



# Exploring fundamental causes of safety challenges faced by Hispanic construction workers in the US using photovoice



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## ABSTRACT

The US construction industry has long been responsible for a high injury and fatality rate. Within this dangerous industry, Hispanic workers are 45% more likely to be injured or killed than their non-Hispanic counterparts. Previous researchers have examined reasons for these disproportionate injury rates but past literature is spurious, fragmented, and incomplete. To address these limitations an in-depth study was launched to explore the perceived challenges that impact the safety of Hispanic construction workers. The primary data collection method was Photovoice, a photograph-based interview process that allows each participant to be the generator of their own data. The results of Photovoice interviews with 17 Hispanic workers in Colorado indicate that, compared with non-Hispanic workers, Hispanic workers perceive that they are: (1) susceptible to an internal pressure to complete work quickly and neglect safety based on their experiences in their home country; (2) assigned more dangerous tasks because of racism and discrimination; (3) more willing to accept dangerous work for fear of losing their jobs and ability to support extended family; (4) less likely to provide feedback to their supervisors and co-workers for fear of negative personal reactions; (5) more likely to be distracted by family issues while at work because of their strong and broad family ties; (6) more likely to ignore criticism because of machismo; (7) more likely to underreport injuries for fear of losing their jobs; and (8) less likely to ask for safety assistance when it is needed because of pride.

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## 1. Introduction

Construction is one of the largest and most dangerous industries in the United States. In 2010 the industry contributed to 3.5% of the total gross domestic product and, in the same year, employed 7% of the U.S. workforce (Center for Construction Research and Training, 2013). According to the U.S. Bureau of Labor Statistics (2012), the construction industry accounted for a total of 802 fatalities in the most recent census. This is the lowest annual count ever recorded; however, construction still resulted in more fatalities than any other industry. In terms of non-fatal injuries resulting in days away from work, the construction industry ranked third among all major industries with a rate of 149.6 recordable injuries per every 10,000 full-time equivalent workers (Center for Construction Research and Training, 2013). Moreover, construction workers generally take longer to recover from injuries than workers in other industries. Specifically, the 2010 rate of cases requiring a full month or more away from work was 50 per 10,000

full-time employee whereas the rate was only 30 per 10,000 full-time employees for the all-industry average.

Unlike other industries where processes are streamlined and outcomes are relatively stable, the construction industry has a project-based, dynamic, and transient nature. Work conditions are never the same between projects, the final product is always different, the type of work required is varied, the labor force is very diverse, and there is a high degree of turn-over (Fang et al., 2006). This mixture of characteristics contributes to the disproportionate injury rate in construction.

Within this high risk industry, data reported by the Center for Construction Research and Training (2013) shows that the fatality rate for Hispanic construction workers was, on average, 48% higher than for non-Hispanic workers. This disproportionate injury rate is compounded by the fact that the proportion of Hispanic construction workers has been increasing in the last two decades. Recent census data show that the number of Hispanic construction workers has tripled between 1990 and 2010, rising from 705,000 to 2.2 million workers (Bureau of Labor Statistics, 2012). This increase has resulted in a situation where Hispanic workers are majorities in the construction industry in states such as

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New Mexico (representing 57% of the workforce), Texas (55%), and Colorado (48%). In addition, the Hispanic population in the US is expected to double from 53.3 million in 2012 to 128.8 million in 2060 while the non-Hispanic white population is expected to peak by 2024 at 199.6 million. The disproportionately high injury rate for Hispanic workers, compounded with the expected increases in the proportion of Hispanic workers, is a critical concern for construction safety management. Thus, research is needed to identify factors that may contribute to disproportionate injury rates for this demographic.

The objective of this research is to capture the behaviors, interpersonal relationships, biases, perceptions of authority, emotional reactions to safety situations, and other factors that relate to the cultural distance between Hispanic and non-Hispanic workers. We aim to address the disparity in injury rates by better understanding the specific safety implications of cultural differences on construction sites. For the first time, we derive knowledge from the Hispanic population directly without using preconceived notions. New safety interventions specific to the Hispanic population may be created with this increased knowledge.

## 2. Literature review

Studying the factors that influence the safety of Hispanic construction workers requires a thorough review of prior research. Additionally, research on the effects of varied national cultures helps to identify probable cultural differences between the Hispanic and the non-Hispanic cultures. For consistency it is important to define the demographic populations of interest. Here, Hispanic workers are broadly defined as those workers whose ethnicity can be directly traced to Spanish or Spanish-speaking countries of origin. In the US construction industry, these workers are primarily Mexican. Alternatively, we classified non-Hispanic US workers as defined predominantly as White workers who are descendants of European countries. Although this is not the predominant definition of 'non-Hispanic,' we avoided the use of the term White because there are many workers discussed as non-Hispanic who are European, African American, and Asian. Thus, the term non-Hispanic here refers to the Hispanic workers' co-workers who were not of Hispanic descent.

The following sections describe the literature related to cultural differences between Hispanic and non-Hispanic workers and factors that drive Hispanic safety issues such as culturally-influenced behaviors, work assignments, language and communication, and other factors. This literature is then used to frame the intellectual and practical contributions of the present research across multiple knowledge domains.

### 2.1. Cultural differences – Hispanic vs. non-Hispanic workers

The concept of multi-national culture, defined as the group programming of the mind that is acquired by long-term childhood exposure to a particular country, has been widely studied and several theories and frameworks have been developed (Hofstede, 1980, 2001; Lenartowicz and Roth, 1999; Soares et al., 2007). Among these frameworks, Hofstede's (1980, 2001) cross-cultural analysis has been widely validated and is the most generalizable. Initially, Hofstede (1980) included four dimensions and in subsequent revisions (e.g., Hofstede, 2001) included new dimensions because culture is dynamic. Most recently, he has used 116,000 surveys from over 60,000 respondents in 70 countries and revised the model to define country-specific indexes for the following six cultural dimensions: power distance, uncertainty avoidance, individualism, masculinity, pragmatism, and indulgence. It should be noted that Hofstede's index is not an objective metric or indicator

as an index is traditionally defined. Rather, it is an indicator of the extremity of the qualitative cultural differences. Also, since the scale is subjective and qualitative in nature, the actual metrics on the Hofstede scale are not objectively meaningful. It should also be noted that the descriptions in Table 1 of the various cultural dimensions should be reviewed with caution because culture is dynamic.

The index does allow for cross-country cultural comparisons and the estimation of cultural distance. Table 1 provides a definition of each relevant cultural dimension, a description of the predominant characteristics of Mexican culture and US culture for each dimension, and Hofstede's subjective index score. Although all Latin American countries are represented in the US construction workforce and are represented in Hofstede's model, Mexico was selected to illustrate cultural distance for brevity and because it is the country of origin for the vast majority of Hispanic workers in the US. Also, Mexico is representative of Latin American countries in all salient cultural dimensions.

Despite the geographical proximity of the US and Mexico, there are vast differences in cultural norms. For example, when compared to the US, Mexicans: (1) have a much higher power distance index than the U.S., which in organizational settings reflects a strong discomfort with challenging perceived authority; (2) are more collectivist, which reflects the importance of the direct family and the extended family; and (3) are less accepting of uncertainties than the U.S. and, as result, are more likely to have trouble accepting new ideas. Such differences suggest that there is a mismatch between Hispanic and non-Hispanic workers' cultures that could translate into construction safety challenges.

There has been some criticism of the use of Hofstede's cultural dimensions indexes for numerical and statistical comparisons between countries (Canales et al., 2009). Critics argue that culture cannot be summarized into these five categories because culture is such a broad concept that has multiple definitions, some of which go beyond what these five represent. However, Hofstede's theory still represents a well-cited framework that can be used as a starting point to develop research questions and a point of departure. In this study, we attempt to collect data independent of these dimensions but make comparisons to Hofstede's dimensions in the interpretation of results and formation of conclusions.

### 2.2. Hispanic construction worker safety

In addition to understanding cultural distance between Hispanic and non-Hispanic workers, researchers have explored the consequences of cultural distance on behavior, communication, work assignments, and other factors that impact construction safety.

#### 2.2.1. Culturally-influenced behaviors

Many authors suggest that the high fatality and injury rates among Hispanic construction workers are influenced by behavioral differences between Hispanic workers and their White counterparts (Brunette, 2004; Farooqui et al., 2007; Lavy et al., 2010; Menzel and Gutierrez, 2010). Farooqui et al. (2007) conducted root cause analyses of workplace injuries among Hispanic construction workers and found that many Hispanic construction workers are fearful of authority. An example implication of this phenomenon is the observed trend of Hispanic workers not requesting adequate personal protection equipment (PPE) when needed for fear of retaliation from their employers (Farooqui et al., 2007). Menzel et al. surveyed 30 union and non-union Hispanic workers and found corroborating evidence. Their findings also suggest Hispanic workers underreport injuries. Finally, Smith et al. (2006) observed *familismo*, which is related to the strong family ties displayed by many Latin American cultures. An example of the effect of

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