

Theorizing Roles for Online News Media in Representation of Risks: The Case of Malaysia

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This paper theorizes a model for the representation of risks in online news media. Its practicability is demonstrated using Malaysian alternative online newspapers. Anxiety and uncertainty about a risk event are naturally rooted in discourse and count as discursive event because they appear on the discourse planes of politics and the media intensively and extensively. These discourses are pervasive on the Internet, which is used by over 20 million Malaysians. Furthermore, alternative newspapers flourish in online forms in Malaysia largely due to government press law inhibitions on mainstream print and broadcast media. The popularity of alternative online newspapers in Malaysia is also demonstrated by their ranking within the first three most visited web entities in the April 2015 Media Metrix rankings of Malaysian web entities. The model is used to provide presumptions on how risks can be spread or weakened. It also provides conjectures on how multiple semiotic resources in the composition, content and design of online news media like colour, gesture, image, layout, writing, etc can be used to amplify or attenuate risks from meanings that are conveyed using "tools shaped by cultural and social factors to mediate interests of members of social groups..." Thus, the model proposes a digital social amplification of risk communication model on the role of the news media in the representation of risks, and in negotiating socio-cognitive processes, behaviours and responses to risk events.

Keywords: News media, amplification, attenuation, technology, hazards

Risk communication is a practice and a research area (Lichtenberg & MacLean, 1991, p. 157). It may be researched using technical, economic or perception approaches. In the first, risk is derived from the statistically expected number of fatal events. The second focuses on the analysis of balance between risk and benefits. The third is psychological and looks at risk perception to analyze subjective risk (Klymanska, 2015, p. 55). This article argues further too, that the third approach is applicable to an audience study or in a content analysis. Thus, this paper theorizes roles for online news media (i.e. in a content analysis) in the representations of risks from risk events using the subjective perception approach. This theoretical exercise is significant because despite almost thirty years long assumptions on the Social Amplifications of Risks Framework (SARF) and torrents of research regarding risk amplification and or attenuation, there is little evidence to understand the role of news media as a social amplification station (Binder, Cacciatore, Scheufele, & Brossard, 2015, p. 78). In addition, Hansson (2009) assert too that providing adequate information for laymen and helping them understand the reality of risk is an attempt to influence public opinion.

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Risk varies, but it is also the aspects of probability and severity of harm [of an unwanted event], or the statistical expectation value of harm from unwanted events which may occur (Rosa et al. in Mo'ller, 2012, pp. 56-58). Therefore, risks are always connected to lack of knowledge and knowledge about risk is knowledge about the unknown (Hansson, 2012, p. 34). Hence, lack of knowledge generates uncertainty and/or anxiety while increase in information can be used to overcome uncertainty.

Risks also emerge from events, known as risk events and Kaspersen et al. (1988, p. 178) explain that risk event refers to occurrences that are manifestations of the risk which initiate signals pertaining to the risk. Risk events thus include routine or unexpected releases, accidents (large and small), discoveries of pollution incidents, reports of exposures, or adverse consequences. Usually such risk events are specific in particular times and locations.

This paper argues too, that, risk is socio-culturally defined, and when coalesced with the propensity of the manifestation of risk events in Malaysia, theorizing a role for a popular media of communication becomes imperative. The theorized roles also find credence within the arguments by Lichtenberg and MacLean (1991, p. 157) that in risk representations, trade-offs become inevitable, and require value judgments, which involve political decisions. And since democratic societies require public participation in decision making, it is important that the public understand the risks from an event and the costs of reducing them. More so, risks have multiple dimensions according to Dunwoody and Peters (1992) and these dimensions affect people, their health, ecosystem, personal property, quality of life or economic activity.

In view, therefore, this paper uses Malaysian alternative online newspapers to theorize roles in the representations of risks by online news media within several realities. Firstly, there were approximately over 20 million internet users in Malaysia by the first quarter of 2014 (Malaysian Communications and Multimedia Commission, 2015). These users represent a huge quota from the country's estimated population of over 30million people according to the 2015 mid-year population estimate from the Department of Statistics Malaysia (2015). Secondly, Malaysian alternative newspapers are vibrant in online platforms. This may not be unconnected with the observation by the World Association of Newspapers (WAN-IFRA, 2014) that a vast majority of them were blocked from entering the print media sector using restrictions from the Printing Presses and Publications Act (PPPA) to deny them access to the preponderance of advertising revenues, which are located in non-digital media markets.

Thirdly, technology visibly plays significant developmental roles across sectors in Malaysia like banking, economy, education, investments, manufacturing, trade and transportation. Tong (2014) warns that the environment and people are exposed to risks in society where technological innovations are rampant and the World Bank (2015) buttress that Malaysia has evolved from a raw material producing economy (of e.g., tin and rubber) to a diversified economy and a leading exporter of high-tech products. Furthermore, the Bretton Woods institution categorizes Malaysia as a highly open, upper-middle income economy with an inclusive economic growth. Therefore, as a leading exporter of high-tech products, it may be apt to suggest that as a society awash with technological innovations, people in Malaysia may be exposed to risks too.

Fourthly, the emergence of alternative newspapers in Malaysia has been linked to widespread disenchantment with the country's mainstream media. Specifically, internet-based alternative media emerged following restrictions from the PPPA on print publications (Ling, 2003). This created an avenue to establish Malaysiakini, the first independent online newspaper in Malaysia (Zaharom 2008; Zaharom & Wang, 2004). Observably, since the

emergence of the first alternative online newspaper, several alternative online platforms have emerged and are competing favourably with mainstream newspapers. The April 2015 Media Metrix rankings of Malaysian website entities by the Malaysian Digital Association and comScore (2015) ranked two alternative online platforms: MalaysiaKini and The Malaysian Insider as the first and second most visited web entities to signify the popularity of alternative online newspapers in Malaysia. It is thus construed that the roles played by alternative online newspapers in the representation of risks can be far-reaching in influencing public opinion towards negotiating socio-cognitive processes, behaviours and responses to risk events.

Theoretical Postulations

The theoretical postulations in this article synthesizes assumptions from Kasperson (2012) and Kasperson et al. (1988)'s Social Amplification of Risks Framework (SARF) with Kress (2010)'s Social Semiotic Theory of Multimodality (SSTM). The SARF provides presumptions on how risks are spread or weakened and the SSTM provides conjectures on how different, similar or complementary meanings are transmitted using multiple semiotic resources, known as modes.

Changes in risk perceptions and responses may depend on psychological, social, institutional, and cultural processes in the SARF (Kasperson, 2012, pp. 23-27; Kasperson et al., 1988, pp. 177-187). Thus, hazards interact with these perspectives to amplify or attenuate public responses to risk or risk event (Kasperson, 2012; Kasperson et al., 1988; Pidgeon & Barnett, 2013, pp. 23-27). Therefore, Kasperson et al. (1988) posits that information flow becomes the key ingredient in public response and acts as a major amplifier or attenuate through attributes of: volume, degree of disputing factual or inferred information, extent of dramatization and symbolic connotations from information and terminologies.

According to Kasperson et al. (1988), the media and other components of the SARF are social amplification stations during key amplification stages for: (1) filtering signals (2) decoding and reframing risk signals (drawing inferences) (3) attaching social values to the messages to draw implications (4) interacting with cultural and peer groups to interpret and assess validity of signals (5) formulating behavioural intentions to tolerate or fight risk or risk manager and (6) engaging in group or individual actions to accept, ignore, tolerate and/or change the risk. However, items 4, 5 and 6 above do not apply to the roles theorized for online news media. They are confined to the roles of other social agents who serve as amplification and/or attenuation stations. Notably too, items 4, 5 and 6 can be applied in an investigation of an audience perception of risk but postulations in this paper are limited to the roles of online news media in amplifying and/or attenuating risks from events.

Meanwhile, Kress (2010, p. 19) posits that the SSTM explains how the composition, content and design of digitized media use tools shaped by cultural and social factors to mediate interests of members of social groups so that practices, resources and technologies of communication respond, at different rates at different times, to social, economic and technological developments. Hence, Caple and Knox (2015) argue that it is a framework for understanding semiotic resources. Leeuwen (2015, p. 447) explain further that the term multimodal indicates that different semiotic modes (for instance language and image) are combined and integrated in a given instance of discourse or kind of discourse like speech with intonation, voice quality, facial expression, gesture, posture or writing with typographic expression, illustration, layout and colour. Kress (2010, p. 1) reinforces that multimodality focuses on the functionality of language in conveying particular, similar, different and/or complementary meanings where each mode does a specific thing: image shows what takes

too long to read, and writing names what would be difficult to show. Colour is used to highlight specific aspects of the overall message. Without that division of semiotic labour, the sign, quite simply, would not work. Writing names and image shows, while colour frames and highlights; each to maximum effect and benefit.

At this point, the question of the significance of synthesizing theoretical frameworks to theorize roles for alternative online newspapers as a subset of the online news media becomes imminent. Firstly, the SARF is about how information processes interact with risk events in a socio-cultural context to amplify and or attenuate risks; and Malaysia as a technologically-driven economy is embroiled in a circle of risk events, and therefore provides a natural setting for the emergence of socio-culturally contextualized definitions of risk. Secondly, Binder et al. (2015, p. 78) observe that despite almost thirty years long assumptions on the SARF and torrents of research regarding risk amplification and or attenuation, there is little evidence to comprehend the function of news media as a social amplification station. Hence, this proposal considers synthesizing aspects of the SARF that explains the role of the news media with other frameworks from a multidisciplinary perspective. Thirdly, Dunwoody and Peters (1992) asserts that risks have multiple dimensions and it is argued here that these dimensions can affect people, their health, ecosystem, personal property, quality of life or economic activity.

Fourthly and characteristically too, the SSTM postulates that multiple modes are used in communicating meaning in a communicative act. This article argues that the internet and the features of online news media and the popularity of alternative online media in Malaysia, makes it practical to use them as exemplars in theorizing roles in the representation of risks. For instance, the internet allows online newspapers to use some online news features like audio, graph, illustration, infographic, photograph, video, and so on to convey similar, different, complementary or contrasting meanings. Fifthly, convergence of technologies also justifies the need to synthesize aspects of the SARF with other digital media theories in providing explanations for contemporary digital communication. This is more so that Baehr and Schaller (2010) explain that convergence refers to a place where media forms interact, overlap and gather while Jenkins (2008) refer to it as a place where media forms collide.

Online News Media Social Attenuation of Risk Model: A Proposition

A synthesis of the SARF and the SSTM is conceptualized and subsequently used to theorize roles for online news media. It is important to highlight that a diagrammatic representation of the SARF is well documented (For example in Kasperson, 2012; Kasperson et al., 1988; Pidgeon & Barnett, 2013) and has been used for, or critiqued in other researches. However, the diagrammatic depiction of the SSTM in this paper, which are synthesized with aspects of the functions of news media in the SARF, are the subjective visualizations of the authors of this paper based on the arguments put forward in the SSTM by Kress (2010, 2012). The visualization of the SSTM and its synthesis with the SARF are therefore significant contributions of this paper. This will subsequently be used to theorize roles for Malaysian alternative online newspapers, as a sub-set of online news media, in amplifying or attenuating risks from events.

In the SARF, news media [herein used to refer to online news media] are "social amplification stations" of risk events. They get information from news sources who are "social actors". Social actors are diverse communities, social groups, environmental and community organizations, experts, industry, lay people, farmers, government, politicians, activists, and their agencies, etc (See for example: Hove, Paek, Yun, & Jwa, 2015; Jönsson, 2011; Metag & Marcinkowski, 2014; Romanach, Carr-Cornish, & Muriuki, 2015) who provide

information that are used in the representation of risks from risk events. Social amplification stations can amplify and/or attenuate in three ways as earlier noted in the sub-section on theoretical postulations by: (1) filtering signals (2) decoding and reframing risk signals (drawing inferences) and (3) attaching social significance to the messages for drawing implications. In the process, feedback and iteration occurs through direct, indirect and personal experiences of the social actors based on: volume of information, degree of disputing factual or inferred information, the extent to which the information is dramatized and the symbolic connotations that can be derived from information and terminologies in the signals from the representation of risks based on information provided by social actors.

Modes in the SSTM include: colour, gesture, image, layout, speech and writing. This theoretic exercise considers it important to also include "multimedia" as the seventh addition to the list of modes. "Multimedia" is not in the proposition of the SSTM by Kress (2010), but it is argued here that content of today's online media is awash with multimedia contents aided by convergence of technologies. Kress (2010, p. 28) notes specific distinctive characteristics such as: style (effects of a series of choices made in the design of a message); aesthetics (the politics of style), design (selection and arrangements of resources for making a specific message about a particular issue for a particular audience); and identity (a uniqueness derived from the combination of the other distinctive characteristics inherent in the forms of modes); all combine to contextualize relations between forms and meanings in multimodal semiotic resources in the SSTM.

The concept of "coherence" in the model is also a defining characteristic of modes in conveying meanings in the SSTM. Kress (2012, p. 36) explains that coherence is social and points to meanings in a social order to keep track of social changes and to conceptualize order in society. It is established using modes internally and externally. Internal coherence is established among elements of the text while external coherence is established with elements of the environments within which texts occur and this allows knowledge to be shaped, produced and constituted distinctly in different modes.

The theoretical postulations in this paper are depicted in Figure 1 below to conceptualize an online news media amplification and/or attenuation of risk model. It practicability is subsequently demonstrated using Malaysian alternative online newspapers to theorize roles for them in the representation of risk from two prominent risk events in Malaysia.

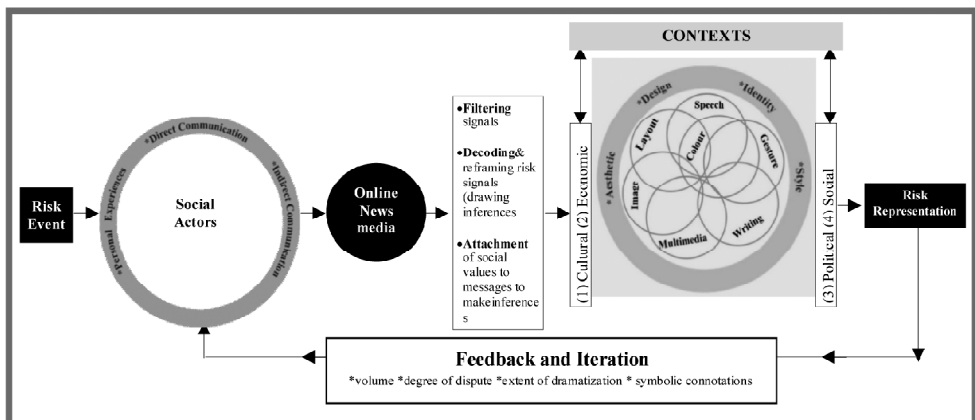


Figure 1. Online news media social amplification/attenuation of risks model

Source: Adapted and conceptualized from Kasperson *et al.* (1988), Kasperson (2012), Pidgeon and Barnett (2013) and Kress (2010)

Figure 1 above depicts a risk communication model that can be used to unearth the roles of online news media in the social amplification and/or attenuation of risks. Malaysian alternative online newspapers are depicted as “online news media” while news sources are “social actors”. But Boholm (1996) explains that risks are culturally biased, meaningful phenomena, and the perception of risk is highly influenced by socially embedded values and belief. In the next section, this theoretical exercise will delve into the practicability of its propositions by using Malaysian alternative online newspapers as exemplars of online news media in the representation of risks from events.

Alternative Online Newspapers : Representation of Risks from Risk Events

This section uses Malaysian alternative online newspapers, as a sub-set of online news media and a popular news platform within the Malaysian online news media landscape, to theorize their roles in the representation of risks from risk events. This is considered significant to depict the practicability of the application of the theoretical model proposed in this paper.

Contemporary exemplars of risk events in Malaysia are typified using; (i) Lynas rare earth processing plant and (ii) bauxite mining, both in Gebeng, Kuantan, Malaysia. These two risk events attracted wide, intensive and extensive local and international media coverage. They are technologically-related and similar risk events like the Asian Rare Earth Sendirian Berhad plant in Bukit Merah, Perak, Malaysia in the 1980s, which left low-level radioactive waste that caused environmental and health-related hazards, including coughs and colds, sharp rise in leukemia, infant deaths, congenital diseases and lead poisoning (See for example: Bradsher, 2011; Nik, 2012). Zhang and Zhong (2010, p. 122) have also related environmental risks to other forms of risks. For example, empirical observations highlight that environmental risks are, in many cases, the causes and/or the consequences of other types of risks or incidents.

Meanwhile, journalists convey accounts of events to the public through newsgathering and processing [for example, of risk events like rare earths and bauxite mining]. Newsgathering and processing for the news media is the work of journalists and journalism. A broad conceptualization of journalism and journalists by Harcup (2014) posits that:

a journalist is someone who is engaged in the production of editorial content for journalistic products and outputs. Meanwhile, journalism involves a set of practices that allows fresh, topical, factual information to be discovered and/or uncovered and communicated across media and to several publics. It however goes beyond that to amplify, contextualize and comment on facts already in public domain for public interest. Notwithstanding the breadth of the field, at the heart of journalism is reporting, which relies on a mixture of observation, inquiry, verification and attribution. It is an attempt to produce as accurate a version of events as possible (pp. 148-152).

Observably, most literature definitions of risks in discussions on communication of risk events are alien to the culture and social setting of the country in which a risk event occurs. Thus, risk becomes socio-culturally contextual. So, if most conceptions of risks are drawn from Western countries’ conceptions of risk perception as corroborated in Desmond (2015, p. 197); this article argues that Malaysian alternative online newspapers as popular

news media can play a pivotal role in bridging this gap. Suggestively, a qualitative content analysis can engender the understanding of Malaysian cognitions of risks from the contents of Malaysian alternative online newspapers' coverage of risk events based on cognitions and attributions from social actors.

Furthermore, risks as earlier noted, have multiple dimensions and there are indications that a risk from a particular sector can result in risk in a different sector. The proposed model for an online news media social amplification and or attenuation of risks suggests that because risk has multi-dimensional facets, Malaysian alternative online newspapers have to ensure that facts are filtered and separated from assumptions or rumours in reporting risks at all times. The relevance of the preceding role in this theoretic postulation is corroborated by Klymanska (2015, p. 57) who argue that the reliability of information reaching the public is very important in the assessment of risk. On the one hand, false information or lack of information transparency could lead to an underestimation of risk, or to groundless panic based on illusion of truthfulness of the information provided. Hence, it is argued further that practices from the risk events and/or leading to a risk event that have dangerous consequences need to be thoroughly investigated. In making inferences, for instance, illustrations or pictures should be used not only to mediate cultural and social values of a particular interest group, but all stakeholders (e.g.: government, experts, politicians, lay people, industry, activists, scientists, farmers, environmental and community organizations and general public, etc). These mediatory roles should incorporate the social actors' lived, direct and indirect experiences on the particular or similar risk events.

Subsequently, Malaysian alternative online newspapers can rely on verifiable, multiple and credible sources of information through cross-referencing with other weighty sources. However, journalists working for Malaysian alternative online newspapers will require training to acquire the requisite skills on how to verify these facts. The verification of facts engenders understanding of the several "scientific jargons" from risk events and in turn builds the journalistic capacity to decode and represent the facts using Malaysian social values. Factual contents can guarantee that stakeholders have unhindered access to ubiquitous information on the various types of risks from for example, bauxite mining. Air, land and water pollutions may be the obvious but not the only immediate risks that are likely to have multiplier effects on the living patterns, economic activities, occupation and sources of livelihood of inhabitants or neighbouring lowland communities.

Multiplicity of modes also emphasize that alternative online newspapers can capitalize on multimedia journalism to reach a mass audience. But reaching a mass denomination does not guarantee that contents will provide consistent factual, accurate and unbiased information to a diverse audience across diverse modes. The latter argument emanates from how online news eliminates rudimentary news processing mechanisms like gatekeeping. Singer (2015, pp. 29-44) argues that one of the advantage of traditional newsrooms is that they have multiple gatekeepers at various stages of the news production process. Reporters and editors at various levels provide a whole series of checks on information before it its disseminated. Meanwhile, the virtual nature of the online environment challenges the gatekeeping function, which indisputably changes, but does not disappear in this new media environment. It also does not become less ethically important but simply becomes a major challenge that online news media, including Malaysian alternative online newspapers, must strive to overcome because according to Klymanska (2015, p. 57), the reliability of information reaching the public is very important in the assessment of risk.

Newsroom cultures and journalism code of ethics can also enable Malaysian alternative online newspapers avoid sensationalism and speculative reporting, thereby promoting truthful and factual reporting. Borrowing from the often quoted words of Charles Prestwich Scott, "comment is free, but facts are sacred". Hence, it is argued that Malaysian alternative online newspapers can strategically deploy its different genres to serve different purposes. The genre of contents found in Malaysian alternative online newspapers include: news analysis, editorial, features, hard news, interviews and opinions in the forms of comments, letters to the editor and views. Others include: photo galleries, retractions and videos. Each genre is unique in structure and format of presentation and this can be strategically deployed towards amplifying and/or attenuating risks from risk events.

These can be combined with arguments in the SSTM to ensure that the composition and design of digitized contents are shaped by cultural and social factors to mediate the interests of members of diverse social groups. This is because the SSTM theorizes that the media uses tools shaped by cultural and social actors to media public interests. Thus, it is theorized here that in using colour, as a cultural tool, for example, the Malaysian alternative online newspapers should consider Malaysian cultural sensitivities. For instance, conspicuous colours in the symbols used in the global representation of toxic or radiation risk comprise a mix of bright yellow and black. Meanwhile in Malaysia, "yellow embodies the sovereignty and loyalty towards king and country" (Siew, 2015). This means Malaysians revere yellow, not just as a royal colour, but as a symbol of royal authority. Therefore, cultural sensitivities can be upheld in depicting risks from risk events in using colours. This is because media texts are often open to polysemic interpretations and some of these interpretations will be guided by audience's values, beliefs and culture. As a multi-ethnic nation, Malaysia reveres the socio-cultural values and beliefs of its diverse entities and has used this to engender continued peaceful coexistence. Malaysia's diversities are also enormous and Malaysian alternative online newspapers can use some of the multimodal resources to foster social cohesion in the representation of risks, while still conforming to standardized symbolic representation and factual reporting of risks.

Similarly, since risk events like bauxite mining and rare earths processing are multi-billion dollar economic enterprises, obtaining accurate and factual information can be difficult, hence investigative and where necessary, clandestine reporting can be utilized to uncover sharp practices among land owners, business entities, government officials, regulatory agencies, and so on. Supposedly, reportages in the alternative online newspapers can use the immediacy characteristics of the online media, not only to set agenda, but to also act as whistle blowers, by exposing wrong-doings.

Furthermore, the immediacy of feedback is one of the most attractive features of online news media, and Malaysian alternative online newspapers have integrated feedback platforms in the forms of comments in news. Such comments often generate discussions across geographic, social, political, and cultural boundaries because the Internet provides a borderless platform for communication. Sometimes, a discussant or commenter of news, features, video, or any of the digitized contents may be more knowledgeable or may have experienced similar risk events. Therefore, in undertaking their roles in the amplification or attenuation of risks from risk events, alternative online newspapers can establish desks and assign specific personnel to monitor comments from online contents. The comments can be compiled and deliberated at editorial meetings. Some of these comments can become news scoops, used to generate lead stories or be used to focus on the nature, pattern, and depth of information to source and distribute.

Conclusion

This paper proposed a model for the social amplification and/or attenuation of risks in online news media and demonstrated the practicality of the model using Malaysian alternative online newspapers to theorize roles for online news media in the representation of risks. The model proposes a multi-disciplinary approach towards engendering understanding of the roles of news media within the SARF. It extends the application of arguments on amplification or attenuation of risks from risk events to online news media in digital online communication of risk by synthesizing the Social Amplification of Risks Framework with the Social Semiotic Theory of Multimodality.

Theorizing roles for online news media is imperative in today's ubiquitous online communication because risk communication is not just an area of research, but a practice and the roles played by online news media in the representation of risks can be far-reaching in influencing public opinion towards negotiating socio-cognitive processes, behaviours and responses to risk events like Lynas rare earths processing or Bauxite mining in Malaysia, as well as, other risk events elsewhere.

However, it is strongly argued that since this is a hypothetical conjecture, the propositions herein require empirical investigation using any of the array of contents of online news media. This will not only serve to critique the propositions, but it will further academic debates on how risks are amplified and/or attenuated and open new vistas into the roles of news media in amplifying and/or attenuating risks from contemporary communicative acts and risk events.

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Notes

¹Alternative online newspapers are used as an exemplar to demonstrate the practicability of the propositions in this paper. This does not in any way confine the application of the propositions herein to online alternative newspapers only.

²The PPPA regulates publishing and printing presses in Malaysia. All printers and publishers require printing licenses from the Malaysian Ministry of Home Affairs. Publishers who are considered to have violated the law are stiffly penalized.

³The closure of *The Malaysian Insider* by midnight of 15th March, 2016 due to cash crunch as explained by the management, is a stark reality of the earlier cited assertion from the World Association of Newspapers that restrictions from the PPPA are denying alternative newspapers who operate on the Internet access to the significant advertising revenues located in non-digital media markets.

References

- Baehr, C.& Schaller, B. (2010). *Writing for the Internet: a guide to real communication in virtual space*. California: Greenwood.
- Binder, A. R., Cacciatore, M. A., Scheufele, D. A., & Brossard, D. (2015). The role of news media in the social amplification of risk. In H. Cho, T. Reimer & K. A. McComas (Eds.), *The sage handbook of risk communication*(pp. 69–85). Thousand Oaks: Sage.
- Boholm, A. (1996). Risk perception and social anthropology: Critique of cultural theory. *Ethnos*, 61(1-2), 64–84. doi: 10.1080/00141844.1996.9981528
- Bradsher, K. (2011, March). Taking a risk for rare earths. *The New York Times*. Retrieved from <http://www.nytimes.com/2011/03/09/business/energy-environment/>

- 09rare.html
- Caple, H., & Knox, J. S. (2015). A framework for the multimodal analysis of online news galleries: what makes a "good" picture gallery? *Social Semiotics*, 1–30. doi: 10.1080/10350330.2014.1002174
- Department of Statistics Malaysia. (2015). Population Statistics. Retrieved from https://www.statistics.gov.my/dosm/uploads/files/3_Time%20Series/Malaysia_Time_Series_2015/22Perangkaan_Penduduk.pdf
- Desmond, N. (2015). Engaging with risk in non-western settings: an editorial. *Health, Risk & Society*, 17(3-4), 196–204.
- Dunwoody, S., & Peters, H. P. (1992). Mass media coverage of technological and environmental risks: a survey of research in the United States and Germany. *Public Understanding of Science*, 1(2), 199–230. doi: 10.1088/0963-6625/1/2/004
- Hansson, S. O. (2009). Risk and safety in technology. *Philosophy of technology and engineering sciences: Vol. 9. Handbook of the philosophy of science* (pp. 1069–1102). Amsterdam: Elsevier B.V.
- Hansson, S. O. (2012). A panorama of the philosophy of risk. In S. Roeser, R. Hillerbrand, P. Sandin & M. Peterson (Eds.), *Handbook of Risk Theory* (pp. 27–54). London: Springer Netherlands.
- Harcup, T. (Ed.) (2014). *Oxford Dictionary of Journalism*. Oxford: Oxford University Press.
- Hove, T., Paek, H.-J., Yun, M., & Jwa, B. (2015). How newspapers represent environmental risk: the case of carcinogenic hazards in South Korea. *Journal of Risk Research*, 18(10), 1320-1336. doi: 10.1080/13669877.2014.923025
- Jenkins, H. (2008). *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.
- Jönsson, A. M. (2011). Framing Environmental Risks in the Baltic Sea: A News Media Analysis. *AMBIO*, 40(2), 121-132. doi: 10.1007/s13280-010-0124-2
- Kasperson, R. E. (2012). A perspective on the social amplifications of risk. *Fall Issue of the Bridge on Social Sciences and Engineering Practice*, 42(3), 23–27. Retrieved from <http://www.nae.edu/Publications/Bridge/62556/62562.aspx>
- Kasperson, R. E., Renn, O., Slovic, P., Brown, H. S., Emel, J., Goble, R., Kasperson, J. X., & Ratick, S. (1988). The social amplification of risk: a conceptual framework. *Risk Analysis*, 8(2), 177–187. doi: <http://dx.doi.org/10.18419/opus-7221>
- Klymanska, L. D. (2015). "The role of media in the mechanism of the social amplification of risks". *MEDIA I SPOŁECZEŃSTWO*, 5. Retrieved from http://www.mediaispoleczenstwo.ath.bielsko.pl/art/05/05_klymanska.pdf
- Kress, G. (2010). *Multimodality: A Social Semiotic Approach to Contemporary Communication*. London: Routledge.
- Kress, G. (2012). "Multimodal discourse analysis". In J. P. Gee & M. Handford (Eds.), *The Routledge Handbook of Discourse Analysis* (pp. 35–50). London: Routledge.
- Leeuwen, T. V. (2015). Multimodality. In D. Tannen, H. E. Hamilton & D. Schiffrin (Eds.), *The Handbook of Discourse Analysis* (pp. 447–464). New York: John Wiley & Sons Inc.
- Lichtenberg, J., & MacLean, D. (1991). The role of the media in risk communication. In R. E. Kasperson & P. J. M. Stallen (Eds.), *Communicating Risks to the Public* (pp. 157–173):Springer Netherlands.
- Ling, S. (2003). The alternative media in Malaysia: Their potential and limitations. In N. Couldry & J. Curran (Eds.), *Contesting Media Power: Alternative Media in a Networked World* (pp. 289–299). Maryland: Rowman and Littlefield Publishers, Inc.
- Malaysian Communications and Multimedia Commission. (2015). *Internet users survey 2014*. Selangor Darul Ehsan: Malaysian Communications and Multimedia Commission. Retrieved from <http://www.skmm.gov.my/skmmgovmy/media/General/pdf/Internet-Users-Survey-2014.pdf>.

- Malaysian Digital Association, & comScore. (2015). MDA and comScore Release Rankings of Top Web Entities in Malaysia for July 2015. Retrieved from <https://www.comscore.com/Insights/Market-Rankings/MDA-and-comScore-Release-Rankings-of-Top-Web-Entities-in-Malaysia-for-July-2015>
- Metag, J., & Marcinkowski, F. (2014). Technophobia towards emerging technologies? A comparative analysis of the media coverage of nanotechnology in Austria, Switzerland and Germany. *Journalism*, 15(4), 463–481. doi: 10.1177/1464884913491045
- Möller, N. (2012). "The concepts of risk and safety". In S. Roeser, R. Hillerbrand, P. Sandin & M. Peterson (Eds.), *Handbook of risk theory* (pp. 56–82). London: Springer.
- Nik, N. N. H. (2012). Where there is risk, there is opportunity: Environmental risks and violent conflict in Malaysia. Paper presented at the International Conference on Communication, Media and Civil Violence, Surakarta, Indonesia.
- Pidgeon, N., & Barnett, J. (2013). Chalaria and the Social Amplification of Risk. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200394/pb13909-chalara-social-amplification-risk.pdf
- Romanach, L., Carr-Cornish, S., & Muriuki, G. (2015). Societal acceptance of an emerging energy technology: How is geothermal energy portrayed in Australian media? *Renewable and Sustainable Energy Reviews*, 42(0), 1143–1150. doi: <http://dx.doi.org/10.1016/j.rser.2014.10.088>
- Siew, C. B. (2015, September). GNMM rubbishes claims of receiving RM3m from PM for rally. *The Sun Daily*. Retrieved from <http://www.thesundaily.my/news/1556989>
- Singer, J. B. (2015). Newsroom go online. In C. Friend & J. Singer (Eds.), *Online journalism ethics: Traditions and transitions*. Abingdon, Oxon: Routledge.
- Tong, J. (2014). Environmental risks in newspaper coverage: A framing analysis of investigative reports on environmental problems in 10 Chinese newspapers. *Environmental Communication*, 8(3), 345–367. doi:10.1080/17524032.2014.898675
- WAN-IFRA. (2014). Monopolizing the nation: Soft censorship in Malaysia. In T. R. Lansner (Ed.), (pp. 1–38). Paris: World Association of Newspaper and News Publishers (WAN-IFRA) & Centre for International Media Assistance (CIMA).
- World Bank. (2015). "Overview". Retrieved from <http://www.worldbank.org/en/country/malaysia/overview>
- Zaharom, N. (2008). Regime, media and the construction of a fragile consensus in Malaysia. In K. Sen & T. Lee (Eds.), *Political Regimes and the Media in Asia*. New York: Routledge.
- Zaharom, N., & Wang, L. K. (2004). Ownership, control and the Malaysian media. In P. N. Thomas & Z. Nain (Eds.), *Who Owns the media? Global Trends and Local Resistance*(pp. 249–270). Penang: Southbound Sdn Bhd.
- Zhang, L., & Zhong, L. (2010). Integrating and prioritizing environmental risks in China's risk management discourse. *Journal of Contemporary China*, 19(63), 119–136. doi: 10.1080/10670560903335835

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