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

Authors:
Kevin R. Grosskopf, University of Nebraska-Lincoln
Behzad Esmaeili, University of Nebraska-Lincoln
Amy Javernick-Will, University of Colorado

May XXth, 2014
Agenda

- Introduction
- Problem Statement
- Research Question
- Training Framework
- Framework’s elements
  - National culture
  - Risk perception
  - Safety climate
  - Situation awareness
- Conclusions
- References
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
  - Electrocution
    - 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$_2$S)
    - Lead and Asbestos
    - Infectious bacterial and viral organisms
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)**
- 76% US born
- 24% Foreign born

**Of the 3,609 Hispanic workers who died between 2004-2006 (CDC, 2008)**
- 57% Non-construction
- 43% Construction
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).
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:
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.**

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

*Without making a comparison, a country score is meaningless.*
National Cultures: Comparison

- Power Distance (PDI)
- Individualism versus collectivism (IDV)
- Masculinity versus femininity (MAS)
- 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.”
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 \((CPWR, 2008; Jorgensen et al., 2007; Dong and Platner, 2004; Kouyoumdjian et al., 2003; Anderson et al., 2000)\).
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!
References

References


References