

Chapter 7

Chatbots in Crisis Management for Educational Institutions: Leveraging AI-Driven Solutions for Effective Crisis Response in Education

Nonhlanhla Charity Dambuza

 <https://orcid.org/0009-0001-1150-0153>

University of South Africa, South Africa

ABSTRACT

This literature paper examines solutions for improving chatbots in crisis management in educational institutions. It addresses key challenges such as adaptability, communication limitations, and data security. Findings suggest that integrating machine learning (ML), natural language processing (NLP), and sentiment analysis can enhance chatbot responses, offering both informational and emotional support during crises. Multi-channel integration, including voice and video options, is recommended to improve accessibility. Strengthening data security with encryption and adherence to privacy laws like GDPR is crucial for maintaining trust. The paper concludes with the importance of continuous system optimization and user feedback. Recommendations for future research include exploring chatbot effectiveness in various crises and investigating user trust factors.

DOI: 10.4018/979-8-3693-8734-4.ch007

INTRODUCTION

In an increasingly unpredictable world, educational institutions are not immune to crises that disrupt learning, threaten safety, and challenge their capacity to adapt. These institutions, which are the bedrock of societal development, must now contend with a wide array of emergencies, from sudden natural disasters to the insidious rise of cyber threats and global health crises. As traditional crisis management methods falter under the weight of these challenges, innovative solutions like chatbots have emerged as game-changers. These AI-driven tools are not just technical marvels but critical allies, offering immediate support, bridging communication gaps, and enhancing institutional resilience. The exploration of chatbots in crisis management opens a compelling discourse on how technology can reshape the future of education, ensuring that even in the face of adversity, institutions remain a beacon of stability and progress.

Background

Educational institutions face increasingly complex challenges in crisis management, driven by the growing frequency and diversity of crises such as natural disasters, cyberattacks, and public health emergencies. Traditional crisis response strategies often prove inadequate in addressing the fast-paced and unpredictable nature of these emergencies. For example, Haddow et al. (2021) highlight the limitations of manual communication systems, which can lead to delays, misinformation, and fragmented responses during critical moments. These gaps create a pressing need for more efficient, scalable, and adaptive crisis management tools that can respond to evolving institutional vulnerabilities.

Moreover, the lack of real-time communication and engagement tools further exacerbates the problem, as stakeholders, including students, staff, and parents, often struggle to access timely and accurate information during emergencies. Palanica and Fossat (2020) argue that the absence of integrated technological solutions undermines institutional efforts to maintain continuity and safety during crises. Additionally, the emotional and psychological toll on stakeholders is often overlooked, with limited mechanisms in place to provide immediate support or guidance. This calls for the adoption of innovative tools like chatbots that can bridge these gaps by providing real-time updates, fostering emotional well-being, and facilitating coordinated responses.

The global shift toward digitization and automation has also highlighted disparities in the readiness of educational institutions to adopt advanced technologies for crisis management. Comfort et al. (2020) emphasize that while technological solutions like chatbots have proven effective in other sectors, their implementation in educational

24 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/chatbots-in-crisis-management-for-educational-institutions/371556

Related Content

Integrating Digital Literacy to Enhance Emotional and Social Skills in Education

Bahaddin Demirdis (2025). *Innovative Educational Frameworks for Future Skills and Competencies* (pp. 1-38).

www.irma-international.org/chapter/integrating-digital-literacy-to-enhance-emotional-and-social-skills-in-education/367096

A Case Study in Closing a University With Order and Dignity by Upholding Core Values

Nancy H. Blattner, Meaghan Ong, Ann Spalland Adam Weyhaupt (2026). *Narratives of Upheaval in Higher Education* (pp. 185-212).

www.irma-international.org/chapter/a-case-study-in-closing-a-university-with-order-and-dignity-by-upholding-core-values/387745

Assessing Institutional Support for Remote Adjunct Faculty Teaching Online

B. Jean Mandernach, Emily Donnelly-Salleand Amber Dailey-Hebert (2021). *Handbook of Research on Inclusive Development for Remote Adjunct Faculty in Higher Education* (pp. 291-300).

www.irma-international.org/chapter/assessing-institutional-support-for-remote-adjunct-faculty-teaching-online/263972

Beyond the "Real Americans": The Case for Expanding Our Vision of Rurality in the United States

Jarrett D. Moore (2023). *Expanding the Vision of Rurality in the US Educational System* (pp. 1-12).

www.irma-international.org/chapter/beyond-the-real-americans/331454

Charting New Territories: A Vision for 21st Century Learning

Tahani Aldosemaniand Miltiadis D. Lytras (2025). *Fostering Teacher Skills and Critical Thinking in Modern Education* (pp. 1-18).

www.irma-international.org/chapter/charting-new-territories/367117