



USES OF SOCIAL MEDIA FOR NATURAL DISASTER MANAGEMENT IN SOUTH INDIA: AN EMPIRICAL STUDY

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Abstract

The present investigation primarily dealt with the uses of social media on stakeholders and civilians in times of natural disasters. The present study approached the problem through a systematic survey method which fits into the context of the present investigation. The study reveals that most of the stakeholders and civilians had the benefit of access to social media in times of natural disasters. The study emphasized that social media had played a notable role in the process of natural disasters management in South India. The strengths of social media include: allowing for instant communication, the ability to reach a broad audience, and direct communication between disaster management organizations and those affected by the disaster. These strengths are compared to the its limitations, such as certain demographics not using social media, the speed with which rumors can spread, and the unrealistic expectations people may have of social media during disasters. The social media should be used to render locally relevant services to the affected persons. The best practices should be used to establish a social media plan in case of a disaster or emergency. These practices should be used as guidelines because each disaster or crisis varies greatly from any other and cannot be given simple standard. The present investigation emphasizes that social media are indeed an invaluable tools in natural disaster management in South India.

Preamble

The role of social media in disaster management became galvanized during the world response to the various natural disasters. They have become the new forum for collective intelligence, social convergence, and community activism. The benefits of social media for systematic natural disaster management are immense, according to empirical evidence. A good deal of interest has been aroused in modern society on the role of social media as instruments of natural disaster management. The present study evaluated the uses of social media in times of natural disaster management with special reference to South India.

Social Media for Natural Disaster Management

The extensive reach of social networks allows people who are recovering from disasters to rapidly connect with needed resources. There are al lot of groups in the most popular social networking sites, allowing individuals involved in various aspects of emergency awareness and preparedness to connect, discuss, and share knowledge in specific fields. Online social networking services and social media like Face book, Twitter, Google+, etc can act and try to solve many problems during natural disasters. Governments around the world are now making greater use of online and social media as a platform for communication and engagement with their citizens, in order to deliver better services and enhance citizen participation in policy deliberation in times of disasters. Disaster and emergency management has proven to be a field of communication where innovative uses of social media have begun to have a substantial positive impact on the quality of disaster responses and the resilience of affected local communities. Substantial interest in these questions is already evident among policymakers and government authorities, as well as NGOs and the media.

Armour (2010:05) studied the role of social media in natural disaster management and cited several events like the September 11 terrorist attacks in 2001, Hurricane Katrina in 2005, and Virginia Tech shootings in 2007. The scholar emphasized that the people should be aware of their surroundings, constant threat of natural and man-made incidents for effective management of disasters. Disaster responders can use social media during a disaster to track volunteers, to help reconnect families, and to disseminate critical information. He also noted that in a disaster, social media can be used as an alternative to phones for calls for help.

Li and Good Child (2010:15) note: "Social networks have become a promising data source in time-critical situations over a period of time. The social networks can play a vital role in the crowd sourcing of geospatial information for emergency management, data generation and dissemination of remedial measures. The social networks have proven critical during



disaster situations, because they are able to mobilize the necessary volunteers; to provide the means to share tools; and to facilitate the loose kinds of dispersed organization that are needed to make the efforts of volunteers run smoothly”.

Kodrich and Laituri (2011:11) observe: “The impact of social media has been dramatic. Social media give victims a voice in times of natural disasters. The social media also provide links to detailed maps and other geospatial technologies of outside disaster-related agencies. The social media outlets have continued to increase levels of interactivity among givers because of their ability to link the public directly to relief organizations’ websites. The technological advancements have allowed the public to feel more comfortable contributing to relief organizations through secure websites. The social media revolution has made it increasingly easy to get involved and help at a time of crisis. The social media have contributed greatly to the depth of information available, offering users a more compelling narrative that enriches their emotional connection to a disaster and their willingness to open their wallets to help out”.

The social media have played an integral role in disaster management and relief efforts for people affected by natural calamities. The social media had become an integral part of disaster response, filling the void in areas that didn’t have any cell network. Social media platforms like Google, Twitter and Face book promptly launched helpful services during the natural calamities in India in the recent times. Rajashree (2013:17) pointed out that the convergence of social networks and mobile has thrown the old response playbook out the window. The social media have emerged as very effective parallel media of natural disaster management in India and rest of the world.

Review of Literature

There are a good deal of scientific investigations dealing with sustainable development and natural disaster management at the international level. Few researchers in India have also examined the role of social media in the process of natural disaster management. Prominent among them include – Varda et al. (2009:20), Li and Good Child (2010:15), Armour (2010:05), Kodrich, K and Laituri, M.N (2011:11), Ford (2011:09), Cheng and Hitoshi (2011:07), Kumar et al. (2011:14), Jayanthi et.al. (2012:10), Roberts (2012:18), Wilson (2012:21), Rajashree (2013:17), Zin et al. (2013:23), Chan (2013:06), Annamalai et al. (2014:04), Abedin et al. (2014:01), Mukherjee (2014:16), Kulkarni et al. (2014:13), Anand and Narayana (2014:03) and Shilpa (2015:19), Yates and Partridge (2015:22), Albuquerque et al. (2015:02) and Fohringer et al. (2015:08).

Significance of the Study

South India is known for rich cultural and historical legacy in the Indian sub-continent. It is also known as the land of ‘Dravidians’ which means the people of South India who share Dravidian culture. This region consists of Vishalandhra, Telangana, Tamil Nadu, Karnataka and Kerala states. South India has not achieved progress on par with the people of North India due to the prevalence of regionalism in the country. Despite certain disadvantages and limitations, South India has achieved notable progress in all walks of life. In particular, South India is affected by series of natural disasters which have cost the lives of the people and resources over a period of time. The periodic occurrence of natural disasters needs to be addressed seriously by the stakeholders of natural disaster management in the region. The review of literature clearly indicates that adequate scientific investigations are not carried out in India on the uses of social media in times of natural disaster management with reference to South India. Hence, the study assumes profound academic and social significance.

Statement of the Problem

The role of social media in natural disaster management with special reference to South India was considered in the study because:

- a. South India enjoys rich cultural, historical and political heritage in Indian sub-continent.
- b. South India is affected by natural disasters periodically due to unforeseen reasons.
- c. South Indian Governments have established institutions to manage natural disasters.
- d. Social media intervention for natural disaster management assumes great significance in a developing region like South India.
- e. Tested and tried social media initiatives would go a long way in addressing the issue of natural disasters management in South India.

Objectives of the Study

The present investigation was carried out on the basis of following specific objectives. They include:

- a. To assess the social media exposure among the respondents.
- b. To analyze the social media use patterns of the respondents.
- c. To examine the uses of social media in times of natural disaster management; and
- d. To suggest appropriate social media strategies for systematic natural disaster management in future.



Conceptual Framework

The present investigation explored the perception of stakeholders of natural disaster management and civilians affected by natural disasters in South India. The social media were utilized by the people and the interactions of network members can be understood through social network theory, which focuses on relationships between people and communication structures, instead of the characteristics of an individual. The importance of social media application in the process of natural disaster management was examined on the basis of the application of social network theory contributed by Varda et al.'s (2009). Finally, the advantages and disadvantages of the use of social media in natural disaster management were also outlined through a literature review, providing an understanding of recent evaluations of the use of social media for natural disaster management.

Research Methodology

The major objective of the present study was to understand the role of social media in natural disaster management with special reference to South India. The social media services were systematically evaluated from the point of view of natural disaster management. The present study was planned and conducted in three stages. In the first stage, a pilot study was conducted in order to examine the feasibility and appropriateness of the tools and procedures of the study. In the second stage, interview schedules were developed and perfected in order to collect authentic primary data from the stakeholders and beneficiaries of natural disaster management in South India. In the third stage, appropriate scientific statistical analysis procedures were followed to ensure systematic data analysis and interpretation. Overall, the present study approached the problem through a systematic survey method which fits into the context of the present investigation.

Distribution of Sample

Name of the State	Name of the District	Number of Stakeholders	Number of Civilians	Total Respondents
Andhra Pradesh	Vishakhapatnam	20	68	88
Karnataka	Dakshina Kannada	20	68	88
Tamil Nadu	Nagapattinam	20	66	86
Kerala	Ernakulam	18	70	88
Total	05	78	272	350

n=350

Findings of the Study

Demographic Features of the Respondents

- A majority of the study sample represent male respondents (70.29%), graduates and post graduates (86.29%), civilians (52.0%) and Andhra Pradesh and Karnataka state (50.29%) respectively.

Uses of Social Media for Natural Disaster Management

- A majority of the respondents (86.29%) have stated that social media were an important component of natural disaster management during preparedness phase.
- A majority of the respondents (77.14%) have stated that social media provided emergency evacuation route information during preparedness phase.
- A majority of the respondents (86.29%) have stated that social media provided information about evacuation orders during preparedness phase.
- A majority of the respondents (80.57%) have stated that social media provided regular natural disaster updates during preparedness phase.
- A majority of the respondents (76.0%) have stated that social media promoted personal preparedness before natural disaster during preparedness phase.
- A majority of the respondents (73.71%) have stated that social media alerted the people concerned about tracking of natural disasters during preparedness phase.
- A majority of the respondents (74.86%) have stated that social media provided emergency shelter information during response phase of natural disaster management.
- A majority of the respondents (69.71%) have stated that social media provided information about reuniting people during response phase of natural disaster management.
- A majority of the respondents (70.29%) have stated that social media provided information about food, water, shelter and other services during response phase of natural disaster management.
- A majority of the respondents (69.14%) have stated that social media provided information about the availability of medical services during response phase of natural disaster management.



- A majority of the respondents (69.71%) have stated that social media alerted the people about the areas to stay away from during response phase of natural disaster management.
- A majority of the respondents (81.14%) have stated that social media dispelled rumors and mitigate anxiety during response phase of natural disaster management.
- A majority of the respondents (85.71%) have stated that social media facilitated good response to natural disasters during response phase of natural disaster management.
- A majority of the respondents (66.86%) have stated that social media communicated the media conference details to the people during response phase of natural disaster management.
- A majority of the respondents (74.86%) have stated that social media communicated the decisions of the policy makers and administrators during response phase of natural disaster management.
- A majority of the respondents (83.43%) have stated that social media communicated the actions of government and non-government agencies during response phase of natural disaster management.
- A majority of the respondents (74.86%) have stated that social media allowed crowd powered emergency messages during response phase of natural disaster management.
- A majority of the respondents (84.57%) have stated that social media provided information about relief measures during recovery phase of natural disaster management.
- A majority of the respondents (76.57%) have stated that social media provided information about rehabilitation services during recovery phase of natural disaster management.
- A majority of the respondents (73.14%) have stated that social media provided information about coordinated efforts during recovery phase of natural disaster management.
- A majority of the respondents (65.71%) have stated that social media provided information about preventive means and mechanisms during recovery phase of natural disaster management.
- A majority of the respondents (70.29%) have stated that social media provided information about remedial measures during recovery phase of natural disaster management.
- A majority of the respondents (72.0%) have stated that social media provided information about civil society role and responsibility during recovery phase of natural disaster management.
- A majority of the respondents (86.86%) have stated that social media provided information about the participation of government agencies during recovery phase of natural disaster management.
- A majority of the respondents (88.0%) have stated that social media provided information about the contribution of corporate houses during recovery phase of natural disaster management.
- A majority of the respondents (83.43%) have stated that social media provided information about developing public response system during recovery phase of natural disaster management.
- A majority of the respondents (81.71%) have stated that social media provided information about integrated approaches during recovery phase of natural disaster management.
- A majority of the respondents (58.29%) have stated that social media validated all sources and information in times of natural disasters during recovery phase of natural disaster management.
- A majority of the respondents (53.71%) have stated that social media ensured effective monitoring of the operations during recovery phase of natural disaster management.
- A majority of the respondents (88.0%) have stated that social media provided morale boosting messages and services to the people during recovery phase of natural disaster management.

Limitations of the Study

It was not practically possible for the researcher to enjoy the benefit of accessibility of data to all the stakeholders of natural disaster management and civilians who are affected by the natural disasters in South India. It was not practically possible to contact all the individuals, online groups, NGOs, and government bodies due to lack of time. The usual limitations of the survey method such as time, human inadequacies, resource constraints, recollection and communication were experienced by the researcher. Incidental, purposive and stratified sampling methods were followed in selecting the respondents. Though much care has been taken to collect the primary data, the memory bias on the part of the respondents cannot be completely ruled out.

Testing of Hypotheses

H1. The stakeholders of natural disaster management and civilians in the affected areas in South India have not gained adequate social media exposure.

The data reveal that the stakeholders of natural disaster management and civilians in the affected areas have enjoyed the



benefit of adequate social media exposure for better natural disaster management. Hence, the above hypothesis stands disproved according to the data analysis.

H2. The stakeholders of natural disaster management and civilians in the affected areas in South India have not found the social media initiatives as useful for effective management of natural disasters.

The data reveal that the stakeholders of natural disaster management and civilians in the affected areas have found the social media application as useful. Hence, the above hypothesis stands disproved according to the data analysis.

Implications of the Study

The social media plot forms are used in times of natural disaster management according to their popularity and access to the vast number of users on each platform. The stakeholders of natural disaster management should use social media tools that contribute to the success of their social media campaigns. By selecting the most popular and most utilized social media tools, stakeholders stand to gain the most from the tool and achieve the highest degree of success. The government organizations have increased their use of social media. These organizations should use the social media adequately during disaster relief efforts. The mobile phone applications and e-mail also have great potentials in times of natural disaster management since they disseminate important and critical information. The social media should be used to render locally relevant services to the affected persons. The best practices should be used to establish a social media plan in case of a disaster or emergency. These practices should be used as guidelines because each disaster or crisis varies greatly from any other and cannot be given simple standard.

The stakeholders of natural disasters management should plan social media tactics in advance and make other people within the organization aware of the communication strategies in order to ensure that social media receives attention during a disaster. It is important for stakeholders to use social media tools that will contribute to the success of their campaigns. This should be done through reaching as many people as possible on popular social media platforms. The mapping tools are a new form of social media which could be utilized for the purpose of rendering adequate disaster relief centered services. It is essential for stakeholders involved in disaster relief to understand the best ways they can use social media tools. The best practices of mapping tools could be researched in greater detail, as its applications continue to expand in future.

Conclusion

The present study reveals that social media have the capacity to facilitate proper natural disaster management in modern times. The social media have the potential to be powerful tools coordinating relief responses, connecting individuals to resources, and engaging a wider community beyond those directly affected in times of natural disasters. The study has demonstrated that social media were used to facilitate the sharing of vital information between the stakeholders and civilians affected by natural disasters. The study also provided insight into how disaster responders can interact with different networks to enhance their responses. The stakeholders of natural disaster management are using applications and mobile browsing for a dynamic experience. By tapping into this population and drawing on their strengths and resources, disaster responders can enhance their efforts, and improve their ability to act swiftly and effectively when disaster strikes. The strengths of social media include: allowing for instant communication, the ability to reach a broad audience, and direct communication between disaster management organizations and those affected by the disaster. These strengths are compared to the its limitations, such as certain demographics not using social media, the speed with which rumors can spread, and the unrealistic expectations people may have of social media during disasters. The present investigation emphasizes that social media are indeed an invaluable tools in natural disaster management in South India

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