JOURNAL OF AI
COMMUNICATION AND SOCIETY
2026 Vol 1, No. 1

Artificial Intelligence in Crisis Communication: Toward a Responsible Framework for Emergency Information Management

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ARTICLE INFO

Keywords
artificial intelligence
crisis communication
emergency management
public trust

Published:
06 June 2026

ABSTRACT

Artificial intelligence is increasingly reshaping how people search for information, produce messages, evaluate sources, interact with media platforms, and participate in public communication. In this context, communication education must move beyond traditional media literacy and digital literacy to include AI literacy and algorithmic awareness. Although existing studies have conceptualized AI literacy as a set of competencies for understanding, using, evaluating, and ethically engaging with AI technologies, less attention has been paid to how AI literacy should be integrated into communication education. This conceptual article proposes a framework for AI literacy in communication education, focusing on three dimensions: critical understanding of AI-mediated communication, algorithmic awareness in platform societies, and ethical responsibility in human–AI communication. Drawing on human–machine communication, AI literacy, media literacy, and critical algorithm studies, the article argues that communication students need not only technical knowledge of AI but also critical, ethical, and communicative competencies for understanding how AI shapes visibility, authorship, credibility, persuasion, and public discourse. The article contributes to the field by repositioning AI literacy as a core component of communication education and by offering a curriculum-oriented framework for future teaching and research.

1. Introduction

Crisis communication refers to the strategic and ethical management of information during events that threaten public safety, organizational legitimacy, or social stability. In emergencies such as natural disasters, pandemics, terrorist attacks, industrial accidents, and public health crises, communication must be timely, accurate, coordinated, and trustworthy because people often make urgent decisions under uncertainty (Coombs, 2007; Sellnow & Seeger, 2013).

The growth of digital media has changed crisis communication by allowing publics to participate in real-time information sharing. Social media platforms have become important spaces for

reporting local conditions, requesting help, correcting rumors, and coordinating support during emergencies. Crisis informatics research has shown that emergency communication is no longer controlled only by formal institutions; it is increasingly shaped by interactions among public agencies, affected communities, volunteers, platforms, and networked publics (Palen & Anderson, 2016; Reuter & Kaufhold, 2018).

Artificial intelligence adds a new layer to this crisis communication environment. AI systems can classify social media posts, detect emerging events, summarize large volumes of information, support decision-making, and generate public-facing messages. These functions are valuable because crisis environments often involve information overload, time pressure, and uncertainty (Imran et al., 2015; Vieweg et al., 2010).

However, the use of AI in crisis communication also creates serious risks. If AI systems misclassify urgent information, amplify inaccurate content, generate unclear warnings, or reflect biased data, they may harm public response and reduce trust in institutions. Crisis communication is therefore not only a technical problem of information processing but also a communicative problem involving responsibility, legitimacy, and public trust (Diakopoulos, 2015; Floridi et al., 2018).

This article develops a conceptual framework for understanding responsible AI in crisis communication. It argues that AI-supported crisis communication should be analyzed through three dimensions: real-time sensemaking, algorithmic mediation, and accountable communication. These dimensions connect crisis communication theory with crisis informatics, human–machine communication, and AI ethics (Guzman & Lewis, 2020; Hancock et al., 2020).

2. Literature Review

Crisis Communication and Public Trust

Crisis communication research emphasizes that communication during emergencies must reduce uncertainty, provide actionable guidance, and maintain trust between institutions and publics. Coombs's situational crisis communication theory explains how crisis responsibility and response strategies influence organizational reputation and stakeholder perceptions. Although this theory was developed mainly in organizational crisis contexts, its emphasis on responsibility and public interpretation remains relevant to AI-supported crisis communication (Coombs, 2007).

Sellnow and Seeger argue that crisis communication involves both strategic message management and broader social processes of meaning-making. During crises, publics do not simply receive official information; they interpret, share, challenge, and reconstruct crisis narratives. This means that communication effectiveness depends not only on message accuracy but also on credibility, consistency, empathy, and responsiveness (Sellnow & Seeger, 2013).

Social media has intensified these dynamics by making crisis communication more participatory. Veil et al. show that social media can support crisis communication by enabling rapid information sharing, public engagement, and dialogic communication. However, social media also increases the difficulty of controlling misinformation, coordinating messages, and maintaining institutional authority (Veil et al., 2011).

In AI-mediated crisis contexts, public trust becomes even more complicated. When AI systems assist with message generation, event detection, or information prioritization, publics may not know whether information comes from human officials, automated systems, or hybrid processes. This ambiguity may affect how people evaluate credibility and responsibility during emergencies (Guzman & Lewis, 2020; Hancock et al., 2020).

Crisis Informatics and Social Media Intelligence

Crisis informatics studies the interaction between information technologies, emergency management, and public participation during crises. Palen and Anderson describe crisis informatics as a field concerned with how digital data and networked communication can support response during extraordinary events. This perspective is important because it treats crisis communication as a socio-technical process rather than a purely institutional activity (Palen & Anderson, 2016).

Research on social media use in emergencies shows that publics often use digital platforms to share eyewitness reports, request assistance, express emotions, correct information, and coordinate resources. Vieweg et al. found that microblogging during natural hazards can provide situational awareness information, including location-specific updates and descriptions of damage. Such information may be useful for emergency responders and public communicators when properly verified and interpreted (Vieweg et al., 2010).

Reuter and Kaufhold reviewed fifteen years of social media research in emergencies and showed that social media has become central to crisis informatics. Their review highlights both opportunities and challenges, including public participation, data overload, credibility assessment, and the need for better integration between emergency agencies and social media data streams (Reuter & Kaufhold, 2018).

AI is increasingly relevant to crisis informatics because human responders cannot manually process all crisis-related digital information in real time. Imran et al. reviewed computational methods for processing social media messages during mass emergencies and showed that classification, filtering, clustering, and information extraction can help convert large-scale user-generated content into more usable crisis intelligence (Imran et al., 2015).

Human – Machine Communication and AI-Mediated Crisis Interaction

Human–machine communication provides a useful lens for understanding AI in crisis communication. Guzman and Lewis argue that artificial intelligence challenges traditional communication models because machines may function as communicative agents, not merely passive channels. This is especially important in crisis contexts, where AI systems may produce warnings, answer questions, or influence which information becomes visible (Guzman & Lewis, 2020).

AI-mediated communication research also shows that intelligent systems can modify, augment, or generate messages on behalf of human communicators. Hancock et al. define AI-mediated communication as communication in which an intelligent agent operates on behalf of a communicator by modifying, augmenting, or generating messages. In crisis communication, this means that AI may influence not only internal decision-making but also public-facing messages

(Hancock et al., 2020).

This creates a new form of communicative hybridity. A public warning may be written by a human but drafted with AI assistance. A crisis update may be generated from automated social media analysis and then edited by an emergency officer. A chatbot may answer public questions based on institutional data and algorithmic language generation. In each case, communication responsibility becomes distributed across humans, organizations, and AI systems (Hancock et al., 2020; Floridi et al., 2018).

Such hybridity creates both opportunities and risks. AI can help emergency communicators respond more quickly, personalize guidance, and manage high volumes of public inquiries. However, AI-generated or AI-prioritized messages may also create problems if they are inaccurate, insensitive, culturally inappropriate, or insufficiently transparent (Diakopoulos, 2015; Floridi et al., 2018).

A Responsible AI Crisis Communication Framework

This article proposes a three-dimensional framework for responsible AI in crisis communication. The framework includes real-time sensemaking, algorithmic mediation, and accountable communication. These dimensions are interconnected because crisis communication requires not only rapid information processing but also ethical judgment, public trust, and institutional responsibility (Imran et al., 2015; Sellnow & Seeger, 2013).

Real-Time Sensemaking

Real-time sensemaking refers to the process through which crisis actors collect, interpret, and organize rapidly changing information during emergencies. In digital crisis environments, information may come from official reports, sensor systems, news media, social media platforms, emergency calls, satellite data, and public messages. AI can support this process by detecting patterns, classifying urgent reports, identifying locations, and summarizing large volumes of data (Imran et al., 2015; Vieweg et al., 2010).

The value of AI-supported sensemaking lies in its ability to reduce information overload. During disasters, emergency agencies may face thousands or millions of messages, many of which are repetitive, irrelevant, inaccurate, or emotionally expressive. AI systems can help identify actionable information, such as reports of trapped individuals, infrastructure damage, blocked roads, or urgent resource needs (Reuter & Kaufhold, 2018; Vieweg et al., 2010).

However, real-time sensemaking cannot be reduced to automated classification. Crisis information is often ambiguous, incomplete, emotional, and context-dependent. A social media post may contain sarcasm, local slang, outdated information, or unverifiable claims. Therefore, AI-supported crisis sensemaking should include human interpretation and verification rather than relying entirely on machine outputs (Palen & Anderson, 2016; Imran et al., 2015).

Real-time sensemaking also has communicative consequences. The way information is classified influences what decision-makers see and what publics are told. If AI systems prioritize some crisis signals and ignore others, they may shape institutional attention and public communication. This means that sensemaking is not only analytical but also political and ethical (Gillespie, 2014;

Diakopoulos, 2015).

Algorithmic Mediation

Algorithmic mediation refers to the ways AI systems filter, rank, recommend, classify, and generate crisis information. In emergencies, algorithmic mediation may determine which social media reports are flagged as urgent, which rumors are detected, which public questions receive automated responses, and which warnings are personalized for different audiences (Imran et al., 2015; Hancock et al., 2020).

Gillespie argues that algorithms are important because they shape public relevance and visibility. This point is particularly important during crises because visibility can affect safety. Information that becomes visible may mobilize assistance or guide protective action, while information that remains invisible may leave communities unsupported or misinformed (Gillespie, 2014).

Algorithmic mediation can improve crisis communication when it helps institutions detect urgent needs, identify misinformation, and provide targeted guidance. For example, automated classification may help emergency agencies distinguish between general discussion, eyewitness reports, requests for help, and infrastructure damage reports. Such classification can support more efficient communication and response (Imran et al., 2015; Reuter & Kaufhold, 2018).

At the same time, algorithmic mediation may reproduce bias and inequality. AI systems trained on incomplete or unequal data may perform poorly for marginalized communities, minority languages, rural populations, or users with limited digital access. If crisis communication systems rely heavily on social media data, they may privilege visible and digitally active populations while overlooking less connected groups (Alexander, 2014; Floridi et al., 2018).

Algorithmic mediation also raises transparency concerns. If public agencies use AI to generate or prioritize crisis messages, publics may reasonably ask how these systems work, what data they use, and who is responsible for errors. Algorithmic accountability is therefore essential in crisis communication because automated decisions may affect public safety and institutional legitimacy (Diakopoulos, 2015; Floridi et al., 2018).

Accountable Communication

Accountable communication refers to the responsibility of institutions to ensure that AI-supported crisis communication remains accurate, transparent, ethical, and publicly accountable. In emergencies, communication errors can produce serious consequences. A misleading warning, delayed correction, or unclear instruction may affect evacuation decisions, health behavior, or trust in authorities (Coombs, 2007; Sellnow & Seeger, 2013).

Accountability begins with human oversight. AI systems may assist crisis communicators, but they should not replace professional judgment in high-risk contexts. Human experts must evaluate AI-generated outputs, verify uncertain information, and decide when automated messages are appropriate for public release (Floridi et al., 2018; Diakopoulos, 2015).

Accountability also requires transparency about AI use. If publics interact with a chatbot, receive AI-generated guidance, or encounter automated crisis updates, they should be informed about the

role and limitations of AI. Disclosure can help prevent overtrust and clarify that AI systems support, rather than replace, official crisis communication (Hancock et al., 2020; Guzman & Lewis, 2020).

Crisis communication must also include empathy and care. Emergencies are not merely information problems; they are human experiences involving fear, loss, uncertainty, and vulnerability. AI-generated messages may be efficient, but they must be carefully designed and reviewed to avoid appearing cold, inappropriate, or insensitive. Responsible crisis communication therefore requires balancing speed with human-centered judgment (Sellnow & Seeger, 2013; Veil et al., 2011).

Finally, accountable communication requires mechanisms for correction. Crisis situations change rapidly, and early information is often incomplete. Institutions using AI should establish procedures for updating messages, correcting errors, explaining uncertainty, and documenting decisions. Without these procedures, AI-supported communication may create confusion rather than clarity (Coombs, 2007; Reuter & Kaufhold, 2018).

3. Discussion

AI as Support, Not Replacement

The proposed framework suggests that AI should be understood as a support system for crisis communication rather than a replacement for human communicators. AI is useful for processing large-scale data, detecting patterns, and assisting message production, but crisis communication also requires ethical judgment, contextual understanding, empathy, and responsibility (Floridi et al., 2018; Sellnow & Seeger, 2013).

This distinction is important because crisis environments are characterized by uncertainty. AI systems may identify correlations or classify messages, but they cannot fully understand social context, local history, community trust, or emotional meaning. Human crisis communicators remain essential for interpreting AI outputs and making responsible communication decisions (Palen & Anderson, 2016; Guzman & Lewis, 2020).

At the same time, rejecting AI entirely would ignore its potential value. Social media crises and large-scale disasters can produce more information than human teams can process manually. AI can therefore expand the capacity of crisis communicators when it is embedded in well-designed human oversight systems (Imran et al., 2015; Reuter & Kaufhold, 2018).

The key issue is not whether AI should be used, but how it should be governed. Responsible use requires clear institutional policies, technical evaluation, human review, public disclosure, and mechanisms for accountability. In this sense, AI crisis communication should be understood as a socio-technical practice rather than a purely technological solution (Diakopoulos, 2015; Floridi et al., 2018).

Public Trust and AI Disclosure

Public trust is central to crisis communication because people must decide quickly whether to follow official guidance. If publics believe that crisis messages are inaccurate, automated without oversight, or insensitive to local needs, they may ignore or challenge emergency instructions. Trust

therefore depends on both message quality and institutional credibility (Coombs, 2007; Sellnow & Seeger, 2013).

AI disclosure is one possible strategy for supporting trust. When institutions explain how AI is used, what its limitations are, and how human experts review outputs, publics may better understand the role of technology in crisis communication. However, disclosure must be clear and meaningful rather than hidden in technical language (Hancock et al., 2020; Guzman & Lewis, 2020).

Disclosure alone is not enough. Publics also need evidence that AI-supported communication is accurate, fair, and accountable. Institutions should therefore communicate not only that AI is being used but also how errors are checked, how data are protected, and how vulnerable groups are considered (Floridi et al., 2018; Diakopoulos, 2015).

Trust must also be calibrated. Overtrust in AI may lead people to accept automated guidance uncritically, while undertrust may prevent them from using helpful information. Responsible crisis communication should encourage appropriate trust by clearly explaining when AI can provide support and when professional or official human guidance is necessary (Hancock et al., 2020; Sellnow & Seeger, 2013).

Equity in AI-Supported Crisis Communication

Equity is a major concern in AI-supported crisis communication. Digital crisis data often reflect uneven access to technology, language differences, platform preferences, and social inequalities. If AI systems are built primarily on visible social media data, they may underrepresent older adults, low-income communities, rural residents, migrants, or people without stable internet access (Alexander, 2014; Reuter & Kaufhold, 2018).

Bias may also occur in language processing. AI systems may perform better in dominant languages and standard dialects than in minority languages, local dialects, or crisis-specific informal expressions. In multilingual or culturally diverse emergencies, this can create unequal access to accurate information and unequal recognition of public needs (Floridi et al., 2018; Imran et al., 2015).

Equitable AI crisis communication therefore requires more than technical accuracy. It requires inclusive data practices, community engagement, multilingual communication, offline alternatives, and human review. Public agencies should avoid assuming that AI-generated social media intelligence represents the whole affected population (Palen & Anderson, 2016; Alexander, 2014).

Equity also matters in public warning. If AI systems personalize warnings based on location, behavior, or user data, institutions must ensure that such personalization does not exclude people who lack digital traces or who are not easily categorized by automated systems. Crisis communication must serve the public as a whole, not only those who are most visible to platforms (Gillespie, 2014; Floridi et al., 2018).

4. Future Research Directions

Future research should examine how publics perceive AI-supported crisis communication.

Experimental studies could test whether AI disclosure affects trust, perceived accuracy, willingness to follow instructions, and perceived institutional responsibility. Such research would help clarify whether publics respond differently to human-written, AI-assisted, and AI-generated crisis messages (Hancock et al., 2020; Guzman & Lewis, 2020).

Survey research could investigate public attitudes toward AI use in emergency management. Relevant variables may include institutional trust, AI literacy, risk perception, privacy concern, previous disaster experience, and reliance on social media for crisis information. These studies would extend crisis communication research into AI-mediated contexts (Coombs, 2007; Reuter & Kaufhold, 2018).

Qualitative research could examine how emergency managers, public information officers, journalists, and community organizations use AI tools during crises. Interviews and case studies could reveal how practitioners balance speed, verification, transparency, and responsibility when using AI-supported systems (Hughes & Palen, 2012; Veil et al., 2011).

Content analysis could evaluate the quality of AI-generated crisis messages. Researchers could compare human-written and AI-generated messages in terms of clarity, accuracy, empathy, actionability, uncertainty expression, and cultural appropriateness. Such studies would help determine whether AI can support crisis communication without weakening public trust (Sellnow & Seeger, 2013; Hancock et al., 2020).

Finally, future research should examine AI crisis communication across different societies and disaster contexts. Public trust, media systems, emergency governance, platform use, and digital inequality vary across countries and communities. Comparative research would help avoid assuming that AI-supported crisis communication works the same way everywhere (Alexander, 2014; Palen & Anderson, 2016).

5. Conclusion

Artificial intelligence is becoming increasingly important in crisis communication and emergency information management. AI can help process large-scale data, support situational awareness, detect misinformation, classify urgent messages, and assist public communication. These capacities are valuable in crisis environments marked by uncertainty, time pressure, and information overload (Imran et al., 2015; Reuter & Kaufhold, 2018).

However, AI-supported crisis communication also creates risks related to accuracy, bias, transparency, accountability, and trust. Because crisis communication can affect public safety, AI should not be treated as an autonomous replacement for human judgment. Instead, it should be understood as a socio-technical system requiring human oversight, ethical design, and institutional responsibility (Diakopoulos, 2015; Floridi et al., 2018).

This article proposed a responsible AI crisis communication framework based on real-time sensemaking, algorithmic mediation, and accountable communication. These three dimensions show that responsible AI use in crisis communication requires more than technological efficiency. It requires communicative care, public transparency, equity, and accountability (Sellnow & Seeger, 2013; Guzman & Lewis, 2020).

For the Journal of AI Communication and Society, this topic is important because it connects AI technologies with public safety, institutional trust, platform governance, and social responsibility. As AI becomes more deeply embedded in emergency communication systems, future research must examine not only what AI can do during crises, but also how it should be governed in ways that protect publics and strengthen democratic communication (Palen & Anderson, 2016; Hancock et al., 2020).

Declarations

Funding: The author received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest: The author declares no conflict of interest.

Data Availability Statement: Data sharing is not applicable to this article because no datasets were generated or analyzed.

Ethics Statement: This conceptual article did not involve human participants, animals, or identifiable personal data. Ethical approval was therefore not required.

References

[1]. Alexander, D. E. (2014). Social media in disaster risk reduction and crisis management. *Science and Engineering Ethics, 20*(3), 717–733. https://doi.org/10.1007/s11948-013-9502-z

[2]. Coombs, W. T. (2007). Protecting organization reputations during a crisis: The development and application of situational crisis communication theory. *Corporate Reputation Review, 10*(3), 163–176. https://doi.org/10.1057/palgrave.crr.1550049

[3]. Diakopoulos, N. (2015). Algorithmic accountability: Journalistic investigation of computational power structures. *Digital Journalism, 3*(3), 398–415. https://doi.org/10.1080/21670811.2014.976411

[4]. Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Luetge, C., Madelin, R., Pagallo, U., Rossi, F., Schafer, B., Valcke, P., & Vayena, E. (2018). AI4People—An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. *Minds and Machines, 28*(4), 689–707. https://doi.org/10.1007/s11023-018-9482-5

[5]. Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. J. Boczkowski, & K. A. Foot (Eds.), *Media technologies: Essays on communication, materiality, and society* (pp. 167–194). MIT Press. https://doi.org/10.7551/mitpress/9780262525374.003.0009

[6]. Guzman, A. L., & Lewis, S. C. (2020). Artificial intelligence and communication: A human–machine communication research agenda. *New Media & Society, 22*(1), 70–86. https://doi.org/10.1177/1461444819858691

[7]. Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication, 25*(1), 89–100. https://doi.org/10.1093/jcmc/zmz022

[8]. Hughes, A. L., & Palen, L. (2012). The evolving role of the public information officer: An examination of social media in emergency management. *Journal of Homeland Security and Emergency Management, 9*(1), Article 22. https://doi.org/10.1515/1547-7355.1976

[9]. Imran, M., Castillo, C., Diaz, F., & Vieweg, S. (2015). Processing social media messages in mass emergency: A survey. *ACM Computing Surveys, 47*(4), Article 67. https://doi.org/10.1145/2771588

[10]. Palen, L., & Anderson, K. M. (2016). Crisis informatics—New data for extraordinary times. *Science, 353*(6296), 224–225. https://doi.org/10.1126/science.aag2579

[11]. Reuter, C., & Kaufhold, M.-A. (2018). Fifteen years of social media in emergencies: A retrospective review and future directions for crisis informatics. *Journal of Contingencies and Crisis Management, 26*(1), 41–57. https://doi.org/10.1111/1468-5973.12196

[12]. Sellnow, T. L., & Seeger, M. W. (2013). *Theorizing crisis communication*. Wiley-Blackwell.

[13]. Veil, S. R., Buehner, T., & Palenchar, M. J. (2011). A work-in-process literature review: Incorporating social media in risk and crisis communication. *Journal of Contingencies and Crisis Management, 19*(2), 110–122. https://doi.org/10.1111/j.1468-5973.2011.00639.x

[14]. Vieweg, S., Hughes, A. L., Starbird, K., & Palen, L. (2010). Microblogging during two natural hazards events: What Twitter may contribute to situational awareness. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1079–1088). Association for Computing Machinery. https://doi.org/10.1145/1753326.1753486