

MEDIA FRAMING OF NATURAL DISASTERS IN KWAZULU-NATAL PROVINCE: IMPACT OF CONTINGENCY PLANS

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Abstract

This study explores how the media frame disaster contingency plans which include preparedness, mitigation, response and recovery of the KwaZulu-Natal province before, during and in the aftermath of natural disasters. The province has been stricken by natural disasters. Although newspapers report the disasters they fail to give details of disaster contingency plans that should be available to those who are susceptible to, and the victims of disasters. Based on a content analysis of 114 online newspaper articles between 2000 and 2013 to examine how the media framed the KZN government's disaster contingency plans. This study concludes that the highest occurrence of disasters (71%) was from 2011 onwards as compared to previous years, and most of these were associated with areas that are susceptible to floods (34%). The findings of the study highlight that the media placed an emphasis on disaster response (41%) over preparedness (24%) and mitigation (7%). The outcomes suggest that newspaper organisations need to appoint a designated reporter responsible for disaster management issues. This is relevant because this study conveys findings that have the potential to persuade government and newspaper organisations to collaborate and to ensure that their officials are multi-skilled and able to cover all phases of disaster management in their articles, in order for these to be understood at all levels of society. This study further adds to the growing body of knowledge regarding quality journalism that meets its objectives.

Key Words: Content Analysis, Contingency Plans, Natural Disasters, Kwazulu-Natal

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Introduction

In recent years, KwaZulu-Natal (KZN) province has been susceptible to natural disasters such as floods, thunderstorms, hailstorms and lightning. This has resulted in the destruction of infrastructure amounting to billions of Rands, injuries and loss of lives. At the same time the media has been framing government as adopting a passive approach towards such catastrophes. A study conducted by Spence, Lachlan and Griffin (2007:539) comparing media, use on the basis of race, in the aftermath of Hurricane Katrina, demonstrated a continued need to create messages encouraging crisis preparation, especially among at-risk subpopulations. The creation of such messages appears to be absent in KZN and has resulted in the media, which covers the contingency plans (preparedness, response, mitigation, recovery and rehabilitation) of the KZN government, reporting that those citizens most prone to disasters have not received correct information. According to Brashers, Neidig, Haas, Dobbs, Cardillo and Russell (2000), when crisis events run the likelihood of presenting danger, individuals engage in information seeking. A host of researchers (Barnes, Hanson, Novilla, Nonilla, Meacham, McIntyre and Erickson 2008) have discussed the influence the mass media have on mitigation.

This study aims to investigate how the media frame disaster contingency plans of the KZN provincial government before, during and in the aftermath of disasters. The study focusses on the framing of the disaster contingency plans by media, which have received little attention from researchers. It appears that the media frame disasters by quoting the disaster management political head (in this case Minister of Cooperative Governance) rather than using the specialists reports on disasters. This is not the media approach that occurs in most other provinces in South Africa.

Gamson and Modigliani (1987:143) conceptually define a media frame as "a central organising idea or story line that provides meaning to an unfolding series of events". Recent studies on mass media reporting on disasters have identified community education as an important goal for preparedness (Cottle 2006; Guion, Scammon and Borders 2007). Vasterman, Yzermans and Dirkzwager (2005:107) claim that the health consequences after disasters cannot be studied without focussing on the role of the mass media. A study conducted by Pasquare and Pozzetti (2007:166), which analysed 430 news stories of natural catastrophic events in Italy, reveals that the Italian scientific and environmental print media convey messages that are often characterised by lack

of accuracy (Rodriguez, Diaz and Aguirre 2004). The authors further state that journalists often shape their reports in a specific manner in order to amplify the political, economic and human-related implications of natural disasters.

This study attempts to answer the following research questions:

– Does the media frame and cover disaster contingency plans equitably?

– To what extent do the media frame the disaster contingency plans before, during and in the aftermath of disasters?

– How do the media frame the tone of responsibility in all phases of disaster contingency plans?

The next sections of the article cover the reviewed literature followed by the research methodology employed in this study, data presentation, analysis and the discussion of the research findings. The last section provides the conclusion and recommendation of the study.

Literature Review

Media frames and disasters

McQuail (1994:327) argues that the entire study of mass communication is based on the premise that the media make significant effects. On the other hand, the mass media have a strong impact by constructing social reality, that is, “by framing images of reality in a predictable and patterned way” (McQuail 1994:331). The media engenders public awareness and concern on the basis of the assumptions that (1) the press and the media do not reflect reality but, rather, filter and shape it, and (2) media concentration on a few issues and subjects leads the public to perceive those issues and subjects as more important than others (Overholser and Jamieson 2005:156-168); McCombs and Shaw 1972:36; McCombs, Shaw and Weaver 1997).

Media research shows that journalists use only a handful of non-specific frames to report news events (Semetko and Valkenburg 2000). Stories may be framed in terms of conflict, responsibility, economic consequences, human interest and ethical and moral considerations. A substantial body of research focuses on the communicative role of news media prior to, during and following natural crises, exploring how news media operate in crises, the accuracy of news reports, and the various effects of medium choice (Rogers and Dearing 1988; Sood, Stockdale and Rogers 1987; Spencer, Seydlitz, Laska and Triche 1992). Such research is typically social scientific, assuming a linear transmission model of communication where officials provide centralised, crisis messages to media organisations that transmit crisis messages to the public. In the mid-1980s, scholars began analysing the thematic content of news coverage to explore implications for sense-

making and agency surrounding crisis events (Wilkins 1985).

Media reports and disasters

During crises, news media communicate “basic information about what happened, the scope of the harm, how the crisis developed, who was affected, and what responses are being initiated” (Seeger, Sellnow and Ulmer 2003). A study conducted by Barnes et al. (2008: 3) examined how four prominent newspapers gathered and distributed news to shape public policy priorities during Hurricane Katrina in the United States of America. The researchers revealed that of the 1590 articles that was analysed as part of the study, more than 40% of the articles focused on the accountability of the federal government. The federal government, as opposed to individuals, families, or local government or agencies, was identified as the entity most required to respond or to be seen to already have taken responsibility for natural disasters. Barnes et al. (2008:3) allude to, in their tone and discussion surrounding responsibility allocation, to the fact that a positive or neutral tone was noted in articles discussing the accountability of individuals and not-for-profit organizations. The tone focusing on local and state governments was primarily neutral; in contrast, the tone of articles focusing on the federal government was either overwhelmingly negative or neutral. The tone of articles focusing on the need to take responsibility was neutral for individuals and for local and state governments. Articles which portrayed not-for-profit organizations had a neutral or positive tone, while those that portrayed for-profit organizations and the federal government had a negative tone. In few circumstances news media are more powerful than during crisis events, which are characterized by a heightened need for accurate information within the public sphere (Seeger et al. 2003:196).

The University of New Orleans Sociologist, Shirley Laska (cited in Tierney, Bevc and Kuligowski 2006:61), notes that while many media outlets often have scientific reports, the media almost universally lack specialists in disaster-related phenomena, particularly those involving individual, group and community behaviour. Laska (2005) further argues that the vast majority of reporters with whom the researcher interacted, lacked even the most basic understanding of societal responses and emergency management issues. Research conducted by Tierney et al. (2006:57) on the media frames used in the aftermath of Hurricane Katrina shows that the mass media play a significant role in promulgating erroneous beliefs about disaster behaviour.

Media reporting of natural disaster contingency plans

Media reporting and disaster preparedness

According to King (2000:227), perceptions of risk linked to disasters are based on biased or false information, which has, in the past, been exacerbated by the ignorance of local leaders and media reporters. The media, in the sociology of natural disasters, are mainly viewed as management tools used to influence people's preparedness and response to natural disasters (Perez-Lugo 2004:210). Disaster researchers view the media as management tools that have the potential to change people's preparedness behaviours as well as their response to natural disasters. According to this perspective, the audience receives official information concerning how to prepare before the impact of the natural disaster and, after the impact, information on the community's recovery (Perez-Lugo 2004:210). When addressing the role of the mass media, disaster research assumes that they are crucial management tools just because of their ability to efficiently and quickly transmit official information about the hazard, preparedness, and recovery stages to a wide and heterogeneous population. In theory, their importance lies in their power to increase preparedness and facilitate recovery by changing people's attitudes about natural disasters (Wenger and Quarantelli 1989).

Moeller (2006) stated that, during the preparedness phase, emergency management focused on reducing the negative consequences of disasters to vulnerable people. Moeller (2006) also argued that official concerns are disseminating messages aimed at encouraging people to make the right choices about protective behaviour before, during and after disasters, as well as monitoring compliance with community plans. According to the American Public Health Association (2007), the goal of public health disaster preparedness and response is for individuals and communities to take simple steps to ensure that they have a supply of food, water and medicine, a reliable first aid kit and a plan to find loved ones if communication and transportation networks are disrupted.

Media and disaster mitigation

Communication is the key to the success of disaster mitigation, preparedness, response and recovery (Muzamill 2012:1). Formal approaches to mitigating the impact of disasters, initiated mainly by the public sector, have often been inefficient and, at times, have left people more vulnerable (Schilderman 2004). A successful alternative approach, community-based disaster mitigation, can reduce vulnerability by engaging popular approaches, local knowledge and social capital, whilst addressing their weaknesses. Some examples of community-based mitigation are

derived as lessons: learn from the past, build relations with communities, encourage participation, involve local builders and artisans, build local capacity, document and share lessons, and influence formal education (Schilderman 2004). Guion et al. (2007:20) asserted that information is an important key to the coordination of the disaster management projects to key stakeholders. Guion et al. (2007:20) further argued that the mass media play a major role in disseminating disaster orientated information during the disaster mitigation phase as well as other phases of the contingency plans. According to Levine (1982), the mass media can play a critical role during the mitigation phase because media reporting contributes to the formation of public attitudes, which, in turn, influence legislative actions. During the long-term "disaster mitigation" phase, the media are considered a disaster information provider through coverage of non-local disasters (via movies, news, and special programs), which supposedly helps the community to raise disaster awareness and prepare for future events (Rodriguez 1997; Quarantelli 1996).

Media reporting and disaster response

At the same time, as the incidence and severity of natural disasters increase, the financing of disaster relief, reconstruction, and rehabilitation has become a serious concern of governments (Vatsa and Krimgold 2000:132). After Hurricane Katrina, for instance, federal and local agencies were portrayed in different ways (Brunken 2006, Littlefield and Quenette 2007). The tone of voice regarding government response was moderately neutral with federal government covered more positively, and local government covered more negatively (Brunken 2006). The tone of voice used may or may not change in the aftermath of a disaster (Brunken 2006, Littlefield and Quenette 2007). In times of disaster, emergency management personnel and local governments rely almost exclusively on mass media to communicate warning, hazard and evacuation information to the public (Shklovski1, Palen and Sutton 2008: 27). While official messages are regularly disseminated via private media channels, broadcasters and on-air journalists provide coverage that tends toward human interest and other headline-grabbing stories (Shklovski, Palen and Sutton 2008).

Media reporting and disaster recovery

According to Guion et al. (2007: 21-22), an important role of the media during the recovery phase is communicating information about available assistance to those who are susceptible to disasters. They indicated that the metrics and images used by the media to describe the needs in disaster zones can affect public attitudes and can help validate the need for aid. Guion et al. (2007: 21-22) argue that media

access to communications technology may be called on to help disseminate information when official emergency employees are unable to reach people in need of assistance. The tools are now available for integrated communication at all levels. In emergencies, close contact needs to be maintained from the onset to the 'all clear' and through the recovery phase, through a combination of radio, cell phones and computers-via websites and social media (Skinner and Rampersad 2014:8). There are different disaster information collection methods which include social media (Yin, Lampert, Cameron, Robinson and Power 2012); smartphones (Shan, Feng, Chang, Yang and Li 2012); disaster portals (Farber, Myers, Trevathan, Atkinson and Anderson 2012).

A study conducted by Ngcamu and Wallis (2011:606) revealed that in the Foreman and Kennedy Road informal settlements (Durban-South Africa), 44% of the victims of disasters received assistance from Non-Governmental Organisations (NGOs) and regarded civil society as playing a more important role than the government in the aftermath of disasters. Section 16.2(d) of the South African Disaster Management Act of 2002 (Act 57 of 2002) states that contact should be made with private sector organisations with specialised equipment, skills or knowledge that is relevant to disaster management. The type of specialised equipment includes transitional shelter, which provides a space and a secure, healthy living space, offering privacy and dignity to the victims. Section 16 of the Act mentions communication links with disaster management role-players that include three spheres of government (national, provincial and local), NGOs, private sector organisations with specialist equipment, skills or knowledge and voluntary agencies, as well as international organisations, but the media are not included.

Research Methodology

This study followed a quantitative content analysis whereby the set of data gleaned from the newspaper articles was coded by the researcher. Content analysis is a method that can be used to identify patterns in qualitative data, and is sometimes considered to be similar to thematic approaches (Wilkinson 2000). According to Babbie (2001:304), content analysis can be defined as "the study of recorded human communications". It is "essentially a coding operation," with coding being "the process of transforming raw data into a standardized form" (Babbie 2001: 309). Content analysis has its origins in communications research (Neuendorf 2002) and is a generic name for a variety of means of textual analyses that involve comparing, contrasting and categorizing a corpus of data, including the use of both numeric and interpretive means (Schwandt 2001). The quantitative content analysis is relevant

as it is purely descriptive as the results are reliable and valid.

The data gathered from the newspaper articles were captured onto the structured questionnaire and analysed using the Statistical Package for Social Scientists (SPSS) version 21. Electronic newspaper articles on disasters were retrieved from the online Independent Newspapers website (www.iol.co.za), specifically focusing on the KZN province. The Independent Newspapers in KZN publishes daily newspapers such as Daily News, Mercury, The Post, Isolezwe, Ilanga as well as the weekly Independent on Saturday and the Sunday Tribune. The key words "Disasters in KZN" from 2000-2013 was entered on the online search engine of the Independent Newspaper website in headlines and leads and 143 articles were retrieved. Various articles retrieved from the "www.iol.co.za" website, which reflected the South African Press Association (SAPA) reporting on disasters occurring in KZN, were also included in the study.

The responses to the structured questionnaire were coded into various subject categories, including newspaper name, disaster occurrence and period of disaster occurrence (year), type of disasters, disaster destructions' categories (such as cars, houses, bridges, roads and other) and the number of items destroyed. Other variables included were financial implications, the number of injuries and deaths, gender, age, media asserted level of responsibility and accountability with respect to spheres of government, NGOs and individuals. In the context of responsibility, responses to the structured questionnaire were further coded for tone (negative, neutral, positive). For instance, an article was coded as having a negative tone if it was critical of the agency to whom responsibility was attributed. Articles were coded as neutral if it was difficult to identify the tone.

There was a significant relationship between newspaper articles in different publications at $P < .001$ implying that the difference in the levels between agreement and disagreement is significant. The significant p-value implies that journalists who frame disaster information on the media do feel strongly about the statements. This finding helps validate that the articles were coded correctly. Twenty (20) articles were randomly selected and coded by two people. Subsequently, the coding between the two raters was compared. The overall level of agreement between the raters for all variables in the study was 80%. This confirmed that the findings of the study were reliable.

Results and Discussion

The primary objective of this study was to explore how the media frame disaster contingency plans before, during and in the aftermath of disasters. Of the 143 articles analysed for the period of three weeks, 33% were published by SAPA; 19% by

Mercury and 2% (IOL). Natal Witness and Sunday Tribune published 20% of the articles. The findings indicate that the Durban metropolitan, Midlands and North Coast areas (28%) were the areas struck by most of the natural disasters. The South Coast area was only struck by 17% of the natural disasters. The study found that from 2011 onwards, KZN province has been severely affected by a growing numbers of natural disasters, with 71% having occurred since 2011, followed by 18% occurring between 2006 and 2010 and 11% occurring between 2000-2005. It is evident that KZN province is prone to floods (34%), thunderstorms (18%), tropical storms (15%), hailstorms, fires, lightning, landslides and veld fires at 11% each. The research findings report that 46% of destructions consisted of houses, 15% roads, 15% cars, 13% bridges and other, 11% (which included railways and farms). In 41% of the 143 articles, government accountability was focussed on response; 24% focussed on preparedness and 7% on mitigation. Of the articles that focussed on the spheres of government, 34% related to provincial government; and 3% to local and national government.

The study findings show that 62% of people who were victims of disasters were females and 38% males. Furthermore, in terms of the ages of victims, the empirical findings have shown that 61% were children, 28% adults and 11% middle-aged people. The aftermath of disasters mostly focussed on the accountability: 73% spoke of the provincial government as compared with civil society (18%); local government officials (7%) and national government officials (3%). Of the 143 articles analysed, 33% reported that food was supplied to the victims; 29% of the articles highlighted the distribution of blankets to victims; 20% spoke of temporary shelters and 14% mentioned school uniforms and clothes. Only in 4% of them mentioned of building materials being issued to the victims of disasters. The tone of articles focusing on all spheres of government was overwhelmingly negative, but the tone was positive in respect of NGOs. The research findings show different estimated financial impact of the natural disasters: 18% of the newspaper articles, gave an estimate between R1-million and R30-million, 56% of the newspaper articles estimated between R30.1-million and R100-million and 26% of the newspaper articles estimated over R1-billion.

The low percentage of reporting concerning disaster preparedness and mitigation is not in agreement with the findings of Levine (1982) and Moeller (2006). These authors focus on reducing the negative consequences of disasters and disseminating messages aimed at encouraging people to make the right behavioural choices. Nor do these findings concur with Barnes et al. (2008:17)'s argument that the media's coverage of disasters should equally cover disaster mitigation and preparedness. From the media frame perspective, the provincial government (73%) was shown to be primarily accountable with

respect to response and recovery in the aftermath of disasters, as opposed to the other spheres of government (local and national). The media frame on the provincial government as having taken primary responsibility in relation to response is in disagreement with the study conducted by Barnes (2008:19) that found that it was the federal government that had taken primary responsibility (40.7%) for disaster management during Hurricane Katrina. The most negative tone was found in articles asserting that greater response was needed from governmental sources. The tone was positive towards the responses from NGO source. Lastly, media framed the victims of disasters to be females (62%) and children (61%). The positive tone on taking responsibility for the NGOs as compared to other spheres of government is in accordance with Barnes et al. (2008) that the neutral and positive tone was noted for the not-for-profit organisations during Hurricane Katrina. Only 1 in 10 articles discussed challenges that are faced by the KZN province in their readiness to respond to disasters. One of the articles analysed, entitled "KZN braces for chaos and disasters" appeared in Sunday Tribune (28 May 2006). This article discussed the poor state of affairs that existed in the KZN province regarding their abilities in relation to prevention, preparedness, mitigating, response and recovery, in case of forthcoming disasters. It included a quotation from the Departmental MEC Mike Mabuyakhulu that:

"a lack of co-operation, reluctance to share resources, thinly spread technical skills and a lack of a provincial strategy are some of the factors contributing to the province's problem. According to the Disaster Management Centre, more lives in KwaZulu-Natal were lost through delayed recovery than at the point of impact".

The exorbitant financial impact of disasters was acknowledged by Vatsa and Krimgold (2000), who admit that the severity of disasters has increased the financing of disasters. This is attested to by almost all articles in this study, and clearly shown by the Mercury newspaper article entitled "KZN to ask for disaster status". This was a result of parts of eThekweni Municipality and Ugu Municipality being severely battered by floods in 2008. This increase in the financial impact of natural disasters was highlighted by the MEC for Finance (Mr. Zweli Mkhize):

"a delegation visited the affected areas last week and compiled a report which was presented to the cabinet. It revealed that more than R3.6-billion would be needed to meet the challenges that had emerged as a result of the floods".

It can be seen that there were mixed arguments by different researchers, as articulated above regarding the major findings of this study. This might be expected since this study interrogates media frames of disasters that occurred over a specific period of time (2000-2013) within a single province

(KZN) of South Africa. While the perspectives deliberated by the other authors above are mostly concerned with a single disaster that has occurred.

Conclusion

The major highlight of the study was the disproportionately high occurrence of disasters (71%) from 2011 onwards, compared to previous years. It is apparent from the reports of these disasters, which include floods (34%), that preparedness systems could not follow predetermined disaster plans. This major highlight is confirmed by the high percentage of destroyed houses (46%) and roads (15%). This study affirms, that the media agenda frame pressed for government accountability by emphasising disaster response (46%) over preparedness (24%) and mitigation (7%). This study concludes that the way that the media frame natural disasters depicts the government responsibility as skewed, by emphasising disaster response over preparedness and mitigation. This indicates that the media becomes more involved in disaster management issues in the aftermath of disasters in KZN. Furthermore, the media framing of the natural disasters as the responsibility of the provincial government while disasters occur at a local level, leaves much to be desired. Floods, as the main form of disaster in KZN, shed light on the type of contingency plans needed when dealing with catastrophic events. This leads to the conclusion that the media lacks accuracy and does not cover the key disaster management roles of officials before, during and in the aftermath of disasters. It can also be concluded (as the media articles reported) that government is mainly responsible for responding in the aftermath of disasters with little responsibility being taken by individuals and communities.

Finally, it may also be concluded that the media frame a negative tone towards the responsibility of government in the aftermath of disasters, as compared to a positive tone for the NGOs. This highlights the need for collaboration between government, civil society and the media in preventing, preparing, mitigating and responding to future disasters. This study adds to the existing knowledge that in this province the accountability for the response to natural disasters lies in the hands of the provincial government which has been consistently proven in the literature to be within the locus and focus of the national government. The framing of the victims of disasters to be women and children distinctly contributes to the body of knowledge as there is a paucity of published data. This study answered the research questions and objectives of the study by revealing that media selectively frame disaster management contingency plans and that the tone of reporting concerning responsibility at the provincial government level, is negative.

Recommendations of the study

Government disaster management department should provide reporters with accurate information on disaster contingency plans. This will assist government because media organisations will be able to give easily understood, relevant and acceptable coverage of contingency plans issues, in an equitable manner to all members of society. The study suggests that disaster management specialists should establish a conducive relationship with media organisations with the view of shaping stories in the media emphasising all contingency plans before, during and in the aftermath of disasters. Local and provincial government should design an all-inclusive comprehensive media plan involving all key stakeholders (including newspaper organisations), that can be implemented before, during and in the aftermath of disasters. This comprehensive plan should include relevant and distinct stories covering all disaster contingency plans (including prevention, preparedness, mitigation, response and recovery). This plan must also connect the media with subject-matter experts during all phases of disasters. These experts can provide scientifically sound advice, solutions or recommendations and share best practices easily understood by those prone to, and the victims of disasters. The media should be used to inform the public and other key stakeholders about disaster contingency plans.

Limitation of the study

A major limitation of the study was that only 143 articles were retrieved and analysed from an online search engine focussing on only KZN. What also limited the study was the paucity of published data on media frame aimed at disasters within the selected time period. Most of the published studies investigated a particular disaster, such as Hurricane Katrina in the United States of America.

Future studies

Future research should explore and cross-reference the increased estimated financial implications incurred through disasters as revealed by the research findings and look at the money spent during disaster response, recovery, rehabilitation and reconstruction phases. This study could also be extended to other coastal cities in South Africa and other media sources of information including radio, television and major national newspapers.

References

1. American Public Health Association. (2007), Public unprepared for local health emergencies according to new national poll. <http://www.apha.org/about/news/pressleases>. Accessed on 18 November 2014.

2. Babbie, E. (2001), *The practice of social research* (9th ed.). Belmont: Wadsworth.
3. Barnes, M.D., Hanson C.L., Novilla, L.M.B., Meachan, A.T., McIntyre, E. and McIntyre, E. (2008), Analysis of Media Agenda Setting During and After Hurricane Katrina: Implications for Emergency Preparedness, Disaster Response, and Disaster Policy. *American Journal of Public Health*, 98(4), pp. 604-610.
4. Brashers, D.E., Neidig, J.L., Haas, S.M., Dobbs, L.K., Cardillo, L.W. and Russell, J. A. (2000), Communication in the management of uncertainty: The case of persons living with HIV or AIDS. *Communication Monographs*, 67(1), pp. 63-84.
5. Brunken, B.L. (2006), *Hurricane Katrina: A content analysis of media framing, attribute agenda setting, and tone of government response* (Doctoral dissertation, Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Master of Mass Communication in The Manship School of Mass Communication by Brigette Lynn Brunken BA, Louisiana State University).
6. Cameron, P. (2003), 'Molestations by Homosexual Foster Parents: Newspaper Accounts versus Official Records'. *Psychological Reports*, 93(3), pp. 793-802.
7. Cottle, S. (2006), *Mediatized Conflict: Developments in Media and Conflict Studies*. Maidenhead: Open University Press.
8. Farber, J., Myers, T., Trevathan, J., Atkinson, I., Anderson, T. (2012), Risk: A Low-Technological Web 2.0 Disaster Service to Monitor and Share Information. Proceedings of the 15th International Conference on Network-Based Information Systems, Melbourne, Australia, 26-28 September 2012:311-318.
9. Gamson, W.A. and Modigliani, A. (1987), The teaching culture of affirmative action. In R.G. Braungart and M.M. Braungart (Eds). *Research in political sociology*. 3:137-177.
10. Guion, D.T., Scammon, D.L. and Borders, A.L. (2007), Weathering the Storm: A Social Marketing Perspective on Disaster Preparedness and Response with Lessons from Hurricane Katrina 2007, American Marketing Association. *Journal of Public Policy & Marketing*, 26(1), pp. 20-32.
11. <http://www.iol.co.za/> (Accessed on 15 February 2013).
12. King, D. (2000), You're on Your Own: Community Vulnerability and the need for Awareness and Education for Predictable Natural Disasters. *Journal of Contingencies and Crisis*, 8(4), pp. 223-228.
13. Levine, A.G. (1982), *Love Canal: Science, Policy and People*. Lexington, MA: D.C. Heath.
14. Littlefield, R.S. and Quenette, A.M. (2007), Crisis leadership and Hurricane Katrina: The portrayal of authority by the media in natural disasters. *Journal of Applied Communication Research*. 35(1):26-47.
15. McCombs, M. and Weaver, D. (1973), Voters' Need for Orientation and Use of Mass Communication.
16. McCombs, M. E. and Shaw, D. (1972), The agenda-setting function of mass media. *Public Opinion Quarterly*, 36, pp. 176-187.
17. McCombs, M. E., Shaw, D.L. & Weaver, D. (1997), Prologue: The game is afoot. *Communication and democracy: Exploring the intellectual frontiers of agenda-setting theory*, 1-2.
18. McQuail, D. (1987), *Mass communication theory: An introduction* (2nd ed). Thousand Oaks, CA: Sage.
19. Moeller, S. (2006), Regarding the pain of others: media, bias and the coverage of international disasters, *Journal of International Affairs*, 2010-2025.
20. Muzamill, A. (2012), A Comparative Study of Natural Disasters Coverage in Pakistan by Dawn and the News (The case of earthquake 2005 & floods 2010), International Conference on Communication, Media, Technology and Design ICCMTD.
21. Neuendorf, K. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage Publications.
22. Ngcamu, B.S. and Wallis M.A.H. (2011). Disaster response and recovery in two informal settlements: A local government perspective. *Corporate Ownership & Control*. 8(3), pp. 606-621.
23. Overholser, G. and Jamieson, K.H. (Eds.). (2005), *The institutions of American democracy: The press*. Oxford University Press.
24. Pasquare, F. and Pozzetti, M. (2007), Geological hazards, disasters and the media: The Italian case study. *Quaternary International*. 166-171.
25. Perez-Lugo, M. (2004), University of Puerto Rico. Media Uses in Disaster Situations: A New Focus on the Impact Phase. *Sociological Inquiry*, 74(2), pp. 210-225.
26. Quarantelli, E.L. (1996), "The Future Is Not the Past Repeated: Projecting Disasters in the 21st Century from Current Trends." *Journal of Contingencies and Crisis Management*. 4(4), pp. 220-40.
27. Rodriguez, H. (1997), "A Socioeconomic Analysis of Hurricanes in Puerto Rico: An Overview of Disaster Mitigation and Preparedness." pp. 121-46 in *Hurricanes: Climate and Socioeconomic Impacts*, edited by Henry F. Diaz and Roger S. Pulwarty. New York: Springer.
28. Rodriguez, H., Diaz, W. and Aguirre, B. (2004), *Communicating risk and warnings: an integrated an interdisciplinary research approach*. Newark, DE: University of Delaware Disaster Research Center.
29. Rogers, E. and Dearing, J. (1988), Agenda-setting research: Where has it been, where is it going? *Communication Yearbook*, 11, pp. 55-594.
30. Schilderman, T. (2004), Adapting traditional shelter for disaster mitigation and reconstruction: experiences with community-based approaches. *Building Research & Information*, 32 (5), pp. 44-426.
31. Schwandt, T. (2001), *Dictionary of qualitative inquiry*. Thousand Oaks, CA: Sage Publications.
32. Seeger, M.W., Sellnow, T. and Ulmer, R.R. (2003), *Communication and organizational crisis*. Westport, CT: Praeger.
33. Semetko, H.A. and Valkenburg P.M. (2000). Framing European politics: A content analysis of press and television news. *Journal of Communication*, 50(2), pp. 93-109.
34. Shan, W., Feng, J., Chang, J., Yang, F. and Li, Z. (2012), Collecting Earthquake Disaster Area Information Using Smart Phone. In Proceedings of the 2012 International Conference on System Science and Engineering, Liaoning, China, 30 June-2 July 2012, pp. 310-314.
35. Shklovski, I., Palen, L. and Sutton, J. (2008), Finding Community Through Information and Communication Technology During Disaster Events. *CSCW* (8), pp. 1-10.
36. Skinner, C. and Rampersad, R. (2014), 'A revision of communication strategies for effective disaster risk reduction: A case study of the South Durban basin,

- KwaZulu-Natal, South Africa'. *Jamba: Journal of Disaster Risk Studies*, 6(1), 1-10.
37. Sood, R., Stockdale, G. and Rogers, E. M. (1987). How the news media operate in natural disasters. *Journal of Communication*. 37, pp. 27-41.
 38. South Africa. (Republic). (2002), *Disaster Management Act, 57 of 2002*. Pretoria: Government Printer.
 39. Spence, P.R., Lachlan, K.L. and Griffin, D.R. 2007. Katrina: Race, Class, and Poverty. *Journal of Black Studies*. 37(4):539-554.
 40. Spencer, J.W., Seydlitz, R., Laska, S. and Triche, E. (1992), The different influences of newspaper and television news reports of a natural hazard on response behaviour. *Communication Research*. (19), pp. 299-325.
 41. Tierney K., Bevc, C. and Kuligowski, E. (2006), Metaphors Matter: Disaster Myths, Media Frames, and Their Consequences in Hurricane Katrina. *Annals. AAPSS*. 64:57-81.
 42. U.S. Congress. House Science Committee, Subcommittee on Research. (2005), *The role of social science research in disaster preparedness and response*. Testimony by Shirley Laska, Ph.D. November 10.
 43. Vasterman, P., Yzermans, C.J. and Dirkzwager, A.J. (2005), The role of the media and media hypes in the aftermath of disasters. *Epidemiologic reviews*. 27(1):107-114.
 44. Vatsa, K. and Krimgold, F. (2000), Financing disaster mitigation for the poor. *Managing Disaster Risk in Emerging Economies*. 129-136.
 45. Wenger, D. E., Quarantelli, E. L. and Dynes, R.R. (1989), Disaster analysis: Police and fire departments.
 46. Wilkins, L. (1985), Television and newspaper coverage of a blizzard: Is the message helplessness? *Newspaper Research Journal*. 6(6), pp. 51-65.
 47. Wilkinson, S. (2000), Women with breast cancer talking causes: comparing content, biographical and discursive analyses. *Feminism & Psychology*, 10, pp. 431-60.
 48. Yin, J., Lampert, A., Cameron, M., Robinson, B., Power, R. (2012). Using Social Media to Enhance Emergency Situation Awareness. *IEEE Intelligent. System*, pp. 7:52-59.