

Conceptual Integration across Disciplines and Convergence Research

Lori Peek, Ph.D. Director, Natural Hazards Center, Institute of Behavioral Science hazards.colorado.edu Professor, Department of Sociology Principal Investigator, CONVERGE converge.colorado.edu University of Colorado Boulder





What are we actually talking about?

What type of research do **you** do?

How do we actually do interdisciplinary research?

Why would we want to move in the direction of deeper conceptual integration and convergence research?

What are we actually talking about?

What type of research do **you** do?

How do we actually do interdisciplinary research?

Why would we want to move in the direction of deeper conceptual integration and convergence research?









What are we actually talking about?

What type of research do *you* do?

How do we actually do interdisciplinary research? Why would we want to move in the direction of deeper conceptual integration and convergence research?







Methods and Ethics in Hazards and Disaster Research





edited by Fran H. Norris Sandro Galea Matthew J. Friedman Patricia J. Watson International Journal of Mass Emergencies and Disasters March 2014, Vol. 32, No. 1, pp. 82–120.

Beyond the IRB: An Ethical Toolkit for Long-Term Disaster Research

> Katherine E. Browne Department of Anthropology Center for Disaster and Risk Analysis Colorado State University

> > and

Lori Peek Department of Sociology Center for Disaster and Risk Analysis Colorado State University

Email: kate.browne@colostate.edu

This article argues for expanding the ethical frame of concern in disaster re the early phases of site access to longer-term issues that may arise in the field. Drawing on ethical theory, these arguments are developed in five sections. First, we identify the philosophical roots of ethical principles used in social science research. Second, we discuss how ethical concerns span the entire lifecycle of disaster-related research projects but are not fully addressed in the initial protocols for gaining Institutional Research Board (IRB) approval. Third, we introduce the idea of the philosophically informed "ethical toolkit," established to help build awareness of moral obligations and to provide ways to navigate ethical confusion to reach sound research decisions. Specifically, we use the work of W. D. Ross to introduce a template of moral considerations that include fidelity, reparation, gratitude, justice, beneficence, selfimprovement, and non-maleficence. We suggest that in the absence of a clear framework that researchers can use to think through ethical dilemmas as they arise, Ross' pluralist approach to ethical problem solving offers flexibility and clarity and, at the same time, leaves space to apply our own understanding of the context in question. Fourth, we draw on six examples from our research studies conducted following Hurricane Katrina. Using these examples, we discuss how, in retrospect, we can apply Ross' moral considerations to the ethical issues raised including: (1) shifting vulnerability among disaster survivors, (2) the expectations of participants, and (3) concerns about reciprocity in long-term

82

Setting the agenda in research

Comment



Disaster-zone research needs a code of conduct

JC Gallard & Lori Peek		
Study the effects of earthquakes, floods and other natural hazards with sensitivity to ethical dilemmas and power imbalances.	magnitude 20 astrophysics rodat Ashchrogy, 20 astrophysics rodat userbid protocol and a strophysics and strong and a strophysics and a strophysics appreciation with district. This was appreciation, and cheves annotational, what was the state of the intervature of wight- the quality assessment to be appreciation of the theory of the strong the strong the strophysics of the strong the	Institution Toukined, Catifordia which spr- skeld dath is promoted in chim herithings with as a web portail for sharing data. But resuschers an en at always and usuand on the sharing and wilcome in disaster zones. After the deadly inflation Coaran architectual and instanted motion non-coarticlichichichigi pipa, kausia, france and the treated status and to targited on to collect pershabile data. This hitting of for- eign adentitis anged and fatigued on to collect pershabile data. This hitting of the local composition of the spring of the spring protein and the spring status model to the region local composition of the spring of the spring protein data data and the spring of the spring spring and data data and the spring of the spring spring and data data and the spring of the spring spring and data data and the spring of the spring and the spring and data and the spring of the spring and the spring spring spring and and spring of the spring and the spring spring and applying and and the spring of the spring spring and spring and spring and spring and the spring of the spring spring and spring and spring and the spring of the spring and the spring spring spring

Interdisciplinary Methods and Approaches in Hazards and Disaster Research



Seth Guikema and **Lori Peek,** PI's

David Mendonca, NSF Program Director



Interdisciplinary Methods and Approaches in Hazards and Disaster Research



Risk Analysis

How do we actually do interdisciplinary research?

- Trends and Developments
- Theory
- Methods
- Approaches
- Interdisciplinary Research Projects
- Applications



Berke, Philip, Steven M. Quiring, Francisco Olivera, and Jennifer A. Homey. 2018. "Addressing Challenges to Building Resilience Through Interdisciplinary Research and Engagement." *Rok Audyn:* doi:org/10.1111/inst.13202

Interdisciplinary Methods, Ethics, and Approaches in Hazards and Disaster Research

How do we actually do interdisciplinary research? ABOUT RESEARCH NETWORKS RESOURCES DATA COMMUNICATIONS CONTACT NATERAL NATATES CENTER CONVERGE ABOUT RESEARCH NETWORKS RESOURCES DATA COMMUNICATIONS CONTACT **CONVERGE Training Modules** me to the CONVERGE Training Modules page. These modules are part of a larger initiative to advance social s lisciplinary extreme events research efforts through identifying, mapping, and training a diverse group of rese stion in these modules is designed to accelerate the training of bazards and disaster researchers with a special ned to help prepare researchers to carry out extreme events research that is sthodologically sound, and scientifically rigorous. REGISTER HERE Now Available CONVERGE WATERAL PAZARDS ABOUT RESEARCH NETWORKS RESOURCES DATA COMMUNICATIONS CONTACT COVID-19 Working Groups for Public Health and Social ETHICS Sciences Research CORE VALUES CONVERGE CONVERGE COVID-19 Working Groups are funded by a philanthropic gift and are based upon work supported onal Science Foundation (NSF Award #184/338), Any opinions, findings, and conclusions or recommendations is material are those of the authors and do not necessarily reflect the views of the NSS or other funders.

What are we actually talking about?

What type of research do **you** do?

How do we do interdisciplinary research? *Why* would we want to move in the direction of deeper conceptual integration and convergence research?

What are we actually talking about?

What type of research do **you** do?

How do we do interdisciplinary research? *Why* would we want to move in the direction of deeper conceptual integration and convergence research?

(1) Research driven by a specific and compelling problem

• Convergence research is generally inspired by the need to address a specific challenge or opportunity, whether it arises from deep scientific questions or pressing societal needs (NSF, 2019: 1).

(2) Research that involves deep integration across disciplines

• As experts from different disciplines pursue common research challenges, their knowledge, theories, methods, data, research communities, and languages become increasingly intermingled or integrated. New frameworks, paradigms, or even disciplines can form sustained interactions across multiple communities (NSF, 2019: 1).



NSF is encouraging it.



What are we actually talking about?

What type of research do **you** do?

How do we do interdisciplinary research? *Why* would we want to move in the direction of deeper conceptual integration and convergence research?

Convergence Research

"An approach to knowledge production and action that involves diverse teams working together in novel ways—transcending disciplinary and organizational boundaries—to address vexing social, economic, environmental, and technical challenges in an effort to reduce disaster losses and promote collective wellbeing" (Peek et al., 2020, p. 2)

🐉 frontiers

- A Framework for Convergence Research in the Hazards and Disaster Field: The Natural Hazards Engineering Research Infrastructure CONVERGE Facility
- 1 Lori Peek¹', Jennifer Tobin², Rachel Adams², Haorui Wu³, and Mason Mathews⁴
- ¹Department of Sociology, Natural Hazards Center, and CONVERGE, University of Colorado
 Boulder, Boulder, CO, USA
- ²Natural Hazards Center and CONVERGE, University of Colorado Boulder, Boulder, CO, USA
- 5 ³School of Social Work, Faculty of Health, Dalhousie University, Halifax, Nova Scotia, Canada
- 6 ⁴Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ, USA
- 7 Correspondence:
- 8 <u>Lori Peek@colorado.edu</u>
- Keywords: convergence research1, natural hazards2, disasters3, interdisciplinary4, transdisciplinary5,
 training6, Science of Team Science7, research coordination networks8
- 11 Abstract
- 12 The goal of this article is twofold: to clarify the tenets of convergence research and to motivate such
- 13 research in the hazards and disaster field. Here, convergence research is defined as an approach to 14 knowledge production and action that involves diverse teams working together in novel ways—
- 14 knowledge production and action that involves diverse teams working together in novel ways-15 transcending disciplinary and organizational boundaries—to address vexing social, economic,
- 16 environmental, and technical challenges in an effort to reduce disaster losses and promote collective
- 17 well-being. The increasing frequency and intensity of disasters coupled with the growth of the field 18 suggests an urgent need for a more coherent approach to help guide what we study, who we study.
- how we conduct studies, and who is involved in the research process itself. This article is written through the lens of the activities of the National Science Foundation-sumparted CONVERGE facility.

What are we actually talking about?

What type of research do **you** do?

How do we do interdisciplinary research? *Why* would we want to move in the direction of deeper conceptual integration and convergence research?





NSF is encouraging it.

Our field demands it.

There is a scientific, economic, and moral urgency to this work.