Building Safety Culture with Latino and Non-Latino Construction Workers

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Introduction

Drs. Gilkey and Lopez del Puerto explore the challenges of safety in construction and the role of cultural competency toward improved safety culture, safe work practices and reducing injury and illness on the job. The National Occupational Research Agenda (NORA) has stated goals pertaining to construction in our area of interest: NORA Construction Sector strategic goal 8.0: Increase understanding of factors that comprise both positive and negative construction safety and health cultures, and expand the availability and use of effective interventions at the policy, organizational, and individual level to maintain safe work practices 100% of the time in the construction industry. Intermediate goal 8.1: Create a working definition and framework for construction industry safety and health culture, and improve understanding of the factors that contribute to a positive or negative safety and health culture in the construction industry. Intermediate Goal 8.2: Develop and expand the use of validated measurement methods for evaluating safety culture and safety climate in the construction industry; and Intermediate Goal 8.3: Partner with construction stakeholders to develop and disseminate effective intervention measures for improving safety and health culture in the construction industry.[1]

Construction jobsites are some of the most dangerous workplaces. According to the Bureau of labor statistics, in 2008 there were 1005 fatalities resulting from construction accidents.[2] In recent years, the construction industry has experienced a large change in demographics. The number of Latinos in the U.S. has increased steadily to comprise 25% of the construction industry.[3] According to the Center for Construction Research and Training, in 2006, there were nearly three million Latino construction workers.[4] The language and cultural barrier between Latino construction workers and their supervisors contributes to creating unsafe and unhealthy work environments.[5] Latino construction workers are twice as likely to get injured on the jobsite than non-Latino construction workers.[3] Due to the large number of Latino construction workers, cultural and language barriers between Latinos and non-Latinos are a growing concern, particularly with regard to jobsite safety. Overcoming language barriers is not enough to improve jobsite safety; self-awareness and cultural awareness are equally important for achieving aptitude in inter-cultural communication. Understanding of the culture is needed for a safer performance at the worksite.[6]

There is a strong link between risk perception and safety culture and the presence of safe work practices and good conditions versus unsafe behaviors and dangerous environments.[7-9] Safety climate and culture are about the company framework and interaction between organization and individuals, shared values and beliefs about safety in the workplace, and the resulting expectations, perceptions and behaviors.[10] Investigators have found that management concerns, safety related activities and employee risk perception are key indicators of safety culture on construction sites.[3] Furthermore, many Latino construction workers are undocumented, which influences many aspects of the workers' lives including feelings about lack of security at the job and willingness to work in unsafe conditions.[11] Research has been carried out to investigate those contributors to worksite safety and how safety climate and culture impact overall safe working conditions, behaviors and work practices on construction sites.[9, 12] There exists mounting evidence suggesting that management policies, procedures, and commitment to safety greatly influence the safety climate and culture on worksites. Research has also demonstrated that safety climate and culture are inversely correlated with injury and illness rates.[9, 13, 14] More precisely, the higher the safety climate and better the safety culture, the lower the injury and illness rates are likely to be. Organizational culture can be thought of as "the interaction between the organization and individuals,"[10] containing both formalized structure and direction from the top down[15] Top-level managers create policies, procedures, programs, budgets, and provide for personnel, equipment, and training and, in doing so, create the culture of the company. Company leaders create organizational infrastructure, establish hierarchy of managers, provide resources, and deploy their policies and procedures, thereby setting the tone for day-to-day priorities, work safe behaviors, adherence to safety standards, and the consequences of non-compliance. Safety climate results from the enacted policies and procedures related to safety and the employee's perceptions and assumptions about the real priorities and consistency of management policies and procedures and their application for day-to-day business and decision making, particularly by frontline supervisors when company goals are competitive. For example: Do we work faster to meet production goals and established deadlines and bypass safety procedures, or do we work safely, miss deadlines, and suffer penalties?

Safety climate has been described as a sub-component of safety culture by previous researchers.[10, 16-18] Zohar and Luria[18] stated that, "the core meaning of climate, relates to socially construed indications of desired role behavior, originating simultaneously from policy and procedural actions of the top management and from supervisory actions exhibited by the shop-floor or frontline supervisors," Climate and culture exist simultaneously and thus are influenced from the bottom up, and top-down interactions and perceptions may vary in relation to one's level within the organization. Key factors in evaluating safety culture and climate include eight recognized facets of organizational behavior and structure: 1) management commitment to safety, 2 and 3) organizational status of safety officer and safety committee, 4) successful safety training, 5) level of risk at the workplace, 6 and 7) effect of safe conduct on social status and promotion within the organization, and 8) effects of required work pace on safe work practices.[10, 19] Zohar [9] reviewed the literature and found that 202 studies had been published on the evaluation of safety climate in numerous work environments over a span of 30 years and that a preponderance of evidence had demonstrated that a relationship existed between safety climate criteria and injury and illness outcomes. He also stated that safety climate measures are leading indicators of injury and illness to come and that leadership can change and improve safety climate and thus reduce injury and illness in the workplace.[9]

We contend that Latino workers' documentation status, language, education and cultural differences may preclude or degrade safety activities such as instructions for safe work practices, effective safety meetings and training, and/or correct operations of equipment needed to perform their job. We believe that is it these factors result in misperceptions of risk and alternate safety climates for Latino workers in construction that lead to them being twice as likely to be injured on the jobsite as non-Latino workers. Latino workers typically come from Latin American countries where construction safety practices are equivalent to those in the U.S. before the establishment of OSHA. Even though government agencies in Latin American countries have regulations regarding safety practices in construction, in reality, these regulations are hardly ever enforced. In Mexico and throughout Latin America, Latino construction workers are often accustomed to working in unsafe conditions where the goal is to get the projects done on time and under budget, disregarding safety. This environment is exacerbated by the cultural code of "machismo," which discourages these workers from complaining about unsafe conditions. In addition, Latino construction workers often lack trust in government agencies and have limited English proficiency. This makes them less likely to request necessary safety and health training, to use personal protective equipment and/or to report unsafe conditions. These factors make for poor workplace culture that doesn't support protection for the Latino workers and may increase risk for injury among all workers. Compounding the problem is the limited or lack of formal education that most Latino construction workers have received and their lack of understanding of English written materials or instructions. This often makes the traditional approach to safety education ineffective at best. For example, Latino construction workers can easily grasp the consequences of not being tied-off and falling from a building. Educating Latino construction workers about less obvious topics such as the health hazards of silica and the consequences of developing silicosis because of not wearing respiratory protection equipment is particularly difficult and challenging. Some of the most effective forms of transmitting messages and capture attention of workers with limited written skills are moving pictures, and non animated cartoons.[5]

The Colorado Home Builders Association of Metropolitan Denver (HBA) collaborated with the Occupational Safety and Health Administration (OSHA) Region VIII to develop the intervention HomeSafe pilot program.[20] The HomeSafe pilot program and the contents of the HomeSafe Pocket Guide were comprehensively reviewed in previous publications.[20-22] This study included evaluation of multiple parameters of work practices in residential construction, program adoption, [20-22] and outcomes.[23, 24] One facet of this study included the evaluation of safety culture and risk perception among this cohort, leading investigators to recognize that differences did exist among management and workers when evaluating measures of safety culture and risk perception, and that differences also existed between Latino and non-Latino workers.

Methods
Using a similar survey instrument adapted from the Safety Culture and Risk Perception Survey developed for HomeSafe, we administered the survey to 341 construction workers in the residential, commercial and heavy civil sectors in Northern Colorado. Our sample included 219 Latino workers and 122 non-Latino subjects representing all three sectors of construction: 124 in residential, 105 in commercial and 110 in heavy civil. Analysis and evaluation included comparisons between major ethnic groups: Latino vs. non-Latino and by sectors. Analysis of variance was used for comparing means between groups for construction ethnicity and sector.

Results and Discussion

Our findings suggest that significant differences (p < 0.05) do exist in the education, beliefs, perceptions, and activities relating to safety climate and culture on multicultural construction sites in Colorado. We compared differences and similarities between types of construction and the Latino and Non-Latino workers (see Table 1).

Table 1 - Safety Culture Survey Responses, Latino vs. Non-Latino

Survey Question	Overall Mean	95% L-CI	95% U-CI	Latino Mean (n)	95% L CI	95% U-CI	Non-Latino Mean (n)	95% L-CI	95% U-CI	P-Value
Highest educational grade level?	2.33	2.16	2.50	1.9 (219)	1.77	2.10	3.04 (122)	2.69	3.39	<0.00
The risk level of my job concerns me quite a bit	3.59	3.44	3.74	3.87 (212)	3.68	4.05	3.11 (122)	2.87	3.36	<0.00
At my company, work productivity and quality usually have a higher priority than work safety	2.92	2.75	3.09	3.1 (211)	2.88	3.32	2.61 (122)	2.36	2.86	<0.01
Management places most of the blame for an accident on the injured employee.	3.04	2.90	3.19	3.22 (211)	3.03	3.41	2.74 (122)	2.90	2.96	<0.01
"Near misses" are consistently reported and investigated at our company.	3.56	3.42	3.71	3.69 (212)	3.51	3.88	3.34 (122)	3.10	3.57	0.02
Many first-aid cases in my company go unreported	2.62	2.46	2.78	2.81 (211)	2.59	3.02	2.3 (122)	2.07	2.54	<0.01
Most employees in my company would not feel comfortable if their work practices were observed and recorded by a coworker.	3.41	3.26	3.57	3.73 (204)	3.54	3.91	2.88 (119)	2.64	3.13	<0.00
Team work and collaboration are encouraged to reduce safety hazards	4.45	4.35	4.55	4.53 (204)	4.40	4.66	4.3 (119)	4.14	4.46	0.03
Some safety rules and procedures are difficult to understand.	2.91	2.74	3.07	3.07 (204)	2.85	3.29	2.63 (119)	2.38	2.88	0.01
The dangers present on construction sites cannot cause my death or the death of others	2.66	2.45	2.87	2.87 (183)	2.61	3.13	2.26 (95)	1.92	2.60	<0.01

We believe that the results from this study enhance the understanding of factors that comprise safety culture and provide insight into methods for improving that culture, safe work behaviors and ultimately reductions in injury rates among construction workers in Colorado and across the nation. The results also address those differences between Latino and non-Latino workers that may contribute to increased risk of injury and death of Latino workers. Most significant of the findings suggest that Latino workers may find safety training difficult to understand (Latino mean 3.07 vs. non-Latino mean 2.63). This is likely due to language barriers and lack of information in their native tongue. Latino workers also perceive that company priorities are higher on the production rather safe work methods and procedures (Latino mean 3.10 vs. non-Latino mean 2.61). Latino workers appear to perceive less risk about the dangers of their job and the hazards of construction sites (Latino mean 2.87 vs. non-Latino mean 2.26). This may be related to the machismo nature of this culture and precipitate unnecessary risk-taking on the part of workers.

The confirmation of differences seen in our research has lead investigators to develop an intervention strategy planned for 2011-2012 to reduce those differences between ethnicities and build cultural competency in a multicultural construction site. This line of research addresses the need for intervention research-to-practice to enhance communication about safe work practices between Latino and non-Latino construction workers and supervisors. We believe that this will

lead to improved workplace and organizational culture that supports good work safe choices to reduce the disproportionate risk and injury burden suffered by the Latino minority group and provide safer work conditions for all workers. Our first specific aim is to enhance awareness, understanding and insight about the Latino and Anglo cultures, and expectations relating to the construction worksite. Our approach will be achieved by developing a cultural assessment, awareness and education enhancement program targeted to Latino and Anglo construction personnel and supervisors. We believe that this strategic process will build capacity to (1) value diversity, (2) conduct self-assessment, (3) manage the dynamics of differences, (4) acquire and institutionalize cultural knowledge and (5) adapt to diversity in the cultural contexts of construction workplaces and lead to improved safe work practices and conditions positively reducing risk and injury among all workers.[25] Our second specific aim is to enhance oral communication between Spanish- and English-speaking construction workers and supervisors. Our approach to the second aim will be addressed by providing construction personnel with basic training necessary to improve jobsite safety communication by teaching job-specific Spanish to non-Spanish speaking construction personnel and job-specific English to Spanish-speaking construction personnel. We will use an effective product developed by Command Spanish [26] to teach basic construction language communication skills through a collaborative learning model where Latino and non-Latino workers are paired together for lesson plans. This provides the opportunity for one-on-one interaction for relationship building as well as language skills development.

We have received approval from the Human Research Board (Campus IRB) at Colorado State University and identified a community partner to conduct a series of focus groups to develop and refine a cultural competency assessment tool, cultural awareness information, and pilot cultural competency and communication training. Our final work product from focus groups will be used to develop our intervention that will be administered to 15 Latino and 15 Anglo construction workers and supervisors in the Denver metro area. Impacts will be assessed using pre, post and follow-up surveys. The employer's loss data will be evaluated for changes in injury incidence and severity rates following training. As suggested by the NORA[1] we will emphasize the integration of formative development, implementation with the evaluation of the impacts using Latino and non-Latino construction workers in guided discussions, focus groups, surveys, and loss data review.

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