Workshop on Disaster Research: Innovating for an Imagined Disaster Future

Tricia Wachtendorf, James Kendra, and Cassie Richards

University of Delaware

Disaster Research Center

Key Themes

Contending with Surprise and Anticipating New Crises on the Horizon
"We could not have foreseen this!" is a common statement heard after a disaster, even when all the signals were there. Attendees pointed to the critical need to better content with aspects of surprise - as well as what is sometimes framed as surprising. Strategic foresight - a process of collaborative thinking to identify possibilities, contingencies, and preventive/mitigating strategies to creatively anticipate burgeoning combinations of threats - was one of the areas highlighted by attendees.

Sensemaking When Disaster Strikes
It is increasingly becoming difficult to differentiate between entertainment and news sources, algorithm-generated consensus vs fact-checked consensus, and real vs doctored or AI-generated information. Considerable research is needed to better understand the consequence of our changing disaster sensemaking landscape and the consequences on both research and practice.

Trust in the Institutions that are Necessary in Disaster Environments
Increasing mistrust has been thrust into everyday life; it is ubiquitous, not reserved only for debates about hazardous waste processing or nuclear power, but instead reaching across all domains where knowledge is developed or applied. In this milieu of destabilization, hazard scholars and hazard managers face particular challenges to convey the validity of their expertise. Participants raised questions about the implications of these changes moving forward.

From Disaster Vulnerability Identification to Vulnerability Reduction
Developing a well-tested approach to prevent and substantially mitigate vulnerability is crucial. We have improved ability to identify realms of disaster vulnerability without adequately identifying evidence-based practices that address the need Substantial work is still necessary in this area.

AI: The Future is Now
AI platforms show promise for use in real-time hazard detection, as well as tools for processing data during disaster response and, potentially, enhancing decision quality. AI could also be used in pre-disaster timeframes, to enhance exercise scenario quality. But AI platforms are also at risk of reproducing vulnerabilities associated with marginalization, up-taking of erroneous information, and generating underappreciated catastrophic consequences.

Workforce Development
Several issues emerged related to the scholarly and practice domains of disaster science, including areas where new (rather than duplicative) programs are needed, missing creep, among others. An effective solution to bridging the long-identified gap between scholarship and practice is paramount as challenges persist despite considerable efforts.

Interdisciplinary Expanded
Expanding thinking and approaches to understanding, communicating, and managing disasters remains critical. Disaster science has successfully integrated social, engineering, computer science, natural, management, and health science. Spoken word/poetry, science fiction, film, and serious gaming – for example – were highlighted at the workshop as providing new ways of analyzing, framing, and communicating disaster-related issues. At the same time, multi-, inter-, and transdisciplinary approaches should not dilute the depth of disciplinary thinking and advancement of basic science. A both/and approach is key.

Quick Facts

175+ Full Workshop Participants

600+ Fireside Chat Participants

23 States and Territories Represented

14 Countries Represented

Disciplines

Disaster science and management, Public health, Nursing, Epidemiology, Mathematics, Sociology, Computer science, Life sciences, Anthropology, Civil engineering, Poetry, Economics, Public policy, Geography, Psychology, Communications, Industrial engineering, Art preservation, Law, Fire science, and Historic preservation.

Imagining Disaster Futures

Drones, genetic testing, artificially intelligent information assistants, mobile-phones, video chats, bionic limbs: At one time, these were things of science fiction. Today, they are part of modern society. As the world emerges from a global pandemic that caused millions of confirmed deaths, froze international travel and the supply chain, and led to (or revealed) political divides on the very nature of the threat, it is clear that planning for the disasters we know is insufficient. While we continue to try to solve the problems of today, the disasters of the future lurk in the distance. As devastating as the COVID-19 pandemic was, it is not difficult to imagine how it might have been worse. Imagining those future disasters, and suggesting innovative paths forward, is paramount for disaster science.

Gathering Community

In May 2024, the Disaster Research Center celebrated its 60th Anniversary with a two-day National Science Foundation-funded workshop on Disaster Research: Innovating for an Imagined Disaster Future. The goals of this workshop were to imagine the threats on the horizon and to build consensus around the research and collaboration essential to address them. A pre-event professional development workshop was held for graduate students, giving them access to media training, guidance on quick response research, and facilitated brainstorming in advance of the main workshop. Events included a showcase of the E.L. Quarantelli Resource Collection and a guided coastal resilience field tour of the Delaware Beaches.

TED-Style Featured Presentations Available Online

Scholars, poets, and practitioners sparked our conversations about not only solving the problems of today, but future disasters lurking in the distance.

Fireside Chat with Dr. Anthony Fauci Available to Watch Online!

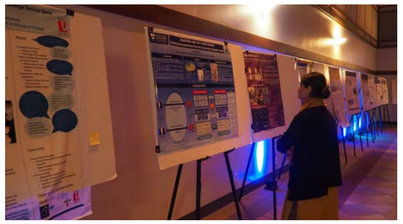
Dr. Anthony Fauci, the former Director of the National Institute of Allergy and Infectious Diseases/Chief Medical Advisor to the President, joined Valerie Biden Owens, Biden Institute Chair, to reflect on crisis leadership.

Preserving Our Intellectual Heritage

For well over a half century, the disaster research community has shaped what we know about disasters, their causes, and their consequences. The E.L. Quarantelli Research Collection is preserving that history and scholarly pantheon for future generations of scientists and practitioners.

Forward Thinking Panel and Posters

Sessions included multi-sector panels, collaborative dialogue sessions, hands-on demonstrations of photos restoration, poster presentations (available online), serious-game demonstrations, film screenings, and more.



What Lies Ahead

The workshop sought to identify and catalyze the expansion of the field's development of new and pressing research directions. The full workshop report can be found at on the workshop website.

Acknowledgments

The workshop was supported with funds from units across the University of Delaware. Additional support was provided by Innovative Emergency Management (IEM), the National Science Foundation (Award #2419878), the Delaware Emergency Management Agency, a gift from Founding Director E.L. Quarantelli, a gift from Disaster Research Center Directors James Kendra and Tricia Wachtendorf. The views expressed here are those of the authors.