

Cultural Critical Incidents in Hazardous Occupations: A Preliminary Exploration

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Abstract. Cultural critical incidents (CCIs;), defined as any events involving an ethnically heterogeneous dyad or group, can be used to identify contributors to disparities in hazard exposures. CCIs characterize the nature of cultural misunderstandings (Smith-Jackson & Essuman-Johnson, 2002), assumptions, stereotypes, or other barriers that contribute to the higher incidence of accidents, injuries, and fatalities among ethnic minority groups in both the USA and abroad. The purpose of this study was to explore CCIs derived from participants in a pilot study who reported their experiences, which were, in turn, analyzed as scenarios (Moggridge, 1993). A social-constructivist research philosophy (Creswell, 2003) drove the analysis of the qualitative data (reports of scenarios). Patterns identified from the pilot study are reported here with preliminary recommendations for application to improve safety in multiethnic work systems.

Keywords. Culture, Safety, Minorities, Multi-ethnic work systems.

1. Introduction

1.1 Culture and the Workforce

Cultural heterogeneity within countries around the world will continue to impact the design of work systems. In the USA, by the year 2030, the majority of the workforce will be predominantly ethnic minorities and women (Lerman & Schmidt, 1999). The challenges, therefore, are complex and multidimensional, since the nature of the differences will influence different facets of the work system, including worker relationships, human-system interaction, and safety and risk. There is a strong need to focus on sociocultural factors within sociotechnical systems. As human factors researchers, and specifically, macroergonomists, we have not focused on the psychosocial implications of cultural conflict for workplace safety, efficiency, or quality of work life.

Previously, the focus of multi-ethnic work system design was to “colonize” workers, such that all workers conformed to the mind-set of the cultural or organizational majority. This approach has been found to undermine quality in aviation, for example, where all pilots are trained to conform to a homogeneous aviation culture (Mumaw & Holder, 2002) and in the performance of multinational military teams (Pierce, 2002). Most importantly, colonizing or “westernizing” diverse workers is the antithesis of our human factors practice, and attempting to modify cultural worldviews may be neither realistic nor desirable.

1.2 Diversity and Disparities

Studies of diverse cultures within organizations have determined that ethnically or nationally diverse workers tend to create a sense of culture within the dominant culture. For example, Dahles & Van Hees (2004) found that Dutch and German firefighters in a transnational cooperative partnership did not develop an internationalized cultural perspective, but maintained and imposed their individual cultural worldviews on the organizational setting. Likewise, given the emphasis on multiculturalism in the USA, it is well-known that different cultural groups identify strongly with their cultures of origin, while functioning with some success within the larger, dominant culture, which consists mainly of European-Americans (Berry & Poortinga, 1992; Fowers & Richardson, 1996; Verkuyten, 2005).

Despite the fact that the USA values multiculturalism to a large extent, a number of disparities exist, such that ethnic minority workers are more likely to be injured or die on the job due to work-related accidents (Grieshop, Stiles, Villanueva, 1996; Janicak, 1996; Karasek and Theorell, 1990; Lundberg, 1999; Thorbjornsson et al., 1999). Certainly, the fact that ethnic minorities are more concentrated in highly hazardous occupations in the USA, accounts for some of the disparities. When compared across similar occupations, there are still disproportionately more injuries and deaths among ethnic minorities, namely African-Americans and Hispanic-Americans/Latinos.

1.3 Purpose and Research Approach

The pilot study described here is the beginning of an exploration of the potential inter-cultural phenomena within multiethnic work systems that may undermine safety. It is part of a larger study to qualitatively and quantitatively model culture-based risk mental models, which may help to describe, explain, and predict culture-based cognitive schemas that workers use to make judgments about risk, recognize hazards, and to make decisions regarding prevention and precautions. This study was designed to identify cultural critical incidents, defined as safety-related events that involve an ethnically heterogeneous worker-supervisor interaction (for example, an African-American worker and European-American supervisor).

2. Methods

2.1 Participants

Participants were recruited using advertisements in newspapers, flyers, and by contacting neighborhood community centers. Participants who contacted the research team were screened by phone to determine eligibility for the study. In order to participate, the following criteria had to be met:

- Employment in a hazardous job.
- Must have a supervisor who is not from the same ethnic group.
- Must self-identify as African-American, Latino, or European-American.
- Must have experienced a safety-related incident within the past year that was believed to be related to or caused by cultural differences.

Eight participants were selected for the initial pilot interviews, and consisted of 6 African-Americans, 1 Hispanic-American, and 1 European-American. Mean age of the sample was 27.13 ($SD = 10.18$, range 19 – 47). Five were females and three were males. The mean number of months participants were employed in the hazardous job associated with their cultural critical incident was 12.63 ($SD = 15.17$, range = 1 – 48 months).

2.2 Questionnaires

Questionnaires were selected to identify levels of acculturation and three beliefs relevant to safety. We used the Multigroup Ethnic Identity Measure (MEIM) to measure acculturation, or the degree to which an individual identifies with their culture of origin (Phinney, 1992). The MEIM has been shown to reliably measure a unidimensional identity construct across several different ethnic groups including European-Americans. Safety-related beliefs were measured using true Likert scale formats for the following constructs: safety attitudes/self-efficacy (Grau et al., 2002), safety climate (Zohar, 1980) and organizational inclusion (Hayes, 2003). Sample items are shown below.

Safety self-efficacy: I am confident that I can skillfully use equipment and safety devices.

Safety climate: My supervisor seriously considers any workers' suggestions for improving safety.

Employee Participation/Inclusion: I am empowered to make improvements related to my job.

2.3 Procedure

Interviews were conducted at locations most convenient to the participants. After informed consent was provided, participants were given a brief demographic questionnaire and were then given the MEIM and safety-related questionnaires. A semi-structured interview format was used to elicit specific information about participants' cultural critical incidents. Pre-planned prompts were also developed for each interview question to enhance understanding. Each interview question or prompt was followed by an improvised probe if necessary (question used to elicit more detail or clarification). After interviews were completed, participants were thanked and compensated for their participation.

3. Results

3.1 Overview

The results reported here are descriptive only. The European-American participant reported a homogeneous interaction (majority worker and majority supervisor). Content analysis of each of the cultural critical incidents was conducted.

3.2 Quantitative Results

SAS was used for analysis of the quantitative data. Participants' mean for years of education was 13.38 ($SD = 3.20$; range was 10 – 20 years; one participant had an advanced graduate degree). The MEIM scores were summed across items and the mean ethnic

identity subscale score was 2.97 ($SD = .52$) out of a possible 4.00 maximum score. The ethnic identity scores ranged from 1.77 – 3.38, with the lowest ethnic identity score reported by the European-American participant. Although there is only one data point for the European-American participant, a lower ethnic identity score reflects higher acculturation. Minority participants' scores reflected relatively lower levels of acculturation (stronger ethnic identity and lower identification with the majority group), and ranged from a minimum of 2.77 to 3.38. Mean scores for safety related constructs are shown in Table 1.

Spearman-rho correlations of the ethnic identify subscale and the safety related items were conducted to explore possible relationships between level of acculturation, safety-related attitudes, and other factors. Again, the sample is small and sensitive to impacts of variance and other estimates. Table 1 summarizes correlations that showed some interesting patterns, although only education and self-efficacy correlated significantly with ethnic identify.

Table 1. Spearman-rho correlation summaries.

Construct	Mean (SD)	Correlation with Ethnic Identity (df and p-value)
Education	13.38 (3.20)	$r_s(6) = -.70, p = .05$
Safety Self-Efficacy	4.00 (.18)	$r_s(6) = -.77, p < .05$

Of interest is the trend between education, safety self-efficacy, and ethnic identity. Higher education was associated with lower ethnic identity scores, or higher acculturation. This is consistent with previous research. Higher safety self-efficacy scores were associated with lower ethnic identity. In other words, the more acculturated participants (stronger identifiers with the majority group, therefore lower ethnic identity) tended to report higher self-efficacy. Again, it must be noted that these are preliminary trends and support further exploration.

3.3 Qualitative Results

The types of jobs represented in the sample were: sales associate in a tire company, greenhouse worker, grocery store stocker/cart worker, sewer (sewing factory), production worker, electrician, fast food worker, dump truck operator, and a heavy equipment operator. Injury types included back injuries, skin rashes from exposure to pesticides/herbicides, miscarriage due to lifting tires, punctured finger, slips and falls, cuts and bruises.

Content analysis was used to extract general themes from the interviews. No a-priori hypotheses were used to isolate themes, given the exploratory nature of this research. Themes are reported that were mentioned by at least 3 participants. Using the 3-or-more criterion, four global themes emerged. The themes are listed in Table 2 with paraphrased examples from the interview responses. Sample quotes that were assigned to specific themes (in Table 2) are shown here:

Participant, female, 25: *Racism. You can't get around it. A lot of workplaces have people with biased opinions. This gets in the way of production. I feel exploited.*
Participant, male, 19: *When it was time to get off at 11 or 12, they told us we had to stay*

over to get the carts. They told us to do this (African-Americans) more than the whites. When I saw all of that take place, I stopped caring about the job.

Table 2. Themes emerging from the preliminary content analysis results.

Theme	Description	Example
Biased treatment	European-Americans were treated more favorably on the job compared to minorities.	EA workers were assigned less hazardous jobs within the overall work area.
		Minority workers were more often assigned to second or third shifts, despite desire to work first or day shifts.
Inequities in safety training or prevention.	Minority workers were not trained regarding hazards and/or were not given the proper safety equipment.	Minority worker was not given gloves or any other protective equipment.
		Workers were not provided with any safety training.
Racism in the workplace	Supervisors or co-workers with racist attitudes.	Supervisors had racist attitudes or discriminated on the basis of race/ethnicity.
		Supervisors tolerated racism or biased behaviors and did not intervene.
Negative attitudes	Minority workers' attitudes would become negative due to perceptions of bias or racism.	Minority worker developed attitude of 'not caring' after witnessing unfair treatment.
		Worker became angry, resentful; felt exploited.

The European-American worker did not report a cultural-critical incident, and also reported that the main cause for accidents was “clumsiness” or workers not following the proper procedures. This worker also admitted himself that he did not follow all safety procedures.

4. Discussion and Conclusions.

As stated previously, this study is a sub-set of a larger study to model important factors that contribute to overall safety and risk attitudes with an emphasis on modeling inter-cultural factors that result from heterogeneous work systems. We are continuing to collect data. The preliminary results here were used to assist in restructuring our data collection instruments and strategies to better elicit the sometimes subtle cultural conflicts that may contribute to safety problems.

The finding that safety self-efficacy was somewhat associated with ethnic identity is worth continued exploration. More statistical conclusion validity will be found with a larger sample. The qualitative data from the interviews were more revealing of the inter-cultural conflicts, or at least workers' perceptions of intercultural conflicts. The themes

reveal issues that certainly require an examination of organizational culture and climate (as well as safety culture and climate). But, the themes in and of themselves do not seem to contribute to injuries directly. We plan to further examine the indirect path from cultural critical incidents to injury outcomes to identify best practices for equitable safety environments, which can then be used to reduce or eliminate injury disparities.

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