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The Future Disaster Research Workforce:

CONVERGE Training Modules for Ethical, Scientifically Rigorous Research

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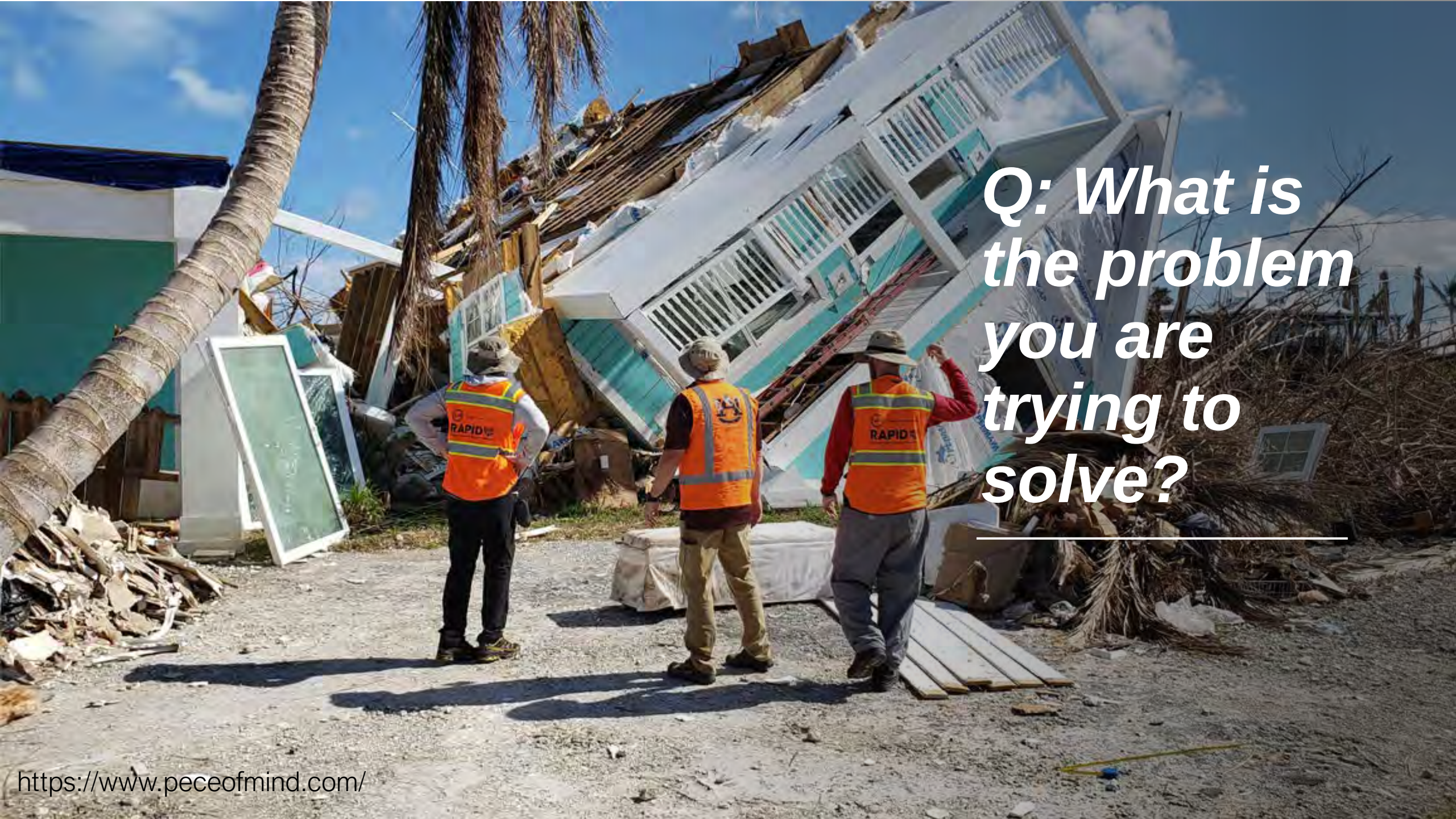
University of Colorado Boulder

NSF Award #1635593 and #1841338

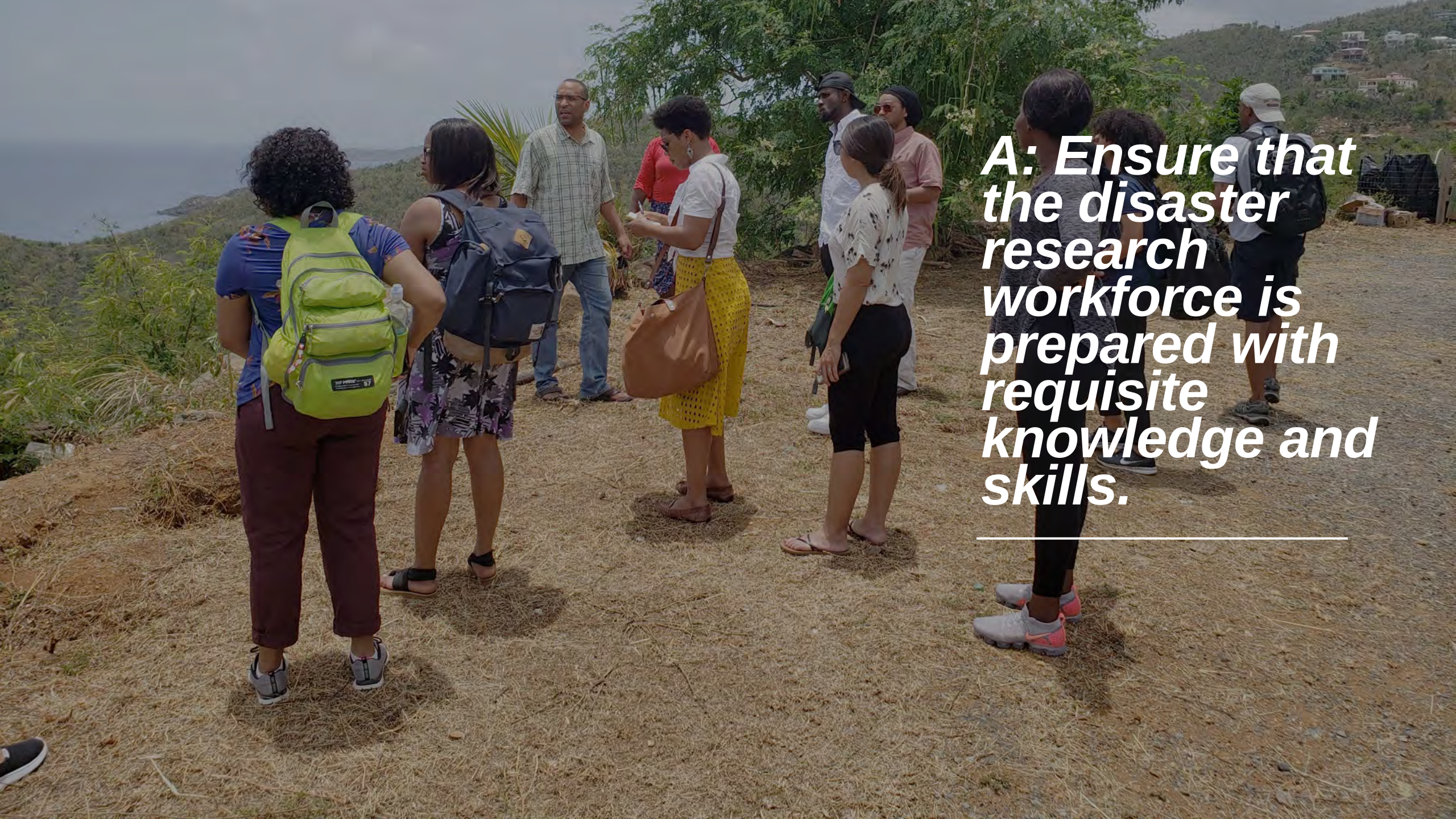
Natural Hazards Center

CONVERGE



Q: What is the problem you are trying to solve?

https://www.peceofmind.com/



A: Ensure that the disaster research workforce is prepared with requisite knowledge and skills.

Challenges

- Disaster research has historically been highly event-driven and reactive
- Influx of researchers without requisite knowledge or skills
- Communication and coordination issues
- Ethical breaches and cultural missteps
- Collaboration gaps
- Repeated findings versus systematic replication and scientific leaps forward

Opportunities

- Identifying researchers *before* disaster, by discipline and expertise
- Cultivating, training, and supporting researchers new to the field
- Developing academic and inter-organizational collaborations
- Setting disciplinary and interdisciplinary scientific agendas
- Turning new knowledge into action

CONVERGE

- CONVERGE is a National Science Foundation-funded shared-use facility dedicated to advancing the **ethical conduct** and **scientific rigor** of convergent hazards and disaster research

frontiers in Built Environment

A Framework for Convergence Research in the Hazards and Disaster Field: The Natural Hazards Engineering Research Infrastructure CONVERGE Facility

OPEN ACCESS

A New System for Disaster Research

Connecting researchers, building networks, and training newcomers to the field can disrupt cycles of disaster loss.

Lori Peek

Reducing the suffering caused by disasters requires connection to one another and systemic change. That is why I decided to work with others to create a new system for doing disaster research.

converge.colorado.edu

CONVERGE develops free **resources** to help train a **diverse next-generation** of the **hazards and disaster workforce.**

CONVERGE Training Modules

Free, interactive, online trainings designed for students, early career professionals, and others who are new to hazards and disaster research and practice. They incorporate an all-hazards approach grounded in cutting edge research from the social sciences, public health, engineering, and other disciplines. Each module features:

- Learning objectives
- Lesson plans
- Case studies
- A list of additional resources
- A final quiz worth **one contact hour** of general management training through the International Association of Emergency Managers (IAEM) certification program.

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Available Training Modules

- Since July 2019, the CONVERGE team and our partners have released **12 Training Modules**

- **Funding Support:** NSF, CDC, and USGS

converge.colorado.edu/resources/training-modules/

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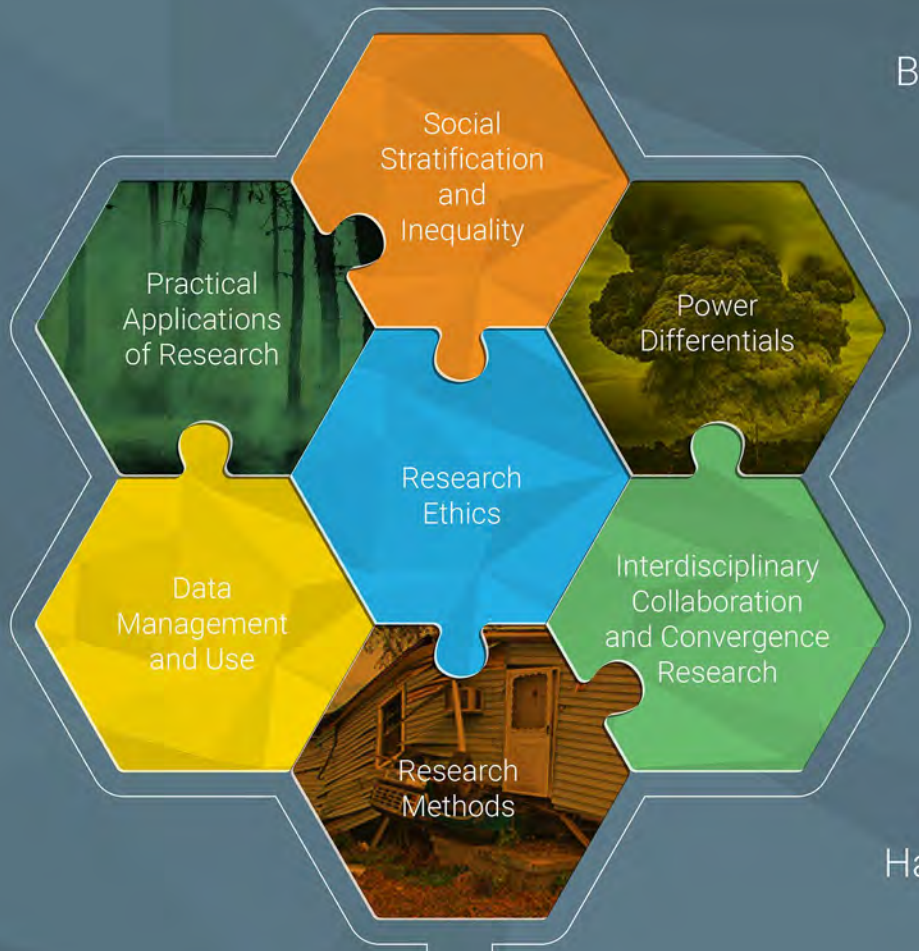
CONVERGE Training Modules

Foundational Training Module Topics

- Institutional Review Board (IRB) Procedures and Extreme Events Research
- Conducting Emotionally Challenging Research
- Cultural Competence
- Collecting and Sharing Perishable Data
- Social Vulnerability and Disasters
- Disaster Mental Health

Shared Themes



Advanced Training Module Topics

- Broader Ethical Considerations
- Positionality
- Reciprocity
- Understanding and Ending Gender-Based Violence in Fieldwork
- Public Health Implications of Hazards and Disaster Research

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Learn more about CONVERGE at converge.colorado.edu

Training Module Development Team

LEAD DEVELOPER

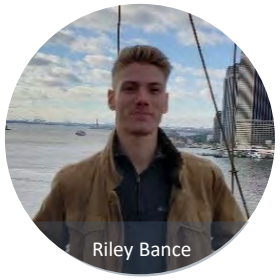
CO-LEAD DEVELOPER

PRINCIPAL INVESTIGATOR

Our Training Module Development team works with graduate students, faculty, practitioners, and others who are working on cutting edge topics relevant to the series' core themes.

Training Module Collaborators

Jessica Austin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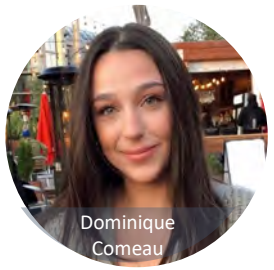
Paulette Blanchard

Heather Champeau


Dominique Comeau

Tracy Fehr

Lin Frazer

Patrick Freeland

Christine Gibb

Ciarra Greene

Alexa Hansen

Jerika Heinze

Lesley Iaukea

Julie Maldonado

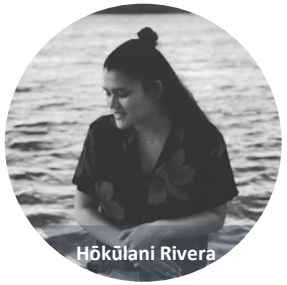
Brigid Mark

Molly McKeown

Michelle Montgomery

Jasmine Neosh

Skye Niles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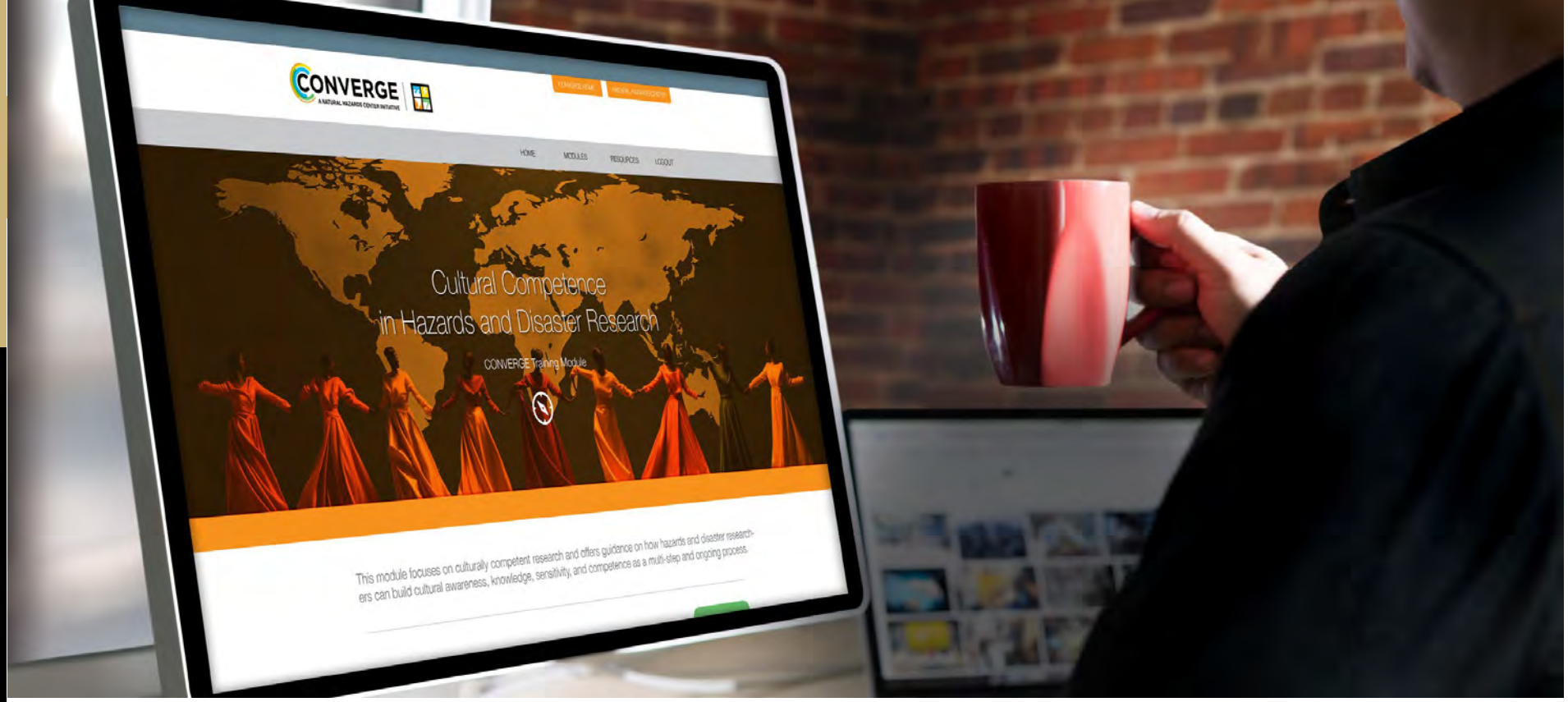

A Brief Review of Select Available Training Modules

converge.colorado.edu/resources/training-modules/

- Broader Ethical Considerations for Hazards and Disaster Researchers
- Collecting and Sharing Perishable Data
- Conducting Emotionally Challenging Research
- Cultural Competence in Hazards and Disaster Research
- Disaster Mental Health
- Indigenous Sovereignty in Disaster Research
- Institutional Review Board (IRB) Procedures and Extreme Events Research
- Positionality in Hazards and Disaster Research and Practice
- Public Health Implications of Hazards and Disaster Research
- Reciprocity in Hazards and Disaster Research
- Social Vulnerability and Disasters
- Understanding and Ending Gender-Based Violence in Fieldwork

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Social Vulnerability and Disasters

- Certain populations are more susceptible to the negative impacts of hazards and disasters
- Social factors that influence vulnerability include **age**, **income**, **race/ethnicity**, **disability/pre-existing health issues**, **English proficiency**, and **immigration status**, among others
- Additional considerations are needed when working with at-risk populations who are vulnerable to coercion or undue influence
- Data, resources, tools to conduct research with and in partnership with potentially vulnerable populations

Adams, R. M., Evans, C., Wolkin, A., Thomas, T. & Peek, L. (2022). Social vulnerability and disasters: Development and evaluation of a CONVERGE training module for researchers and practitioners. *Disaster Prevention and Management: An International Journal*, *31*(6), 13-29. https://doi.org/10.1108/DPM-04-2021-0131

Reciprocity in Research

- Reciprocity in research involves an ongoing practice of reflection, relationship-building, and mutually-beneficial exchange between researchers and partners/participants
- Researchers have an **ethical obligation** to work to produce mutual benefits for the people involved with or affected by the hazards and disaster research process
- The unique context of each study will determine how to engage in reciprocal relationships
- Examples of reciprocity include **compensation**, **training**, **cultural preservation**, and the provision of **research resources** such as the return of data, findings, or other information

Collecting and Sharing Perishable Data

The **context** of perishable data collection introduces unique **ethical challenges** for disaster researchers

Time Pressures and Data Complexity

- Rapid data collection required
- Data unfamiliarity, access, and overload issues

Power and Resource Gaps

- Outside researchers in culturally unfamiliar contexts

Emotional Challenges

- Exposed to widespread damage, destruction, and loss of life
- Witnesses to disproportionate impacts among marginalized populations and newly vulnerable people

Coordination Complications

- Teams must balance the need to collect perishable data while not interfering with emergency response efforts
- Locally-affected colleagues may be disaster survivors and disaster first responders

Collecting and Sharing Perishable Data

- Collecting **perishable data** requires thoughtful attention to our **ethical principles and collective responsibilities**
- A definition of perishable data:

> *Perishable data is highly transient data that may degrade in quality, be irrevocably altered, or be permanently lost if not collected soon after it is generated. Perishable data includes ephemeral information that exists before, during, or after a disaster that, if gathered, can characterize pre-existing hazardous conditions, near-miss or actual disaster events, and longer-term recovery processes. This data may need to be collected at multiple points in time across varying geographic scales to accurately characterize exposure, susceptibility to harm, and coping capacity.*[1]

[1]Adams, R. M., Evans, C. M., & Peek, L. (2023). Defining, collecting, and sharing perishable disaster data. *Disasters* 48(1): e12592. https://doi.org/10.1111/disa.12592

Broader Ethical Considerations

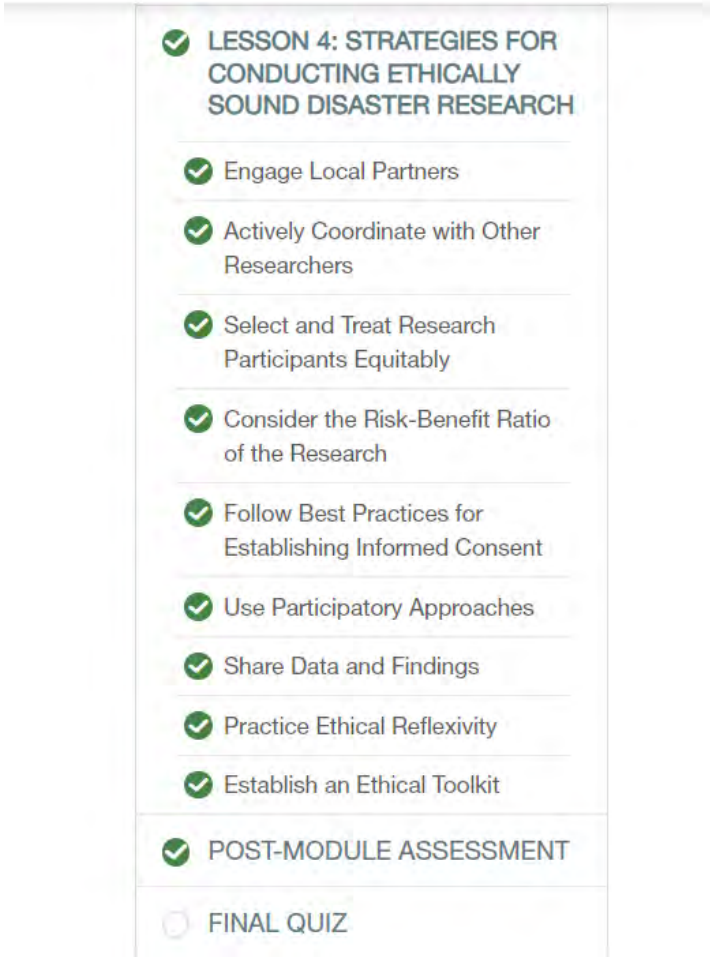
Outside the Purview of the IRB

- IRBs mostly focus on the initial stages of research
- Once a study is initially approved, IRBs only require researchers to outline any deviations from the original protocol and to report any adverse events
- IRBs do not typically require investigators to report on the myriad *ethical dilemmas* that may arise over the longer-term

Evans, C.M., Adams, R. M., & Peek, L. (2024). Ethical considerations for hazards and disaster research. Forthcoming in *Reducing Risks: A WSPC Reference on Preventing and Mitigating Disasters and Dangers—Volume 3: Praxis and Action,* edited by JC Gaillard, M. Rashid, and G. Fernandez. Singapore: World Scientific Publishing, Co.

Broader Ethical Considerations

A Scenario and Strategies for Addressing Ethical Dilemmas



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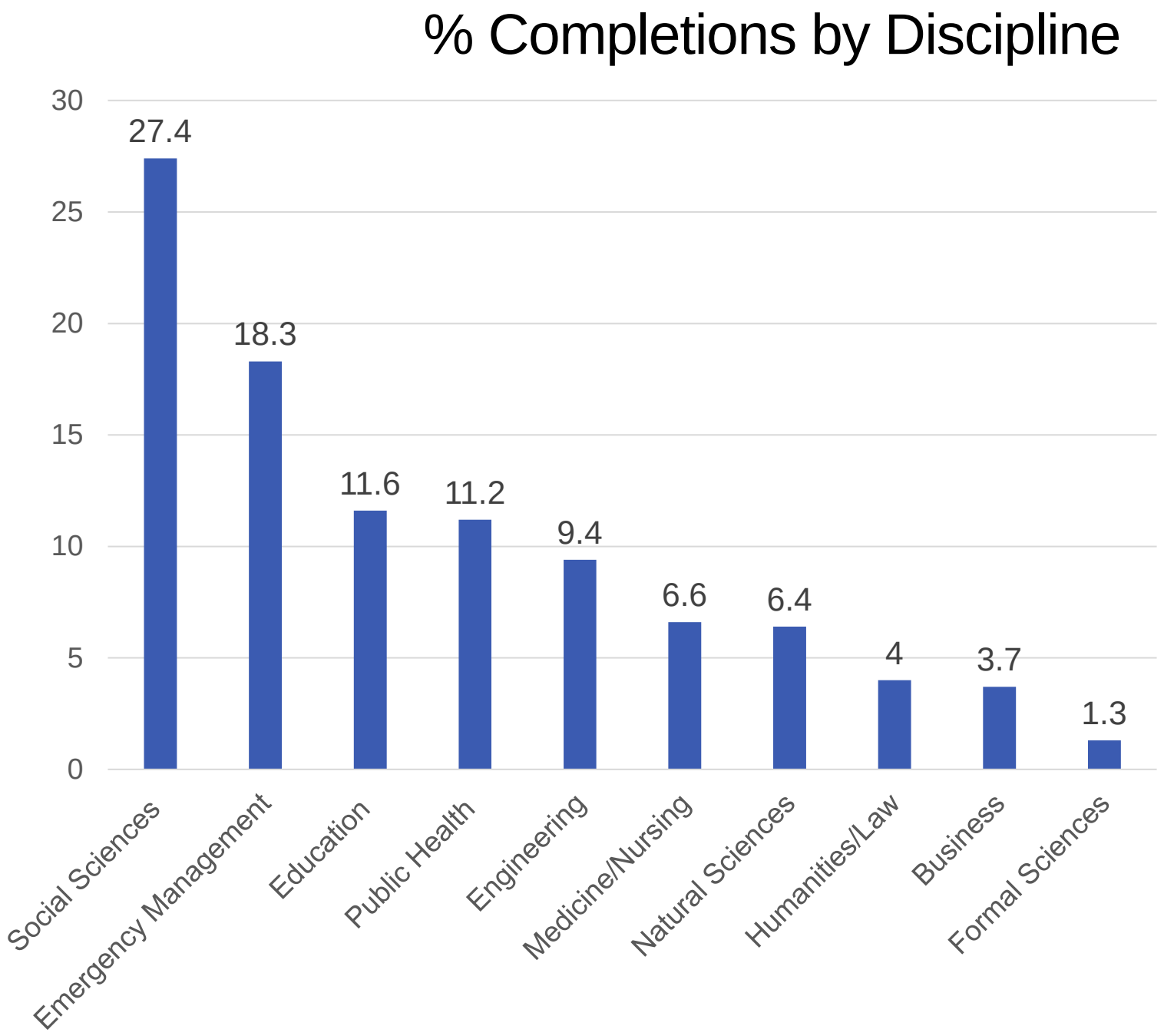
CONVERGE Training Modules: Use and Impact

- **9,067 Training Module Registrants**
- **11,633 Successfully Completed Modules**



Training Module Evaluations

CONVERGE Training Modules: A free online educational tool for hazards and disaster researchers and practitioners

Rachel M. Adams[1]*, Candace M. Evans[2] and Lori Peek[1]

Incorporating Mental Health Research into Disaster Risk Reduction: An Online Training Module for the Hazards and Disaster Workforce

Candace M. Evans [1,*], Rachel M. Adams [2] and Lori Peek [1]

Social vulnerability and disasters: development and evaluation of a CONVERGE training module for researchers and practitioners

Rachel Marie Adams
Natural Hazards Center and CONVERGE, University of Colorado Boulder, Boulder, Colorado, USA
Candace Evans
Natural Hazards Center and CONVERGE, University of Colorado Boulder, Boulder, Colorado, USA and
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Amy Wolkin
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Tracy Thomas
Center for Preparedness and Response, Centers for Disease Control and Prevention, Atlanta, Georgia, USA, and
Lori Peek
Natural Hazards Center and CONVERGE, University of Colorado Boulder, Boulder, Colorado, USA and
Department of Sociology, University of Colorado Boulder, Boulder, Colorado, USA

Evaluation Data:
The Training Modules lead to an increase in **knowledge, skills, and attitudes** – especially among students, early career researchers, and members of historically underrepresented groups

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Additional CONVERGE Resources

CONVERGE TRAINING MODULES
ANNOTATED BIBLIOGRAPHY

CONVERGE Cultural Competence Annotated Bibliography

This annotated bibliography includes resources focused on cultural competence in hazards and disaster research. This bibliography is meant to support those interested in learning more about how to build cultural competence and to complement the CONVERGE Cultural Competence in Hazards and Disaster Research Training Module. These references were compiled through searching Web of Science, Ebscohost, Proquest, and Google Scholar databases. If you identify missing references, please send them to converge@colorado.edu, and we will add them to the list.

Citation

Anderson, M. B., & Woodrow, P. J. (1998). *Rising from the ashes: Development strategies in times of disaster*. Lynne Rienner Publishers.

Abstract

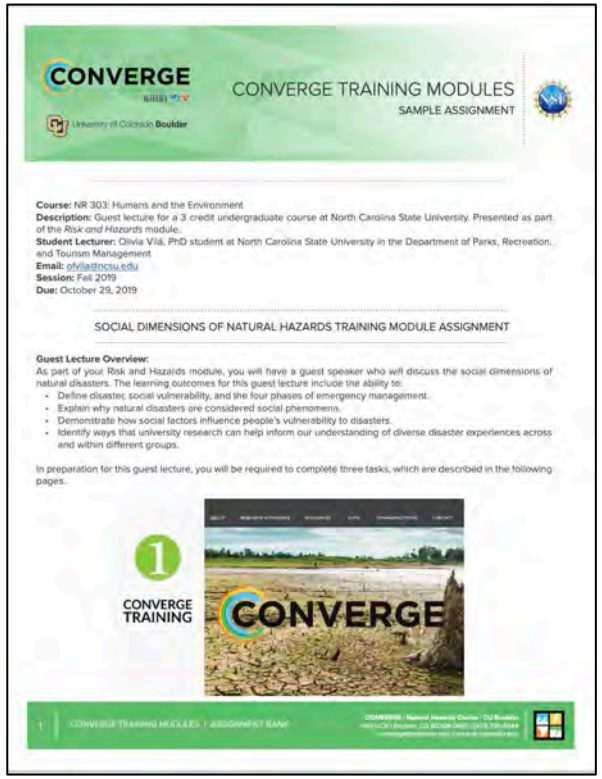
N/A

Citation

Ball, A., Anderson-Butcher, D., Mellin, E. A., & Green, J. H. (2010). A cross-walk of professional competencies involved in expanded school mental health: An exploratory study. *School Mental Health, 2*, 114–124. https://doi.org/10.1007/s12310-010-9039-0

Abstract

Expanded school mental health (ESMH) programs often involve individuals from a variety of professions working together to address student needs evident across school, family, and community systems. Profession-driven differences in philosophies, expectations regarding confidentiality, and graduate training that reinforces isolated rather than interprofessional approaches to working with students, however, represent real challenges to maximizing the potential of ESMH. To address these issues, this exploratory study identified a common set of competencies to support interprofessional practice in ESMH. A total of 51 competencies were identified across seven theme areas, including: (1) Key Policies and Laws; (2) Interprofessional Collaboration; (3) Cross-Systems Collaboration; (4) Provision of Academic, Social-Emotional, and Behavioral Learning Supports; (5) Data-Driven Decision-Making; (6) Personal and Professional Growth and Well-Being; and, (7) Cultural Competence. Mapping of the competencies to existing accreditation and practice standards



CONVERGE TRAINING MODULES
SAMPLE ASSIGNMENT

Course: NR 303: Humans and the Environment
Description: Guest lecture for a 3 credit undergraduate course at North Carolina State University. Presented as part of the *Risk and Hazards* module.
Student Lecturer: Olivia Vilá, PhD student at North Carolina State University in the Department of Parks, Recreation, and Tourism Management
Email: ofvila@ncsu.edu
Session: Fall 2019
Due: October 29, 2019

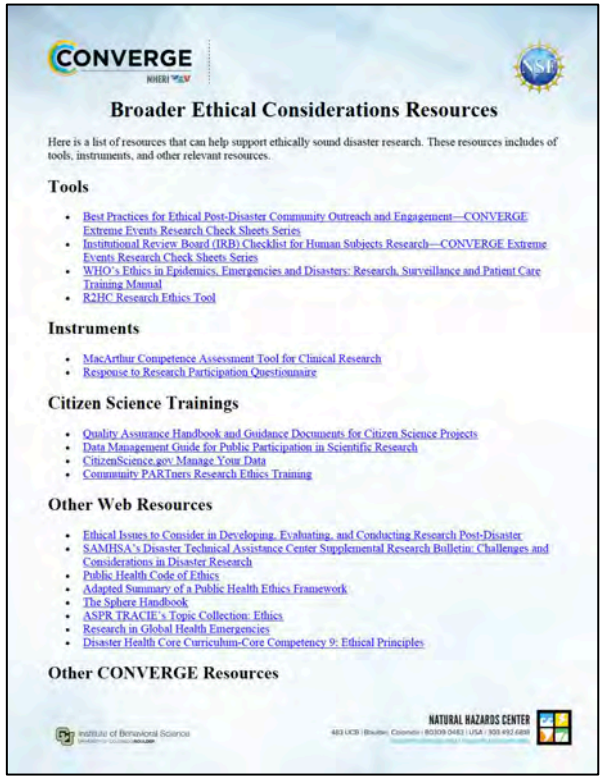
SOCIAL DIMENSIONS OF NATURAL HAZARDS TRAINING MODULE ASSIGNMENT

Guest Lecture Overview:
As part of your Risk and Hazards module, you will have a guest speaker who will discuss the social dimensions of natural disasters. The learning outcomes for this guest lecture include the ability to:

- Define disaster, social vulnerability, and the four phases of emergency management.
- Explain why natural disasters are considered social phenomena.
- Demonstrate how social factors influence people's vulnerability to disasters.
- Identify ways that university research can help inform our understanding of diverse disaster experiences across and within different groups.

In preparation for this guest lecture, you will be required to complete three tasks, which are described in the following pages.

1 CONVERGE TRAINING



Broader Ethical Considerations Resources

Here is a list of resources that can help support ethically sound disaster research. These resources includes of tools, instruments, and other relevant resources.

Tools

- Best Practices for Ethical Post-Disaster Community Outreach and Engagement—CONVERGE Extreme Events Research Check Sheets Series
- Institutional Review Board (IRB) Checklist for Human Subjects Research—CONVERGE Extreme Events Research Check Sheets Series
- WHO's Ethics in Epidemics, Emergencies and Disasters: Research, Surveillance and Patient Care Training Manual
- R2HC Research Ethics Tool

Instruments

- MacArthur Competence Assessment Tool for Clinical Research
- Response to Research Participation Questionnaire

Citizen Science Trainings

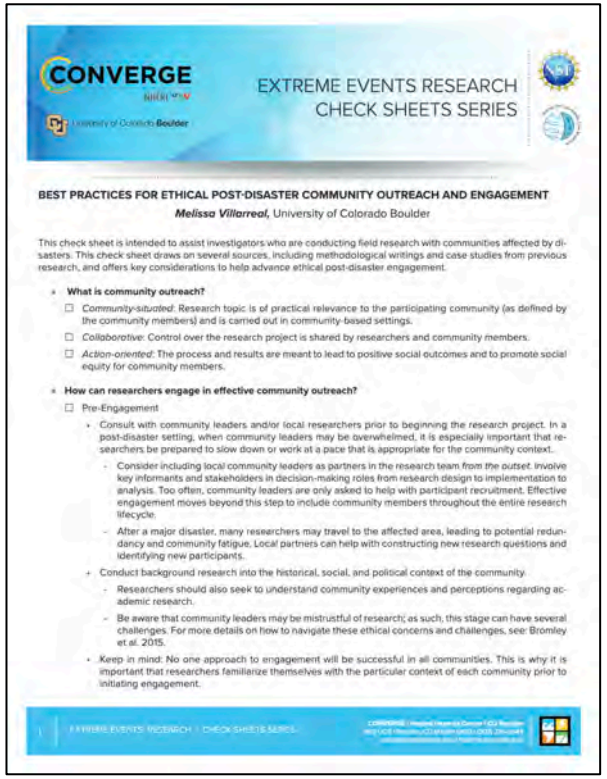
- Quality Assurance Handbook and Guidance Documents for Citizen Science Projects
- Data Management Guide for Public Participation in Scientific Research
- CitizenScience.gov Manage Your Data
- Community PARTners Research Ethics Training

Other Web Resources

- Ethical Issues to Consider in Developing, Evaluating, and Conducting Research Post-Disaster
- SAMHSA's Disaster Technical Assistance Center Supplemental Research Bulletin: Challenges and Considerations in Disaster Research
- Public Health Code of Ethics
- Adapted Summary of a Public Health Ethics Framework
- The Sphere Handbook
- ASPR TRACIE's Topic Collection: Ethics
- Research in Global Health Emergencies
- Disaster Health Core Curriculum-Core Competency 9: Ethical Principles

Other CONVERGE Resources

Institute of Behavioral Science
NATURAL HAZARDS CENTER



EXTREME EVENTS RESEARCH
CHECK SHEETS SERIES

BEST PRACTICES FOR ETHICAL POST-DISASTER COMMUNITY OUTREACH AND ENGAGEMENT

Melissa Villarreal, University of Colorado Boulder

This check sheet is intended to assist investigators who are conducting field research with communities affected by disasters. This check sheet draws on several sources, including methodological writings and case studies from previous research, and offers key considerations to help advance ethical post-disaster engagement.

- **What is community outreach?**
  - ☐ *Community-situated*: Research topic is of practical relevance to the participating community (as defined by the community members) and is carried out in community-based settings.
  - ☐ *Collaborative*: Control over the research project is shared by researchers and community members.
  - ☐ *Action-oriented*: The process and results are meant to lead to positive social outcomes and to promote social equity for community members.
- **How can researchers engage in effective community outreach?**
  - ☐ Pre-Engagement
    - Consult with community leaders and/or local researchers prior to beginning the research project. In a post-disaster setting, when community leaders may be overwhelmed, it is especially important that researchers be prepared to slow down or work at a pace that is appropriate for the community context.
      - Consider including local community leaders as partners in the research team from the outset. Involve key informants and stakeholders in decision-making roles from research design to implementation to analysis. Too often, community leaders are only asked to help with participant recruitment. Effective engagement moves beyond this step to include community members throughout the entire research lifecycle.
      - After a major disaster, many researchers may travel to the affected area, leading to potential redundancy and community fatigue. Local partners can help with constructing new research questions and identifying new participants.
    - Conduct background research into the historical, social, and political context of the community.
      - Researchers should also seek to understand community experiences and perceptions regarding academic research.
      - Be aware that community leaders may be mistrustful of research; as such, this stage can have several challenges. For more details on how to navigate these ethical concerns and challenges, see: Bromley et al. 2015.
    - Keep in mind: No one approach to engagement will be successful in all communities. This is why it is important that researchers familiarize themselves with the particular context of each community prior to initiating engagement.

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THANK YOU

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