

Why is social media crucial for crisis communication in the Philippines? Exploring Facebook dynamics during natural disasters

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Abstract

The emergence of social media platforms has revolutionized communication dynamics during natural disasters, offering a lifeline for affected individuals. This study presents findings from an in-depth exploration of Facebook's role in crisis communication among individuals affected by natural disasters, particularly typhoons, in the Philippines. Through qualitative analysis rooted in phenomenology, the study illuminates the motivations, experiences and implications of user-driven content creation on Facebook during disasters. Key findings reveal that Facebook operates as a vital platform for communication, information sharing and support during crises.

Participants actively engage in sharing updates, publishing content, exchanging feedback and utilizing private messaging to coordinate relief efforts and to express solidarity. These activities highlight Facebook's multifunctional role in crisis response, fostering community resilience and mutual aid. Moreover, the study identifies diverse motivations driving Facebook usage among disaster-affected individuals, including the need for emergency assistance, efficient communication, emotional support and situational awareness. Trust and verification also emerge as crucial factors, highlighting users' efforts to navigate the complex landscape of online information and to prevent misinformation dissemination.

Keywords: Social media, Facebook, natural disasters, crisis communication, communication dynamics

Introduction

The emergence of new media, particularly social media platforms like Facebook, has heralded a paradigm shift in communication and information dissemination on agriculture⁶⁹, business⁸⁸, education⁵⁰, government^{34,90}, health emergencies^{44,60,87} and natural calamities^{36,71}. Offering abundant features such as status updates, private messaging and group chats, Facebook has become the most used social media platform globally⁵¹ and the go-to platform for Filipinos, evidenced by its widespread adoption⁴³. Notably, during natural disasters like the recurring typhoons in the Philippines, Facebook serves as a vital conduit for citizens to share their experiences and to coordinate relief

and rehabilitation efforts, as witnessed during the 2013 Typhoon Haiyan (Yolanda) in Tacloban City^{26,31,52,77} and the aftermath of the 2020 Taal volcanic eruption in Batangas^{1,8}.

The phenomenon of user-driven content creation during natural disasters, commonly referred to as produsage¹⁶⁻¹⁹ challenges conventional producer-user roles and underscores the communal aspect of content creation. However, despite the growing significance of social media in natural disaster scenarios, there remains a scarcity of research exploring this phenomenon within the context of disaster risk reduction and management, highlighting the need for further investigation. Therefore, this study examines how individuals affected by natural disasters utilize Facebook for communication during crises, aiming to delve into the motivations behind their engagement. The overarching goal is to improve comprehension of how Facebook can promote resilience and facilitate support within online communities during natural disasters.

Addressing the critical imperative for effective information dissemination and coordination during natural disasters, this study seeks to illuminate the context and utilities of social media platforms like Facebook in natural disaster scenarios. Through these investigations, the study can provide valuable insights for policymakers, humanitarian organizations and platform developers to enhance the effectiveness of social media platforms as tools for crisis communication, support and community resilience.

Social media, notably Facebook have revolutionized crisis management by facilitating real-time information dissemination and fostering community resilience. Facebook discusses the rise of user-generated content and citizen journalism, alongside emotional responses and social capital dynamics. Despite challenges like misinformation, social media platforms offer valuable tools for enhancing disaster preparedness and response strategies.

Social media utilization in crisis management: The development of Web 2.0 and social media platforms has made user-generated material more accessible. This has resulted in the rise of "prosumerism," in which consumers actively generate knowledge^{66,67}. This transformation has revolutionized crisis communication, with platforms like Facebook playing a pivotal role in disseminating real-time information during emergencies^{37,49,72,75}.

Facebook's accessibility and functionality position it as a preferred platform for crisis communication, enabling users

to share multimedia content such as videos and photos to document disasters and coordinate relief efforts^{47,68,70}. Moreover, the use of hashtags emerges as a crucial mechanism for tracking and responding to emergencies on social media platforms^{12,22,46,63}.

Furthermore, Facebook serves as a digital repository of personal experiences, capturing the narratives of disaster-affected individuals and fostering collective coping and support mechanisms beyond the immediate crisis response^{6,47,61}. Understanding the intricate interplay between social media, content production and disaster communication is essential for gaining insights into user experiences, especially among those directly impacted by disasters⁶. These studies underscore the pivotal role of social media platforms like Facebook in reshaping crisis communication dynamics and highlight the importance of leveraging these platforms effectively for both response and recovery efforts in disaster management.

Citizen journalism and social media: Citizen journalism and user-led content production on social media platforms play a critical role in addressing the urgent need for immediate and accurate information dissemination during disasters^{3,14,15,82}. By drawing on their personal experiences, individuals contribute to reporting stories, often prioritizing subjective criteria over traditional objective standards^{2,64,89}.

Facebook emerges as a crucial tool for disaster-affected individuals, facilitating collective coping through immediate support and aid coordination^{9,77}. Moreover, social media postings during natural disasters extend beyond directly affected individuals, enabling remote support and empathy sharing^{29,48,58,95}.

However, the proliferation of misinformation during crises presents a significant challenge, emphasizing the need for users to exercise discernment in evaluating sources and sharing reliable information^{32,45,56,73,81}. This highlights the role of social networking sites in effective disaster communication and management.

Emotional responses and social capital on social media: Social media platforms allow users, particularly during disasters, to engage in self-publication driven by situational needs and emotional responses^{7,57,84}. Emotional support and social connectedness play significant roles in content production in social media, notwithstanding potential privacy concerns^{5,21,27,39}. Social capital within users' social networks influences content production behavior while monetary incentives from platforms like Facebook further incentivize participation. Nonetheless, ensuring the credibility and legitimacy of information remains paramount^{79,80,92}.

Despite inherent challenges, community engagement on social media enhances disaster response by fostering situation awareness, collective intelligence and multi-

directional communication^{30,38,93}. Features like hashtags and location sharing aid in information dissemination and resource coordination during crises^{42,54}. Analysis on social media platforms reveals the intricate relationships that exist between platform dynamics, user behavior and disaster response tactics. To ensure that social media is effective in promoting community resilience during disasters and to fully utilize its potential for crisis communication, it is imperative to recognize these dynamics.

In essence, the related literature reveals how social media, notably Facebook, had reshaped disaster communication by blurring producer-consumer roles through "produsage." While Facebook facilitates real-time updates and community engagement, challenges like misinformation persist. Yet, it fosters collective resilience and resource coordination, highlighting its transformative potential in disaster response. Literatures also underscores the transformative potential of social media in disaster management and response. By elucidating the motivations, experiences and implications of user-driven content creation on platforms like Facebook, this study seeks to inform more effective and inclusive disaster preparedness and response strategies.

Material and Methods

The research methodology adopted a qualitative approach, rooted in the principles of phenomenology, to delve into the experiences of natural disaster-affected individuals engaging in content creation and consumption on Facebook during natural disasters. This approach, as discussed by Käufer and Chemero⁴⁰, facilitated a nuanced understanding of the motivations and contextual factors shaping the phenomenon of user-driven content production during natural disasters, thereby enhancing its practical applicability in emergency contexts. A descriptive research design was employed to illuminate the intricacies of this social phenomenon, focusing on identifying the underlying causes and mechanisms of produsage in relation to natural disasters in the Philippines.

The study sought to understand the importance and meaning of persons affected by natural disasters' experiences generating and using content on Facebook, drawing on the phenomenological research tradition as articulated by Engelland²⁴ and Zahavi⁹⁴. In the context of crisis communication, phenomenology offered a theoretical framework for comprehending participants' lived experiences and subjective realities, illuminating the reasons behind their involvement in content creation and consumption.

Semi-structured interviews were used to collect data, enabling a thorough examination of participants' viewpoints and thoughts. Interviews were conducted in accordance with the guidelines provided by Husband³³ and Brown and Danaher¹³ to evaluate participants' subjective experiences and motivations, which might not be fully revealed by

observation alone. Purposive sampling was employed to select 50 Filipino informants residing in the Northern Luzon, Southern Luzon, National Capital Region, Visayas and Mindanao, ensuring a diverse range of experiences and perspectives related to the user-driven publication of disaster content on Facebook during natural disasters in the Philippines.

An interview guide comprising open-ended questions was utilized to facilitate data collection, ensuring consistency and depth in exploring participants' experiences and motivations. The guide covered key inquiries related to situational experiences, motivations for user-driven content production and the influence of other disaster information on Facebook. This structured approach enabled researchers to systematically gather insights into the produsage process and its implications for crisis communication.

Ethical concerns were crucial throughout the research procedure, with subjects fully informed of the study's objectives and consenting to participate. To protect participants' privacy and data confidentiality, steps were implemented in compliance with the provisions of the Philippines' Republic Act No. 10173, or the Data Privacy Act of 2012.

Results and Discussion

Recurring themes that shed light on how individuals affected by natural disasters utilize Facebook for communication during natural disasters, aim to delve into the motivations behind their engagement. It is divided into four parts focusing on the understanding communication dynamics of disaster-affected individuals, utilizing Facebook for crisis communication and support, understanding motivations and dynamics of Facebook engagement among disaster-affected individuals and factors influencing Facebook use among disaster-affected individuals.

Facebook as a Lifeline - The Communication Dynamics of Individuals affected by Disasters

It encapsulates the essence of the participants' experiences in utilizing Facebook as a platform for communication and information sharing during natural disasters. It emphasizes the crucial role of social media in facilitating updates, publishing content, feedback exchange and direct messaging among disaster-affected individuals.

1. Facilitating Updates: The participants demonstrated a proclivity for sharing posts containing critical disaster-related information such as updates on water levels and signal warnings, indicative of the platform's pivotal role as a source of emergency information. This behavior echoes the findings of Dong et al³⁰ who investigated how social media can aid disaster response efforts by analyzing tweets related to various natural disasters. By examining public attitudes and demands expressed in tweets related to various natural disasters, it provides valuable insights for relief agencies to enhance disaster management strategies. Moreover, the

participants extended their sharing activities beyond official announcements to include posts created by fellow affected individuals, showcasing solidarity and empathy within the online community.

2. Publishing Content: Participants actively created and shared their own content, providing real-time updates on their situations or those of other victims. This practice reflects the concept of citizen journalism, showcasing examples where ordinary individuals use platforms like social media to report news events and advocate for causes⁷⁸. Additionally, participants utilized Facebook as a platform for self-expression, posting updates and "signs of life" to reassure concerned relatives and friends during the crisis, in line with the findings of Tandoc and Takashi⁷⁷. This multifaceted approach to content creation highlights the platform's role as a personalized communication tool during disasters.

3. Feedback Exchange: Participants demonstrated active engagement through commenting on their posts, providing safety updates and responding to inquiries from their audience. This participatory journalism underscores their active role in disseminating information and engaging with the online community. Furthermore, participants utilized commenting as a platform for sharing opinions and suggestions for addressing typhoon-related issues, contributing to public discourse and awareness. This aligns with the study of Berard et al¹¹ that explores how social media can aid in disaster response by disseminating information and connecting affected individuals, focusing on its role in post-disaster recovery and resilience.

4. Direct Messaging: Leveraging private messaging on Facebook, participants exchanged critical information and expressed gratitude to close relatives and friends. This practice showcases the efficiency of social media in facilitating information exchange within personal networks, challenging traditional disaster response systems^{20,50}. By utilizing private messaging, disaster-affected individuals were able to address the specific needs of their close contacts and provide timely updates, thus contributing to a sense of community resilience and support during crises.

Essentially, the study reveals the various ways in which Facebook facilitates disaster-affected individuals in creating and sharing information, promoting communication, cooperation and involvement within the online community during typhoon emergencies. These observations enhance the awareness of the changing patterns of disaster communication in the era of digital technology, highlighting the crucial significance of social media platforms as indispensable instruments for spreading information and providing community assistance during disasters. Investigating the communication dynamics of individuals affected by disasters, with a focus on the use of Facebook is a crucial means of communication.

Utilizing Facebook for Crisis Communication and Support - Exploring Digital Resilience

Here, participants demonstrated proactive engagement with designated disaster pages on Facebook, seeking essential updates and preparedness measures. Their active involvement in comment threads and private messaging further facilitated knowledge-sharing and mutual support within online communities, highlighting Facebook's role in fostering resilience and solidarity during emergencies.

1. Tracking via Designated Disaster Pages and Channels:

Participants exhibited proactive engagement with designated disaster pages on Facebook including those managed by local Government units and authoritative figures. This active monitoring, evident before and during the typhoon, involved seeking crucial updates on preparation measures, emergency contacts and real-time alerts. This behaviour resonates with the concept of individualized affordances⁹ wherein individuals leverage digital platforms like Facebook to access tailored disaster information.

Moreover, Bhuvana and Aram¹² examined how social media, particularly Facebook and WhatsApp, became dominant communication tools during the 2015 Chennai floods in India, allowing affected individuals to exert influence and set a reverse agenda compared to traditional media channels like radio and television. By tracking these specified channels, participants enhanced their preparedness and situational awareness, leveraging digital resources to navigate the evolving crisis landscape effectively.

2. Knowledge Gathering via Comment Threads: In addition to monitoring official channels, participants were actively engaged with the comment sections of disaster-related posts on Facebook to gather additional information and support. Through mediated interpersonal communication, individuals exchanged valuable insights, shared rescue resources and offered assistance to those in need. This approach also mirrors the study of Kim and Hastak⁴³ that discusses how social media played a crucial role in disseminating information during the 2016 Louisiana flood in the United State of America, highlighting the importance of individual engagement on Facebook. They suggest that understanding these dynamics can help emergency agencies to develop better strategies for disaster response. Furthermore, the comments section served as a catalyst for community engagement and support⁷⁷, highlighting the collaborative nature of disaster response within online communities.

3. Direct Messaging for Exclusive Information Exchange: Direct messaging emerged as a vital channel for exclusive information exchange and support, particularly during the height of the typhoon. Participants received messages from acquaintances, friends and strangers, offering assistance, checking on their safety and coordinating potential rescue efforts. This active engagement reflects heightened informational needs during

crises with messages from trusted sources influencing individuals' beliefs and actions^{4,62}. Moreover, the receipt of messages offering financial support underscores the transparency and trust established through Facebook communication, aligning with observations of post-disaster aid distribution facilitated by social media. Through direct messaging, participants strengthened community bonds and facilitated mutual support, showcasing the platform's role in fostering resilience and solidarity during times of crisis.

In essence, the participants engaged proactively with designated disaster pages and channels on Facebook, seeking essential updates on preparation measures and real-time alerts, thereby enhancing their preparedness and situational awareness. Additionally, they utilized comment threads on disaster-related posts to exchange valuable insights and support, fostering community engagement and collaboration in disaster response efforts. Furthermore, private messaging emerged as a vital channel for exclusive information exchange and support, strengthening community bonds and facilitating mutual aid during crises.

The Motivations and Dynamics of Facebook Engagement among Individuals affected by Disaster

The multifaceted reasons driving disaster-affected individuals to utilize Facebook, include emergency response and assistance, efficient communication, support and solidarity and situational awareness. Additionally, it explores the emergence of emotional catharsis through expression, memory preservation and reflection, facilitation of empathetic connections and the incentivized content creation as significant themes shaping engagement dynamics on the platform.

1. Emergency response and assistance: This theme emerged as a fundamental motivation, compelling participants to share their plight on Facebook due to immediate needs arising before, during and after the onslaught of natural disasters. Participants articulated their urgent requirements, from calls for rescue to basic necessities like food, shelter and medical supplies. The vulnerability of certain groups, like the elderly and children, accentuated the imperative nature of these pleas for assistance. This aligns with previous research highlighting the heightened vulnerability of specific demographics during extreme weather events^{10,53}.

2. Efficient communication: Utilizing Facebook for efficient communication also played a pivotal role in participants' content production motivations. Facebook also served as a convenient platform for mass communication, circumventing the need for individualized messages. As emphasized by the participants, the platform's extensive reach facilitated efficient dissemination of information, akin to the functionality of Facebook's Safety Check feature⁴⁶.

Moreover, the simplicity of posting on Facebook, as highlighted by participants like P4, underscored the

platform's user-friendly interface, further reinforcing its utility during crises²⁶.

3. Support and solidarity: Mobilizing support and solidarity emerged as a driving force behind participants' content production efforts, reflecting a collective ethos of mutual aid and support. Some participants expressed solidarity with fellow affected individuals, mobilizing relief operations and fostering a sense of community resilience reminiscent of the traditional Filipino value of *bayanihan*^{76,79}. Notably, other participants leveraged their media expertise to disseminate actionable information, underscoring the role of credible sources in crisis communication.

4. Situational awareness: Amplifying voices for situational awareness served as another motivation, prompting participants to share real-time updates and insights into their situation. By providing firsthand accounts, participants aimed to keep their social networks informed and engaged, leveraging Facebook's platform to amplify their voices amidst the chaos. This aligns with previous findings emphasizing social media's role in enhancing situational awareness and facilitating multi-directional communication during disasters^{38,77}.

5. Emotional catharsis through expression: Emotional catharsis through expression emerged as a significant motivation, driven by participants' need to articulate their emotions and experiences. Disasters evoke a spectrum of emotions, predominantly negative, prompting individuals to seek avenues for catharsis and validation^{74,83}. Participants utilized emojis as expressive tools, augmenting their textual narratives with visual cues to convey nuanced emotions.

6. Memory preservation and reflection: Memory preservation and reflection emerged as a poignant motivation, reflecting participants' desire to preserve memories and lessons learnt from the disaster. For most of the participants, Facebook posts served as digital archives, documenting acts of kindness and personal growth amidst adversity. This resonates with previous research highlighting Facebook's role as a repository of memories, allowing users to revisit significant life events⁶.

7. Shared experiences and empathetic connection: Relatability surfaced as a motivation rooted in empathy and shared experiences. Several participants were drawn to content that resonated with their own struggles, fostering a sense of solidarity and collective coping⁷⁷. This highlights the role of social media in facilitating interpersonal connections and community resilience amidst adversity.

8. Incentivized content creation: Incentivized content creation emerged as a novel motivation, particularly in the post-disaster phase, as exemplified by most of the participants. Facebook's monetization features incentivized content production, offering financial rewards for user-

generated content^{91,92}. However, this commercial incentive may dilute the authenticity of content, shifting the focus from self-expression to profit-driven engagement.

Overall, individuals exhibited diverse reasons for creating material on Facebook during and after natural disasters. Their activities encompassed a combination of vital necessities, solidarity and the conveyance of emotions, ranging from urgent pleas for help to the safeguarding of valued recollections. Although Facebook played a crucial role in facilitating communication and fostering community resilience, the rise of paid content creation presents obstacles to the genuineness of user-generated material. Therefore, in the midst of various motivations that are noticed, it is essential to prioritize the preservation of the platform's integrity as a space for authentic expression in disaster response endeavors.

Factors Influencing the Use of Facebook by Individuals affected by Disasters

It outlines the motivations behind Facebook usage among disaster-affected individuals, highlighting the importance of emotional support and trust and verification in navigating crises through social media.

1. Emotional support in crisis: Emotional support emerged as a prevalent theme among participants, motivating their content usage on Facebook throughout the various phases of the typhoon. Participants expressed that sharing their disaster experiences on social media elicited an outpouring of emotional support from their audience, providing them with solace and solidarity during times of distress. This aligns with previous research highlighting the role of social media platforms in facilitating emotional expression and communal support during disasters^{28,61,65}.

Moreover, participants emphasized the empathetic responses they received from their social network, ranging from private messages to tangible relief assistance. This collective coping mechanism underscores the importance of interpersonal relationships in navigating adversity and fostering resilience^{35,25}. Additionally, emotional engagement with user-generated content was observed to drive user interaction, as users were more inclined to respond to posts conveying strong emotions such as grief and hope.

2. Trust and Verification in Crisis Communication: Trust and verification emerged as another significant motivation, particularly in the pre and during phases of the natural disaster. Participants expressed a need to verify the credibility of sources to prevent the dissemination of false information and misinformation. This aligns with the broader trend of misinformation sharing during crises and disasters, emphasizing the importance of media literacy and critical evaluation of online content^{86,96}. Participants adopted various strategies to assess the reliability of information including evaluating the credibility of news outlets and cross-referencing multiple sources. This active engagement

with media content reflects users' efforts to navigate the complex landscape of online information and make informed decisions⁵⁹. Moreover, participants highlighted the role of acquired knowledge in shaping their online interactions, underscoring the importance of scholarly expertise and narrative skills in contributing to meaningful discussions.

In general, the reasons why people affected by disasters use Facebook are influenced by both their emotional demands and their need for information. Gaining insight into these reasons is crucial for politicians, humanitarian organizations and platform developers who aim to utilize social media for disaster response and community resilience. By attending to the emotional and informational requirements of users, stakeholders can improve the efficacy of social media platforms as instruments for communication, assistance and the spread of information in times of crisis.

Conclusion

The study results emphasize Facebook's critical function in promoting communication dynamics among those affected by natural disasters. By carefully examining the experiences of the participants, it is clear that Facebook acts as a lifeline for those affected by disasters, providing immediate updates, sharing content, exchanging feedback and allowing direct messaging.

The study underscores the significance of Facebook as a multifunctional platform during crises. Participants actively engaged in sharing critical information, publishing real-time updates, exchanging feedback and utilizing private messaging for personalized communication. Online networks were strengthened by such efforts which also helped to spread information and encouraged community support, resiliency and solidarity.

The study also clarifies how disaster communication is changing in the digital era. It highlights the increased reliance on social networking sites like Facebook to plan relief operations, to get emotional support during emergencies and to obtain real-time information. Individual incentives and platform functionalities interact intricately in crisis scenarios, as seen by the selective sharing of content and the rise of content creation as an incentive.

Recommendations

Based on these insights, it is recommended that disaster response agencies, policymakers and social media platforms take proactive measures to leverage Facebook effectively in disaster management and communication efforts.

1. Enhancing the use of social media for disaster management: Organizations responsible for disaster response should include platforms like Facebook in their strategy. To enhance public awareness and involvement during emergencies, it is necessary to establish authorized

routes for prompt updates, to distribute precise information and to organize relief operations.

2. Managing misinformation and promoting digital literacy: In the context of disaster preparedness, it is crucial to prioritize programs that educate individuals on identifying false information and verifying its authenticity. Social media platforms should implement strong systems for monitoring and verifying potentially deceptive content to reduce the spread of incorrect information.

3. Community Engagement and Support Programs: To foster solidarity and mutual aid among individuals affected by disasters, social media platforms like Facebook should offer community-oriented initiatives including support groups, online forums and collaborative chat rooms. These programs can assist affected communities by providing peer-to-peer assistance, disseminating crucial resources and delivering emotional solace.

4. Ongoing Surveillance and Assessment: Consistently monitoring and evaluating the patterns of social media usage during catastrophes is crucial for identifying developing trends, difficulties and chances for enhancement. Longitudinal studies that monitor user behaviors, motives and platform usage can offer significant insights for improving disaster communication techniques and strengthening community resilience.

4. Platforms should give priority to integrity and honesty in user-generated content to uphold confidence and credibility among users. Implementing measures such as explicit labeling of sponsored material and transparent standards regarding monetization can effectively maintain the integrity of information disseminated on social media platforms.

By applying these suggestions, individuals or groups with an interest or concern in a particular matter can effectively utilize the complete capabilities of Facebook as an essential instrument for communicating, providing assistance and developing resilience in the face of disasters. To effectively utilize social media platforms in disaster response operations and to maintain the well-being of those affected by disasters, it is essential to take proactive actions as the digital landscape evolves.

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