Japan Times;* 92 classified as being fully valid, and 45 classified as being partially valid (according to the criteria stipulated in the coding book attached as Appendix B). 247 articles remained from *The Daily Yomiuri*; 189 classified as being fully valid, and 58 classified as being partially valid.

After an initial reading of a random sample of 10 articles from each newspaper, the coding sheet and book were finalised, using criteria based on Perko (2011) and the other content analyses referenced in the literature review (Cf. Chapter 2). Thereafter, all of the articles were read and coded for the following: area focus; issue focus; keywords used;[12] units of measurement used for radiation data; radiation risk comparisons; focus of radiation risk coverage;[13] sources quoted; inclusion of direct criticism of TEPCO; inclusion of direct criticism of the Japanese government; inclusion of direct criticism of foreign media; inclusion of direct criticism of foreign governments. The following meta-data was also collected for each article: category (either news or opinion piece), validity (whether the Fukushima crisis was the main focus or only received a brief mention),[14] word count, location, whether the text originated from a press agency or not, and whether the writers were listed (refer to the coding sheet and book for detailed explanations of the codes).

Due to a lack of readily available coding software and my personal preferences, old-fashioned paper coding, where the coders hand-code everything while memoing, and then later enter the data into a computer, was used throughout. I

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[12] The keyword section was excluded from the inter-coder reliability calculations due to interpretation issues resulting from unclear instructions. However, the keywords are included and presented in the data of the following chapter.

[13] During the coding process, it became apparent that it would be very difficult to determine whether the risk portrayed could be called short or long-term because it was largely unspecified in the articles. As a result, it was decided that the short-term or long-term coding option should be excluded. The classification of the degree of risk, however, was retained.

[14] Following Perko et al's (2011) guidelines, articles with only a partial focus on Fukushima were still included in the study; in these cases only the relevant sentence or section was coded.

personally coded all of the articles. To confirm reliability, two outside coders were brought in and asked to code 50[15] articles each (the same articles, without knowledge of my coding results) after receiving training using the coding book. As an extra task, they were also asked to evaluate whether each of the coded articles was reassuring, alarming, or balanced and note their answers. This question was excluded from inter-coder reliability calculations, but given consideration during the critical discourse analysis process. All of the coding material was stored and can be made available upon request.

Inter-coder reliability was calculated using Krippendorff's Alpha, which has been proposed as the standard reliability measure for content analyses (Hayes & Krippendorff, 2007: 81).[16] Using a web-based program (Freelon, 2011), Krippendorff's Alpha was found to be 0.711 for the coded articles, which indicates a decent, albeit modest, level of inter-coder reliability. The minimum acceptable figure is thought to be 0.67, with 0.8 being very good and 1.00 perfect (De Swert, 2012: 5). A higher level than 0.711 could have been achieved had the volunteer coders not made multiple marking errors on the coding sheets; this was a formatting, rather than data issue. As such, 0.711 was accepted for the purpose of this study.

The coding process detailed above comprised the quantitative part of the content analysis and produced a large amount of data, which was then tabulated and is presented, largely in comparative graph form, in the following chapter.

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[15] Considered the minimum sample size to be used when checking reliability (Neuendorf, 2002: 159).

[16] Krippendorff's Alpha is a coefficient that was developed to measure levels of agreement among coders or raters in content analysis and other applications. It makes use of a formula that looks at observed versus expected disagreement (Krippendorff, 2011).

The quantitative coding work provided a base from which to perform the critical discourse analysis component of the study. In this part, I performed multiple close readings of every article, making detailed notes of my observations. My focus was on agency, descriptive language used, emotive images, whose views were prioritised (considering the predominance and positioning of sources within the articles), framing of the headlines, overall framing of the articles, and evidence of pro and anti-nuclear power sentiment. Building on the results of the coding, I also examined in-depth any criticism (and or praise) of TEPCO, the Japanese government, foreign media and foreign governments; the major roleplayers in the management of the nuclear crisis.

The critical discourse analysis was informed by the extensive focal guidelines (Richardson, 2007; Wodak & Meyer, 2009; Van Leeuwen, 2013a and 2013b, and the others) listed in Section 3.3 above. Throughout the analysis, I strove to answer clearly the overarching question of whether the articles could be classified overall as reassuring, alarming or neutral.[17] The findings of the critical discourse analysis, including an explanation of how they were reached, are presented in Chapter 5. In addition, answers to remaining research questions are discussed. The extensive, open detailing of the study's process allows for both critical assessment thereof and transferability of the research into other contexts and future studies.

As expressed earlier, in any application of critical discourse analysis it is necessary to state that the results are neither exhaustive nor exclusive; it is impossible to consider every detail of a text from every angle, and texts are subject to more than one interpretation. This lack of concrete conclusion may be perceived as a limitation; however, the insights from critical discourse analysis may stimulate debate and further research.

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[17] Having pre-set categories increases the systematicity of qualitative analysis (Macnamara, 2005: 17).

Although I strove to be as comprehensive as possible, the study was restricted by various factors. These included: lack of access to hard copies of the newspaper articles, and thus no consideration of accompanying visuals; lack of analysis of the websites of *The Japan Times* and *The Daily Yomiuri*; lack of comparison with Japanese-language newspapers and the time range of the articles being just two months – due to limited available time on my part. Such limitations are inherent to media content analysis; there will always be room for further examination from different angles. In spite of that, studies like this one help to fill gaps in the field of communication research; this one specifically contributes to the body of scholarship on the media in Japan.

3.8 Trustworthiness

Before concluding the chapter, it is necessary to briefly consider the trustworthiness and reliability[18] of the data and findings generated by this study. This has been touched on in Section 3.3 and 3.7, but is condensed here for the sake of cohesion.

Evaluating the trustworthiness of a study is important to determining its worth in the field; Lincoln and Guba (1985: 301-328) indicate that doing this involves a consideration of four factors. These are credibility (the truthfulness of the findings), transferability (applicability of the findings in other contexts), dependability (in other words, repeatability) and confirmability – or neutrality. While these criteria are generally applied to qualitative research, a well-defined means of evaluation for mixed method research, like that conducted in this study, remains to be established (Johnson, Onwuegbuzie & Turner, 2007: 126). Existing guidelines on trustworthiness (for qualitative research) and reliability (for quantitative research) need to be adapted, as they have been below.

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[18] In the case of the quantitative analysis.

It should be emphasised that no study, particularly with a qualitative component, can produce a 100% complete or objective account of its subject. All research is subject to limitations, and, as noted earlier (Cf. page 98-99), varying interpretations. The best that a researcher can do is strive to provide adequate data, in sufficient detail, from which plausible conclusions can reasonably be drawn (Bryman, 2008: 381-382). This has been done here, through the extensive coding in the first part of the study (and the use of two additional coders to confirm the reliability of that coding), and the detailed examination (and open nature) of the critical discourse analysis stage.

The use of quantitative analysis lends extra credibility to the findings of the qualitative analysis; multiple methods of data collection can serve to strengthen the accuracy of the results (Cf. page 98-99). In addition, the research process has been described at length in this chapter, following on a broad foundational literature review (Cf. Chapter 2), so that the results can be checked and confirmed as dependable by other communication scholars.

The above steps have been taken to ensure that the results of this study can be trusted as credible and authentic; with the intention that they may serve as a legitimate contribution to the field of media research.

3.9 Conclusion

In this chapter, I have explained in detail the mixed method used in this study; discussing the principles, benefits, processes and limitations of both quantitative content analysis and critical discourse analysis, and showing how they can be combined for in-depth examination of news articles. Examples of published mixed-method research were briefly discussed. I have explained the coding processes used and the checking of inter-coder reliability that was performed using Krippendorff's Alpha.

Profiles of the two newspapers have also been provided for basic background information and comparison of the publications. In the interests of transparency,

transferability and reliability, I have outlined the exact steps taken to collect the data. I have also acknowledged the study's limitations, and discussed its trustworthiness and reliability.

All of the data gathered during the study are presented and discussed in the following two chapters. In the first, the results of the coding component of the study are dealt with. Findings from the critical discourse analysis part of the study are then disseminated in Chapter 5, and the implications of the findings discussed in Chapter 6.

CHAPTER 4: QUANTITATIVE ANALYSIS

In this chapter, data from the quantitative analysis component of the study are presented. Graphs are used for ease of interpretation, as well as to visually compare and contrast aspects of the coverage of the Fukushima nuclear crisis in *The Japan Times* and *The Daily Yomiuri*. All column and bar graphs and pie charts are accompanied by detailed explanations.

The data are presented in the order in which they were collected on the coding sheets, beginning with a numerical breakdown of the articles in each newspaper into news and opinion pieces. Thereafter, the listing of reporters is considered. It was not deemed necessary to include the other meta-data recorded in Section A of the coding sheets (see Appendix A) here, as it falls beyond the scope of the main and sub research questions of this study. However, it can be accessed and produced for analysis upon request.

After presenting data on the inclusion of reporters' names in articles, data from Section B of the coding sheets are shown, beginning with the geographic focus of the articles, then the issue focus, and keywords used. Thereafter, data from Section C, which focuses on the reporting of radiation, is presented. Finally, data from Section D – the sources used in the articles and evidence of criticism towards the Japanese government, TEPCO, foreign governments and foreign media, are disseminated.

As stated in the previous chapter, after eliminating invalid articles and duplicates, 137 articles from *The Japan Times* (92 classified as fully valid, and 45 classified as partially valid), and 247 articles from *The Daily Yomiuri* (189 classified as fully valid, and 58 classified as partially valid) remained for coding and analysis. No distinction was drawn between fully and partially valid articles for the purpose of data collection and presentation. In the case of partially valid articles, only the relevant paragraphs or sections related to the nuclear crisis were coded. To begin the analysis, the basic meta-data will be looked at.

4.1 Basic meta-data

The most basic meta-data involved a classification of the texts as news articles or opinion pieces. As illustrated in Figure 4.1, of the 247 total texts from *The Daily Yomiuri*, 197 were news articles, and 50 were opinion pieces (editorials and columns). 112 of the 137 *Japan Times* texts were news articles, with 25 opinion items.

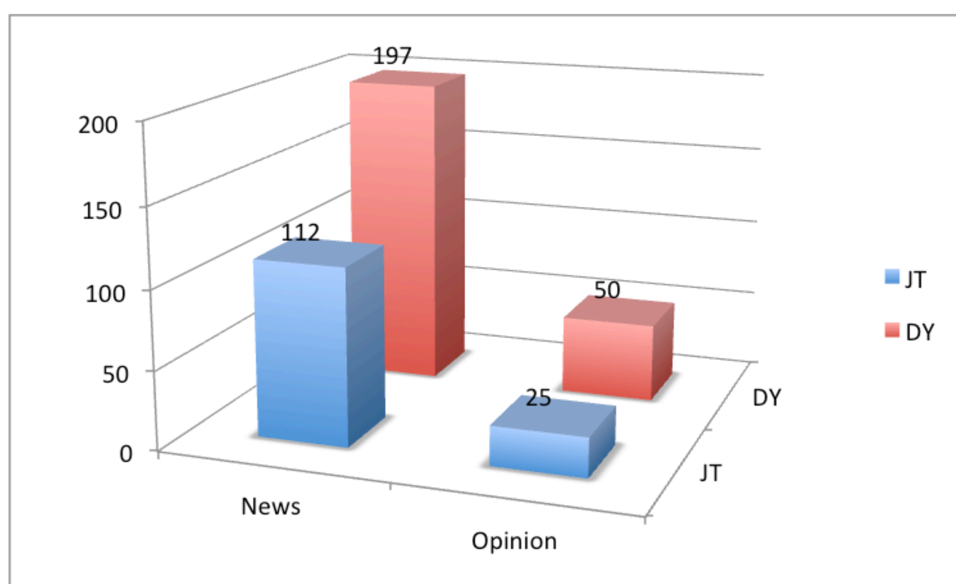

Figure 4.1: Number of news articles and opinion pieces for each newspaper.

Expressing these figures as percentages,[1] 80% of the coded *Daily Yomiuri* articles and 82% of the coded *Japan Times* articles were news articles. The ratio of news articles to opinion pieces (4:1) was similar for both newspapers.

A stark difference was noted regarding the listing of reporters in the two newspapers.

[1] All percentages in this chapter have been rounded up to the nearest number.

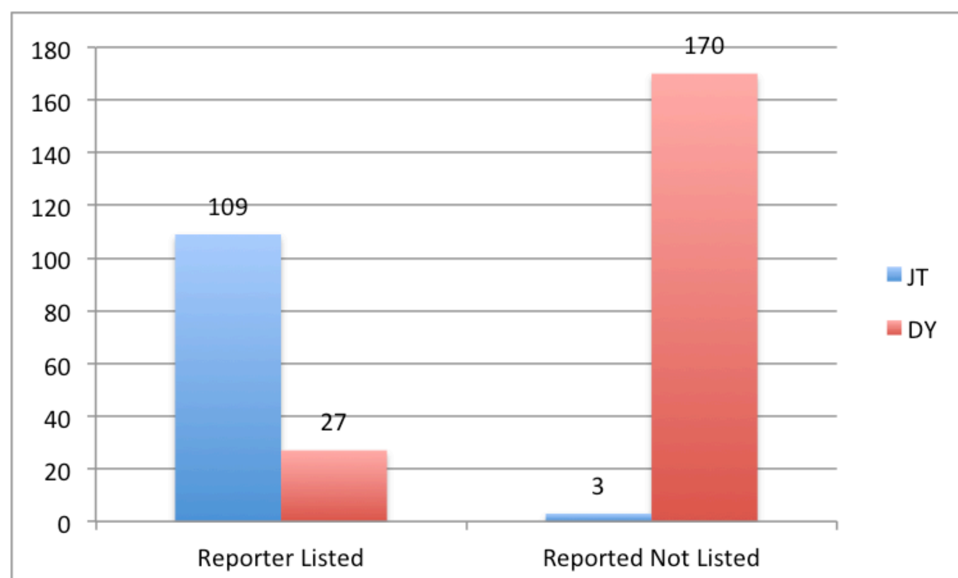

Figure 4.2: Listing of reporters for news articles.

As can be seen in Figure 4.2 above, while *The Japan Times* included the names of writers for almost all (109 out of 112, or 97%) of their news articles, *The Daily Yomiuri* only listed the writers in 14% (27 out of 197) of theirs. This could indicate a heavy reliance on (but, as was noted during the coding process, lack of acknowledgement of) news agencies; standard practice in that particular news organisation; or a strategy to give greater weight to the viewpoints espoused in the stories (Why are The Economist's writers … 2013) by portraying them as general fact, rather than potentially the perspective of just one individual writer.

All 50 of the opinion pieces from *The Daily Yomiuri* were anonymous; and only five of the 25 opinion pieces from *The Japan Times* included the writers' names. Those five were Q&A articles. It was not clear whether the exclusion of names in the opinion pieces was due to formatting on the electronic databases from which the newspapers were acquired, or whether the names were simply not listed in the printed publications. The latter is suspected; with deliberate omission used to represent editorials as the voice of the newspaper and nation (Cf. page 178).

This concludes the section on the meta-data from the coding sheets. Next, data are presented on the geographic and issue foci of the news articles and opinion pieces in the two newspapers.

4.2 Geographic and issue foci

Coding of the geographic foci of the newspaper texts revealed that the majority of news articles in *The Japan Times*, and news articles and opinion pieces in *The Daily Yomiuri*, were focused on events in Fukushima Prefecture. As seen in Figure 4.3, 66% (74 out of 112) of the news articles in *The Japan Times* had this geographic focus, compared to 85% (168 out of 197) of the news articles in *The Daily Yomiuri.* 58% (29 out of 50) of the opinion pieces in *The Daily Yomiuri* reflected a geographic focus of Fukushima, compared to 48% (12 out of 25) of the opinion pieces in *The Japan Times.* Thus, *The Daily Yomiuri* had a significantly greater focus on Fukushima Prefecture overall.

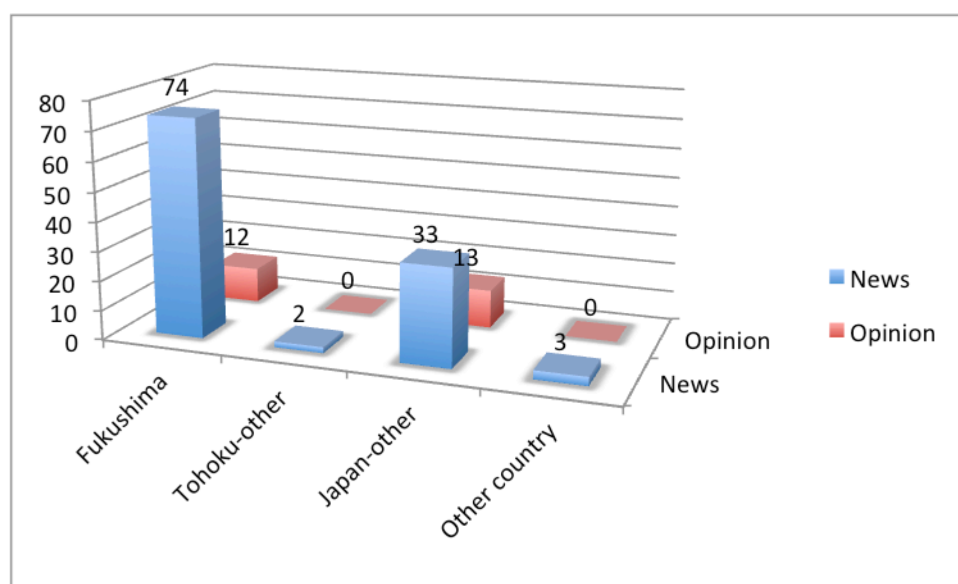

Figure 4.3: Geographic foci of news articles and opinion pieces in *The Japan Times*.

29% of news articles and 52% of opinion pieces in *The Japan Times* were geographically focused on other parts of Japan, compared to 32% of opinion

pieces and just 12% of news articles in *The Daily Yomiuri*. The geographic focus in these articles tended to be the capital city, Tokyo. As can be seen in the graphs, very few articles had a geographic focus of other parts of the Tohoku region or other countries.

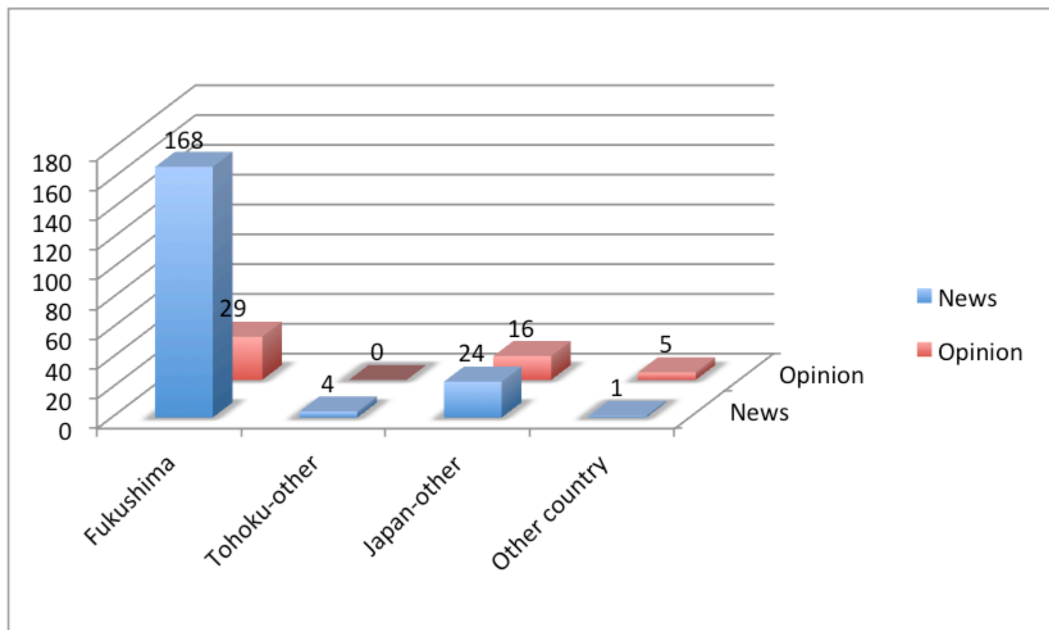

Figure 4.4: Geographic foci of news articles and opinion pieces in *The Daily Yomiuri*.

Upon examining the issues focused on in the Fukushima-centred news articles and opinion pieces, differences emerge between the two newspapers. The bar graph on the following page shows the number of articles focused on each of the 11 topics, or themes, designated on the coding sheets. Where texts had more than one focus, the main one was identified and counted during the collation of the data.

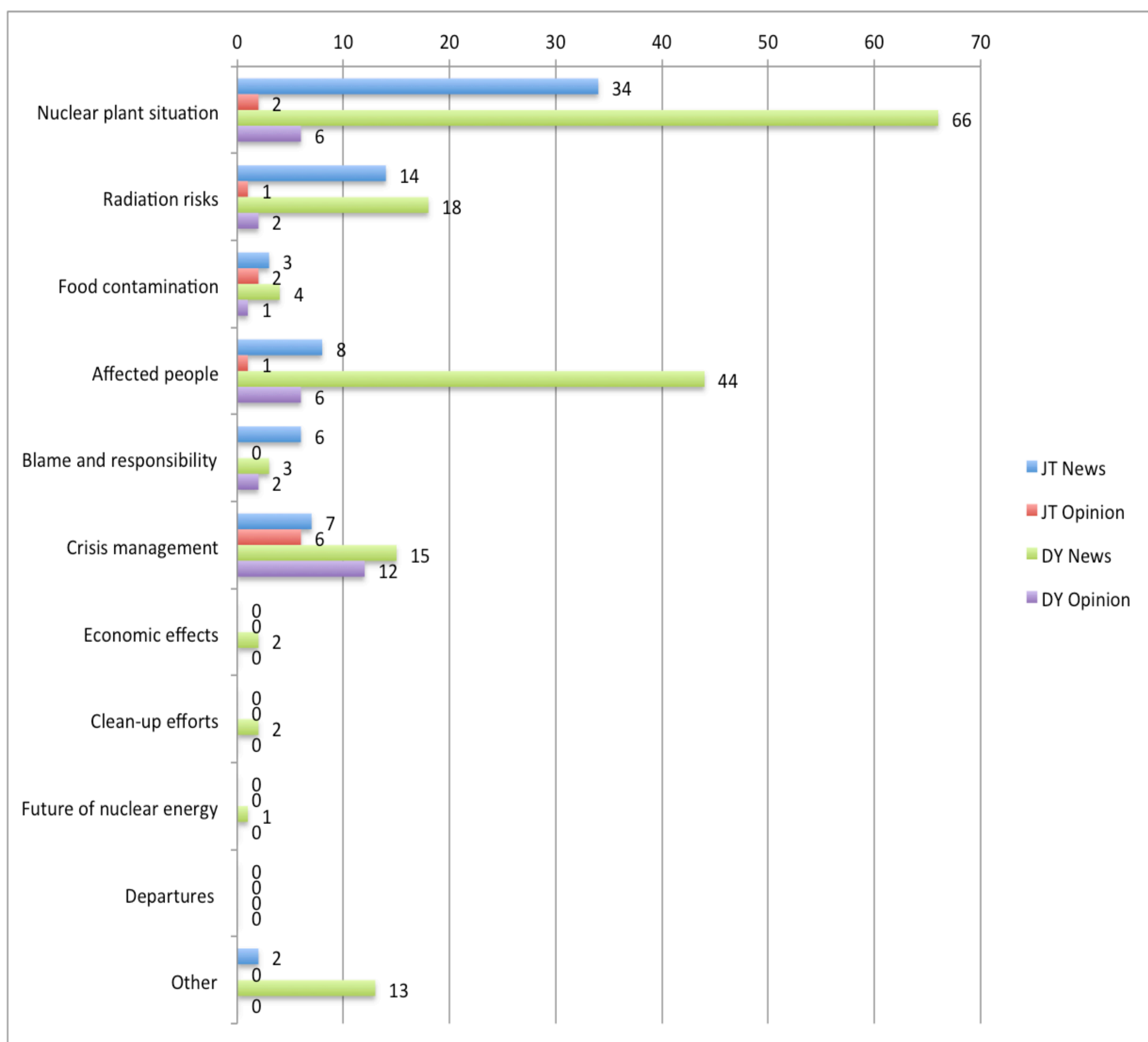

Figure 4.5: Issue foci across Fukushima-centred news articles and opinion pieces in *The Japan Times* and *The Daily Yomiuri*.

In *The Japan Times*, 46% of the 74 Fukushima-centred news articles were focused on the situation at the nuclear power plant - events, updates on the reactors, and leaks. 39% of the 168 Fukushima-centred news articles in *The Daily Yomiuri* had this issue focus.

Of the remaining Fukushima-centred news articles in *The Japan Times*, 19% (14 out of 74 articles) focused on the issue of radiation – the spread, risks and health concerns thereof, compared to 11% in *The Daily Yomiuri*; 11% were

focused on affected people (farmers, evacuees and residents of various parts of Fukushima), significantly lower than the 26% of articles with this focus in *The Daily Yomiuri*; and seven articles (roughly 9%) focused on the management of the nuclear crisis (the same percentage was found in *The Daily Yomiuri*). Two of *The Japan Times* news articles and 13 of *The Daily Yomiuri* articles with a focus on Fukushima were coded as having themes in the Other category on the coding sheets. An example of these themes included articles focused on current Japanese nuclear policy, which could not be classified under any of the other issue categories.

During the coding and subsequent data collation process, considerable overlap was found between the issue categories of “Blame and responsibility” and “Crisis management”. Many articles that focused on crisis management also included ideas of blame and speculated that TEPCO and or the Japanese government were responsible for the development of the nuclear crisis.

Just two Fukushima-centred articles were coded as having an issue focus of economic effects. This is because, firstly, many articles that were focused on the economic effects of the nuclear crisis were found to be lacking in validity based on the criteria of the coding book, and thus excluded from the study; and secondly, those that were valid tended to have a geographic focus of Japan-other, rather than Fukushima. These texts are discussed later.

The issue category of “Clean-up efforts” was found to be superfluous during the coding process; articles focused on the cleaning up of radioactive contamination were almost entirely limited to the events at the nuclear power plant itself, and were thus coded as being focused on the nuclear power plant situation (the first category on the coding sheet). This explains the zero values on that section of the graph above, as well as the graph below.

The issue foci of the Fukushima-centred opinion pieces will not be considered in depth here, as the number of texts is small and the data on the graph are straightforward and easy to interpret. Two points that should be noted are: that the coverage of the crisis management issue in the opinion pieces was, as was

the case with the news articles, roughly equal in both newspapers; and that *The Daily Yomiuri* opinion pieces, similarly to their news articles, had a slightly higher focus on affected people compared to *The Japan Times*.

Turning to the issue foci of the texts with a geographical focus of Japan-other, the following data were gleaned. The graph is displayed on the following page.

The first bar at the top of the graph stands out. It shows that 10 of the 33 news articles (30%) in *The Japan Times* were focused on radiation risks, a substantially higher proportion than the 3 out of 24 (13%) with this focus in *The Daily Yomiuri*.

The focus on crisis management was, as with the Fukushima-centred articles, once again largely equal across the newspapers. However, where more *Japan Times* news articles focused on this issue, in *The Daily Yomiuri*, it was the focus of more of the opinion pieces. As will be shown in the following chapter (Cf. Chapter 5), the editorials in *The Daily Yomiuri* expressed strong criticism of the government and (to an extent, especially as time went on) TEPCO's management of the nuclear crisis. The focus on the issue of departures from Japan was also more or less equal across the newspapers.

It is perhaps worth noting that two articles in *The Japan Times* focused on blame and responsibility, while none of *The Daily Yomiuri* articles had this focus. *The Daily Yomiuri* news articles had slightly more emphasis on the economic effects of the nuclear crisis, as well as the future of nuclear energy, compared to the coverage in *The Japan Times*.

Data on the issue foci of the newspaper articles with a geographic focus of Tohoku-other and Other country are not included in this graph or the previous one, but are presented briefly in the text that follows.

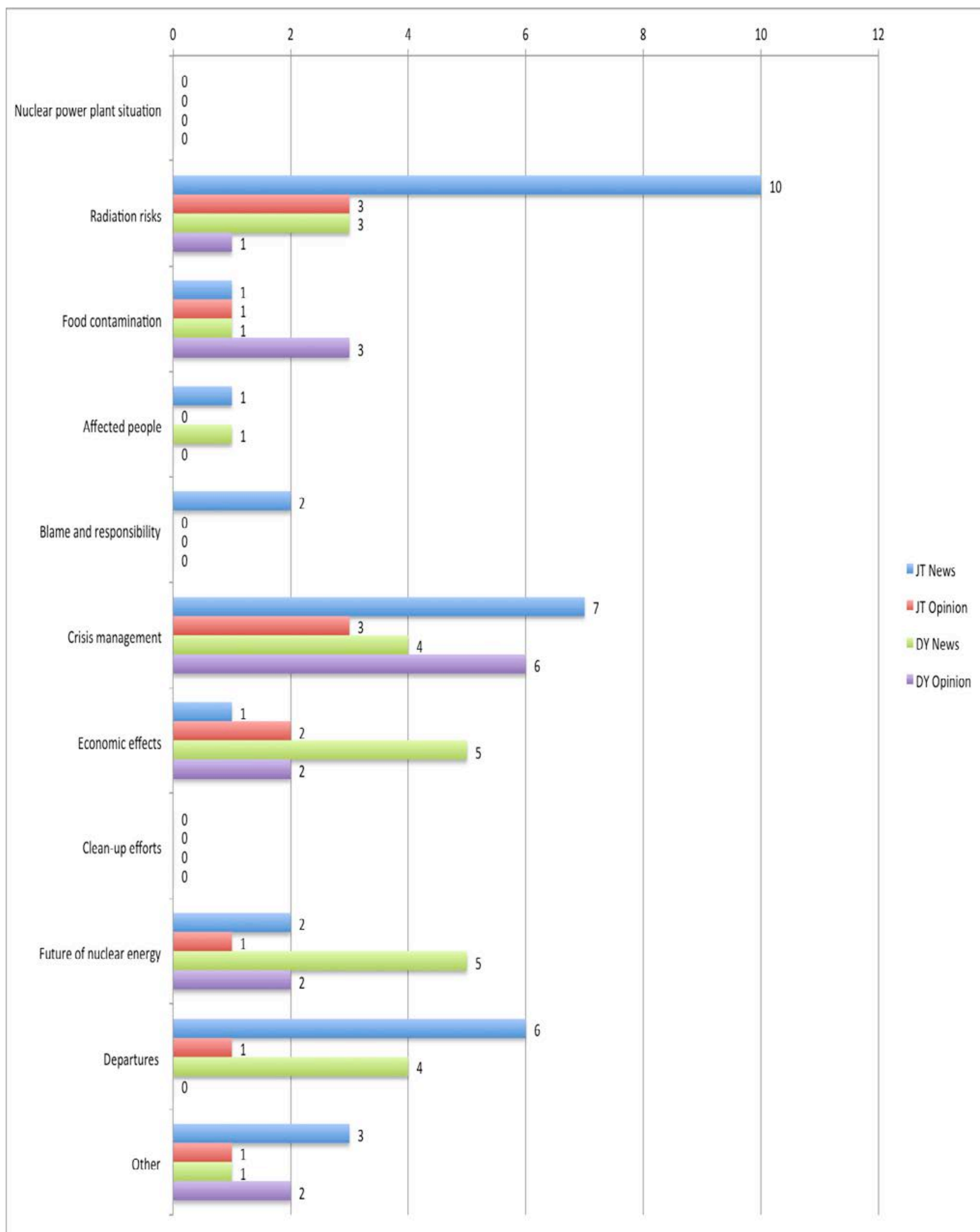

Figure 4.6: Issue foci across "Japan-other" news articles and opinion pieces in *The Japan Times* and *The Daily Yomiuri*.

Both *Japan Times* news articles with a geographic focus of Tohoku-other had an issue focus of affected people. In *The Daily Yomiuri*, three Tohoku-other articles had this issue focus and one was focused on food contamination. There were no opinion pieces with a geographic focus of Tohoku-other in either newspaper.

In *The Japan Times*, of the news articles with Other country as the geographic focus, one had an issue focus of blame and responsibility, one crisis management, and one “other”. No opinion pieces had this geographic focus. *The Daily Yomiuri* had just one news article with Other country as the geographic focus, and it had an issue focus of “Other”. Three opinion pieces were coded as being focused on the future of nuclear energy, one on the economic effects of the nuclear crisis, and one on the management of the crisis.

The geographic and issue foci of the newspaper texts have been presented and examined in detail. In the next section, data are presented on the prevalence of keywords in the newspapers; the final piece of information obtained from Section B of the coding sheets.

4.3 Keywords used

The coding of the presence of keywords in the newspaper texts served as a helpful tool in the overall assessment of whether they were alarming, reassuring or neither. However, fixed conclusions cannot be drawn from the keyword findings, presented below, alone. A thorough examination of the keywords in the context of the whole texts is necessary; this is where critical discourse analysis is helpful, and the issue is addressed in the next chapter.

The coding of keywords was performed by scanning the newspaper texts for the words and phrases specified in the coding book (see Appendix B). Keywords were considered present and coded whether they appeared in the text once or multiple times. No distinction was made. However, in cases where certain types of words appeared many times in one article, this was noted and given consideration during the critical discourse analysis component of the study.

Each article was checked for instances of all 12 categories of keywords: fear, calm, trust, distrust, threat, safety, control, chaos, struggle and support words, and the terms Chernobyl and Three Mile Island. If at least one keyword from all 12 categories was present, 12 marks were made on the coding sheet. Therefore, the same articles could be counted multiple times, under different keyword categories.

During the coding process, it became apparent that some of the categories of keywords were problematic to code. Firstly, there was a lack of consistency and clarity with the "control words" category; very few instances of the words listed in the coding book ("manage", "direct", "oversee", "in control") were found in the newspaper texts. It was not certain whether words like "instruct", "monitor", "discharge" and other words denoting actions taken to ameliorate the nuclear crisis should also be regarded as "control words". In the end, only "instruct" and other command-like words with an element of control were included.

Secondly, the category of "safety words" was largely coded only when there was a mention of protective clothing and devices in the articles. As a result, this category did not provide a broad, reliable representation of the issue of safety in the newspaper texts.

While the graphic data from these two problematic keyword categories may still offer some insight into the coverage of the nuclear crisis in the newspapers, they should be considered with caution – a pinch of academic salt. They will not be discussed here. The other categories did not have such issues and their data can thus be regarded as more accurate.

From the graph on the following page, it is clear that "threat" words were present in a large number of the news articles. Words like risk, danger, emergency and threat were present in 83% (93 of 112) of news articles in *The Japan Times* and 75% (148 of 197) of news articles in *The Daily Yomiuri*. In addition, threat words were present in 80% (20 of 25) of the opinion pieces in *The Japan Times* and 78% (39 of 50) of opinion pieces in *The Daily Yomiuri*.

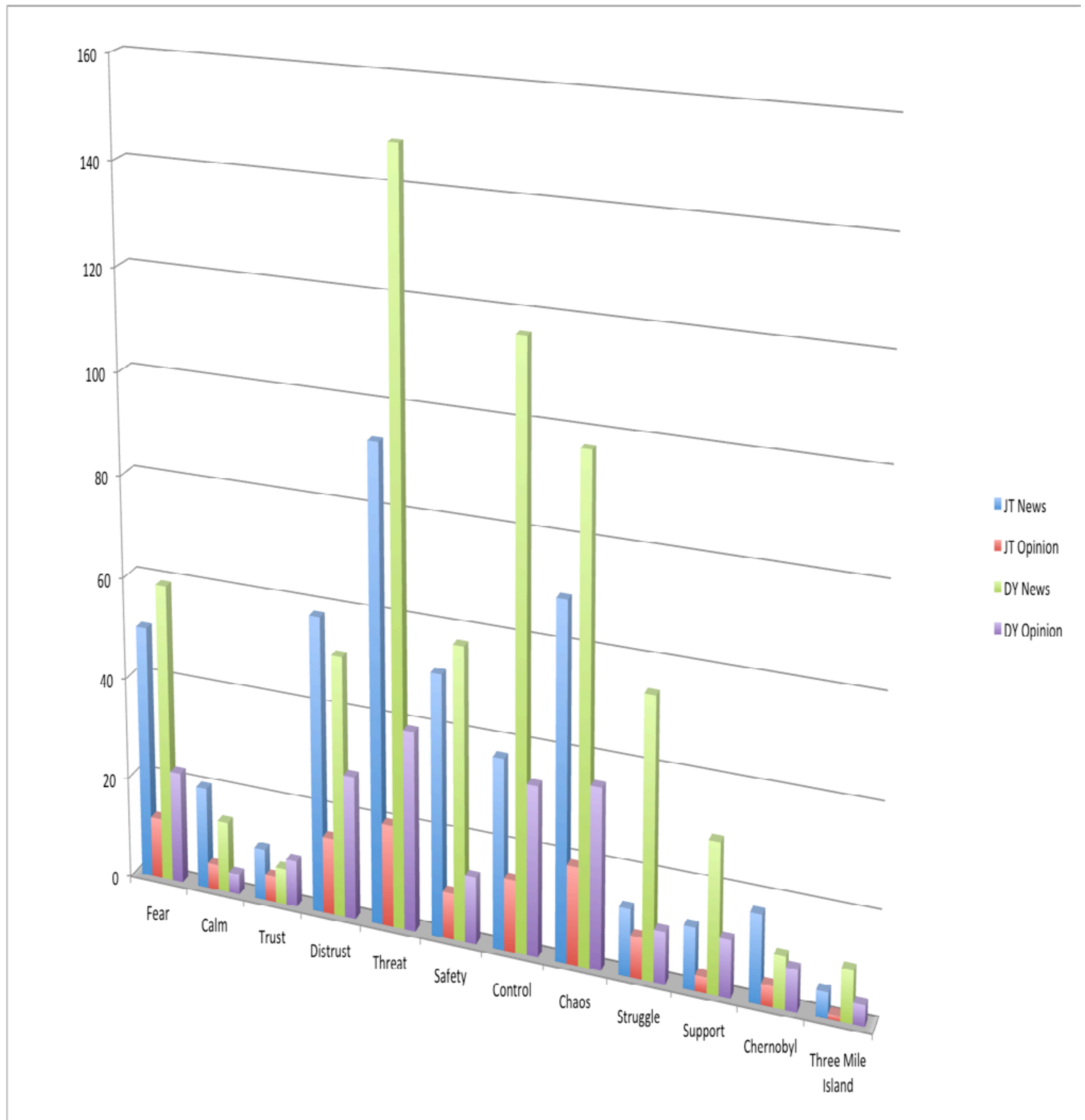

Figure 4.7: Number of articles containing the specified keywords.

“Chaos” words, mainly in the form of disaster and crisis, were found in 62% (69 of 112) of news articles and 76% (19 of 25) of opinion pieces in *The Japan Times*, compared to 49% (97 of 197) of news articles and 70% (35 of 50) of opinion pieces in *The Daily Yomiuri*. Thus both chaos and threat words were identified in a slightly higher number of news articles and opinion pieces in *The*

Japan Times. Whether this difference is significant or not will be given consideration in the following chapter (Cf. Chapter 5).

"Fear" words (anxiety, panic, concern, worry, fear and similar words) were found in 45% (50 of 112) of news articles and 48% (12 of 25) of opinion pieces in *The Japan Times*, while they were only present in 30% (59 of 197) of news articles and 44% (22 of 50) of opinion pieces in *The Daily Yomiuri*.

A higher percentage (27%) of *The Daily Yomiuri* news articles contained "struggle" words compared to *The Japan Times* (12%). This difference is tied in to *The Daily Yomiuri*'s higher focus on the issue of affected people and their difficulties, as pointed out earlier (Cf. page 121).

A slightly higher number of articles were found to contain "calm" words in *The Japan Times*; 18% of news articles, in contrast to 7% of news articles in *The Daily Yomiuri*. "Support" words were found in only a small number of texts, though they were slightly more prevalent in *The Daily Yomiuri* (12/112 news articles and 3/25 opinion pieces in *The Japan Times*; 29/197 news articles and 11/50 opinion pieces in *The Daily Yomiuri*).

"Trust" words were found in very few of the articles in both newspapers. However, "distrust" words were identified in 52% of news articles and 60% of opinion pieces in *The Japan Times*. In contrast, they were only present in 26% of news articles in *The Daily Yomiuri*, a much lower figure than the 56% of opinion pieces they were found in.

Chernobyl and Three Mile Island were mentioned in very few articles. Chernobyl was only mentioned in 17 out of 112 news articles and four of 25 opinion pieces in *The Japan Times*, and 10 out of 197 news articles and eight of 50 opinion pieces in *The Daily Yomiuri*. Three Mile Island received even less mention; the phrase was found in just five news articles and one opinion piece in *The Japan Times* and 10 news articles and four opinion pieces in *The Daily Yomiuri.*

The low-frequency mention of Chernobyl in the coverage of the Fukushima nuclear crisis is significant in that it is considered a catastrophic nuclear accident that to this day is associated with a sense of dread. Where Chernobyl did appear in the newspaper texts, it was mostly used in the context of distinguishing the Fukushima nuclear accident from the 1986 meltdown. As a result, it was (largely) not used as a fear-inducing device.

The insights generated from the surface-level analysis of keywords in the newspapers will be used in the following chapter to help answer the question of whether the coverage of the Fukushima nuclear crisis was alarming, reassuring, or relatively balanced and neutral (Cf. page 145). In the next section, data are presented on the reporting of radiation – units, explanation, and risk.

4.4 Reporting of radiation

Careful consideration was given to the coverage of radiation in the newspaper texts. The first part of Section C on the coding sheet was concerned with whether the articles or opinion pieces included any direct reference to radiation. On the coding sheet, this is stated as "Reference to radiation levels". However, during the coding process, it soon became apparent that the radiation leaking from Fukushima was often mentioned without any reference to the specific levels of thereof. For this reason, it was agreed among the coders that "levels" would be deleted and any direct reference to radiation coded in the affirmative. The following data were obtained:

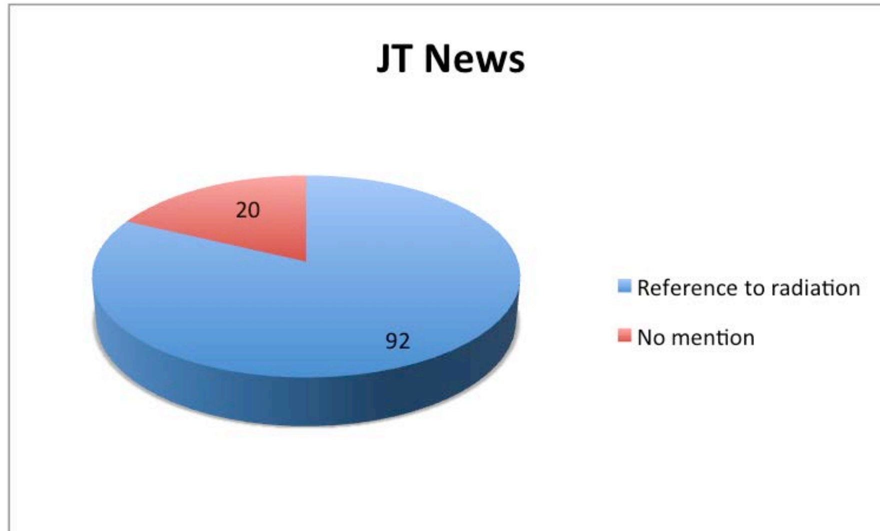

Figure 4.8: Number of news articles in *The Japan Times* that make reference to radiation.

As can be seen from the graph above, 92 out of 112 news articles in *The Japan Times* referred directly and explicitly to radiation from the Fukushima nuclear power plant crisis. This can be expressed as 82% of the articles. As shown in the graph below, 17 out of 25 (68%) opinion pieces contained direct references to radiation.

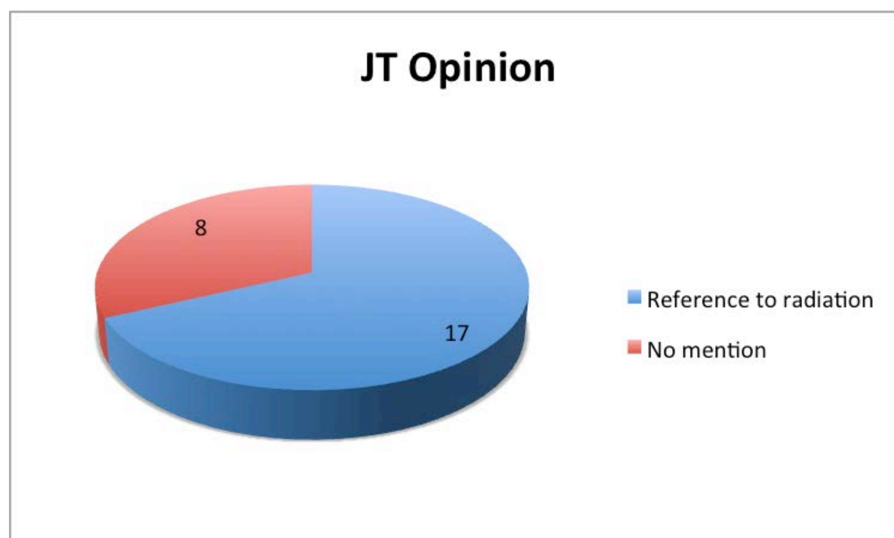

Figure 4.9: Number of opinion pieces in *The Japan Times* that make reference to radiation.

As shown below, in *The Daily Yomiuri*, the figure was slightly lower, with 149 out of 197 news articles, or 76%, containing direct, explicit reference to radiation.

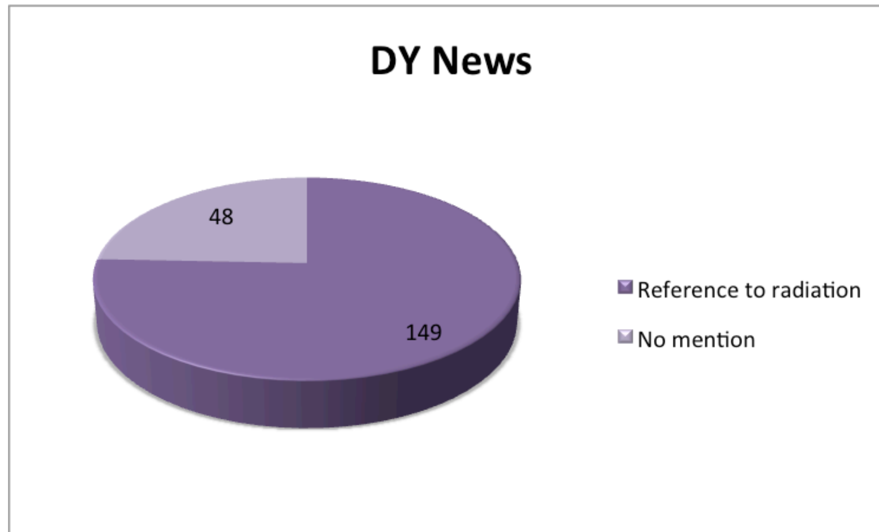

Figure 4.10: Number of news articles in *The Daily Yomiuri* that make reference to radiation.

As can be seen below, 66% (33 of 50) of the opinion pieces were coded as making reference to radiation leaking from the Fukushima nuclear power plant.

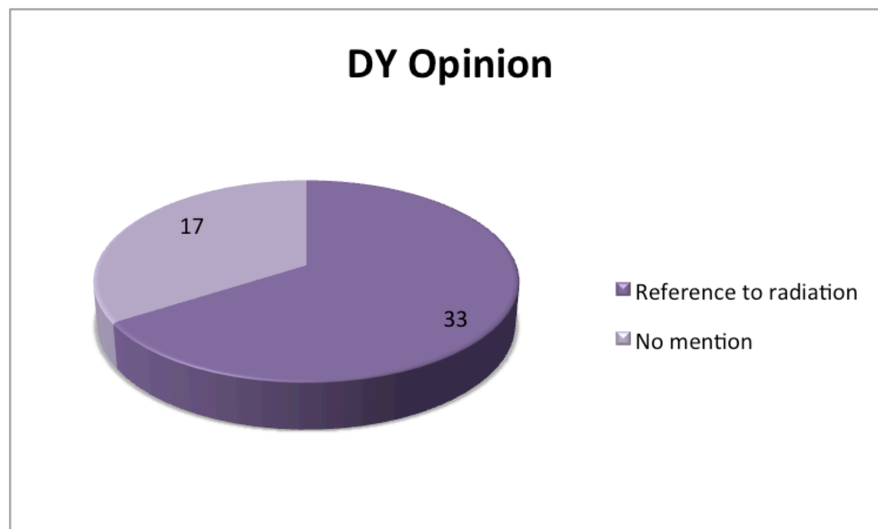

Figure 4.11: Number of opinion pieces in *The Daily Yomiuri* that make reference to radiation.

Not all of the texts that referred to radiation from the nuclear power plant included specific units of radiation. In *The Japan Times*, 53 of the 92 news

articles and nine of the 17 opinion pieces included units of radiation. This translates to 58% and 53% respectively. In *The Daily Yomiuri*, only 56 of the 149 news articles and five of the 33 opinion pieces included units of radiation. Expressed as percentages, that translates to 38% and 15% respectively. Thus it can be stated that *The Japan Times* included units of radiation in a substantially higher percentage of their articles and opinion pieces.

The units of radiation that were used most commonly in the newspaper texts were Becquerels (in various combinations, such as Becquerels per kilogram or litre), Sieverts, microsieverts and millisieverts (and measurements thereof per hour).

Explanatory information was provided for the amounts of radiation being referred to in some, but not all, of the newspaper texts. A total of 46 news articles (44 of the 53 that included units of radiation, plus two that did not) and 11 opinion pieces (all nine that included units of radiation, plus two that did not) in *The Japan Times* included some sort of explanation to help readers understand the amount of radiation. In *The Daily Yomiuri*, a total of 53 news articles (43 of the 56 that included units of radiation, plus 10 that did not) and seven opinion pieces (two of the five that included units of radiation, plus seven that did not) provided explanatory information about the amount of radiation referred to.

As a means of explanation, both newspapers tended to couch the radiation levels in terms of government or other legal and safety limits, and normal or background levels. However, in many articles explanations were limited to adjectival phrases like “unusually high”, “extremely high”, or even simply “high”. Despite their use in other communication on radiation (Cf. page 47), bananas were not used as a form of comparison.

The Japan Times provided more explanation regarding what government and other legal limits actually meant, particularly in terms of health risks, compared to *The Daily Yomiuri*. During the coding process, it was found that overall the reporting of radiation in *The Japan Times* was more frequent, thorough and

accessible than the reporting of radiation in *The Daily Yomiuri*. They even ran an article (Nakata, 2011) dedicated to explaining the various radiation terminologies being used in the media coverage of the Fukushima nuclear crisis. For its part, *The Daily Yomiuri* explained units like Becquerels in a few articles. However, overall, their radiation reporting remained restrictively technical.

The above findings were briefly considered in terms of the recommendations made after the Three Mile Island nuclear accident. These specify the minimum amount and type of information that needs to be provided for reporting of radiation data to be considered sufficient. It is recommended that the following data be provided: the amount and unit of radiation; the rate or time interval; the location of measurement; the nature and type of radiation; the type of exposure; and a definition of the units of measurements and other technical terms used (Friedman, Gorney & Egolf, 1987: 64). The use of vague terms like "high" and "moderate" in lieu of actual radiation data is strongly discouraged. In addition, comparisons should not be made to X-rays or radiation levels following nuclear weapons tests.

As can be seen from the data presented on the number of articles that included units of measurement, the texts in *The Japan Times* and *The Daily Yomiuri* did not entirely satisfy the above requirements.[2] Not all of the articles that made reference to radiation included units or other information. This could have been because the radiation was not the main focus of those articles. However, it could be argued that in a nuclear crisis, it is useful and even necessary to include detailed radiation information in all articles that refer to it.

While the texts that did provide units of measurement generally also included the other recommended information, many articles failed to define the units and

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[2] Friedman (2011: 58-59) and Lazic (2013: 31) found that the coverage of the Fukushima nuclear crisis in *The New York Times*, *Los Angeles Times* and *USA Today* however was satisfactory based on the above criteria.

technical terms used. In addition, a few articles compared radiation levels to X-rays and radiation levels after bomb tests, indicating that the radiation reporting still has a way to go.

In this section, I have presented and provided a cursory discussion of the coverage of radiation in *The Japan Times* and *The Daily Yomiuri*. The next section focuses on the depiction of risk (related to the nuclear crisis) in the two newspapers.

4.5 Depiction of risk

The level, or extent, of risk related to radiation from the Fukushima nuclear power plant that was portrayed in the newspaper texts was examined and marked on the coding sheets. Three options were originally provided on the sheets: significant, little and none. During the coding process, it became apparent that a further option needed to be provided – not clear/not focused on, due to the ambiguity in many articles and complete lack of consideration given in others.

In addition, it was found that the distinction between short and long-term risk indicated on the coding sheets was not clear in the newspaper texts. As a result, the coders agreed to delete those categories from the coding sheets.

The level of risk depicted in the newspapers is illustrated in the graph on the following page.

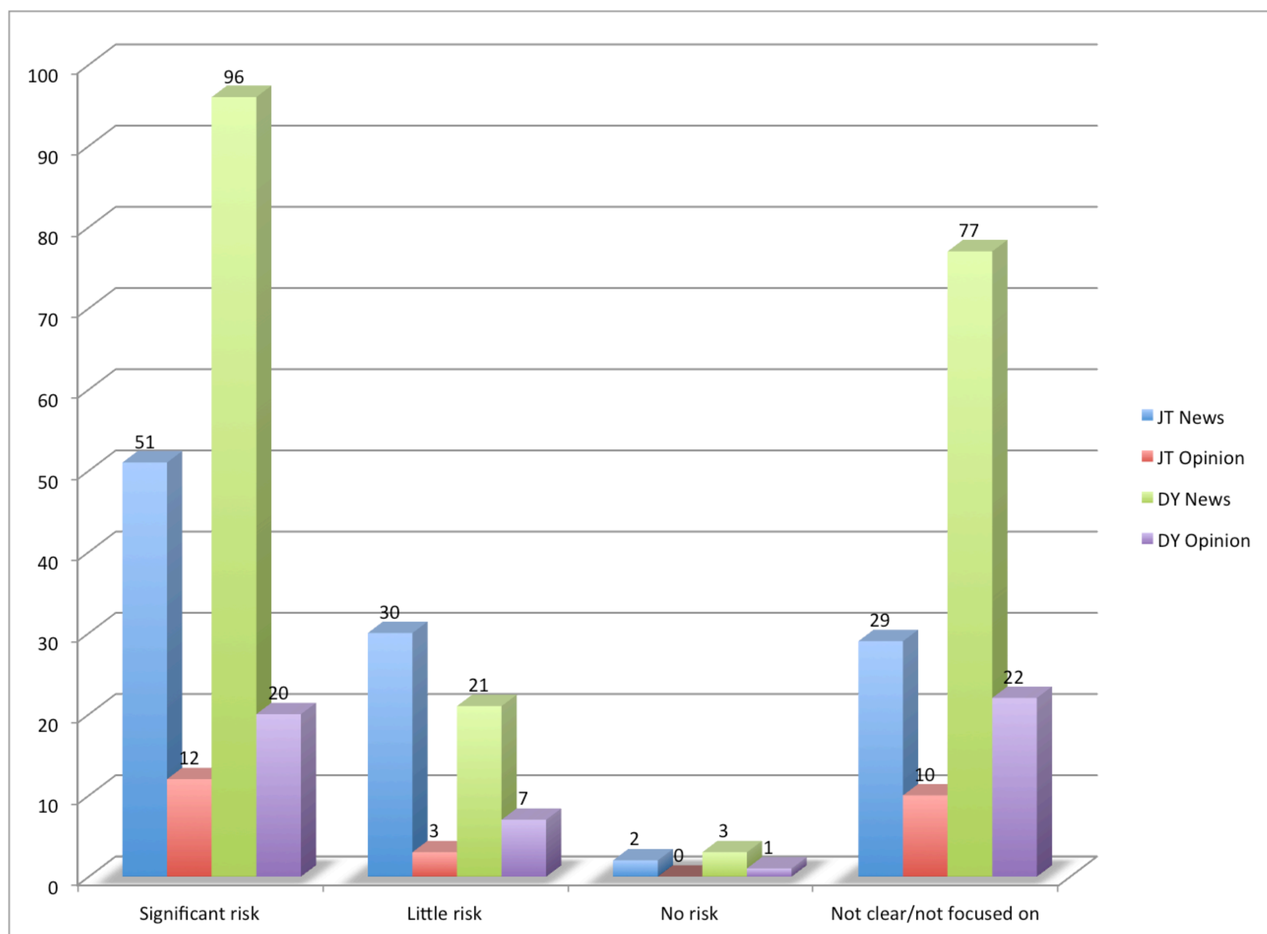

Figure 4.12: Level of risk depicted in *The Japan Times* and *Daily Yomiuri* texts.

The percentage of news articles that depicted the level of risk as significant was almost the same in both newspapers; 46% (51 of 112 articles) in *The Japan Times*, and 49% (96 of 197 articles) in *The Daily Yomiuri*. Thus, roughly half of all the news articles indicated a high level of risk related to the crisis at the power plant. In *The Japan Times,* 12 of the 25 opinion pieces, that is – 48%, portrayed the level of risk as significant. In *The Daily Yomiuri*, the percentage was slightly lower at 40% (20 of 50) of the opinion pieces.

30 news articles (27%) in *The Japan Times* depicted the level of risk as low, or "little", while in *The Daily Yomiuri* this figure was only 11% (21 articles). Three opinion pieces in *The Japan Times* and seven in *The Daily Yomiuri* indicated little risk. As can be seen from the graph, very few articles and opinion pieces portrayed the level of risk as completely non-existent. However, a high number

of articles and opinion pieces in both newspapers were not clear on the level of risk, or did not focus on it at all. In *The Japan Times*, 26% of news articles and 40% of opinion pieces fell into this category, while in *The Daily Yomiuri*, it was 39% of news articles and 44% of opinion pieces.

From the above figures, it can be seen while the percentage of news articles that portrayed the level of radiation-related risk as significant was almost the same in both newspapers, risk was depicted clearly in a greater proportion of news articles in *The Japan Times* than *The Daily Yomiuri* overall. This is likely related to the greater focus on radiation in *The Japan Times* in general.

4.6 Sources used in the newspapers

An examination of the sources used (and the frequency thereof) in newspaper texts can provide evidence of establishment bias (Singer & Endreny, 1993: 12), as discussed in the literature review chapter (Cf. page 35-36). It can also show balance, or a lack of thereof, as well as any vested interests the newspaper may have. This is one of the key considerations of this study.

The following graph shows the number of news articles containing each of the coded sources. Opinion pieces were coded, but excluded from the graph as, in the style of editorials, they generally lacked direct reference to sources.

At first glance, the graph would seem to indicate that Japanese government sources were used in a greater number of articles in *The Daily Yomiuri* than *The Japan Times*. However, expressing the data as percentages, it is seen that 69% of all news articles in *The Japan Times* contained Japanese government sources, while this figure was slightly lower at 57% of news articles in *The Daily Yomiuri*.

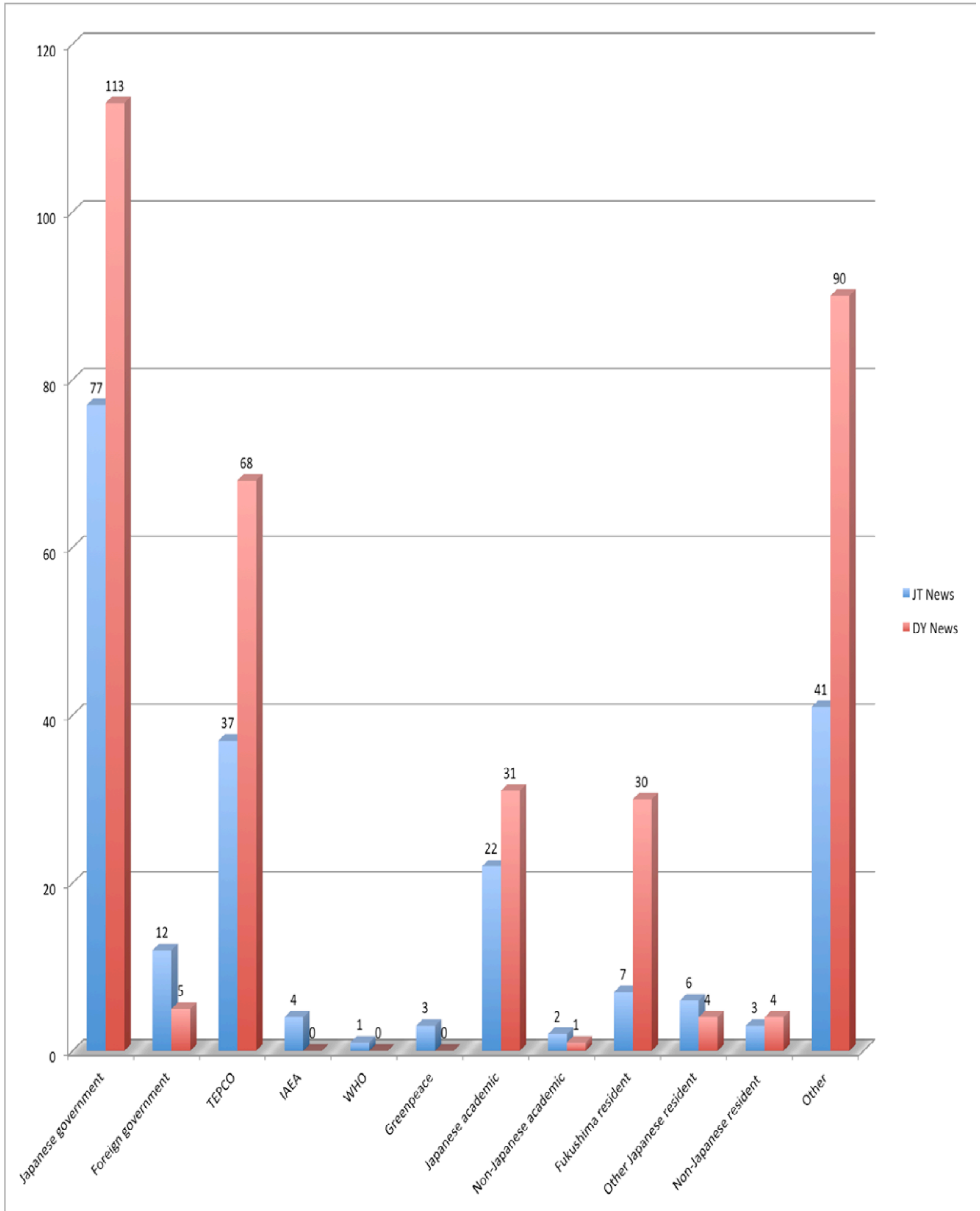

Figure 4.13: Sources used in *The Japan Times* and *Daily Yomiuri* news articles.

It should be noted that the Nuclear Industrial Safety Agency (NISA) was coded as a government source (but noted separately) due to its positioning within the Ministry of Economy, Trade and Industry (METI). Details of NISA have been provided in the literature review chapter (Cf. page 68). The separate Nuclear Safety Commission (NSC), a (now defunct) regulatory body responsible for overseeing the safe operations of nuclear energy in Japan (including overseeing the activities of NISA) was coded as "Other". Although its position within the Cabinet Office made it, arguably, a government body, it tended to be portrayed (inaccurately) as an independent watchdog in the newspaper texts.

Local government sources, for example members of the Fukushima prefectural government, were also coded under "Japanese government", but, like NISA, noted separately on the coding sheets.

Neither newspaper made frequent use of foreign governments as sources. However, *The Japan Times* used them slightly more often than *The Daily Yomiuri*, with 12 out of 112 articles as opposed to five out of 197 articles.

Other than the Japanese government, TEPCO was the most cited source in both newspapers. TEPCO was quoted in 33% (37 of 112) of articles in *The Japan Times*, and 35% of articles in *The Daily Yomiuri*.

The IAEA, WHO and Greenpeace were quoted in a small number of articles in *The Japan Times*, but not mentioned at all in *The Daily Yomiuri*.

Sources from Japanese academia were referred to in 20% of articles in *The Japan Times* and 16% of articles in *The Daily Yomiuri*. Academics from other countries were hardly referred to at all in either newspaper.

The Daily Yomiuri gave more voice to residents of Fukushima, who were quoted in 15% of all articles, compared to just 6% in *The Japan Times*. This difference can, again, be attributed to the increased focus on the plight of Fukushima residents in *The Daily Yomiuri.* Residents from other parts of Japan and foreign residents were hardly referred to in either newspaper.

In 37% of articles in *The Japan Times* and 46% of articles in *The Daily Yomiuri*, "Other" sources were found to be present. This catchall category included sources like the Japanese Self Defense Forces (SDF, quoted often in *The Daily Yomiuri*), NSC, and fire fighters battling the blazes at the Fukushima nuclear power plant. However, this category was used mostly to code unidentified "experts", who were referenced repeatedly in both newspapers, but especially in *The Daily Yomiuri*.

The use of vague anonymous sources like this is potentially problematic (Martin-Kratzer & Thorson, 2007: 56). While it is a strategy used to protect sources that cannot disclose their personal details, it is not clear whether that was necessary here. If there is any risk related to naming sources, this should be indicated in the newspaper text to increase the credibility of the quotes used. The use of anonymous "experts" allows the newspaper to construct authority in their articles, but precludes the audience from assessing the veracity of the experts and their ideas. Thus, without the requisite justification for using unnamed sources, the articles lose credibility.

In the above section, it has been shown that the most frequently used sources in both *The Japan Times* and *The Daily Yomiuri* were, firstly, the Japanese government (including NISA), and secondly, TEPCO. This is in line with the tendency of newspapers to rely heavily on government and industrial sources in news articles (McCombs et al, 2011: 116; Freeman, 2000: 63). Many of the articles used only these sources; seemingly based almost entirely on official media briefings and/or press releases. Thus, a level of establishment bias is indicated in both newspapers.

The final section of this quantitative data chapter focuses on evidence of criticism towards key players in the nuclear crisis.

4.7 Criticism in the newspapers

The last section of the quantitative data that was coded indicates whether any obvious, explicit criticism of TEPCO, the Japanese government, foreign governments or the foreign media was present in the newspaper texts. The findings are presented in the graph below.

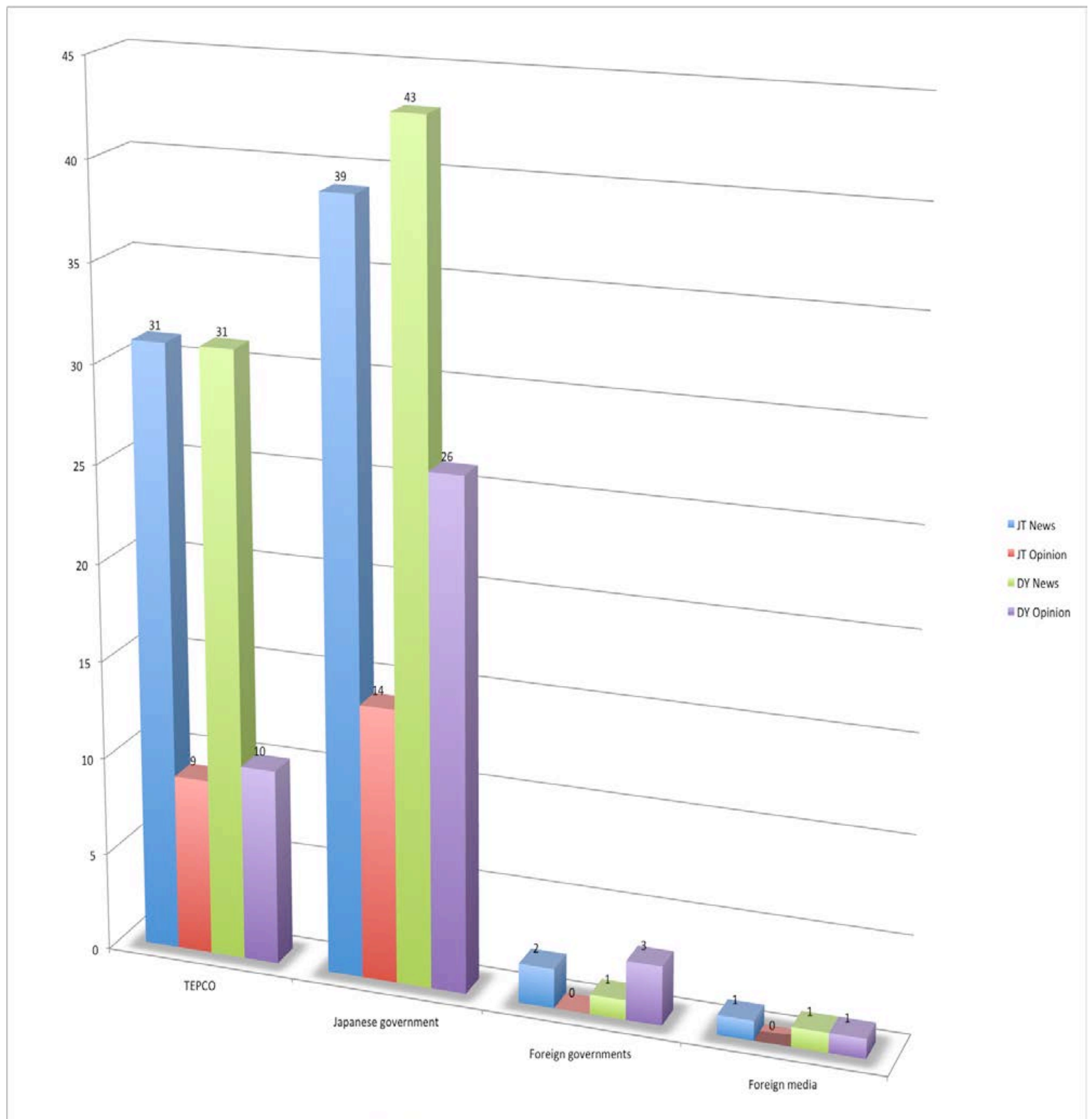

Figure 4.14: Subjects criticised in *The Japan Times* and *Daily Yomiuri*.

While there was almost no criticism of foreign governments or the foreign media, the newspapers contained substantial criticism of both TEPCO and the Japanese government. 31 news articles in each newspaper were critical of TEPCO; this translates to 28% of news articles in *The Japan Times* and 16% in *The Daily Yomiuri*. 36% (nine of 25) of the opinion pieces in *The Japan Times* and 20% (10 of 50) in *The Daily Yomiuri* were critical of TEPCO. Thus, in both cases, *The Japan Times* was more frequently critical of TEPCO. During the coding process, it was noticed that *The Daily Yomiuri* was almost entirely uncritical of TEPCO until early April; three weeks after the nuclear crisis began. *The Japan Times*, in contrast, was critical from the outset.

Both newspapers were more critical of the Japanese government than TEPCO. 35% (39 of 112) of news articles and 56% (14 of 25) of opinion pieces in *The Japan Times* expressed criticism, while in *The Daily Yomiuri* it was 22% (43 of 197) of news articles and 52% (26 of 50) of opinion pieces. While the proportion of opinion pieces that were critical of the Japanese government was roughly the same in both newspapers, a much greater percentage of news articles in *The Japan Times* were critical of the government, compared to *The Daily Yomiuri*. Where *The Daily Yomiuri* voiced criticism of the government, it tended to be in the form of harsh reproach of then Prime Minister Kan and calls for him to manage the nuclear crisis better and or step down from his post.

Overall, *The Japan Times* was more frequently and consistently critical of both TEPCO and the Japanese government than *The Daily Yomiuri*. The implications thereof will be considered in Section 5.6 of the following chapter.

4.8 Conclusion

In this chapter, the findings from the quantitative analysis component (the coding aspect) of this study have been presented, interpreted and briefly discussed. Meta-data on the proportion of news articles and opinion pieces, the listing of writers, and the geographic and issue foci of the texts in *The Daily Yomiuri* and *The Japan Times* have been provided. Use of keywords in the texts has been given superficial consideration, laying the groundwork for the

deeper critical discourse analysis of the following chapter. In addition, data have been disseminated on the reporting of radiation, the level of radiation-related risk depicted in the newspaper texts, the type of sources used and their frequency, and the number of texts that contained blatant, direct criticism of the Japanese government and or TEPCO. The next chapter draws on some of this data in support of the critical discourse analysis process.

CHAPTER 5: CRITICAL DISCOURSE ANALYSIS

In this chapter, the findings from the second component of the mixed method content analysis – that is, the critical discourse analysis component – are presented. Critical discourse analysis was performed after the initial coding of the newspaper articles, using notes made on the coding sheets as a starting point from which to proceed. The articles were examined closely and potential patterns and issues were identified. The role of a critical discourse analyst is to make implicit meanings explicit (Cf. page 94), and that is attempted here.

Some of the data presented in the previous chapter are drawn upon to reinforce the findings in this chapter. Assessments are made relating to the newspapers' framing of the nuclear crisis, criticism - particularly of government and nuclear industry authorities, and radiation reporting. Because it was dealt with comprehensively in the previous chapter, use of information sources in the news articles is not discussed again here.

Framing, criticism and radiation were the three core areas selected for analysis for the following reasons: the first two are essential elements of any analysis of disaster or crisis reporting (Cf. Chapter 2), offering insights into power imbalances in the media and possible agenda-setting effects. Representation of radiation is a necessary part of any content analysis of the coverage of a nuclear disaster, and was a core focus of the content analyses that guided the design of this study (Cf. page 76).

Following Richardson's (2007: 47-71) guidelines (Cf. page 95-96) on the order in which to consider discursive elements in a given text, I begin with a lexical analysis of the articles and opinion pieces in the two newspapers. This involves an examination of the choice of words used when describing the nuclear crisis. The lexical analysis is followed by an examination of the manner in which key

actors were portrayed, the transitivity[1] of verbs used, agency of actors and events, modality, metaphors, omissions, suppression and backgrounding of events or information, emotive language, and use of technical jargon. These are all factors that may be present in “linguistic engineering” (Alexander, 2009: 20-21); the image and narrative management that may occur in media texts.

The implications of findings of the critical discourse analysis, arguably the most critical part of the analysis, are discussed in the following chapter, which also explores the findings of the quantitative analysis and answers the guiding research question of the study.

5.1 Framing of the nuclear crisis

While an entire study could be dedicated to lexical analysis, I have chosen to limit my focus for this section to a few key points that provide a broad overview of the framing of the nuclear crisis in the newspapers. This was found to be sufficient to answer the research questions, and was deemed reasonable within the restricted scope and resources of this study. To begin with, the newspaper articles and opinion pieces are dealt with. Thereafter, the headlines are covered in a separate section.

5.1.1 Framing in articles and opinion pieces

After examining the newspaper texts, I noted that four adjectives dominated the discourse about the situation at the Fukushima nuclear power plant: “crippled”, “troubled”, “massive” and “desperate”. These words appeared repeatedly in both newspapers, though *The Daily Yomiuri* tended to favour “troubled” when describing the nuclear plant, while *The Japan Times* used “crippled” slightly more frequently. The word “grave” was also repeatedly seen, in reference to the severity of the situation.

[1] Referring to whether the verb takes a direct object or not.

Both newspapers frequently used the word "crisis" when representing the situation at the nuclear power plant, though *The Daily Yomiuri* often used words like "accident", "mishaps" and "problems" instead. This could be argued to have the effect of downplaying the severity of the situation, and was noted as the first of several points (presented below) indicating that *The Daily Yomiuri's* framing of the nuclear crisis was somewhat more moderate or conservative than that of *The Japan Times*.

This observation is reinforced when examining the use of keywords in the newspaper texts. A look at the keywords coded in the quantitative part of the content analysis reveals a higher percentage of threat, fear, chaos and distrust words in *The Japan Times* compared to *The Daily Yomiuri*. As shown on page 124-126, 83% of news articles in *The Japan Times* contained threat words like "disaster", "crisis" and "emergency", compared to 75% of news articles in *The Daily Yomiuri*. The difference between the opinion pieces in the two newspapers (80% and 78% respectively) was less significant.

Similarly, chaos words were present in 62% of news articles in *The Japan Times*, compared with 49% in *The Daily Yomiuri.* Again, the difference between the opinion pieces was less significant - 76% versus 70%. Fear words were found in 15% more news articles in *The Japan Times* (45% compared to 30%) and distrust words were found in twice as many – 52% of news articles in *The Japan Times*, compared to just 26% in *The Daily Yomiuri*.

The above figures strengthen the finding (unpacked below) that the reporting of the Fukushima nuclear crisis in *The Japan Times* was characterised by the use of more casual, emotive, and potentially alarming language than in *The Daily Yomiuri*.

Overall the discourse of the news articles in *The Japan Times* was found to be less conservative in its reporting of the nuclear situation. Moreover, it also generally included interpretive analysis of the information being reported. In contrast, *The Daily Yomiuri*'s news articles tended to be quite formal, plain and technical, laden with jargon and lacking interpretive analysis. This could be

argued to have had the effect of rendering them less accessible to readers. This difference is evident in these two quotes from articles reporting on cooling efforts at the nuclear plant. The first is from *The Daily Yomiuri*. It is very matter-of-fact.

> Two Ground Self-Defense Force helicopters and five Self-Defense Forces special fire and rescue engines, as well as a high-pressure water cannon truck from the Metropolitan Police Department, were deployed Thursday to cool a temporary storage pool for spent nuclear fuel rods at the No. 3 reactor of the nuclear plant on the border of Okumamachi and Futabamachi in Fukushima Prefecture (Cooling operations continue … 2011).

The second quote is from *The Japan Times*. It contains more emotive words (underlined). The tone is more casual too – for example, the use of the word "choppers" instead of helicopters.

> Ground Self-Defense Force choppers dumped water bags, a Tokyo police water cannon unsuccessfully[2] tried to spray water and five enclosed GSDF firetrucks later took on the desperate attempt to cool spent nuclear fuel rods in a storage pool suspected of drying up at the Fukushima No. 1 atomic plant's No. 3 reactor (Takahara & Martin, 2011).

Related to the above is the observation that many of the news articles in *The Daily Yomiuri* read like press releases; for example, stories on the technology company Toshiba's actions, crisis-related work undertaken by the Japanese Self Defense Forces, and even updates from TEPCO were published with no critical analysis and the use of just one source. This trend was not found in *The Japan Times*.

[2] While this word could be argued to simply convey information on the results of the operation, in this quote it makes a blunt statement that needs unpacking in order not to connote a sense of concern and despair.

Returning to the issue of language use, it was noted that both newspapers used the strongly emotive words “catastrophe” (in various forms) and “fallout”, though they were found slightly more frequently in *The Japan Times*. The word “fallout” can arguably be associated with apocalyptic nuclear scenarios popularised in video games and doomsday movies. It is a fear-inducing word that immediately conjures images of lethal radioactive contamination, more so than a still alarming but less drastic phrase like “radiation leak” (the framing of radiation in the two newspapers is discussed in more detail in Section 5.2 below).

Special attention was paid to the word “meltdown”, another fear-inducing word associated with doomsday nuclear scenarios, and one that was politically controversial in the unfolding of the Fukushima crisis in that, as mentioned earlier (Cf. page 7), TEPCO would only admit that meltdowns had occurred more than a month after the crisis began. This word could be said to have symbolised the worst-case outcome that was feared, as a meltdown means that the core of a nuclear reactor has been severely damaged, with resultant risk of radiation leakage. It was found, used in reference to the events at the nuclear power plant, in nine texts in *The Japan Times* and 11 in *The Daily Yomiuri* (including two headlines). It was used in a more definite and direct manner in *The Japan Times*, whereas in *The Daily Yomiuri* it was couched in speculative terms like “suspected meltdown” and downplayed by use of the word “partial”.

In both newspapers, the Fukushima nuclear crisis was depicted as being out of control and a source of significant threat to the welfare of Japan. Neither newspaper expressed much hope of the crisis ending quickly; this lack of optimism was reflected in the concerned sentiment of the opinion pieces. For example, an editorial in *The Japan Times* commented that, “The crisis at Tokyo Electric Power Co.'s Fukushima No. 1 nuclear power plant does not warrant optimism” (Overcoming the nuclear crisis … 2011). An editorial in *The Daily Yomiuri* stated that, “… it has become apparent that work to cope with the accident at the company's Fukushima No. 1 nuclear power plant will take a long time,” (TEPCO needs solid leadership … 2011).

The Japan Times freely speculated about worst-case scenarios like meltdowns (Martin, 2011), while *The Daily Yomiuri* tended to avoid this. However, *The Daily Yomiuri* did mention, many times, without analysis or any further consideration, the possibility of a "massive" amount of radiation being released if the situation were to deteriorate. Thus, the newspaper did not pretend that the situation could or would not worsen.

While steering clear of empty reassurances about the crisis being brought under control, both newspapers consistently emphasised that there was, as the government kept saying, no "immediate" health risk to the general public; this could be read as an attempt to avoid causing panic. It was one area where the newspapers repeated the risk communication of the Japanese government.

The newspaper texts were also examined for use of metaphors and other imagery. It was found that the nuclear crisis was framed using a metaphor of battle in both newspapers. Workers were depicted as being pitted against the malfunctioning, melting reactors, with a strong sense of urgency conveyed through phrases like "desperate battles raged" - from an article with the headline "Workers battle against time" (Takahara & Nagata, 2011c) in *The Japan Times*. Similar phrases were found in *The Daily Yomiuri*, as in "tough nuclear opponent" (Musings, 2011a), and the headline, "Unmanned machines enlisted at N-plant" (Unmanned machines … 2011). "Enlisted" is a word associated with military contexts. The newspaper also often made use of words like "mission" – with the effect that the texts conveyed a sense of honourable duty, tying into Tollefson's (2013) findings, discussed below. The nuclear plant was portrayed as a raging monster of an opponent that needed to be tamed. This is exemplified in the phrase "hydra-headed[3] crisis" found in an editorial (Govt. must create … 2011) in *The Daily Yomiuri*.

The Daily Yomiuri took the battle image one step further by situating it within a narrative of struggle and solidarity. These findings echo those of Tollefson

[3] Referring to the water monster from Greek/Roman mythology.

(2013: 12-13), with the newspaper running several emotional[4] pieces that seemed designed to elicit empathy and support for the workers, as well as convey the message that the public ought to get over their fear and do their part, like the workers who were making sacrifices. This had the effect of transforming the situation from a dire mess into an opportunity to serve the country and do something noble. One such article (classified as a news text), using nameless sources, included multiple quotes like the following, which reads like a carefully planned propaganda piece:

> The woman told her daughter, 'Dad chose to go because of his sense of responsibility toward his job. Now he's working for everyone.' The daughter smiled and replied, 'My Dad's great. He's a hero.' (Goto, Mori & Maeda, 2011).

The next quote reads almost like a direct message to the people of Japan:

> Kakuta said, 'Those workers are feeling anxious about family members and their futures, but most of them have kept their feelings to themselves and have been working hard.' (Dosimeters, more … 2011).

The frequent framing of the nuclear crisis within a struggle narrative reflects the findings of the previous chapter (Cf. page 128), where it was noted that struggle words were present in 27% of news articles in *The Daily Yomiuri*, more than double the 12% in *The Japan Times*.

In *The Daily Yomiuri*, emergency workers were punted as the human face of the disaster unless they suffered harm, as when several workers were exposed to high levels of radiation in pools of water in the nuclear plant (see Safety team neglects risk, 2011). Suddenly they became faceless – with no identification, and agency removed through the use of passive constructions. For example, "at least 14 workers had been exposed" and "Thursday's accidental exposure of three workers" (Safety team neglects risk, 2011). However, it should be noted

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[4] In these pieces, *The Daily Yomiuri* actually did use much more emotive language.

that both newspapers were critical of the negligence that resulted in the workers' injuries.

Before concluding this section, it is pertinent to also very briefly consider whether any of the interpretive packages identified in the discourse on nuclear power by Gamson and Modigliani (Butler, 2011:11), (Cf. page 26-27), were evident in *The Japan Times* and *The Daily Yomiuri*. Doing so can provide additional insights into the framing of the nuclear crisis in these newspapers.

Only two of the seven interpretive packages were clearly identified in the newspaper texts. This could be due to the significant amount of time that has elapsed (26 years) since the original study on interpretive packages was done by Gamson and Modigliani (1989). It is possible that the frames have become outdated, as discourses shift with time. Instead of a negative public accountability frame that is anti-corporate, nuclear energy, as discussed in the context of the Fukushima crisis, was framed in a negative government responsibility frame. As explained in Section 5.3 below, the Japanese government was criticised in both newspapers.

The devil's bargain frame (Butler, 2011: 11), portraying nuclear energy as a necessary evil in the fight against global warming, was present to an extent in some of the articles that dealt with the future of nuclear energy. However, nuclear energy was largely depicted not as an evil, but a useful, necessary technology that simply needed better regulation and monitoring, particularly in earthquake-prone countries.

Where opposition to nuclear energy was included in the newspaper texts (almost exclusively in *The Japan Times*), a negative frame on cost-inefficiency was clearly present. The following is an example:

> Thus, not only traditional antinuclear activists but a growing number of prominent business leaders are questioning whether it makes sense to stay with nuclear power over the coming years, given the age of the current plants and the fact that the price per kilowatt hour of other energy sources is likely to continue to fall (Johnston, 2011).

Opposition to nuclear power was also couched in terms of health and environmental concerns.

This concludes my findings on the framing of the nuclear crisis in the news articles and opinion pieces in the two newspapers. Observations from the lexical and deeper analysis suggest that *The Daily Yomiuri* was more formal and moderate than *The Japan Times* in its representation of the Fukushima nuclear crisis. Texts in the former were characterised by plain, technical language (except in its struggle and solidarity narrative), while the latter tended to make more use of threatening emotive language. A battle metaphor was found in both newspapers. In addition, three interpretive packages or frames were identified in the depiction of nuclear energy – a devil's bargain frame, a negative frame on the cost-efficiency, and a negative government responsibility frame.

Further aspects of the coverage need to be considered, however, before the overarching research question of this study can be answered. The headlines, a key part of newspaper discourse, are one such aspect and will be discussed next.

5.1.2 Analysis of headlines

The headlines of the news articles and opinion pieces were primarily examined for word choice, agency, use of metaphors and narrative construction. The findings are detailed in this section.

The characteristics of the framing of the nuclear crisis in each newspaper, as described above, were found to exist to some extent in the headlines as well. Those in *The Japan Times* contained more casual, and somewhat more emotive, language in general, while those in *The Daily Yomiuri* tended to make more use of plain, technical language, except where headlines were part of the publication's struggle and solidarity narrative, which tended to be more emotive.

Overall, the headlines in *The Japan Times* were found to be potentially more alarming than those in *The Daily Yomiuri*, which were more moderate. However, as will be shown, alarming headlines were not entirely absent from *The Daily Yomiuri.* Alarming headlines in both newspapers were focused on radiation.

The struggle and solidarity narrative of *The Daily Yomiuri* was strongly present in the headlines, as was criticism of the Japanese government, TEPCO and public nuclear concerns. The headlines also consistently expressed sentiment that was supportive of nuclear energy and critical of alternatives.

The headlines of *The Japan Times* expressed the opposite; questioning nuclear energy from the beginning of the nuclear crisis. The headlines of *The Japan Times* were critical of TEPCO but less so of the Japanese government, compared to *The Daily Yomiuri*, and more critical of information related to the crisis in general. The headlines were not found to be critical of public anxieties regarding radiation. Each of these points will be discussed below, with examples.

The very first headlines related to the disaster that struck on 11th March, 2011, were the following: "Kan[5] pledges full rescue response" (Takahara, 2011b) in *The Japan Times*, and "Massive quake strikes/At least 20 dead after 8.8 magnitude tremor" (Massive quake strikes … 2011). At that stage, it was still too early for the print newspapers to cover the nuclear situation as details would not become available until after they had gone to print. *The Daily Yomiuri*'s headline was more detailed, but insinuated chaos – expressing the aftermath of the disaster, while the headline in *The Japan Times* conveyed the reassuring idea that the Japanese government was in control and would deal with the disaster situation.

The following day, the first headlines related to the crisis at Fukushima were seen. *The Japan Times* ran "Basic nuclear policy questioned" (Johnston, 2011a), while *The Daily Yomiuri* ran "Reactor meltdown feared/Quake disabled

[5] Prime Minister.

Fukushima N-plant's cooling systems" (Reactor meltdown feared … 2011). The approach of each newspaper was very different; *The Daily Yomiuri* once again insinuated chaos through its direct, factual headline – which would have likely been alarming to readers. *The Japan Times*, on the other hand, did not run with the nuclear crisis as a headline but chose to focus on nuclear policy, which at first glance seemed like Japan's reliance on nuclear energy, but actually referred to the inadequacy of the nuclear emergency response system in place. Thus the headline was, while not alarming, somewhat misleading, as it was not about the country's nuclear energy programme at all.

Many of the headlines in both newspapers over the next few days were alarming. For example, *The Japan Times* ran: "No signs yet of a Chernobyl-type catastrophe" (Hongo & Nagata, 2011), "Reactor fuel rods fully exposed" (Takahara, 2011c), "Radiation fears grow after blasts" (Takahara & Nagata, 2011b), "Take proper steps to avoid exposure to fallout" (Otake & Kamiya, 2011), and "Fukushima nuclear plant alert" (Fukushima nuclear plant alert, 2011). These were interspersed with neutral and even reassuring headlines like, "Radiation levels spike in Tokyo; capital still safe, Ishihara says" (Fukada, 2011) and "Containment vessel failure unlikely" (Takahara & Nagata, 2011a).

In *The Daily Yomiuri*, headlines like the following were seen: "Make no mistakes handling N-accident" (Make no mistakes handling … 2011), "High radiation detected after decontamination" (High radiation detected … 2011), "2nd reactor hit by blasts/TEPCO official hints meltdown may be under way" (2nd reactor hit … 2011), "Radiation hazard detected/Massive leak feared after fire at spent nuclear fuel pool" (Radiation hazard detected … 2011), and "Smoke escapes N-plant/New danger signs at No.3 reactor; radiation levels jump" (Smoke escapes N-plant … 2011).

The headlines in *The Japan Times* were significantly shorter than the headlines in *The Daily Yomiuri*, a trend reflected in the examples stated above, and one that continued throughout the two months of coverage that was analysed. The shorter length allowed for the communication of less information in the headlines, which could, arguably, have contributed to the creation of an

alarming effect in headlines that expressed threat and were vague or general. However, the argument could also be made that the inclusion of more information in *The Daily Yomiuri's* headlines, such as the one that read "Radiation hazard detected/Massive leak feared after fire at spent nuclear fuel pool", could have contributed to alarm in that they gave readers more to worry about.

Some headlines in *The Daily Yomiuri* contained overtly threatening language, such as "hazard", "massive leak", and "jump" in reference to the radiation, which could be strongly alarming to readers. Radiation is always "detected" in the passive, with no indication of who was doing the detecting. This had the effect of rendering the radiation to be a threat that was unpredictable and spreading invisibly, and out of control. The caution to "Make no mistakes" also had an alarming effect in its insinuation that a false move could have disastrous consequences.

After the brief flurry of alarming headlines in *The Daily* Yomiuri in the first week of the nuclear crisis, they became less threatening in the weeks that followed. Some later headlines could have been construed as threatening by virtue of the large amounts of radiation they referenced, such as, "10 million times norm/Massive iodine-134 level in No.2. reactor turbine building" (10 million times … 2011). This headline, while stating the facts without emotive words as such, would still likely have concerned readers.

In *The Japan Times*, the headlines of the first week were sometimes dramatic and alarming, as can be seen through their use of words like "fully exposed", without any explanation, which suggests an imminent nuclear meltdown, and "alert" – a word that signifies a state of serious danger and would trigger alarm. The command to readers to take steps to protect themselves from fallout is also alarming, as it implies that the public is at risk and action is needed. The headline for a similar advice article in *The Daily Yomiuri* read, "FAQs on radioactivity exposure; safety" (FAQs on radioactivity … 2011), which is much more moderate.

The Japan Times made the decision to compare Fukushima to Chernobyl in its headlines (on several occasions); a move which, as discussed in the previous chapter (Cf. page 128-129), would almost certainly have caused fear in the readers due to its immediate association with an extreme nuclear disaster. In "No signs yet of a Chernobyl-type catastrophe" (Hongo & Nagata, 2011), the "yet" has the effect of causing fear in its insinuation that Fukushima would deteriorate to a Chernobyl-level crisis.[6] Later headlines like, "Fukushima crisis now at Chernobyl level" (Takahara, Nagata & Ito, 2011) and "Almost as bad as Chernobyl" (Almost as bad … 2011) would certainly also have had alarming effects. In contrast, *The Daily Yomiuri* avoided making reference to Chernobyl in its headlines, as seen in this example: "Fukushima rivals other N-disasters/1999 Tokaimura, 1979 Three Mile Island on par in seriousness" (Fukushima rivals other … 2011), which seemed to go out of its way to reference other, less serious nuclear incidents. However, they did make reference to Chernobyl in several articles.

The Japan Times continued to run headlines that were short,[7] quite vague and sometimes contained threatening words throughout the period of analysis. In the coverage of food contamination, *The Japan Times* ran the alarming headlines, "Latest threat: radiation-contaminated food" (Aoki, 2011) and "First food ban issued in nuke crisis" (Takahara, 2011a). *The Daily Yomiuri* neutrally stated, "Spinach, milk may be restricted" (Spinach, milk may … 2011) in one headline, but "Radiation discovered in Fukushima, Ibaraki food" (Radiation discovered … 2011), in another in the same newspaper. The latter could be construed as alarming due to the lack of information about the amount of radiation and whether the food had already been sold.

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[6] The article itself was actually reassuring; urging calm and emphasising that the situation was not as serious as Chernobyl.

[7] It is possible that *The Japan Times* uses shorter headlines as part of its style guide. However, this would not negate the consequences and implications discussed here.

The struggle and solidarity narrative (Cf. page 128) that characterised much of the coverage of the nuclear crisis in *The Daily Yomiuri*, was prominent in the headlines as well. For example, “Workers face incredible risk with little food” (2011), “Terror at N-plant during quake” (2011) and “Heatstroke adds to TEPCO workers’ woes” (2011). These headlines conveyed the hardships of the nuclear plant workers, likely eliciting an emotional response of empathy among readers. A similar struggle narrative was not identified as a feature of the headlines in *The Japan Times*.

Criticism of the Japanese government and TEPCO was also not a feature of the headlines in *The Japan Times*, though the newspaper did question the validity of the government and TEPCO’s radiation data in headlines like, “NGO finds high levels in safe area” (Hongo, 2011a) and “High radiation well past no-go zone: Greenpeace” (Hongo, 2011b). It also conveyed criticism of the collusion between METI and TEPCO, as in, “METI hit for 'amakudari' habits that put retirees in Tepco” (Fukue, 2011). These and other critical tendencies of the publication will be discussed in Section 5.4 below.

The Daily Yomiuri ran headlines that were critical of both TEPCO and the government. Examples of such headlines include: “TEPCO 'solution' caused problems of its own” (TEPCO ‘solution’ … 2011), “Kan must refrain from taking makeshift measures” (Kan must refrain … 2011), “TEPCO tardy on N-plant emergency” (TEPCO tardy on … 2011) and “Absent TEPCO execs slowed crucial action” (Absent TEPCO execs … 2011).

The newspaper also criticised the government’s risk communication failures by stating other countries’ alleged frustrations, as in: “Foreign governments frustrated with Japan” (Foreign governments frustrated … 2011), “U.S. ‘frustrated’ over Japan’s lack of N-info” (U.S. ‘frustrated’ … 2011) and “World critical of Japan’s failure to disclose info” (World critical of … 2011).

Several headlines in *The Daily Yomiuri* were also critical of people’s radiation fears. For example, “Exporters hit by nuclear anxiety/Radiation-fearing clients demand time-consuming, costly screening” (Exporters hit by nuclear … 2011)

and “Groundless rumors add to burdens of Fukushima evacuees” (Groundless rumors add … 2011). In both cases, fear is construed as irrational and unnecessary, and an exacerbating factor in the struggle of Japanese people to recover from the nuclear crisis. This will be discussed further in Section 5.2 below.

As a final point, analysis of the headlines found that the newspapers seemed to take opposing positions on nuclear power as a source of energy, with *The Japan Times*, as noted, critically questioning the use thereof from the outset, and *The Daily Yomiuri* working to reconstruct the legitimacy of nuclear energy. The difference in stance is exemplified in these two headlines: “Crisis a chance to forge new energy policy” (Johnston, 2011b) in *The Japan Times*, and “Nuclear dreams set back” (Nuclear dreams set back, 2011) in *The Daily Yomiuri*.

From the headline analysis, it can be concluded that the headlines published in the two newspapers had markedly different characteristics. Threatening, emotive language was evident in headlines from both *The Japan Times* and *The Daily Yomiuri*, though, except for the first week, more prominent in *The Japan Times*’ headlines on radiation-related issues. As has been shown, however, some of the headlines in *The Daily Yomiuri* could still have been construed as alarming despite the use of plain, factual language. In both newspapers, alarming headlines were interspersed with more neutral ones. The headlines were, overall, more alarming than the articles – in some cases, as shown, even contradicting the reassuring or neutral tone taken in the articles.

It was noted above that *The Daily Yomiuri* ran several headlines that expressed criticism of nuclear fears. This anti-anxiety sentiment will be discussed in the following examination of the reporting of radiation in the two newspapers.

5.2 Reporting of radiation

This section provides an analysis of the radiation coverage in the two newspapers, with a focus on differences in framing, the level of risk depicted, and attitudes towards public fears. As many of these topics have already been covered comprehensively in the previous chapter, only additional insights will be added here.

As shown in Chapter 4 (Cf. page 134-135), both newspapers depicted the level of risk (radiation-related) from the nuclear crisis as significant in almost half of their news articles (46% in *The Japan Times* and 49% in *The Daily Yomiuri*). However, in 26% of news articles and 40% of opinion pieces in *The Japan Times*, the level of risk was unclear or not focused on. In *The Daily Yomiuri*, these figures were 39% and 44% respectively. *The Japan Times* was found to report on radiation more frequently, thoroughly and in a more accessible manner than *The Daily Yomiuri*. The results of the critical discourse analysis seem to confirm this.

In their news articles, *The Japan Times* acknowledged potential radiation threats while conveying government assurances that the public need not panic about them. For example:

> Radioactive materials that exceeded regulation levels have been found in seawater around the endangered Fukushima nuclear plant, but government officials offered reassurances Tuesday they will not have an immediate effect on people's health (Ito, 2011).[8]

[8] While this was the predominant message, exceptions in the form of slightly more alarming statements were found in a few of the articles. For example: "'Exceeding these levels does not immediately threaten human health. But you'd better keep watching,' Shimo of Fujita Health University said," (Aoki, 2011).

The Daily Yomiuri followed the same strategy, almost always following up mention of radiation with the government's phrase, "but no immediate effect on health".[9]

Emotive language was seldom used to frame radiation hazards in the two newspapers, with the exception of "spewing" and "belching" in several descriptions of the nuclear plant in *The Japan Times*. These words contribute to the out-of-control image described in 5.1.1 above.

Despite discouragement of the use of vague terms to describe radiation (Cf. page 133) *The Japan Times* used *"high"*, "well above the legal limit" and "abnormal" frequently when describing atmospheric and ground levels of radiation. Instances of the more emotive "alarming levels", "highly toxic" and "the threat of massive radiation leaks" were found in three articles. The word "lethal" was sometimes used to frame the highly radioactive water within the nuclear plant.

Overall, the framing of radiation was found to be moderate and not alarming in *The Japan Times*. No evidence of exaggeration of risk was found. The articles themselves were actually often much more reassuring than their alarming headlines. Where concern was expressed over radiation risks, it tended to be focused on the possible long-term contamination of food, as in:

> But the greatest long-term danger may be from agricultural products in areas where radioactivity falls to the ground and is absorbed by crops and livestock (Johnston, 2011).

Similar speculative concern was found in several other articles.

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[9] One article (Radiation hazard … 2011) proved to be an anomaly, with a large amount of radiation risk information given without any reassurance whatsoever. This article was extremely alarming. Kim and Bie (2013: 195) caution that news articles covering poorly understood, hidden dangers of nuclear accidents without suggestions for protection may result in an increase in fear of invisible hazards.

The opinion pieces in *The Japan Times* contained more emotive language and a sense of alarm, for example, as seen in phrases like “extremely high radiation levels” (Tepco’s road map, 2011) and “a false sense of security” (Almost as bad … 2011). The latter referred to repeated assurances that the scale of the Fukushima crisis was smaller than Chernobyl. This concern could be interpreted as a reflection of the newspaper’s critical stance on the accuracy of the radiation data issued by the Japanese government and TEPCO.

Like *The Japan Times*, *The Daily Yomiuri* relied on the adjective “high” to describe radiation levels. Radiation was either classified as “high” or simply stated as “radiation” or “radioactive substances”. An exception was found when referring to levels workers faced in the nuclear power plant; these were called “dangerous”. Reference to government and international limits was made frequently in the coverage of radiation. Radiation levels were also repeatedly reported as being on the decline.

Overall, as the quantitative coding indicated, radiation information was not included in articles in *The Daily Yomiuri* as often as in *The Japan Times*. Risk was not excluded, but was downplayed in most of the news articles. Editorials in *The Daily Yomiuri* emphasised the need for TEPCO and the Japanese government to bring the crisis under control while trying to minimise public concerns. The following two quotes from the same opinion piece, written following the reclassification of the Fukushima nuclear crisis as a Level 7 accident on the INES scale, illustrate this:

> The government and Tokyo Electric Power Co., the operator of the nuclear plant, must work harder to bring the situation under control.
>
> The government should carefully explain the vital differences between the Chernobyl and Fukushima Prefecture accidents to prevent public anxiety from spreading and to control damage that could be whipped up by groundless rumors (Nuclear accident’s … 2011).

Public anxiety, both local and foreign, was found to be consistently portrayed as excessive and irrational in *The Daily Yomiuri*, confirming Tollefson’s (2013)

findings (Cf. page 82-83). This sentiment was identified repeatedly in articles and editorials. Two further examples include, “the industrial sector has been put on the defensive by overreactions overseas” (Step up fight … 2011) and, in an article quoting an official from a tourist association, “The whole nation is being affected by rumors exaggerating the danger of visiting because of the nuclear plant accident,” (Tourist numbers … 2011).

With regards to food, *The Daily Yomiuri* emphasised the safety of produce from the affected regions, taking a more strongly reassuring track than the concern expressed in *The Japan Times*. In an editorial that urged the public not to avoid produce from the Tohoku region, the paper said:

> If vegetables, fruit and the other produce from disaster-affected zones are shipped and sold on the market, it means they are safe to eat (Musings, 2011b).

In another, the following two quotes were found: “The detected amounts are far short of levels that could immediately harm health if ingested,” and:

> …it is necessary to study whether the international food safety standards can fit Japanese dietary habits, thereby avoiding excessive regulations (Govt. must toughen … 2011).

This critical attitude towards “excessive regulations” was found in many of the articles and opinion pieces, not limited to food, but including the parameters of the evacuation zones, required checks for products from Japan to be sold to other countries, and the designated safe limits of radiation exposure for children in Fukushima. In depicting radiation precautions and regulations as heavy-handed, the newspaper artificially created a reassuring sentiment and strengthened its message that the public ought not to be anxious.

The Japan Times was far less critical than *The Daily Yomiuri* on the issue of public fears about radiation, sympathising with them and, with the exception of one or two articles,[10] not representing them as irrational. The newspaper called

[10] See Johnston’s (2011d) article headlined “Jittery Tokyo residents trickle back”.

on the government to provide accurate information on the radiation situation, to help dispel fears. This is illustrated in the following two quotes. Firstly:

> …trust in Japanese products and services won't be restored until Japan can be counted on to provide correct information about the crisis (Trusting imports … 2011).

And secondly, from an article about some foreign students not wanting to return to classes in Japan:

> The government and schools need to reassure those students, their parents and their home schools that studying here will be made safe for them (Foreign students since … 2011).

In addition to its cry for the disclosure of accurate radiation data, *The Japan Times* also, as shown in the headline analysis, provided space for criticism of the official radiation information, for example by presenting Greenpeace's contradictory data. This was not found in *The Daily Yomiuri.* In one article they did include the opinion of a French team of scientists, though framed more moderately than the Greenpeace comments in *The Japan Times*:

> The government played down the risk of widespread radioactive contamination, saying the radioactive substances would become less concentrated in due course. But the French group's calculations indicate the need for careful observation of radiation levels at various points offshore, observers said (Radioactive substances' … 2011).

The quote refers to the spread of radioactive substances in the ocean. Instead of directly challenging the Japanese government's estimations, further observation is called for.

The Daily Yomiuri also called on the government to be more transparent in its disclosure of information related to the crisis. As mentioned before, they used criticism from other countries to do this, as seen in these quotes:

> Nuclear experts at home and abroad are criticising the Japanese government for not releasing its own forecasts, raising new questions about the government's handling of information on the nuclear crisis (Govt. holding radiation … 2011).

And: "Japan therefore must gain foreign countries' trust by providing accurate information," (Foreign governments frustrated … 2011). *The Daily Yomiuri* blamed the spread of radiation rumours, and the subsequent wariness of Japanese products and Japanese travel, on the Japanese government's information sharing failures. The Kan administration was harshly criticised by the newspaper from the outset; this will be dealt with in more detail in Section 5.3 below.

In this section I have made clear how both newspapers acknowledged and expressed significant risk in their reporting on the radiation from the Fukushima nuclear plant. Neither newspaper's news articles were alarming in this regard, but a difference was noted in the editorials, with *The Japan Times* depicting more concern, and *The Daily Yomiuri* calling for calm. In general, while *The Japan Times* was more understanding of public fears, *The Daily Yomiuri* portrayed them as uninformed and irrational. This, together with its sceptical criticism of safety regulations, and its smaller focus on radiation compared to *The Japan Times*, created an artificial sense of reassurance. Both newspapers called on the government to disclose more radiation information.

The next section examines the critical attitudes found in the newspapers, focusing on their depiction of the Japanese government, TEPCO and foreign governments.

5.3 Criticism of authorities

Critical tendencies were identified in both *The Japan Times* and *The Daily Yomiuri*, though they were quite different. The type and targets of criticism are discussed in this section.

The Japan Times was found to be critical in a more general sense than *The Daily Yomiuri*. TEPCO and the Japanese government were scrutinised, as was collusion between them. Overall, *The Japan Times* seemed to function as more of an impartial watchdog.

As shown in the previous chapter, 35% of news articles and 56% of editorials in *The Japan Times* were to some extent critical of the Japanese government, while 28% of news articles and 36% of editorials were critical of TEPCO. The accuracy of TEPCO's crisis reports was questioned, and its communication criticised. Conflicting reports between the Japanese government and TEPCO were often the means by which this happened in the news articles. For example:

> NISA earlier cast doubt on details of the analysis, which was announced Thursday, causing TEPCO to scramble to verify the information. But on Friday, TEPCO confirmed that its previous statement was accurate. 'People are extremely worried right now and the data must be trustworthy. It is a problem that (TEPCO) is not answering people's expectations,' senior NISA official Hidehiko Nishiyama said the same day … This is the second time in less than a week TEPCO has had to amend radiation readings from the plant (Ito, 2011).

Where the Japanese government was criticised, it was mostly focused on the accuracy of their information, or their lack of disclosure of information in general, as mentioned earlier. Prime Minister Kan was not targeted to the same extent that he was in *The Daily Yomiuri*. One opinion piece stated, "Some of his behaviour after March 11 has cast doubt on his reliability as a leader," (Mr Kan's crisis … 2011). Such remarks were unusual in *The Japan Times*, but frequently found in *The Daily Yomiuri*.

Overall, *The Japan Times* was more sympathetic to Kan and harshly critical of TEPCO than *The Daily Yomiuri*, which did the opposite. As shown, *The Japan Times* was also critical of collusion between the nuclear regulator that was situated within the Ministry of Economy, Trade and Industry and TEPCO, as exemplified in Fukue's (2011) news report. The two newspapers seemed to have different agendas, exemplified in their choice of framing. This is discussed in more depth in the following chapters (Cf. Chapter 6 and 7).

Both *The Japan Times* and *The Daily Yomiuri* reported on expert opinions that the nuclear crisis was not the result of an unexpectedly massive tsunami, but a lack of proper safety measures on the part of TEPCO and NISA. By including

such criticism, both newspapers held these authorities accountable for the nuclear crisis. For example, in *The Japan Times*:

> 'The Fukushima No.1 plant crisis was not caused by tsunami, but by lack of multiple safeguards,' Irikura said. 'The guidelines stipulate nuclear plant operators must minimize risk even from unexpected events,' (Matsutani, 2011).

The emphasis in the quote above was on TEPCO's responsibility, whereas *The Daily Yomiuri* specifically included the Japanese government, for example in:

> TEPCO and the government clearly underestimated the warnings that were being sounded over the Fukushima plant's lack of tsunami-protective measures (TEPCO ignored …, 2011).

And:

> The crisis at the Fukushima No.1 nuclear power plant, and the way the government and TEPCO responded to it, can never be swept aside simply by saying it was 'unforeseeable' (Nation must pool … 2011).

The Daily Yomiuri's criticism of the Japanese government was, it was found, directed at Prime Minister Kan. In contrast to its coverage of the crisis itself, the newspaper was much harsher and more emotive than *The Japan Times* in its coverage of Kan, describing his management of the crisis as "bungling" (Kan must refrain … 2011), calling him a "severely withdrawn person" (Kan must overcome … 2011) and taking every opportunity to slate his administration and urge him to either work with the opposition LDP (Public wants … 2011) or step down entirely (Pressure grows … 2011). In an analysis, the ideologies of the producers of a text require consideration (Cf. page 50). The newspaper's attitude towards Kan may reflect its right-wing, pro-LDP (Tollefson, 2013) orientation.[11]

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[11] However, a comprehensive analysis of articles and editorials from a period when the LDP has been or is in power would be necessary to confirm this. A cursory read of current issues of *The Daily Yomiuri* does also show criticism of the current LDP leadership of the country.

As indicated (Cf. page 140), 22% of news articles and 52% of editorials in *The Daily Yomiuri* were critical of the Japanese government (lower, particularly in the case of news articles, than *The Japan Times*, but less modest). However, only 16% of news articles and 20% of editorials were critical of TEPCO (also lower than *The Japan Times*). As previously noted, coverage of TEPCO in *The Daily Yomiuri* was more sympathetic than that in *The Japan Times*, for the initial three weeks after the crisis. Thereafter, it became more critical, perhaps in line with the increased politicisation of the crisis as events progressed (Cf. page 66). The initial sympathy partially confirms the bias towards TEPCO identified by Tollefson (2013), but does not corroborate the bias he found towards the Japanese government (Cf. page 79). This may be because his study looked at a much longer period of coverage, leading up to the reinstatement of the LDP in 2012.

The following quotes from a news article provide good examples of the newspaper's emotive criticism towards TEPCO:

> Tokyo Electric Power Co.'s failure in its initial response to the crisis at the Fukushima No.1 nuclear power plant in Fukushima Prefecture invited more trouble in a chain reaction, according to an analysis of events over the past three weeks …
>
> TEPCO's sloppy way of publicly releasing information related to the accident has also drawn much criticism (TEPCO failures multiply … 2011).

Two further points were noted during the analysis of criticism in *The Daily Yomiuri*. These pertain to the construction of a collective "us" identity in their editorials, and a strongly pro-USA stance.

The voice in the editorials was an unnamed "we", as if representative of the Japanese population. Command words like "must" and "should" were used in reference to what the government, TEPCO and the public needed to do in the wake of the crisis. This resulted in the construction of a collective nationalistic identity, similarly described by Tollefson (2013). This was problematic in its exclusion of alternate voices in the framing of the nuclear crisis, such as citizens

concerned about produce from the regions affected by radiation, those critical of the radiation data, and outsider sources of radiation data – like Greenpeace.

The Daily Yomiuri also displayed prominent pro-USA bias in both its news articles and editorials. Deep concern was expressed that the nuclear crisis might strain relations between Japan and the USA, with the view that Japan needed to act to prevent this from happening. This can be seen in the following quote, which had "Decay of alliance feared" as a sub heading:

> … warning that Washington was 'growing poignantly frustrated' with Japan's handling of the nuclear crisis, adding, 'The Japan-U.S. alliance could collapse, completely contrary to [the recent trend of] being strengthened,' if the government's approach to the nuclear problem remained unchanged (U.S. 'frustrated … 2011).

The newspaper also ran several articles about the support operations of the United States military, all of which read like public relations pieces in their strongly positive writing and message of solidarity. The headline, "U.S. Navy a good 'tomodachi'[12]/Ship springs into action right after quake, crew works tirelessly" (U.S. Navy a good … 2011) is a good example of this.

Consideration needs to be given to this pro-USA bias, especially since it may seem to contradict the nationalistic ideology of the newspaper. The congenial attitude towards the USA may reflect the intentions of many Japanese LDP politicians to strengthen relations with the country (Bix, 2014); the publication is not so much anti-government as it was hostile to the DP[13] administration specifically. Its nationalism[14] supports a particular type of government; one that

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[12] *Tomodachi* means "friend" in Japanese and was the name of the U.S. military's support operation.

[13] It should be noted that while Prime Minister Kan sought to strengthen Japan-US relations, his predecessor, and indeed, the previous foreign policy of the DP party, had been less warm towards the USA and more focused on relations with other Asian countries (Su, 2010) – the opposite of *The Daily Yomiuri*'s position.

[14] Nationalism can be understood as "a discourse which links a variety of projects, policies and movements undertaken in the name of the nation." (Wilson, 2002: 3).

seeks to build stronger ties with the USA. The bias could also indicate a different, complex political position on the part of the newspaper – a deeper understanding of which falls beyond the scope of this study.

The Japan Times also expressed positive sentiment about the assistance of the American military, but in a more moderate, incidental manner than *The Daily Yomiuri*.

In this section, I have discussed the characteristics and foci of the criticism in the two newspapers, the final aspect of the coverage that was considered as part of the critical discourse analysis.

A critical discourse analysis would not be complete without a consideration of problematic power structures brought to light through the examination of the texts. This, together with a full discussion of the implications of the findings presented in this and the previous chapter, is done in Section 6.3 of the following chapter.

5.4 Conclusion

The findings of the critical discourse analysis component of this study have been presented and discussed in this chapter. The framing of the Fukushima nuclear crisis in the news articles, editorials and headlines of *The Japan Times* and *The Daily Yomiuri* has been examined using lexical analysis. Radiation reporting has also been given consideration, as have the different types of criticism present in each newspaper.

The findings of the critical discourse analysis seem to reinforce the differences between the two publications that were identified in the previous chapter. They also reveal further ways in which the newspapers differed in their approach to the coverage of the Fukushima nuclear crisis. These disparities seem to speak to the difference political positions of *The Daily Yomiuri* and *The Japan Times*, and their functioning in society.

In the following chapter, the implications of the findings from Chapter 4 and Chapter 5 are discussed, and insights derived from the findings are considered in depth.

CHAPTER 6: IMPLICATIONS OF FINDINGS

In this chapter, the implications of the findings from the quantitative analysis and qualitative critical discourse analysis are explored. To begin, the key differences between the coverage of the nuclear crisis in the two newspapers are summarised. Thereafter, the primary research question of the study, namely, whether each newspaper's coverage of the Fukushima nuclear crisis was reassuring, alarming or relatively balanced and neutral, and what the implications thereof might be, is answered. This leads into a discussion of the insights for the Japanese media and nuclear disaster reporting.

In its discussion of implications, this chapter refers back to core concepts in media theory such as agenda setting (Cf. page 28-29) and establishment bias (Cf. page 35) that were discussed at length in the literature review chapter.

6.1 Summary of main differences in coverage

The core differences in the coverage of the crisis in *The Japan Times* and *The Daily Yomiuri* are recapitulated here in bullet-point form for the sake of cohesion and clarity.

- *The Daily Yomiuri* was slightly more conservative in its framing of the nuclear crisis itself (that is, events at the plant). *The Japan Times* was slightly more radical.
- *The Daily Yomiuri* used less emotive, more formal and technical language, except in texts that featured a struggle/solidarity narrative or were critical of the Japanese government. The language of *The Japan Times* was generally more casual.
- A struggle/solidarity narrative was prominent in *The Daily Yomiuri*, but absent from *The Japan Times.*

- *The Japan Times* included more interpretation and analysis in its news articles.
- *The Japan Times* made use of shorter, slightly more alarming headlines.
- *The Japan Times* supported alternative energy sources, whereas *The Daily Yomiuri* supported the retention and further development of nuclear power.
- *The Japan Times* covered radiation more often, clearly and thoroughly.
- *The Daily Yomiuri* downplayed radiation risks somewhat.
- *The Daily Yomiuri* largely characterised public fears about radiation as irrational, whereas *The Japan Times* was more sympathetic.
- *The Japan Times* included more alternative voices as sources, such as Greenpeace and WHO.
- *The Daily Yomiuri* was highly critical of Prime Minister Kan and initially sympathetic towards TEPCO (and thereafter critical of the power company). *The Japan Times* was more critical in general.
- *The Daily Yomiuri* showed a strong pro-U.S. bias.
- *The Daily Yomiuri* included more single-source articles that seemed like press releases from the Japanese SDF, U.S. military, and companies.
- *The Daily Yomiuri* constructed a collective national “us” in its editorials.

These findings confirm that the two newspapers have markedly different characteristics. It would seem that *The Daily Yomiuri* is indeed more right

leaning than the more objective *The Japan Times*, with the latter arguably acting more effectively as a balanced watchdog with its broader criticism.

In its reliance on government sources and TEPCO for information, and lack of analysis or interpretation thereof, *The Daily Yomiuri* displayed a high degree of establishment bias.[1] This was also evident in *The Japan Times*, but to a lesser extent as they used a wider variety of sources and included analysis in their articles. (Establishment bias and the implications thereof will be discussed further in Section 6.3 below).

Before conducting any further analysis of the findings, it is prudent to answer the underlying research question of the study. The answer itself will then be discussed as part of the implications.

6.2 Answering the research question: Alarming, reassuring or balanced?

The compound research question of the study looked at whether the coverage of the Fukushima nuclear crisis in each newspaper could be said to have been alarming, reassuring or neither – instead being relatively balanced and neutral, and what the implications of these findings might be. In this section, the question is answered.

A finding that the coverage was predominantly alarming would mean that the newspapers were sensationalising the nuclear crisis in a manner reminiscent of a tabloid publication. Tabloids are known to dramatise events, compromising quality reporting for scandals and shocks that draw in readers. This would be problematic, as neither newspaper markets itself as such; both being established, well-respected broadsheets. Furthermore, mostly alarming coverage could cause unnecessary confusion and fear among readers, impeding their ability to make rational decisions in response to the crisis. Mostly

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[1] Even while relying on the government and TEPCO as official sources, the newspaper was critical of some of their actions, showing a measure of independence.

reassuring coverage would be undesirable for the same reason. The role of the media as risk communicators (Cf. page 43-45) must be kept in mind; Vasterman et al (2005: 111) remind us that the media can have a major impact on the way a disaster and the risk issues it involves are perceived, and emphasise the potential of the media for risk amplification or attenuation in times of crisis (Cf. page 45-46).

Finding that the coverage was predominantly reassuring would also be problematic in another way; it would indicate a strong deference to government authorities and a reflection of their risk communication messages on the nuclear crisis. A finding that the coverage was neither overly alarming nor overly reassuring, but relatively balanced and neutral – somewhere between the two extremes – would be ideal. This would indicate a well-functioning, reliable and trustworthy media (Cf. page 24, 53); a media that serves as the fourth estate it is expected to be in democracies (Schultz, 1998: 1-4).

However, as predicted in the introduction chapter where the research question was set out (Cf. page 12), the answer was not a simple one. After analysing the findings from both the quantitative analysis and the critical discourse analysis, several conclusions were reached.

As an extra part of the coding process during the quantitative stage of the study, it was noted whether each article and opinion piece seemed alarming, reassuring or neutral overall to the reader. The results of this rough classification found 42 of the 112 news articles and 10 of the 25 opinion pieces in *The Japan Times* to be alarming. This translates to 38% and 40% respectively. Only 16 news articles (14%) and two opinion pieces were considered reassuring. The remaining texts were found to be neither strongly alarming nor reassuring, and were thus classed as neutral. In *The Daily Yomiuri*, 32 of the 197 news articles and six of the 50 opinion pieces were considered alarming. These figures translate to 16% and 12%. A similar number of texts were found to be reassuring; 14% of news articles and 18% of editorials. The remainder were classed as neutral.

The above figures were then confirmed during the critical discourse analysis stage of the study. Overall, the coverage in both newspapers was found to be balanced and neutral. However, the use of emotive words and general sceptical, critical attitude in *The Japan Times* resulted in a greater percentage of its coverage being read as more alarming than the coverage in *The Daily Yomiuri*.

The Daily Yomiuri was, as repeatedly noted, found to be moderate in its coverage except where stories constructed a positive struggle/solidarity narrative or criticised Prime Minister Kan. The former speaks to the publication's attempts to form a nationalistic sense of group unity among the population (Cf. page 149), while the latter reflects its anti-DP stance (Cf. page 165). *The Daily Yomiuri*, in its use of predominantly the same news sources as its Japanese counterpart and emulation of its political position (Cf. page 165), shows the same ideology as *The Yomiuri Shimbun*.

The same proportion of articles in both English-language newspapers was overtly reassuring. However, the editorials in *The Daily Yomiuri* were more frequently and emphatically reassuring than those in *The Japan Times*, which were far more frequently alarming. This distinction reveals the difference in the proportion of government risk communication reflected by each publication; *The Daily Yomiuri*'s editorials were more in line with official sentiment, while those of *The Japan Times* were more sceptical thereof. *The Daily Yomiuri* also, it could be argued, needed to be reassuring to foster its desired national unity and solidarity with those working in Fukushima.

Taking all of the findings into careful consideration, it is concluded that the coverage of the Fukushima nuclear crisis in both *The Japan Times* and *The Daily Yomiuri* was neither predominantly alarming nor reassuring; instead best described as having been relatively balanced, and relatively neutral – a kind of middle ground. Because a significant percentage of the texts in *The Japan Times* were found to be alarming, however, the implications thereof need to be examined (this will be done below). Neither newspaper uncritically reflected the problematic risk communication of the Japanese government or TEPCO in its

entirety. It is true, however, that *The Daily Yomiuri* displayed more establishment bias than *The Japan Times* in its articles.

This finding means that government and industry voices were given more prominence. In addition, *The Daily Yomiuri* aggressively pushed the idea that radiation in Japanese food was not a concern (Cf. page 160), urging the public to trust government tests and announcements to this effect. The publication also avoided the use of the word “meltdown” (Cf. page 147), following the approach of the Japanese government (Cf. page 7). As a result, even though *The Daily Yomiuri* may not have had a high percentage of obviously reassuring coverage, it did reflect the risk communication of the Japanese government and TEPCO more than *The Japan Times*.

The findings of the study were filled with complexities. As illustrated (Cf. Chapter 5), overall, *The Daily Yomiuri* demonstrated conservative, nationalist tendencies in its coverage and downplayed the risks of the radiation, depicting public nuclear-related anxieties as irrational. *The Japan Times,* though arguably framing the crisis in a more threatening manner, was consistently more objective, broadly critical, and understanding of its readers concerns. Thus, the finding that its coverage had more alarming tendencies does not mean that its coverage can immediately be classed as compromised.

The coverage in each newspaper was found to be problematic in its own ways, necessitating the addition of the above caveats to the answer to the research question. The implications of this are examined below.

6.3 Implications

Although the findings reported above were based on both the coding and critical discourse analysis, this section expands on the latter. This is because, as is required for discourse analysis to be critical, it includes a consideration of power

relations and problems in the general tendencies[2] of the two newspapers (Cf. Chapter 3). The findings must necessarily be situated within a greater social context. This forms the crux of the study; it is the part that makes clear the relevance of the research conducted. The implications of the findings for each newspaper are examined separately, with a section on the comparative impact for the Japanese media. This is followed by an examination of the implications for global nuclear disaster reporting.

6.3.1 *The Japan Times*

As has been shown, the coverage of the nuclear crisis in *The Japan Times* was, overall, more alarming than that in *The Daily Yomiuri*. At the same time, *The Japan Times* was found to use a wider range of sources in its articles (with less establishment bias), and include and express broader criticism of the crisis, its management, and Japan's nuclear policy compared to *The Daily Yomiuri*. These findings can be argued to be indicative of the independent newspaper's relatively liberal, left-wing tendencies.

None of the nationalistic elements evident in *The Daily Yomiuri* were present in *The Japan Times*; it lacked this discourse entirely. *The Japan Times*, in its sympathetic understanding of public fears over radiation and its representation of a range of different voices and criticisms, seemed to serve, rather than seek to mould, its readership – unlike the more persuasive and even forceful *Daily Yomiuri*, which was critical of dissent and anxieties (Cf. page 160-161).

In doing the above, *The Japan Times* seemed to fulfil the responsibilities assigned to the media in times of disaster and crisis (Cf. page 44-46), which are to communicate relevant information to the public to help them ensure their safety and sound decision-making. Readers of this newspaper would have

[2] While there were exceptions to the general patterns, such as one extremely alarming article in *The Daily Yomiuri* (Cf. page 159), it is the broader trends that are considered in this section.

been wary (due to the higher degree of alarming descriptions and the scepticism included in articles and editorials), but well informed.

Unlike *The Daily Yomiuri*, *The Japan Times* did not reflect the agenda set by a Japanese-language sister publication; its independence and liberal political positioning arguably allowed it the freedom to deviate from official crisis discourse. It could also be posited that in serving a predominantly foreign readership as an independent publication, *The Japan Times* tailored its content and coverage to meet the needs of foreign nationals in Japan, many of whom, it could be argued, would expect the same critical analysis as they are used to in their home countries.[3] *The Japan Times* occupies a marginal position in Japanese society; unlike the deeply-embedded *Daily Yomiuri,* it is separate from the Japanese mass media machine.

The overall conclusion reached from the analysis is that *The Japan Times* is an atypical mass media publication in Japan; it can be said to be a fairly effective watchdog – not a lapdog or variant thereof as Freeman (2000) has found Japanese media to be. It fulfils the role of fourth estate. The importance of this for the Japanese media is discussed in Section 6.4.

The critical stance taken by *The Japan Times* towards nuclear energy overall does evidence a negative bias that could be argued to detract from the objectivity of the publication. Given that objectivity is, as has been shown (Cf. page 35), impossible to attain in totality, the counter-argument could be made that the newspaper is not unlike other publications in its inclusion of bias. In addition, anti-establishment bias, in contrast to establishment bias, can promote free thought and democracy.

[3] 50% of the readers come from Western countries, where, subject to dispute, the media function as a fourth estate (Cf. page 107).

6.3.2 The Daily Yomiuri

The Daily Yomiuri was found to be a more problematic publication overall, as will be detailed here. While it is true that both newspapers displayed watchdog tendencies, those of *The Daily Yomiuri* were much weaker and narrower. Unlike an effective media watchdog, critical of the first three estates to serve its readership, *The Daily Yomiuri* was highly selective in its criticism and displayed strong evidence of establishment bias. Through tactics of suppression and marginalisation (Cf. page 97), such as the exclusion of alternative sources of radiation information like Greenpeace (Cf. page 138), and the criticism of Japanese citizens nervous of eating Tohoku produce (Cf. page 82-83, 160-161), the publication sought to mould, rather than enlighten, its audience.

The Daily Yomiuri was not found to be a neutral publication, with its right-wing, nationalistic sentiment (Cf. page 108) prominent and concerning. Its limited range of sources,[4] downplaying of the severity of radiation risks and harsh, emotive criticism of the Kan government all reflected a radically right, restrictive approach to reporting. Where the agenda of *The Japan Times* seemed to be to inform the public of the nuclear crisis through an anti-nuclear filter, *The Daily Yomiuri* propagated an exclusionary, powerful sense of nationalism – as it has for decades (Takekawa, 2007: 69).

Even though, as the English-language version of its Japanese sister publication, *The Daily Yomiuri* is geared towards a largely non-Japanese readership, it positioned itself as a voice of the Japanese people. The paper consistently used an interpellative "we" in its editorials addressing the nation, and portrayed itself as a representative of the Japanese population, working on behalf of its "concerned citizens" (Cf. page 79). In spite of this, *The Daily Yomiuri* only reflected the ideas of a conservative few. The newspaper did not

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[4] Likely, it could be speculated, related to reliance on *kisha* clubs (Cf. page 54) for news gathering as the articles are largely translations from *The Yomiuri Shimbun,* which is heavily involved in the clubs (Hollstein, 2008: 103).

allow the public to voice any non-nationalistic sentiment or criticisms of the radiation risk information disseminated to them by TEPCO and the government. The newspaper's narrative of nation-building and sacrifice read like wartime propaganda [5] and was an example of Van Leeuwen's (2013b: 327-328) mythopoesis (Cf. page 98), where narratives reward the actions being legitimated. In this case the actions were struggle and sacrifice for the sake of the nation. Actions like leaving Japan (Cf. page 83) were scorned. The newspaper's slating of those wary of food and work in the affected areas of the country was condescending and had the effect of delegitimising their concerns.

While the newspaper's criticism of the government, and, to a degree, TEPCO, may elevate it from a lapdog position, its attempts to set the agenda of its readership were blatant and its messages of obedience to the nation effectively rendered it an arm of control for the Japanese government. Even though the ruling party at the time may not have been the newspaper's representatives of choice, *The Daily Yomiuri,* in aligning itself with the LDP (Cf. page 80), could be argued to have taken on a role of political influence and societal shaping – if the LDP had been in power at the time of the nuclear crisis, they would have presumably pushed the same narrative of struggle, solidarity and calm.

As noted earlier, *The Daily Yomiuri* tended to report on events at the nuclear power plant in technical terms without guiding interpretation. The meaning would have been difficult to glean – as shown earlier (Cf. page 145-146), it is a tactic of linguistic engineering that serves to obfuscate issues.

While The *Daily Yomiuri* may have used emotive words minimally in its articles on events at the nuclear power plant, the newspaper seemed to deploy them strategically in its pieces on struggle and solidarity. This showed a deliberate attempt to manipulate readers by appealing to their emotions. Adding the

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[5] Japanese propaganda promoted a spirit of self-sacrifice for the benefit of the nation and society (Kurasawa, 1987: 69).

publication's strong pro-nuclear bias[6] and resultant shutting out of criticisms against the nuclear industry in Japan (Cf. page 82), we find a newspaper that is both lacking in objectivity and reasons for public trust. While not a lapdog, *The Daily Yomiuri* seems a more typical example of the Japanese media that Freeman (2000) criticised, and an illustration of the dysfunctionality of the media as fourth estate in the country.

The Daily Yomiuri exemplifies Pharr's (1996a: 9) description of a press that does not challenge the status quo (Cf. page 51); in the publication's restricted reporting on the issues surrounding Fukushima (such as details of the radiation risks in food) and disregard for dissent, it functioned to narrow the range of societal enquiry into the crisis (Cf. page 57). This "Godzilla" of the Japanese press (Cf. page 49) needs to be reigned in, as will be discussed in the following section.

6.4 Impact for Japanese media

In this section, the impact of the above findings for the Japanese, and to an extent, global media, is assessed. This is where the ramifications of the newspapers' choices in their representation of the Fukushima nuclear crisis become clear. The starting point and main focus of this section is *The Daily Yomiuri*. At the end, a case is made for the development of more media that follow the example of *The Japan Times.*

The issues highlighted with regards to *The Daily Yomiuri* are of great concern due to the standing and reputation of the publication. It is one of Japan's top news sources thanks to its Japanese version, *The Yomiuri*, being the most popular newspaper in the country. It is not a small, fringe publication the biased and controlling tendencies of which could perhaps be disregarded due to its low impact; it is well known and respected, and consequently one that may have a

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[6] Perhaps, it could be speculated, due to the publication's origin with pro-nuclear pundit Shoriki Matsutaro (Cf. page 109).

significant negative influence on people's understanding of a crisis and their rights therein.

While the prevalence of social media may somewhat temper the influence of newspapers in the modern era (Cf. page 73), as Tollefson (2013) wrote, newspapers like *The Daily Yomiuri* have implications for the independence of the media in Japan, and indeed democracy as a whole – a system that relies on a properly informed public to function successfully. Of further concern is the partnerships *The Daily Yomiuri* has with prominent international publications - *The Washington Post, The Los Angeles Times* and *The Times* in the United Kingdom. As mentioned earlier (Cf. page 107), *The Daily Yomiuri*'s aim is to provide information about Japan to the world; but this information is framed with the institutional bias of *The Yomiuri Shimbun* (thanks to many articles being translations from the Japanese newspaper). It is right-wing reporting through a very narrow lens.

The agenda setting role of the media was discussed at length in the literature review chapter (Cf. Chapter 2) and it is this potential effect of *The Daily Yomiuri* that must be considered now. In its high reliance on official sources in the reporting of news about the Fukushima nuclear crisis, the newspaper evidenced strong establishment bias. Consequently, it has been speculated that there was reliance on *kisha* clubs (Cf. page 54, 178) in the news gathering process. The establishment bias infers that the newspaper presented an official version of events; maintaining the agenda of the Japanese government and TEPCO in their communication of the crisis rather than working to set an independent agenda (despite their editorial criticisms of both the government and the utility company). While this has been shown to be common to most major newspapers around the world (Cf. page 57-58), it is not without issues as it renders the publications servants of, rather than reporters on, powerful groups in society, evidencing a problematic power dynamic of top-down information transferral. Information is disseminated from government to readers rather than investigated by the newspaper and offered to them.

In response to the above, it could be argued that *The Daily Yomiuri* does not specifically undertake to play such a role – and that not everyone might even want it to. After all, in many countries – including, increasingly, South Africa (Press Freedom Day … 2016) – it is viewed by certain sectors of society as positive for the press to reflect, rather than critically challenge, the views of government and the powers that be. However, this remains unacceptable in the interests of media freedom and must be spoken out against. While *The Daily Yomiuri* may not explicitly promise to work to fulfil a fourth estate function, as a member of the Japanese press it is committed, under the Nihon Shimbun Kyokai (NSK) - Japan Newspaper Publishers & Editors Association - to independence, impartiality and truthfulness, and to ensure the democratisation of the country (Cf. page 54). In addition, Japanese editorial policy has always been said to be *fuhen futo* – unbiased and non-partisan; as a result, newspapers like *The Daily Yomiuri* can and should be held to account.

The Japan Times, while also reflecting a fairly high degree of establishment bias, demonstrated less than *The Daily Yomiuri*. This has positive implications for press independence in Japan. However, due to it being an English-language publication only, as opposed to *The Daily Yomiuri* with its sister Japanese-language publication, the influence of *The Japan Times* is limited to English-language speakers, mostly foreign residents of Japan (and, from 2013 onwards, readers of the *International New York Times*). It stands apart, and is isolated from, mainstream Japanese media - in contrast to *The Daily Yomiuri*, which is a key representative thereof.

Many of the articles in *The Daily Yomiuri* are translations of the Japanese-language articles published in *The Yomiuri Shimbun* (Cf. page 11), meaning that it is largely the same material, and thus a direct part of the Japanese mass media. A discussion of the impact of the findings in this chapter would not be complete without a consideration of media ownership. *The Daily Yomiuri*, housed under the Yomiuri Shimbun Holdings group, operates as part of the largest media conglomerate in Japan. The group includes over 150 companies and organisations, including the Nippon Television Network, and has annual

revenue of over 6 billion US dollars (About the Yomiuri … [sa]). The extent of the company's influence in the country's media landscape amplifies the relevance of the issues identified in *The Daily Yomiuri* (and by association, *The Yomiuri Shimbun*).

In considering the impact of the findings of this study, the attribute agenda setting role of the media, the second level of agenda setting (Cf. page 32-33), also requires consideration. Through their framing of the nuclear crisis, *The Daily Yomiuri* and *The Japan Times* played a role in shaping the way readers thought about the situation. Critical discourse analysis seeks to analyse how this is so.

In its framing of the crisis as a national struggle and its drive for group solidarity, *The Daily Yomiuri* backgrounded the concerns of individuals. This was pointed out by Tollefson (2013: 11-12) and confirmed in my research (Cf. page 147-149). The nuclear crisis was portrayed as a national affliction; an attack on the country's identity and sense of functioning (Cf. page 82-83). The struggle against the disaster was depicted as a battle which demanded a patriotic attitude; readers were called on to answer the newspaper's rallying cry, putting aside their own worries and personal struggles in the interest of their homeland. In construing reasonable fears about radiation safety as irrational and emphasising the struggle/solidarity agenda, *The Daily Yomiuri* may have had a negative effect on personal safety as people ignored valid fears about radiation risks, instead focusing on the perceived good of the country.

The Japan Times did the opposite, validating individual concerns. Because it was slightly more alarming in its framing of the crisis, however, it may have had a socially disruptive rather than cohesive effect. This would not have served the interests of the Japanese government in the management of the crisis, but would have helped empower citizens to make their own decisions. It was not alarming to the point where it would have incited panic.

The Daily Yomiuri was more reassuring about radiation risks, following the government's problematic line of risk communication (Cf. page 159) in this

regard. *The Japan Times,* however, reflected Sandman and Lanard's (2004) guidelines for risk communication by not being over-reassuring, erring on the alarming side, acknowledging uncertainty, and legitimising people's fears (Cf. page 74). *The Japan Times* also avoided the "enforced homogeneity" Sandman (2006: 261) cautions against in the communication of a crisis (Cf. page 61) by giving space to alternative sources and opinions, such as Greenpeace (Cf. page 138, 162). *The Daily Yomiuri*, however, did not; presenting a single narrative of the crisis to its readers, with no room for alternative constructions.

In doing the above, *The Japan Times* once again showed itself to be a more progressive platform. Overall, what is reflected in the differences between the two newspapers is a liberal, left focus on the individual and their rights in a democracy (by *The Japan Times*) contrasted with a conservative, right focus on the nation and its functioning (by *The Daily Yomiuri*).

More publications like *The Japan Times* would arguably be beneficial for the Japanese media industry, which, as shown earlier (Cf. page 52) has been heavily criticised as failing to function effectively as a tool of democracy. However, as mentioned earlier in this section (Cf. page 182) it is debatable whether this would be desired in Japan; where media like *The Daily Yomiuri*, which promote nationalistic ideologies and obedience to authority, maintain immense popularity. While publications like *The Daily Yomiuri* will do nothing positive for Japan's press freedom ranking, they may be considered acceptable by some. Further research is needed to assess this. Regardless of the findings, however, as long as the *fuhen futo* policy and current guidelines of the NSK remain in place, the Japanese media must be scrutinised for the fulfilment of their obligations to the democracy of the nation.

Considering, also, that Japan is one of the top players in the global economy, the argument could be made that the country ought to be striving for a more independent, less establishment-oriented mass media, at the very least in the interest of balanced representation of politics and events in the country for its trade partners. Situations like the Fukushima nuclear crisis have an impact far

beyond the borders of Japan, and clear, uncompromised details are required by the broader public.

Following this line of thought, the final part of the exploration of the study's findings looks at implications for nuclear disaster reporting at a global level.

6.5 Relevance for nuclear disaster reporting

The findings of the reporting on radiation by the two newspapers need to be considered in the greater context of nuclear disaster reporting. Despite allegations to the contrary, the reporting of the Fukushima nuclear crisis in both *The Japan Times* and *The Daily Yomiuri* followed historical precedent (Cf. page 48) and was not found to be overly alarming; being moderate overall and not dramatising events.

The implication of this finding is that allegations of fearmongering in newspaper coverage of nuclear disasters are likely to be groundless, and should be considered to be such until demonstrated to be otherwise. More credit needs to be given to the media in its reporting on nuclear crises and their role in the communication thereof (Cf. page 43-44) acknowledged and respected, rather than slated as obstructive and harmful. It would seem that McCombs' (2014: 39) "hostile media effect" (Cf. page 63), where the public perceives dangerous events as frightening even when reported neutrally, persists.

The headlines of both *The Daily Yomiuri* and *The Japan Times* were an exception to the finding that the coverage was not predominantly reassuring or alarming, however, and will be briefly returned to here. They were found to be more alarming than the articles themselves, but it was not clear why. If the sales of the two newspapers were not primarily subscription-based, it could be argued that they were reliant on enticing and engaging headline copy. However, this was not the case. The headlines may have included elements of sensationalism to draw the readers into the articles. For readers going no further than the headlines, however, the effect would have been one of alarm. In the interests of media responsibility, it is recommended that both publications exercise greater

care in the crafting of more accurate, informative and balanced headlines going forward.

Coverage deemed alarming can have a negative effect on public perceptions of nuclear energy (Cf. page 63); this may concern nuclear stakeholders. While this may have been valid for some of the coverage in *The Japan Times*, *The Daily Yomiuri*, as Tollefson (2013:1) showed, functioned to “call the Japanese population into the service of the nuclear industry”, making the crisis itself the enemy, and not the energy. As has been shown, *The Daily Yomiuri* is supportive of the use of nuclear power (Cf. page 157), a stance that ought to be taken cognisance of when consuming the newspaper’s content, in the interests of bettered media literacy and decision-making on the part of the reader.

Although more detailed radiation information was required to fulfil the established radiation reporting criteria (Cf. page 133) of the Task Force on Three Mile Island and answer all of Perko’s (2011: 392) guiding questions for radiation risk communicators (Cf. page 78), the overall coverage of radiation in *The Daily Yomiuri* and *The Japan Times* was found to be moderate and acceptable. They did not distort the risks. The gaps in the data can be noted and taken as a lesson to improve future radiation reporting, which is continually being refined and developed. To this end, journalists should undergo training to equip them to report more easily and in-depth on radiation.

There is also a need for a more speculative approach to the communication of risk (Cf. page 74), but that is a recommendation aimed at government and industry, not the mass media. Such recommendations fall beyond the scope of this study and will not be detailed here.

6.6 Conclusion

This chapter has highlighted the key differences between the coverage of the nuclear crisis in *The Japan Times* and *The Daily Yomiuri,* noting them in point form for the sake of clarity. The guiding research question of this dissertation has been answered as follows: the coverage in the two newspapers was neither

predominantly reassuring or alarming, but relatively balanced and neutral, despite speculation to the contrary. While *The Japan Times* was found to be slightly more alarming than *The Daily Yomiuri*, it was explained how this was not problematic.

Following the answering of the primary research question, an overview of the implications of the main findings from the discursive analysis component of the study was provided. The meaning of the findings for the media in Japan, and their role in the democratic functioning of the country, was discussed. While neither *The Japan Times* nor *The Daily Yomiuri* was found to be entirely devoid of fourth-estate watchdog action, both newspapers displayed different bias and agendas, with that of *The Daily Yomiuri* being more problematic.

The final chapter recaps the main points of the study and ties the work together before making recommendations for further research in the field of Communication. It also discusses contributions made by the dissertation, while acknowledging the limitations that constrained its scope.

CHAPTER 7: CONCLUSION

The study of the coverage of the 2011 Fukushima nuclear crisis in two English-language newspapers in Japan is a microcosm of the global research conducted on the communication of disasters and risk in the media. This dissertation has looked at the key roles and responsibilities of the media in times of crisis, as well as issues related to their reporting thereof. As has been shown (Cf. page 185), the same assumptions and allegations are made against the media time and again, though these have no substance. However, analysis of nuclear reporting reveals issues of establishment and other bias, and problematic power relations among government, industry, media and the public; and for this reason remains an important area of research. Studies like this one can be useful in, firstly, holding the media to account and ascertaining whether they are fulfilling their obligations in democratic societies; and secondly in bolstering the media literacy and critical thought of audiences. They are also helpful in illuminating problematic power hierarchies in broader society, such as those that may exist between certain political parties and media outlets.

In this final chapter, the processes of the dissertation and the conclusions reached in each chapter are summarised. The findings of the study are then restated for clarity, and the implications recapped. As the findings and conclusions drawn therefrom have been discussed in detail in Chapters 4, 5 and 6, no new data or analysis will be provided here. However, the relevance of the research, and its contributions, are explained for the field of Communication, as well as the media industry, at both the local (Japanese) and global level. As the scope of any study is necessarily constrained, the limitations of this dissertation are stated and discussed. Finally, a number of recommendations are made for further research, with possible opportunities for expansion on this topic and studies into other, related topics, highlighted.

7.1 Summary of research process

As a means of concise summary of the dissertation, this section provides a brief overview of the overall research process, and key conclusions drawn from each chapter.

The study was guided by the following primary research question:

> Did the coverage of the Fukushima crisis in the two major English-language newspapers in Japan reflect the reassurance and opacity that characterised the communication of the Japanese government and TEPCO, or was it “alarmist”, fuelling fear? Alternatively, could it be said to have occupied a relatively balanced middle ground? What are the implications of the answer?

Several sub-questions were formulated to help structure and inform the research (Cf. page 14-15). These considered the following: the number of articles about the Fukushima crisis published in each newspaper over the determined period, the classification of the articles, the tone of the headlines, foci of the content, sources used, framing, and differences in coverage.

To answer these research questions and guide the reader in the process, the study was divided into different sections, which were allocated a chapter each. The purpose and main features of the chapters are summarised below.

7.1.1 Introduction

The first chapter provided the background information necessary to contextualise the research. Details were given on the earthquake of March 11, 2011, and the progression of the ensuing crisis at the Fukushima nuclear power plant in Japan. The research objectives (as above) were explained, and basic information was supplied on *The Japan Times* and *The Daily Yomiuri*, as well as the media industry in Japan. The research methodology was described and a list of key terms used in the study clarified.

7.1.2 Review of the literature

The second chapter provided an extensive examination of literature relevant to the study. This included a discussion of the role and influence of the mass media in society, key concepts like agenda setting and framing, social constructivism, risk communication and the role and influence of the media therein, the Japanese media industry, studies on the coverage of the Three Mile Island and Chernobyl nuclear accidents, and specific studies done on the communication of the Fukushima crisis. This formed a solid, extensive framework in which to conduct my own research.

Key takeaways from the literature review included: the media can shape what we think about and the way in which we think about it through agenda setting and attribute agenda setting (Cf. page 28-29, 32), and as a result an examination of the way in which they cover events is necessary; media play the role of primary informers in times of crisis (Cf. page 43-44), and the way they frame crisis information can affect our understanding of it; a high degree of establishment bias is found in most mass media the world over (Cf. page 35); risk communication is problematic in the way that it tends to construe the public as irrational (Cf. page 39); coverage of Three Mile Island and Chernobyl was, despite allegations to the contrary, not found to be alarming, but the reporting of radiation information was lacking in some areas (Cf. page 61-64); and the Japanese media industry is plagued by news information cartels operating as press clubs, or *kisha* clubs, and does not reliably perform its fourth estate mandate (Cf. page 50-54).

The literature review in itself is a valuable part of this study as it draws together work on risk communication and media obligations and influences therein, and also collates English research conducted on the Japanese media industry. This could be of use to other scholars studying these aspects of the global media field.

7.1.3 Methodology

The third chapter unpacked the research method used in the study – a combination of quantitative analysis and qualitative critical discourse analysis. The theory behind and principles of these methods were discussed, and the guiding questions of each set out. The coding process employed in the quantitative analysis component was explained in detail, down to the calculation of inter-coder reliability using Krippendorff's Alpha. Examples of similar mixed method research were presented to motivate the choice of methodology for the dissertation. To better contextualise the research, detailed profiles of the two newspapers were provided, including information on their readerships.

7.1.4 Quantitative analysis

The fourth chapter presented the findings from the quantitative coding of the newspaper articles. A total of 137 texts (editorials and news articles) from *The Japan Times* and 247 from *The Daily Yomiuri* were analysed for meta-data, geographic and issue foci, keywords, radiation reporting, depiction of risk, sources used, and criticism present. For ease of interpretation, graphs were used throughout the chapter, and key findings were discussed. The key findings of this chapter are recapped in Section 7.2 below.

7.1.5 Critical discourse analysis

Following the coding, critical discourse analysis was performed, and the findings were presented in the fifth chapter. The three core areas of the analysis were the framing of the crisis in the articles, editorials and headlines of the two newspapers, criticisms of the Japanese government and TEPCO, and radiation reporting. Many examples were included to substantiate the claims made in the chapter. Some data from Chapter 4 were drawn upon for support. The findings of this chapter are also recapped below.

7.1.6 Implications of findings

The sixth chapter functioned to draw the findings of the two data chapters together, summarising the major differences in coverage between the two newspapers and answering the research question of the dissertation. The answer was complex; it was concluded that the coverage of the Fukushima nuclear crisis in both newspapers was neither predominantly alarming nor reassuring; but best described as relatively balanced and neutral. However, each newspaper was found to be problematic in different ways. These findings and their implications for the Japanese and global media industries, as well as the field of nuclear crisis communication, were discussed – and this too is revisited below.

That concludes the research process of this study; each stage was given extensive attention and the overall experience was a rewarding and educational one. All that remains is to finish the study by tying the findings together and highlighting the relevance of the work done before proceeding with a discussion of limitations and recommendations for further research.

7.2 Summary of findings

This section summarises the findings of the mixed-method content analysis and recaps the answers to the guiding research question of the study. The implications are then reviewed in the section that follows. For the sake of clarity, the findings are separated by the stages of analysis, beginning with the quantitative coding. Not all of the findings from the coding are restated here; only a selection of the major ones. Percentages are supplied for accuracy of understanding.

7.2.1 Quantitative analysis

An analysis of the meta-data of the newspaper texts revealed that the names of reporters were included in 97% of articles in *The Japan Times*, compared to just 14% of articles in *The Daily Yomiuri*. It was speculated that this indicated a reliance on news agencies for stories, or an attempt to give greater weight to the views expressed in the stories (Cf. page 118). The latter would tie in to *The Daily Yomiuri*'s construction of itself as an authoritative force in society (Cf. page 178-179).

Geographically speaking, the majority of articles in both newspapers were focused on Fukushima, which was not surprising given that the nuclear crisis was centred in that prefecture. *The Daily Yomiuri* had a slightly greater focus on Fukushima (Cf. page 119), related to its narrative of the struggle of Fukushima residents and workers.

Regarding issue foci, the following was found (Cf. page 121-122): in *The Japan Times*, 46% of the Fukushima-centred news articles were focused on the situation at the nuclear power plant. 39% of articles in *The Daily Yomiuri* had this focus. 19% of articles in *The Japan Times* were focused on radiation, compared to 11% in *The Daily Yomiuri*. A further 11% of *Japan Times* articles were focused on affected people, while 26% had this focus in *The Daily Yomiuri*.

An examination of keywords (Cf. page 126-129) identified threat words in 83% of news articles in *The Japan Times* and 75% in *The Daily Yomiuri*; and 80% and 78% of their respective opinion pieces. Chaos words were found in 62% of articles and 76% of opinion pieces in *The Japan Times*, compared to 49% and 70% of these texts in *The Daily Yomiuri*. Fear words appeared in 45% of news articles and 48% of opinion pieces in *The Japan Times*, and 30% and 44% of these texts in *The Daily Yomiuri*. Struggle words were found in 27% of *Daily Yomiuri* news texts but just 12% of those in *The Japan Times*, reflecting the *Yomiuri*'s higher focus on local people affected by the nuclear crisis. Distrust

words were identified in 52% of news and 60% of opinion pieces in *The Japan Times*, and 26% and 56% of these texts in *The Daily Yomiuri*.

An examination of the reporting of radiation (Cf. page 130-133) showed that radiation was referred to directly in 82% of *Japan Times* news pieces and 68% of their editorials, compared to 76% and 66% of *Daily Yomiuri* texts. Only 58% of *Japan Times* news articles and 53% of opinion pieces included units of radiation when discussing it, and in *The Daily Yomiuri* these figures were just 38% and 15% respectively. Overall, a higher percentage of texts in *The Japan Times* also included explanatory information about the radiation; this newspaper's reporting on radiation was assessed to be more frequent, comprehensive and accessible than that of *The Daily Yomiuri*, which was prohibitively technical. However, the level of risk was depicted as significant in almost half of all news articles in both publications, as well as 48% of opinion pieces in *The Japan Times* and 40% in *The Daily Yomiuri*.

While the radiation reporting of the two newspapers was better than much previous coverage of radiation, it did not entirely meet the requirements of the Task Force on Three Mile Island (Cf. page 133), and as such, recommendations must be made for improvement.

The Japanese government and TEPCO were found to be the major sources in both newspapers, but *The Japan Times* used a greater variety of additional sources than *The Daily Yomiuri* (although *The Daily Yomiuri* did give more voice to the residents of Fukushima, as part of its struggle narrative – Cf. page 138). *The Daily Yomiuri* often quoted the Japanese Self Defense Force, as well as unidentified nuclear experts (with the latter reducing the credibility of the information due to its anonymous status).

Finally, it was found that both newspapers were critical of the Japanese government and TEPCO (Cf. page 140-141), with criticism expressed in 28% of *Japan Times* news articles and 16% of those in *The Daily Yomiuri*, and 36% and 20% of opinion pieces respectively. *The Daily Yomiuri* was not critical of TEPCO for the first few weeks after the start of the crisis. 35% of news articles

and 56% of opinion pieces in *The Japan Times,* and 22% of news articles and 52% of opinion pieces in *The Daily Yomiuri* were critical of the Japanese government, but *The Daily Yomiuri* focused its criticism on Prime Minister Kan specifically, rather than the government as a whole.

These findings were noted, and more in-depth analysis was then performed in the critical discourse analysis, the main results of which are summarised below.

7.2.2 Critical discourse analysis

The critical discourse analysis component of the study involved close, repeated examination of the newspaper texts based on notes made during the coding. The following key insights were gleaned.

A look at the framing (Cf. page 143-147) of the nuclear crisis in the newspapers, taken together with the findings of the coding, revealed that *The Daily Yomiuri* was less emotive and more conservative in its reporting of the nuclear crisis, as well as more formal and technical, relying on jargon, but lacking in interpretive analysis. *The Japan Times* was found to be more emotive, casual and alarming in its coverage, but also included more analysis, rendering it more informative and accessible to readers.

Neither newspaper was optimistic about the resolution of the crisis, but *The Japan Times* speculated about worst-case scenarios while *The Daily Yomiuri* avoided this (Cf. page 148). Both publications emphasised that there was no immediate health risk to the public, thereby echoing the risk communication of the Japanese government (Cf. page 148).

A metaphor of battle was identified in both newspapers, with *The Daily Yomiuri* taking the image further and situating it within a narrative of struggle, glory and solidarity. The newspaper ran several emotional pieces that seemed to be aimed at eliciting sympathy for the emergency workers at the Fukushima power plant, giving them names and faces and honour until they were exposed to injury, when they were instantly rendered faceless and passive (Cf. page 149-

150). A narrative of struggle and solidarity was found to be absent from *The Japan Times*.

The headlines of the newspapers reflected the framing of the articles to a large extent (Cf. page 149). The headlines of *The Japan Times* contained more casual and emotive language, while those in *The Daily Yomiuri* used more plain, technical language, except where headlines were part of the struggle and solidarity narrative, which tended to be more emotive. Overall, the headlines in *The Japan Times* were more alarming than those in *The Daily Yomiuri*.

The headlines of *The Daily Yomiuri*, like many of its editorials, were supportive of nuclear energy and critical of alternatives. The headlines of *The Japan Times*, however, questioned nuclear energy from the outset. This indicated the opposite positions the publications seem to hold on nuclear energy policy in Japan (Cf. page 157).

The critical discourse analysis confirmed the findings of the coding on the matter of reporting radiation (Cf. page 158-163), and also revealed that *The Japan Times* was more understanding of public fears of radiation, while *The Daily Yomiuri* depicted them as irrational and unreasonable. *The Daily Yomiuri* was found to downplay radiation risks and was sceptical of safety regulations put in place on food and Japanese exports. However, both newspapers called on the government to be more transparent in its disclosure of radiation information.

The Daily Yomiuri was found to be highly critical of Prime Minister Kan and initially sympathetic towards TEPCO – but thereafter critical of the power company. *The Japan Times* was shown to be more critical in general. Overall, *The Japan Times* seemed to operate as a more impartial watchdog than *The Daily Yomiuri*.

Two further findings were that *The Daily Yomiuri* displayed a strong pro-U.S. bias, and that its editorials constructed the newspaper as a representative of the people, who were aggressively instructed in how to behave to help Japan overcome the nuclear crisis (Cf. page 166).

After careful consideration of all of the findings, the research question of the dissertation was answered as follows. The coverage of the Fukushima nuclear crisis in *The Japan Times* and *The Daily Yomiuri* was neither predominantly alarming nor reassuring; instead best described as relatively balanced and neutral. A higher percentage of the texts in *The Japan Times* was found to be alarming, however. Neither newspaper wholly or uncritically reflected the risk communication of the Japanese government or TEPCO. However, *The Daily Yomiuri* displayed more establishment bias than *The Japan Times* and, in its aggressive calls for the public to trust the government and its tests on food, as well as its avoidance of the word "meltdown", it reflected the risk communication of the Japanese government and TEPCO to a greater extent than *The Japan Times*.

In the following section, the conclusions that were drawn from the findings of the content analysis and the answer to the research question are reviewed.

7.3 Conclusions

The findings of the content analysis have multiple implications, or conclusions, for the media industry in Japan and internationally, as well as for future reporting of nuclear events. Because these implications have been discussed at length in the previous chapter, they will only be summarised here.

The insights gained into *The Japan Times*, particularly its oppositional stance on nuclear energy, its understanding of public concerns over radiation, its reliance on a diverse range of sources - including Greenpeace - and its deviation from official risk communication in its somewhat alarming framing of the nuclear crisis reflect the publication's position as an independent, liberal, left-wing newspaper.

The Japan Times satisfactorily fulfilled the responsibilities of the media in times of crisis (Cf. page 44-46), which are to communicate relevant information to the public to ensure safety and sound decision-making. Overall, *The Japan Times*

was found to be an atypical mass media publication in Japan; a fairly effective watchdog that fulfils the role of fourth estate.

In its depiction of public fears about radiation safety as irrational and in emphasising the struggle/solidarity narrative, *The Daily Yomiuri* may have negatively influenced readers' decisions about radiation risks, as they were strongly encouraged to forget themselves and focus on the country. In this way, the publication did not satisfactorily fulfil its crisis reporting responsibilities.

The Daily Yomiuri was also found to be less effective as a societal check and balance (watchdog). Selective in its criticism, with a high percentage of establishment bias, and using tactics of suppression and marginalisation (Cf. page 58), the publication was something of a bully in the news arena. The publication's right-wing, nationalistic tendencies (Cf. page 108) were strikingly evident in its limited range of sources, downplaying of radiation risks and harsh, emotional criticism of the Kan administration. While *The Japan Times* seemed to strive to inform the public during the nuclear crisis, *The Daily Yomiuri* seemed to use the event as an opportunity to promote a nationalistic, restrictive agenda.

The Daily Yomiuri did not allow the public to voice any opinions that were in opposition to its coverage, despite positioning itself as part of the people through its reliance on the pronoun "we" in its editorials. Although it is not completely a lapdog of the government and industry, *The Daily Yomiuri* is clearly less effective in fulfilling the role of the fourth estate – a finding that is deeply concerning in light of the publication's popularity and influence (through its Japanese sister newspaper), and its representative position of the mass media in Japan. The findings from the analysis of *The Daily Yomiuri* have implications for the functioning of democracy in the country.

Any democracy requires a reliable press to hold its leadership accountable and protect the rights of its citizens. While *The Daily Yomiuri* itself may not have promised to serve as the fourth estate, as a member of the Japanese press it is committed to independence, impartiality and truthfulness in its reporting, and to work to ensure the democratisation of the country (Cf. page 53). Under the

current Japanese editorial policy of *fuhen futo*, or unbiased and non-partisan, *The Daily Yomiuri* must be held to account in its problematic reporting.

Furthermore, as a key player in the global economy, Japan should be expected to provide clear, accurate and unbiased crisis coverage to the rest of the world. The country might need to assess the current status of its mass media (and press freedom rankings) and encourage the development of more media like *The Japan Times*.

Turning to the reporting on radiation by the two newspapers, it must be reiterated that once again, despite allegations to the contrary, the reporting of a nuclear crisis followed historical precedent (Cf. page 48). As with Three Mile Island and Chernobyl, the coverage was not found to be overly alarming, dramatic or distorted. This shows that we must be sceptical when allegations of fearmongering are made against the media in times of crisis.

However, the reporting of radiation data, though improved, requires further refinement by the media (in this case, both *The Japan Times* and *The Daily Yomiuri*) to fully meet the requirements of the Task Force on Three Mile Island (Cf. page 65), and better inform their readers. Training of reporters in nuclear matters is highly recommended to this end.

These were the major conclusions drawn from the findings of the dissertation. As shown above, they are of relevance to the Japanese media industry, as well as internationally in the field of nuclear crisis communication. The findings have critically illuminated the functioning and problems of the two major English-language newspapers in Japan. Previously, very little to no research had been done on these publications. In the following section, this and other contributions of the study are discussed further.

7.4 Summary of contributions

This study, in its work and findings, has made several contributions to research in the field of Communication, which are briefly outlined here.

The primary contribution has been to the body of research on the media in Japan, which, as discussed earlier (Cf. page 3-4), is lacking; particularly regarding English-language media in the country. Through its analysis of the coverage of a major national crisis in the two English-language print newspapers in Japan, this study has added to the knowledge of these two publications. It has also contributed to a deeper understanding of the Japanese media industry as a whole.

While *The Daily Yomiuri* has been studied previously, albeit not extensively, there was heretofore no research on *The Japan Times*. This study has generated useful data on this important publication, as well as added to the data that already exists on *The Daily Yomiuri*. This data may prove useful to other scholars in their research of media in Japan.

The study has also increased information and understanding on the reporting of the Fukushima nuclear crisis, research into which has primarily been focused on media outside of Japan. The insights generated in this dissertation broaden the global body of research on nuclear crisis reporting; in the event of another nuclear disaster, information such as that provided here may help to ensure better reporting, as well as improvements in the critical media consumption skills of audiences (through dissemination of these findings).

The review of the literature in this study is useful on its own; as mentioned above, it draws together an extensive variety of research on a wide range of topics – from the role of the media in disaster communication to the reporting of nuclear crises and the state of the media industry in Japan.

A further contribution of this study is its assessment of the radiation reporting in the two newspapers; this showed that while overall the reporting was acceptable, it did not meet all of the requirements set out by the Task Force on Three Mile Island and could be bettered. As a result, recommendations should be made to *The Japan Times* and *The Daily Yomiuri* to improve their communication of radiation, thereby enhancing audience understanding and better fulfilling their roles in disaster communication.

Lastly, the dissertation also disproved the allegations of fearmongering made against the mass media (for at least two publications therein, anyway), correcting a common misconception that may be harmful for media credibility (Cf. page 48).

While the study was able to make the above contributions, its extent was subject to several limitations, which are discussed below.

7.5 Limitations

Several factors limited the scope of this study, including available time, access to media resources, and a lack of academic Japanese language ability. One limitation was a lack of hard copies of the newspapers printed during the two months delineated by the study. Initially, I had intended to analyse accompanying visuals to the articles, as well as article placement and column width. However, neither *The Japan Times* nor *The Daily Yomiuri* offices had physical back issues of the newspapers available. *The Japan Times* publishes monthly bound A4 volumes of its newspaper, which can be purchased online for approximately R1 000 a copy. Unfortunately, the required volumes were sold out, with no republication planned. *The Daily Yomiuri* provides no such service. As a result, I was restricted to using electronic databases, which provided only the written text of the articles.

The kind of content analysis performed in this study would have lent itself well to a comparison between the print and online versions of the coverage, but as noted (Cf. page 11), the state and popularity of Japan's online newspapers is somewhat lacking, and in any event, as articles are soon removed from the websites of both publications, they could not be accessed for the study.

Another limitation was that although an analysis of, or comparison to, coverage of Fukushima in the Japanese-language newspapers would have vastly expanded the impact of the study, a lack of the advanced Japanese language skills required for such an undertaking, as well as limited available time, did not allow for this. It is thus suggested as an area of future research.

Also, due to limited time and human resources, the study restricted its analysis of *The Japan Times* and *The Daily Yomiuri* to the period from the 11th of March 2011 to the 12th of May 2012, a total of two months. This reflects the amount of coverage that was used in Perko's media content analysis of the Fukushima crisis in two Belgian newspapers (Perko et al, 2011: 10), a paper that provided key guidance when structuring this study. The two-month period also qualifies as sufficient "critical discourse moments", a minimum time frame in which the culture of an issue is visible (Chilton, 1987). However, studies conducted over longer periods of time can provide more extensive insights.

Finally, it is necessary to mention the omission of a third, well-known, Japanese English-language newspaper from the study. Until 2010, *The Asahi Shimbun*, one of Japan's biggest Japanese-language newspapers (but smaller than the Japanese *Yomiuri Shimbun*), printed an English edition in partnership with *The International Herald Tribune*. However, publication was then ceased and *Asahi's* English version subsequently became available online only, as a regional Asian news portal called *Asia and Japan Watch*. While the website did cover Fukushima extensively, this study was limited to an analysis of print newspapers only. As mentioned in the introduction chapter (Cf. page 10-11), print newspapers, although feared to be in crisis in parts of the world, still enjoy wide popularity in Japan; they are an established source of "trustworthy" news. The web versions of Japanese newspapers, while improving rapidly, still have a way to go. It is for this reason that I chose to focus on the print medium. However, there is great scope for broad analyses of online (including newspapers and social media) and television coverage of Fukushima, and there are indications that such research is already being undertaken (Kafle, 2014; Basu, 2016).

7.6 Recommendations for further research

Any topic generates multiple, varied possibilities for research, and it is impossible for a single study, such as this dissertation, to cover them all. During the course of my work, I identified many areas that would lend themselves well to further research, either as an expansion of this study or as related, parallel studies. These are detailed below.

The first recommendation for further research is for more and deeper analysis of the coverage of the Fukushima nuclear crisis in the media – both in Japan and elsewhere. This study was only able to examine the coverage in the two English-language newspapers in Japan; the coverage in other types of English-language and Japanese-language media in the country should also be examined in detail. This includes print, online and broadcast media. An examination of the coverage of the crisis on the Yomiuri group's Nippon Television Network would be interesting; the manner of representation of the crisis could be compared to that in *The Daily Yomiuri* to assess the presence of institutional bias.

There is great scope for content analyses, quantitative, qualitative or mixed, to be conducted on the coverage of the nuclear crisis not only immediately after the earthquake of March 11, 2011, but in recent times too. The aftermath of the crisis continues to trouble Japan; but it does not seem to be a feature in the media anymore (News coverage of … 2016). An exploration of the disappearance of the topic from the news would prove interesting and beneficial in terms of understanding the process of news selection, as well as agenda setting – or perhaps, agenda maintenance.

Another recommendation for further research is the analysis of other topics in *The Japan Times* and *The Daily Yomiuri* to expand the body of knowledge on these two important publications in Japan. A detailed comparative examination of, for example, national energy policy or defence force activities in each

newspaper may yield further insights into their political positions and powerful relationships with societal authorities.

Interested scholars could also look at the risk communication strategies of the Japanese government in general; not just in the case of the Fukushima crisis, but in prior disasters – to build a profile of their position and strategies and to see whether it has been consistent or varied. Similarly, an exploration of the risk communication of Fukushima by other governments would also be an interesting subject for studies. These would fall more squarely into the field of risk/crisis communication rather than media studies.

Regardless of the topics focused on, it is hoped that this dissertation will be useful in informing the research of other scholars going forward, thereby continuing to contribute to the advancement of knowledge on the coverage of the world's most recent nuclear crisis, the media industry in Japan, and the field of crisis communication as a whole.

7.7 Conclusion

In this chapter, I have summarised the process and findings of the study. To begin, I provided a brief overview of each previous chapter, highlighting their purpose and key points. Thereafter, I recapped the main findings of the study, dividing them into their quantitative and qualitative components. I also reviewed the conclusions drawn from these findings, reiterating the implications they hold for the Japanese and international media industries, as well as the field of nuclear crisis communication.

These sections were followed by an overview of the contributions made to Communication Science by this study. The primary benefit is the broadening of the body of knowledge on *The Japan Times* and *The Daily Yomiuri*, as well as the Japanese media industry as a whole. Secondary contributions include the enhancing of knowledge on the coverage of history's third largest nuclear crisis, as well as radiation reporting and what still needs to be done in this regard.

I then discussed the various limitations that constrained the scope of the study, and made a series of recommendations for further research that could expand on that conducted here, or branch off from it but make use of the literature review and findings as a starting or strengthening point. This brings me to the conclusion proper, with which I end this study.

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APPENDIX A: Coding Sheet

Coding Sheet (Page 1 of 3)

This sheet is to be used in conjunction with the Coding Book. Use one set of sheets per article.

Name of Coder: ___________________ Date of Coding: ___________________

Section A

Newspaper: ____ **Article Word Count:** ______ **Article Date:** ________________

Article Title:____

Article from Press Agency: ____ **Type of Article:** ______

Reporter Listed: ____ **Reporter Location:** ______

Article Validity: ______

Section B

1. Geographic Focus: ___1. Fukushima Prefecture ___ 3. Japan - other

___ 2. Tohoku – other ___4. Other country

2. Issue Focus: _____ (Use code)

3. Keywords: ___ 1. Fear word ___ 5. Threat word ___ 9. Struggle word

___ 2. Calm word ___ 6. Safety word ___ 10. Support word

___ 3. Trust word ___ 7. Control word ___11. Chernobyl

___ 4. Distrust word ___ 8. Chaos word___12. Three Mile Island

Section C

1. Reference to Radiation Levels: _____

2. Units of Radiation Measurement:

___ 1. mSv ___ 5. mSv/h ___ 9. Bq ___ 13. kBq ___ 17. kBq/cm^3

___ 2. μSv ___ 6. μSv/h ___ 10. Bq/kg ___ 14. MBq ___ 18. MBq/m^2

___ 3. nSv ___ 7. nSv/h ___11. Bq/g ___ 15. Bq/m^2 ___ 19. MBq/km^2

___ 4. Sv ___ 8. Sv/h ___12. Bq/l ___ 16. Bq/cm^3 ___ 20. TBq

___ 21. $TBq//km^2$ ___ 22. Other ___ 23. None

3. Explanatory Information: ____

4. Radiation Risk Comparisons: ___ 1. X-ray ___ 3. Flying

___ 2. CT scan ___ 4. Background radiation

___ 5. Bananas ___ 6. Other

5. Focus of Radiation Risk Coverage:

___ 1. Short-term ___ 2. Long-term

___ 8. Little risk ___ 9. No risk ___ 10. Significant risk

<u>Section D</u>

1. Sources Used:

___ 1. Japanese gov. ___ 5. WHO ___ 9. Fukushima resident

___ 2. Foreign gov. ___ 6. Greenpeace ___ 10. Other Jap. resident

___ 3. TEPCO ___ 7. Jap. academic ___11. Non-Jap. resident

___ 4. IAEA ___ 8. Non-Jap. academic ___12. Other (specify below)

____

2. Critical Views of:

___ 1. TEPCO ___ 3. Foreign gov.

___ 2. Japanese gov. ___ 4. Foreign media

NOTES:

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Overall: Reassuring Alarming Neutral

APPENDIX B: Coding Book

Coding Book (Page 1 of 9)

This booklet is to be used in conjunction with the Coding Sheet. It provides explanations of the codes and instructions for the coding procedure, following the order on the Coding Sheet.

Name of Coder: Write your full name.

Date of Coding: Fill in the date on which the coding is performed. Use the following format: year/month/date e.g. 2015/02/21.

Section A:

This section comprises the meta-data of the content analysis. Fill in the Coding Sheet as follows.

Newspaper: Write the relevant initials.

JT for *The Japan Times.*

DY for *The Daily Yomiuri*.

Article Word Count: This can be found at the top of each article. Fill in the number only. E.g. 500.

Article Date: Fill in the date using the year/month/date format e.g. 2015/02/21.

Article Title: Write the headline out in full, exactly as it appears at the top of the article. Do not use quotation marks unless they are part of the headline.

Article from Press Agency: Indicate whether the article is listed as being from a news agency like Reuters, Kyodo News and so on, by writing the relevant number.

From a press agency: 1.

Not from a press agency: 2.

Type of Article: Indicate whether the article is a news or opinion piece. The category is not indicated on the article text, so use your discretion. "News" includes short news articles, news features and news analyses. "Opinion pieces" include letters, columns and editorials. If there is any confusion, mark the coding sheet and discuss with the other coders.

News: 1

Opinion: 2

Reporter Listed: Indicate whether the writer(s) is (are) listed by writing the relevant number. Do not write out the name of the writer(s). If the article is from a press agency, write 0.

Listed: 1

Not listed: 2

Article from a press agency: 0

Reporter Location: Fill in the relevant code.

Fukushima: 1

Tohoku – other: 2

Tokyo: 3

Japan – other: 4

Other country: 5

Not listed: 0

Fukushima means the prefecture and all areas therein. "Tohoku – other" refers to all other parts of Tohoku, excluding Fukushima. These prefectures are: Akita, Aomori, Iwate, Miyagi and Yamagata. "Japan – other" refers to all other areas of the country, excluding Fukushima and the rest of Tohoku, and excluding Tokyo. If you are not certain which area the location falls under, check on the Internet. "Other country" includes all other countries.

Article Validity: Indicate the article's focus on Fukushima. Is it the main focus of the article, dominating most of the narrative? Or is it only mentioned briefly, in a sentence or paragraph? To be classified as having partial validity, Fukushima should receive half or less of the article's attention. Write the relevant code.

Main focus: 1

Partial focus: 2

No mention: 0

Do not continue coding articles that have been classified as 0. *For articles classified as 2, only continue coding the relevant section that focuses on Fukushima.*

Section B:

This section assesses the geographic and issue focus of the articles/paragraphs/sentences, as well as information on keywords.

1. Geographic Focus: Indicate the area that is focused on in the article, by marking O next to the relevant number. The interpretation of the locations is the same as above, except that Tokyo should be classified under "Japan – other". Choose only one area – use your discretion to determine the main focus of the article if several areas are mentioned.

2. Issue Focus: Indicate the main focus of the article (or just the paragraph/sentence where Fukushima is mentioned, if the article has been coded as having partial validity) by writing the relevant number from the list below. Where the article gives equal focus to more than one issue, code all of the issues, separating them with commas, and write **D** in front. E.g. **D 1, 3.** Do not list other issues given only minor attention in the articles.

Issue List

1 = Nuclear power plant situation (events at the plant itself, updates on the reactors, leaks, etc., excluding clean-up efforts.)

2 = Radiation risks (the spread of radiation, hotspots, levels, health concerns.)

3 = Food contamination (Radiation risks specifically focused on food. Bans on produce, radiation levels in rice, seafood, etc. Caution: if the article/paragraph/sentence focus is on farmers or fishers, select 4 instead.)

4 = Affected people (Fukushima evacuees, other residents of Fukushima, people having to undergo radiation checks, farmers and fishers as mentioned above, emergency workers at the nuclear plant. Excludes tsunami and earthquake victims. Articles/paragraphs/sentences should focus on the "human face" of the crisis.)

5 = Blame and Responsibility (the cause of the nuclear crisis, holding TEPCO and government bodies accountable.)

6 = Crisis Management (the general, overall process; TEPCO and governments' guidance of the public through the crisis, their decisions, evacuations. Caution: only select this code if the article/paragraph/sentence is very general and another more specific code cannot be selected.)

7 = Economic effects (of the nuclear crisis specifically.)

8 = Clean-up efforts (focusing on the process and problems of cleaning up the radioactive contamination of the environment).

9 = Future of nuclear energy (debates, protests, polls, proposals, ideas – in Japan and other countries).

10 = Departures from other areas/Japan: (classify Japanese government-mandated evacuations of parts of Fukushima under 4 or 6. This code is for articles/paragraphs/sentences focused on other

residents of Japan (both Japanese and non-Japanese) "fleeing", e.g. to Okinawa or repatriating.)

11 = Other (if the focus is on an issue unrelated to any of those listed above, code it as 11 and note the focus in the "Notes" section of the Coding Sheet.)

3. Keywords: Scan the article/paragraph/sentence to see if it contains any of the following keywords and mark **O** next to all of the relevant numbers on the Coding Sheet. Mark each number only once, even if the words appear multiple times. If the repeated use of a word or category thereof is extreme and stands out in a particular article, this can be noted under "Notes" at the bottom of the Coding Sheet.

Words have been grouped together for ease of data collection, simplifying the coding process. As per standard coding procedure, negative keywords have been balanced with positive counterparts for thorough analysis. Further analysis of the keywords may be performed in later parts of the study.

When coding, include verb, adjectival and adverbial forms of the words, e.g. anxiety/anxious/anxiously. Check the use of the words carefully. For example, "panic" might be part of the phrase, "no need to panic". In this case, the latter as a whole should be classified as 2, a *Calm word*. In contrast, "people are panicking" would be classified as 1, a *Fear word.*

1. Fear word: anxiety, panic, dread, fear, terror, worry, concern, hysteria, etc.

2. Calm word: peace, relaxed, calm, no concern, assurance, reassurance, at ease, etc.

3. Trust word: reliable, accurate, trust, believe, credible, honest, candid, open (e.g. open communication), etc.

4. Distrust word: suspicious, lies, distrust, false, inaccurate, unreliable, half-truth, closed, guarded (e.g. closed/guarded answers), etc.

5. Threat word: risk, danger, emergency, threat, consequences (with negative connotation), damage (regarding health or the environment), impending, etc.

6. Safety word: no danger, no risk, harmless, insignificant (risk), protect, safe, etc.

7. Control word: manage, direct, oversee, in control, etc.

8. Chaos word: apocalypse, doom, catastrophe, disaster, chaos, mess, out of control, runaway, crisis, etc. ("meltdown" was assessed separately, so can be excluded).

9. Struggle word (concerning those affected): stress, struggle, hardship, suffering, difficulties, loss (e.g. lost their home), tough times, shortage, victims, weak.

10. Support word: assistance, solidarity, support, help, sympathy, donation, volunteer, stand with.

11. Chernobyl

12. Three Mile Island (may be referred to as the Harrisburg incident).

Section C:

This section assesses the coverage of radiation information in the text.

1. Reference to Radiation Levels: Indicate whether there is any mention of Fukushima-related radiation (with or without numerical data, it makes no difference here) by writing the relevant code on the Coding Sheet.

Yes = 1

No = 0

2. Units of Radiation Measurement: Mark **O** next to all of the units included in the text. The abbreviations are clarified below.

1. mSv = millisieverts

2. μSv = microsieverts

3. nSv = nanosieverts

4. Sv = Sieverts

5. mSv/h = millisieverts per hour

6. μSv/h = microsieverts per hour

7. nSv/h = nanosieverts per hour

8. Sv/h = Sieverts per hour

9. Bq = Becquerels

10. Bq/kg = Becquerels per kilogram

11. Bq/g = Becquerels per gram

12. Bq/l = Becquerels per litre

13. kBq = kilobecquerels

14. MBq = megabecquerels (note that mBq refers to millibecquerels)

15. Bq/m^2 = Becquerels per square metre

16. Bq/cm^3 = Becquerels per cubic centimetre

17. kBq/cm^3 = kilobecquerels per cubic centimetre

18. MBq/m^2 = megabecquerels per square metre

19. MBq/km^2 = megabecquerels per square kilometre.

20. TBq = terabecquerels

21. TBq/km^2 = terabecquerels per square kilometre.

22. Other: Any other unit of radiation not listed above.

23. None: No use of any unit of radiation (radiation levels may be referred to without any quantification).

3. Explanatory Information: Indicate whether any explanatory information about the radiation levels is included. This could be a comparison to past radiation levels, a risk comparison, reference to natural background levels, an explanation of the radiation measurement units, reference to levels deemed safe, etc. The information should be situated near the radiation data, or it cannot be deemed explanatory information.

Yes: 1

No: 0

4. Radiation Risk Comparisons: Mark **O** next to all of the points of comparison made in the text. For example, if the level of radiation is compared with the amount of radiation one is exposed to in a chest X-ray, mark **O** next to 1.

5. Focus of Radiation Risk Coverage: Mark **O** next to all of the relevant codes. Identify the potential radiation-related health risks the text focuses on, and consider the time period thereof.

1. Short-term: The immediate 2-4 weeks.

2. Long-term: Risk beyond the above.

Also identify and mark the level of risk depicted in the text. Mark only one code.

8. Little risk: Low level of risk, but acknowledgement that there is some.

9. No risk: Depiction of situation as completely safe. Look for words like "harmless" and "insignificant".

10: Significant risk: Depiction of a serious level of risk.

Section D:

1. Sources Used:

Mark **O** next to all of the sources referenced in the text. To be included, the source needs to be quoted directly, paraphrased, or otherwise referred to as a source of information.

1. Japanese gov.: The Prime Minister, Chief Cabinet Minister, other Ministers, Deputy Ministers and other elected representatives of the Democratic Party or opposition parties. If you are not certain of a source, look them up on the Internet.

2. Foreign gov.: Any member of another country's government.

3. TEPCO: Any representative of Tokyo Electric Power Company.

4. IAEA: The International Atomic Energy Agency

5 WHO: The World Health Organisation

6. Greenpeace

7. Jap. academic: Japanese professors, scientists, researchers, etc.

8. Non-Jap. academic: Same as above, but non-Japanese.

9. Fukushima resident: A layperson, not a worker at the nuclear plant. For example, an evacuee, a parent of a child undergoing thyroid cancer screening, etc.

10. Other Jap. resident: Any other Japanese lay person (i.e. non-TEPCO, government, or academic) from another part of Japan.

11. Non-Jap. resident: Same as above, but this category includes non-Japanese residents of Fukushima as well.

12. Other: Any other types of sources should be noted explicitly on the designated line on the Coding Sheet.

2. Critical Views of: Mark **O** next to all of the relevant codes. Critical views can be included as part of direct or indirect quotations, or the text's presentation of the issue (but this must be obvious at a superficial level; framing can be assessed in greater depth during the critical discourse analysis component of the study).

1. TEPCO: Criticisms of the company or its employees/representatives.

2. Japanese gov.: Criticisms of the government as a whole, or specific members thereof.

3. Foreign gov.: Same as above.

4. Foreign media: Criticism of the foreign media as a whole, specific publications or organisations, or specific reporters/journalists.

NOTES: This is space for memoing. Additional observations, as well as queries and questions can be jotted down here by the coder.

****Overall:** This is not part of the coding, but coders are asked to select their overall impression of the text, after completing the above coding. Please circle the option that you feel best describes the overall tone of the article.