



The Influence of National Culture on Effectiveness of Safety Trainings During Post-Disaster Reconstruction

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Agenda

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- ❖ Problem Statement
- ❖ Research Question
- ❖ Training Framework
- ❖ Framework's elements
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 - ✓ Risk perception
 - ✓ Safety climate
 - ✓ Situation awareness

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Introduction

❖ Hazards in post disaster recovery

- ✓ Fall
- ✓ Struck-by
- ✓ Electrocution
- ✓ Caught-in-Between
- ✓ Hazardous materials
- ✓



Introduction

❖ Hazards in post disaster recovery

✓ Fall

- Roof Repair
- Working at elevated platform
- Working on ladder
- Floor opening



Introduction

- ❖ Hazards in post disaster recovery
 - ✓ Struck-by
 - Falling materials
 - Struck-by object, equipment or vehicle



Introduction

❖ Hazards in post disaster recovery

✓ Electrocutation

- Downed or low hanging power lines
- Cranes and Aerial Lifts



Introduction

❖ Hazards in post disaster recovery

✓ Caught-in-Between

- Equipment Rollover
- Chainsaw



Introduction

❖ Hazards in post disaster recovery

✓ Hazardous materials

- Mold
- Carbon Monoxide
- Hydrogen sulfide (H_2S)
- Lead and Asbestos
- Infectious bacterial and viral organisms



Problem Statement

- ❖ A disproportionately high number of workers involved in post-disaster reconstruction are non-English speaking—and specifically Hispanic—workers (Gorman, 2010).
- ❖ As a group, recent immigrant construction workers have lower (Jorgensen et al., 2007):
 - ✓ Rates of health insurance coverage;
 - ✓ Unionization;
 - ✓ Hourly wages; and
 - ✓ Educational levels.



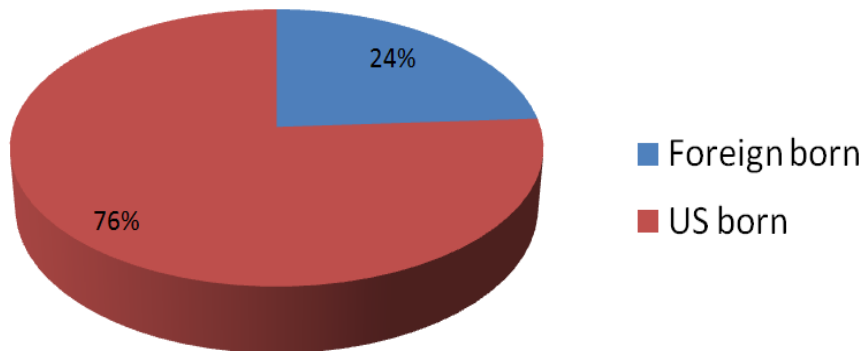
While Hispanic workers made up 34% of construction workers employed, they accounted for 41% of fatalities (*Richardson 2004*).

Problem Statement

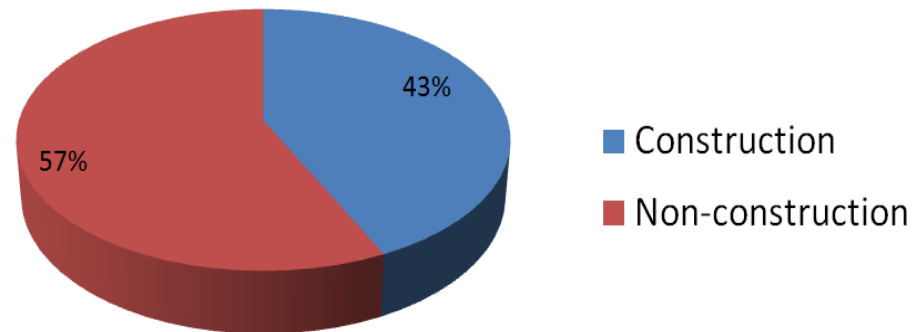
❖ Hispanic workers in the construction industry:

- ✓ Most immigrant construction workers are Hispanic, and many U.S.-born Hispanics also work in construction.
- ✓ Full-time Hispanic workers experienced consistently higher rates of fatality than the full-time non-Hispanic workers (CPWR, 2008).

Construction Workers (U.S. Census Bureau, 2006)



Of the 3,609 Hispanic workers who died between 2004-2006 (CDC, 2008)



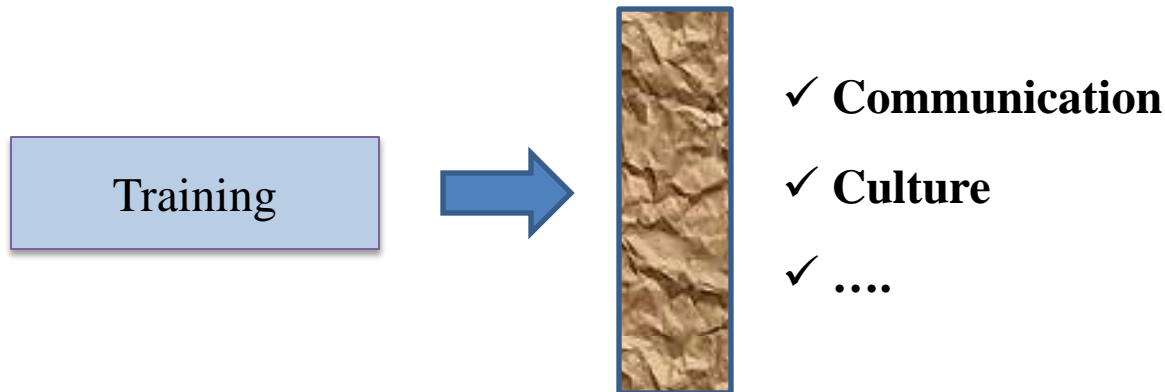
Problem Statement

❖ Higher number of injuries because:

- ✓ ***Communication barrier***: 42% of foreign born Hispanic workers cannot speak English very well (CPWR, 2008; Pew Hispanic Center 2008).
- ✓ ***Variation in Spanish-language***: Multiple variations in Spanish-language patterns across Hispanic/Latino construction workers' varied ethnic and cultural backgrounds.
- ✓ ***Literacy level***: A significant portion of these workers are illiterate even in their own language.
- ✓ ***Cultural barrier***: Typical training in a host country may not be effective in training workers from another country and culture (Albert, 1996; Grieshop et al., 1996; Nixon and Dawson, 2002; Taylor et al., 2000).

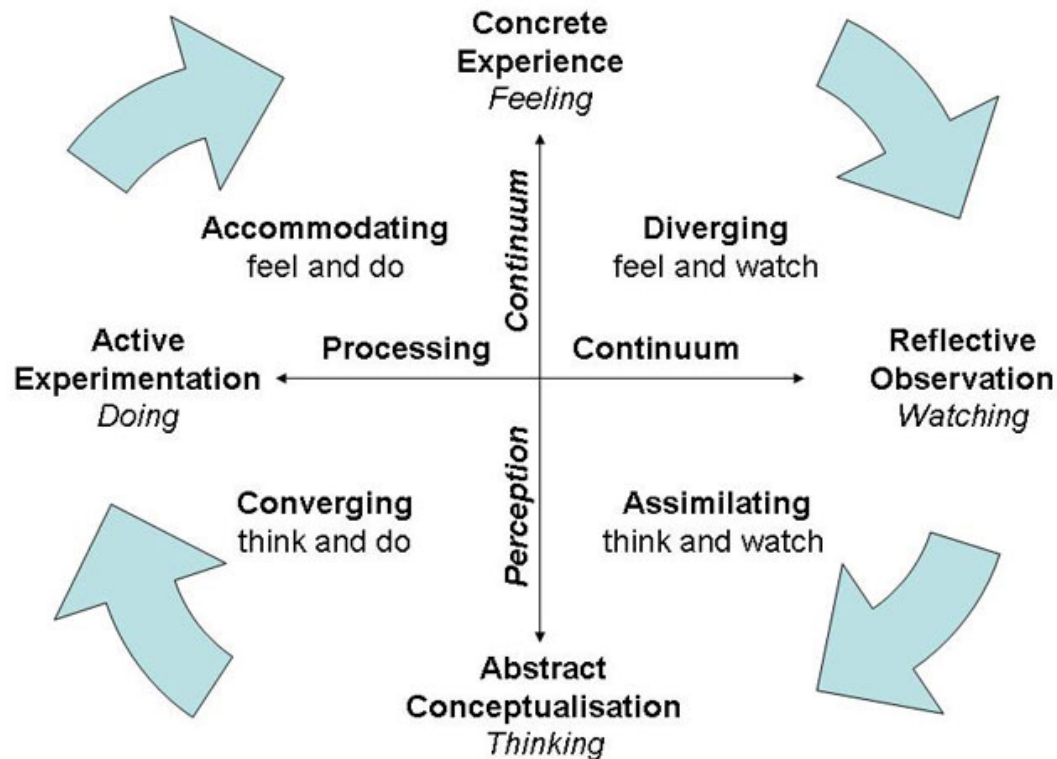
Problem Statement

- ❖ In post disaster recovery, many of these workers are sent into the field prior to any formalized training (Grosskopf, 2007; O'Connor et al., 2005).
- ❖ Translation of English-language materials is not enough for teaching workplace safety to Hispanic construction workers (Evia, 2011).



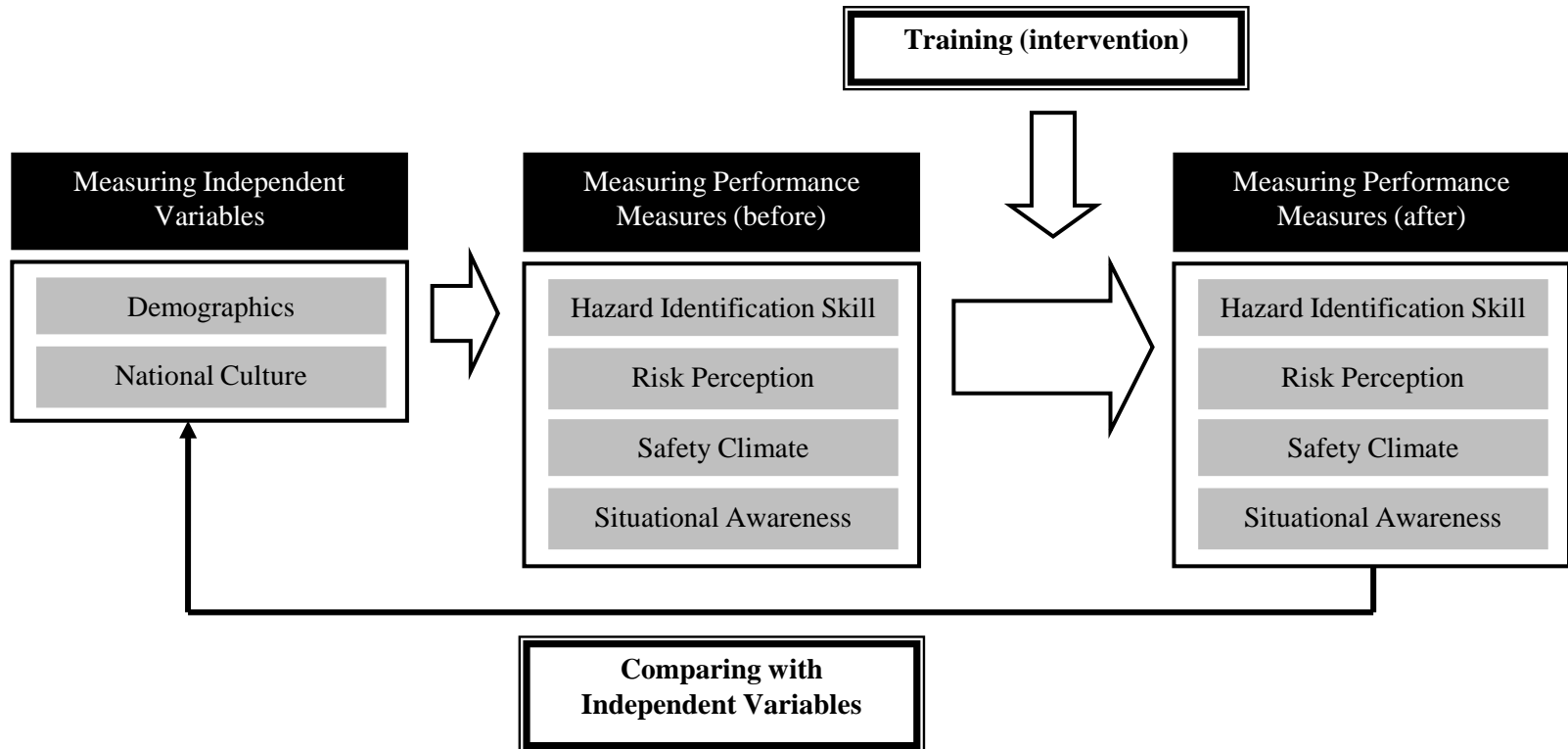
Research Question

❖ Kolb's circle of learning:



Framework

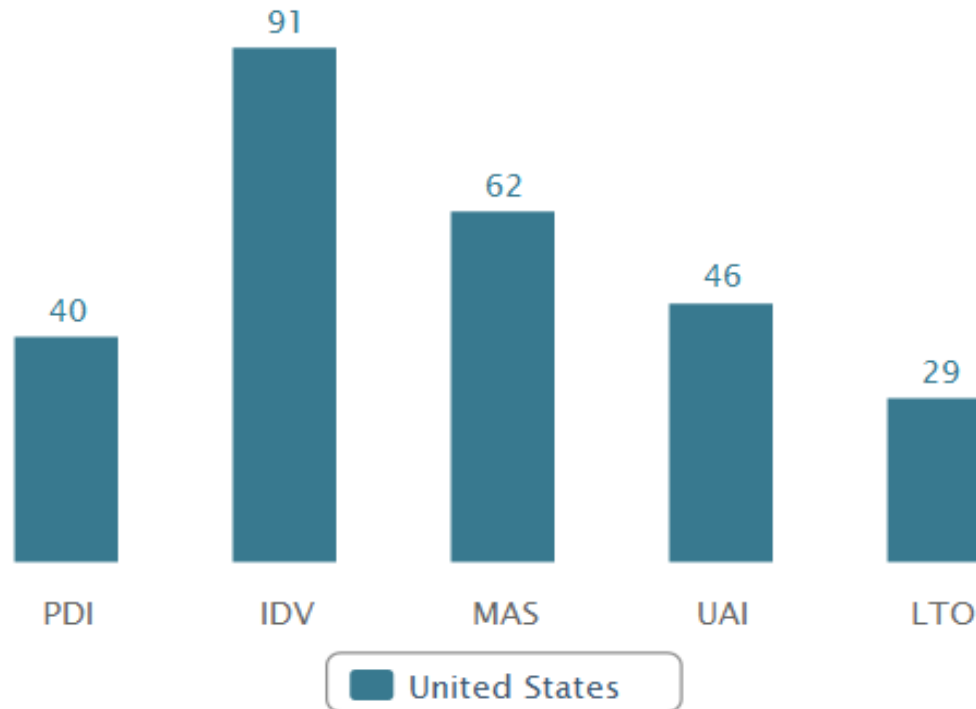
- ❖ To measure the impact of native culture on the effectiveness of safety trainings in post disaster recovery:



Cultural Dimensions

- 1 • Power Distance (PDI)
- 2 • Individualism vs. Collectivism (IDV)
- 3 • Masculinity vs. Femininity (MAS)
- 4 • Uncertainty Avoidance (UAI)
- 5 • Long-term vs. Short-term orientation (LTO)

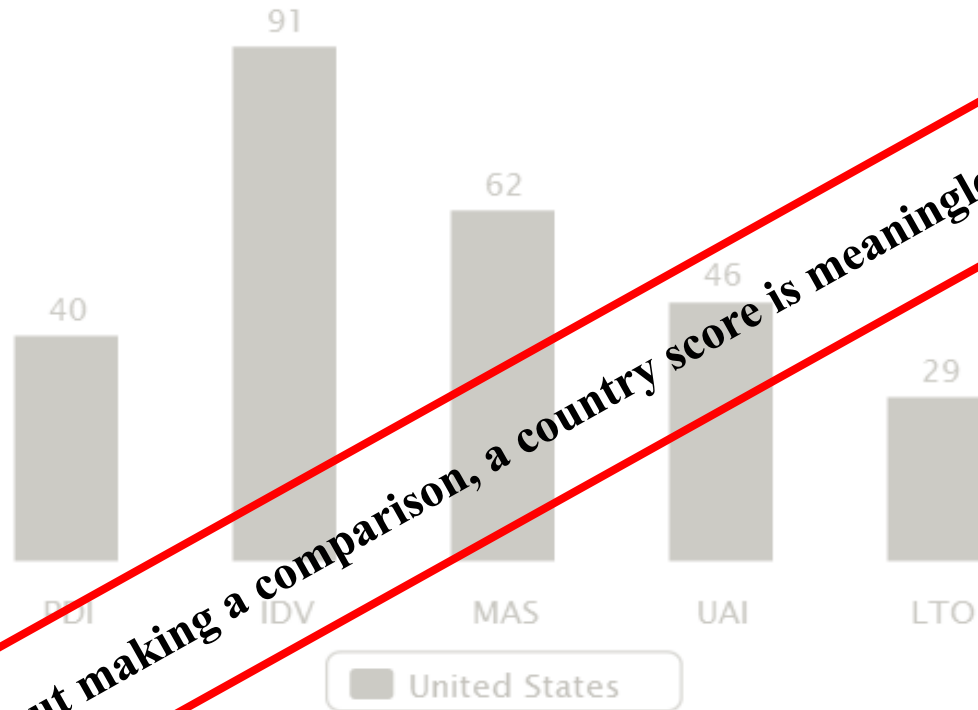
National Cultures: U.S.A.



- ✓ Power Distance (PDI)
- ✓ Individualism versus collectivism (IDV)
- ✓ Masculinity versus femininity (MAS)
- ✓ Uncertainty avoidance (UAI)
- ✓ Long-term versus short-term orientation (LTO)

Source: Hofstede

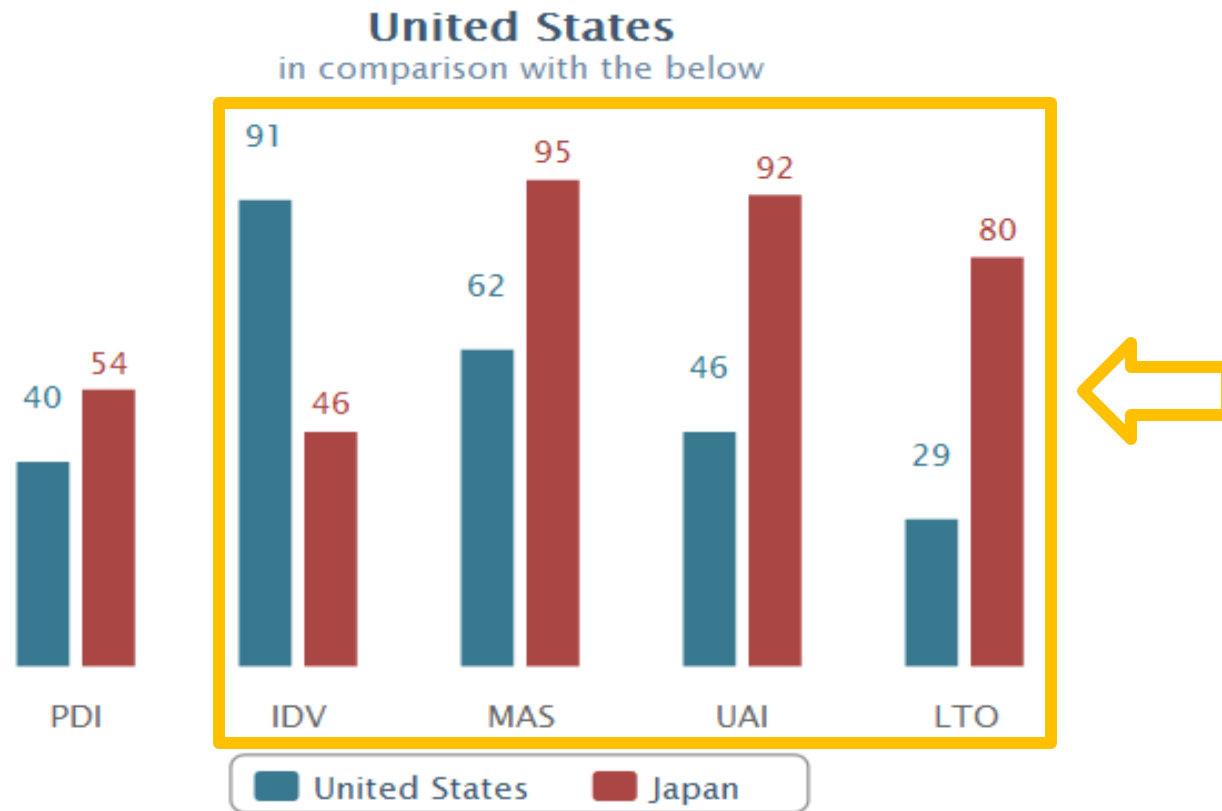
National Cultures: U.S.A.



Without making a comparison, a country score is meaningless.

- ✓ Power Distance (PDI)
- ✓ Individualism versus collectivism (IDV)
- ✓ Masculinity versus femininity (MAS)
- ✓ Uncertainty avoidance (UAI)
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National Cultures: Comparison



- ✓ Power Distance (PDI)
- ✓ Individualism versus collectivism (IDV)
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- ✓ Uncertainty avoidance (UAI)
- ✓ Long-term versus short-term orientation (LTO)

Source: Hofstede

Measuring Effectiveness of an Intervention

Hazard Identification Skills

- ❖ One of the main causes of accidents is poor hazard identification by supervisors and employees (Holt and Lampl, 2006);
- ❖ Working in an environment with latent hazards drastically increases the risk of an incident (Laurence, 2005);
- ❖ 42% of accidents are attributed to inadequate hazard identification (Haslam et al., 2005).
- ❖ Such a poor safety performance stems from the fact that most of the established hazard-identification techniques rely on human judgment.

Measuring Effectiveness of an Intervention

Risk Perception

- ❖ Risk perception is the process by which humans perceive and react to hazards (Mearns and Flin, 1995).
- ❖ There is a strong relationship between risk perception and the unsafe behaviors of construction workers (Fischhoff et al., 1993).
- ❖ Risk perception can be measured using various measures; for example, the following statement may be an indicator of risk perception towards fall risk:

“I find that working with scaffolds that are not totally boarded is hazardous.”

Measuring Effectiveness of an Intervention

Safety Climate

- ❖ A common variable used to forecast safety performance or safe behavior during construction is safety climate.
- ❖ Safety climate is considered as a subset of organizational climate and can be defined as the “*moral perceptions*” that workers share about the importance of safety (Zohar, 1980).
- ❖ Safety climate dimensions can be used to predict a safety program’s effectiveness.

Measuring Effectiveness of an Intervention

Situation Awareness

- ❖ The majority of accidents involving human error can be attributed to situation awareness.
- ❖ Situation awareness is the appreciation of proximate activities and risks, especially in terms of assessing location, responding to expectations, and identifying threats to one's health and safety (Endsley, 1995).

Conclusions

- ❖ Disasters are becoming a major threat to the whole world (*DFID, 2006*).
- ❖ Pre-event and “just-in-time” disaster worker training can dramatically enhance the health and safety of workers involved in these operations (*Reissman and Howard, 2008*).
- ❖ Immigrants, especially Hispanic workers, compose an increasing percentage of the recovery-after-disaster labor force.
- ❖ Hispanic construction workers are typically young, lack English-speaking abilities, are not highly educated, and work in low-skill and high-risk occupations (*CPWR, 2008; Jorgensen et al., 2007; Dong and Platner, 2004; Kouyoumdijan et al., 2003; Anderson et al., 2000*).

Conclusions

- ❖ A framework is developed that can be used to measure the effectiveness of various training materials against the considerations of cultural background.
- ❖ It is expected that the results of the study will lay the foundation for developing culturally-responsive training materials that will enhance Hispanic workers' preparedness to react to a hazard and function safely in post-disaster recovery operations.

Thank you for your time!



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