

EVOLVING CONCEPTS OF RISK

Justifying Safety Communication in a High-Hazard, Intercultural Industry

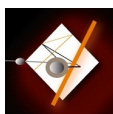
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The Occupational Safety and Health Administration's (OSHA's) Susan Harwood Training Grant program produces safety training aimed at workers in many industries, but the construction industry is an area of focus for the program due to the high risk of injury or death for its workers. This risk is significantly higher for Hispanic or Latinx construction workers, making effective safety training for these workers even more important. This article analyzes the effectiveness of the strategies used to justify this training: many of the strategies suggest a desire to frighten workers into safe behavior, rather than an understanding of what will encourage them to pay attention. These ineffective strategies include fatal accident statistics from construction jobsites, images of dead or dying workers, and newspaper articles about unusual fatal accidents on jobsites. More effective strategies include focusing on more common situations, such as non-fatal accidents that can prevent the worker from going to work, or on a judicious use of appropriate humor. The article also recommends ways in which technical communicators can contribute to discussions of risk communication within this and other programs.

Keywords. Construction safety, Risk communication, Hispanic and Latino workers, Intercultural communication.

Since its establishment in 1971 as part of the Occupational Safety and Health Act (OSH Act), the Occupational Safety and Health Administration (OSHA) has sought to create and maintain safe working conditions for workers in the United States. Despite the advances made since the agency was established, workers in certain industries remain at high risk for workplace fatalities. One such industry is construction, which relies on an international and intercultural workforce. In 2014



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(the most recent year for which statistics are available), 933 U.S. construction workers died in workplace accidents; this number represents 19.3 percent of the 4,821 total workplace deaths in all industries for that year (Bureau of Labor Statistics, 2015).

Construction is an even more dangerous industry for its Hispanic or Latinx workers. In 2014, 27.3 percent of all construction workers in the United States were Hispanic or of Latinx ethnicity (Bureau of Labor Statistics, 2015). The risk of workplace death for these construction workers is 40% to 80% higher than for their non-Hispanic and Latinx peers, and their risk of nonfatal work-related injuries is 30% higher (Dong, Wang, & Daw, 2010). These increased risks have been attributed to a number of factors, including language barriers, ineffective or nonexistent safety training, and unsafe working conditions, such as increased work hours or failing safety equipment (McGlothlin, et al., 2009; Dong, Wang, & Daw, 2010; Forst, et al., 2013). Hispanic and Latinx construction workers themselves report that they feel more pressure to perform quickly to ensure supervisors' completion bonuses, as well as pressure against reporting unsafe working conditions (Roelofs, et al., 2011); workers considered these issues to be more problematic than language barriers, although they noted that lacking literacy in either English and Spanish could pose safety issues. In addition, workers had mixed feelings about the efficacy of safety training; *good* training could create safer jobsites, but the overall belief was that training could get in the way of earning a living, and employers did not truly support training.

The industry's most defining characteristic, and potentially the most dangerous for its intercultural workforce, is its "quasifirm" model (Eccles, 1981): although the industry includes large contractors who can take on sizable projects, it primarily consists of smaller¹, specialized contractors. These contractors partner with each other in configurations that can change with every project, although some contracting relationships are relatively stable. For construction laborers, this quasifirm structure results in employment instability: much of the workforce may be hired by the project, by the month, or even by the day. Such instability means that exposure to safety training can be spotty: Construction workers may not experience the push for training that usually exists in more permanent

organizations (Egbu, 2000). Even contracting companies that encourage and provide access to safety training for more permanent workers may not enable the same kind of training for project-specific workers.

Given these factors, OSHA has made the industry an area of focus within its training and outreach (Occupational Safety and Health Administration, 2010). Even so, problems remain with the organization's training, particularly training deliverables created through its Susan Harwood Training Grant (SHTG) program. The SHTG program is potentially the most far-reaching construction-focused training initiative from OSHA: its training materials are published on the SHTG program website, which is itself part of the larger OSHA website, and are available to the public for free download and adaptation. Public availability means that smaller construction companies, which may not be able to access formal training through the other options provided by OSHA (e.g., the agency's Training Institute and regional Education Centers), can provide training to their workers. Such flexibility is in keeping with the SHTG program's mandate to develop effective safety training for workers and employers in small, new, or high-hazard businesses, particularly for hard-to-reach groups such as young workers and limited-English-proficiency workers.

In this article, I analyze construction safety training deliverables created by 28 grantees of OSHA's SHTG program. In doing so, I respond to the following research questions: How effectively do the SHTG construction safety deliverables justify safety training to their intended, intercultural audiences using risk information?

Rhetorical Concepts of Risk

Safety training processes and products within the construction industry historically adhered to a risk analysis-based, "just the facts" model of risk communication. In this model, experts would communicate the numbers, the facts, or the statistics to audience members, and they would immediately be persuaded of the problem and alter their behavior (Fischhoff, 1995). However, this model obscures the rhetorical nature of the choices made by a risk

communicator to present certain facts or statistics while avoiding others. Furthermore, as Fischhoff (1995), Reynolds (2011), and others argue, these approaches are rarely sufficient to convince relatively homogenous audiences, much less intercultural audiences. Addressing construction safety training using rhetorical approaches, such as those found within technical and intercultural communication, permits a more nuanced understanding of the SHTG program training deliverables. Doing so also provides guidance for future SHTG program grantees as they develop their own construction-focused training deliverables.

Scholars within technical communication argue for rhetorical risk communication as both a critical and ethical endeavor that positions communicators as advocates for the audiences of risk communication (Grabill & Simmons, 1998; Killingsworth & Palmer, 1998; Scott, 2003). Building on these calls to become advocates, other researchers have assessed *how* technical communicators can in these roles for vulnerable risk communication audiences. Blythe, Grabill, and Riley (2008) argue for community involvement and leadership in all stages of developing risk communication, suggesting that the communicator's role is closer to that of a facilitator of the community's ideas. Sauer (1993; 1998; 2003) focuses on how occupational risk communication evolves as it incorporates workers' embodied knowledge. Her work also acknowledges the strains that workers in high-hazard industries experience: they are frequently pushed to perform more, better, faster, under increasingly poor conditions. These strains contribute to the hazards that the workers experience, and heighten the need for effective training that understands the workers' lived experience.

In the absence of effective official risk communication, community members will seek alternative sources of information, which may or may not be accurate (Frost, 2013; Ding, 2014). Within the construction industry, workers will look to their coworkers or supervisors for information about how to behave safely (Burns & Conchie, 2013). While these sources of information can be accurate, they may also be influenced by their own lived experiences on the job, which can distort the information that is shared. Some of these "guerilla rhetorics" may also be co-opted or obscured by outside communicators, creating another

point of potential tension for communities affected by a risk (Frost, 2013). Given the challenges associated with information sources, risk communication is a “wicked problem” that requires ongoing attention from a number of stakeholders (Wickman, 2014), particularly members of affected communities.

Key here is the need to establish trust among experts, communicators, and communities. Trust is a complicating factor within risk communication; it is easily lost, but immensely difficult to build or regain (Kelly, et al., 2015). Further, once trust is lost, any hope of developing effective risk communication is also lost. Interactions among communicators and audiences can build—or destroy – trust. Waddell (1995) explores multiple models of communication with audience, and argues that a top-down, communicator-to-audience model is both most common and least likely to create effective risk communication. Stratman, et al. (1995), Katz and Miller (1996), and Simmons (2007) confirm and extend many of these ideas, exploring how the rhetoric of risk communication produced by governmental agencies can constrain and alienate its audiences. Even when governmental agencies seek feedback from their audiences, that feedback is frequently dismissed or not included in final communication products. However, when academics and government agencies partner with community members throughout a risk communication process, they are more likely to incorporate that feedback; further, the resulting product is frequently rated as more effective (Haynes, et al., 2011). If audience perspectives on any risk communication process and product are affected by members’ previous interactions with risk communication processes and products, as Haas & Frost (2017) argue, then it’s unsurprising that audiences would be more likely to trust communicators with previously established inclusive processes.

Recently, technical communication scholars have positioned risk communication as an inherently intercultural process. Viewing risk communication processes and products through the lens of a single culture ignores the complexity of any potential audience and lessens the potential effectiveness of those products (Ding, 2014). Even within a single city or state, for example, communicators must communicate with individuals representing multiple cultures (Frost, 2013). Drawing on participatory design research, technical communication

researchers have argued that professionals who are communicating with an intercultural audience should partner with representatives of those cultures to ensure that their communications are accurate and culturally relevant (Evia & Patriarca, 2012). Doing so can build and maintain the trust that is vital to effective risk communication. However, such partnerships can be time-consuming and expensive; as a result, many government agencies (and many academics) remain reluctant to invest in them.

Creating a “need to learn”: Justification strategies in the SHTG program

One significant way to connect with workers in safety training is to persuade them that the training is worthy of their attention. For the SHTG program deliverables, this persuasion takes the form of justification strategies at the beginning of the safety training. Even though the SHTG program does not explicitly require justification strategies, they are crucial to the success of the training information that follows, because they are the method by which trainers position the construction jobsite as a risky place that requires a particular form of safe behavior. As the introduction noted, this persuasion can be a significant hurdle for the trainers to overcome with the workers. Workers report sitting through safety training that is unrelated to the risks they actually face on the job (Roelofs, et al., 2011), or they do not trust that the trainer has expertise in construction safety or with construction jobsites (Burns & Conchie, 2013). Justification strategies can thus establish the ethos of both the trainer and the safety training by associating the trainer and training with situations experienced on the construction jobsite.

Even when workers recognize the jobsite as risky, industry and cultural factors may limit workers from behaving in ways that mitigate their jobsite risk. For example, many Latinx or immigrant workers are less confident than white, U.S.-born workers that they can take safety precautions that will mitigate their on-the-job risk (Smith-Jackson, Wogalter, & Quintela, 2010). These researchers argue that these workers feel less in control of their work environment in part

because their employment on the jobsite is tenuous due to the industry's quasifirm structure and, if they are immigrants, due to that status. As a result, they feel compelled to take significant risks, such as rushing through tasks without taking safety precautions, in an effort to be perceived as valuable workers to their supervisors. For these workers, then, they may perceive that a jobsite is physically risky, but they feel unable to accept the economic risks² associated with avoiding the physical risks. Justification strategies must either persuade workers that the physical risks either outweigh the economic risks associated with safe behavior, or that they come with their own economic risks that outweigh the others.

Justification strategies must also respond to the discomfort that construction workers may feel when they are positioned as workplace learners through the training (Barnett, 1999). The imperative for this particular workplace learning comes from the institution rather than the individual; that is, the “need to learn,” which Kyndt, Dochy, and Nijs (2009) argue is vital to a successful experience for workplace learners, may not exist prior to the SHTG training. Thus, these early slides must establish a “need to learn” that resonates with these workers.

Methods

In this study, I analyze construction safety training deliverables created by grantees of OSHA's SHTG program. In doing so, I respond to the following research question: How effectively do the SHTG construction safety deliverables justify safety training to their intended, intercultural audiences using risk information? Specifically, I analyzed construction safety training deliverables available on the SHTG program website from August 2010–August 2016. These deliverables were created by 28 grantees from 2006–2014, with four grantees receiving funding in multiple funding cycles:

1. Southwest Safety Training Alliance (2006):
https://www.osha.gov/dte/grant_materials/fy06/46j6-ht13.html

2. Associated General Contractors of America (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16593-07.html
3. Central New York Council on Occupational Safety and Health (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16586-07.html
4. Construction Safety and Health (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16600-07.html
5. Indian River Community College (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16589-07.html
6. Maysville Community and Technical College (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16597-07.html
7. University of Florida (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16595-07.html
8. University of Maryland Fire and Rescue Institute (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16582-07.html
9. University of Puerto Rico, Medical Sciences Campus (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16596-07.html
10. University of Texas at Arlington (2007):
https://www.osha.gov/dte/grant_materials/fy07/sh-16580-07.html
11. Associated Builders and Contractors - Central Texas Chapter (2008):
https://www.osha.gov/dte/grant_materials/fy09/sh-19499-09.html
12. Compacion³ Foundation (2008 & 2010):
https://www.osha.gov/dte/grant_materials/fy08/sh-17792-08.html &
https://www.osha.gov/dte/grant_materials/fy10/sh-20843-10.html
13. National Association of Homebuilders Research Center (2008 & 2010): https://www.osha.gov/dte/grant_materials/fy08/sh-17787-08.html & https://www.osha.gov/dte/grant_materials/fy10/sh-20995-10.html
14. National Safety Council (2008):
https://www.osha.gov/dte/grant_materials/fy08/sh-17041-08.html
15. Rocky Mountain Masonry Institute (2008):
https://www.osha.gov/dte/grant_materials/fy08/sh-17793-08.html

16. Construction Safety Council (2009):
https://www.osha.gov/dte/grant_materials/fy09/sh-19495-09.html
17. Philadelphia Area Project on Occupational Safety and Health (2009):
https://www.osha.gov/dte/grant_materials/fy09/sh-19487-09.html
18. Trimmer Foundation (2009):
https://www.osha.gov/dte/grant_materials/fy09/sh-18802-09.html
19. University of Nevada, Las Vegas (2009):
https://www.osha.gov/dte/grant_materials/fy09/sh-19506-09.html
20. Miami Dade College, Kendall Campus (2010):
https://www.osha.gov/dte/grant_materials/fy10/sh-20832-10.html
21. University of Alabama (2010):
https://www.osha.gov/dte/grant_materials/fy10/sh-21006-10.html
22. University of Medicine and Dentistry of New Jersey, School of Public Health (2010 & 2011):
https://www.osha.gov/dte/grant_materials/fy10/sh-21005-10.html &
https://www.osha.gov/dte/grant_materials/fy10/sh-21005-10.html
23. Worker's Defense Project (2010 and 2011):
https://www.osha.gov/dte/grant_materials/fy10/sh-20838-10.html &
https://www.osha.gov/dte/grant_materials/fy11/sh-22319-11.html
24. Hispanic Contractors Association de San Antonio (2011):
https://www.osha.gov/dte/grant_materials/fy11/sh-22298-11.html
25. State Building and Construction Trades Council of California (2011):
https://www.osha.gov/dte/grant_materials/fy11/sh-22310-11.html
26. University of Washington (2011):
https://www.osha.gov/dte/grant_materials/fy11/sh-22317-11.html
27. West Virginia University Research Corporation (2011):
https://www.osha.gov/dte/grant_materials/fy11/sh-22248-11.html
28. Brazilian Immigrant Center (2014):
https://www.osha.gov/dte/grant_materials/fy14/sh-26299-sh4.html

These 28 grantees are the only ones with residential construction industry-focused deliverables on the SHTG program website⁴. Their inclusion on the website

suggests that the SHTG program endorses these deliverables as being worthy of publication and re-use. Further, these grantees represent a range of successful grantee types: 12 institutes of higher education, 10 construction industry organizations (some of which involve laborers in addition to contractors), and six independent nonprofits focused on workers' rights and safety.

Each grantee's training documentation is available via the SHTG program website, <http://www.osha.gov/dte/sharwood/index.html>. Although the grantees produced multiple kinds of deliverables, including train-the-trainer manuals and recruitment posters, I focus here on the PowerPoint slide decks. These PowerPoint slide decks are the primary deliverables supporting the grantees' construction safety training, and they are the sole documents that include justification strategies. Trainers also use the slide decks as visual aids to supplement the oral instruction; in many cases, slides within the slide also drive activities that support learning (e.g., quizzes, case studies, group discussion, and role play). As a result, these slide decks are key to understanding how the grantees present risk information to their audiences. The 28 construction safety grantees produced the following slide decks:

- 79 English-language PowerPoint slide decks
- 45 Spanish-language PowerPoint slide decks
- 5 PowerPoint slide decks in other languages or dialects (including Portuguese and Creole)

As these numbers indicate, not all grantees created translations of their slide decks. In addition, when grantees created translations, these versions were often simplistic translations of the English-language version. These translated materials appeared exactly the same, whether that was culturally effective or not; worse, text in some slide decks was roughly or even inaccurately translated.

After selecting the deliverables on which to focus, I coded each slide deck to account for how its creators use jobsite risk information to justify safety training to the deliverable's audience. The SHTG program's grantee guidance documents implicitly encourage, but do not require, using justification strategies; however,

instructional design and training literature indicates that adult learners learn best once they understand *why* they must learn certain information (Kyndt, Dochy, & Nijs, 2009). Specifically, I examined how the concept of a “risky jobsite” was presented to justify safety training to the construction workers through images, numbers, and/or text. As the previous sections indicate, these justification strategies are key elements of any safety training, particularly training within a high-hazard, intercultural industry such as construction.

Each slide was coded to account for the presence or absence of justification strategies using images, numbers, and/or text. Because justification strategies appear early in any training, I limited this initial coding to the first 15% of each slide deck. When grantees created multiple slide decks, I coded each deck’s early slides to determine if the grantees chose to create overall justification strategies, or whether they decided to justify each module. This first coding stage also allowed for the development of preliminary content categories, including statistics, case studies of accidents, and images of unsafe jobsite situations. These early categories were refined and expanded into five final categories based on the source and purpose of the justification strategies. These categories are discussed in depth in the following section.

Findings

Coding indicated that justification strategies were very important to the SHTG program grantees, even though the program does not require this type of content. Only three of the 28 grantees—Central New York Council on Occupational Safety and Health, Construction Safety and Health, University of Medicine and Dentistry of New Jersey’s School of Public Health (in their 2011 deliverables)—include no justification strategies in their materials, preferring to leap straight into the training itself. The remainder of the grantees included at least one slide to justify construction workers’ attendance at the training sessions.

The justification strategies used by SHTG program grantees in their training deliverables can be organized into five categories:

29. Statistics of injuries and/or fatalities
30. News articles or case studies of recent accidents
31. Images of injured, dying, or dead workers (or other images signifying death)
32. Images of workers in unsafe situations
33. Images of family or culturally relevant details

Some grantees' slide decks—and even some slides—combine at least two categories of justification strategies. Furthermore, grantees that developed multiple, shorter slide decks focused on single topics were highly likely to include justification strategies with each deck. This could be attributed to the structure of the training sessions; if the training is conducted during lunches or other breaks, then workers could be receiving the training with days or weeks in between. Thus, they would likely need brief reminders about the necessity of training.

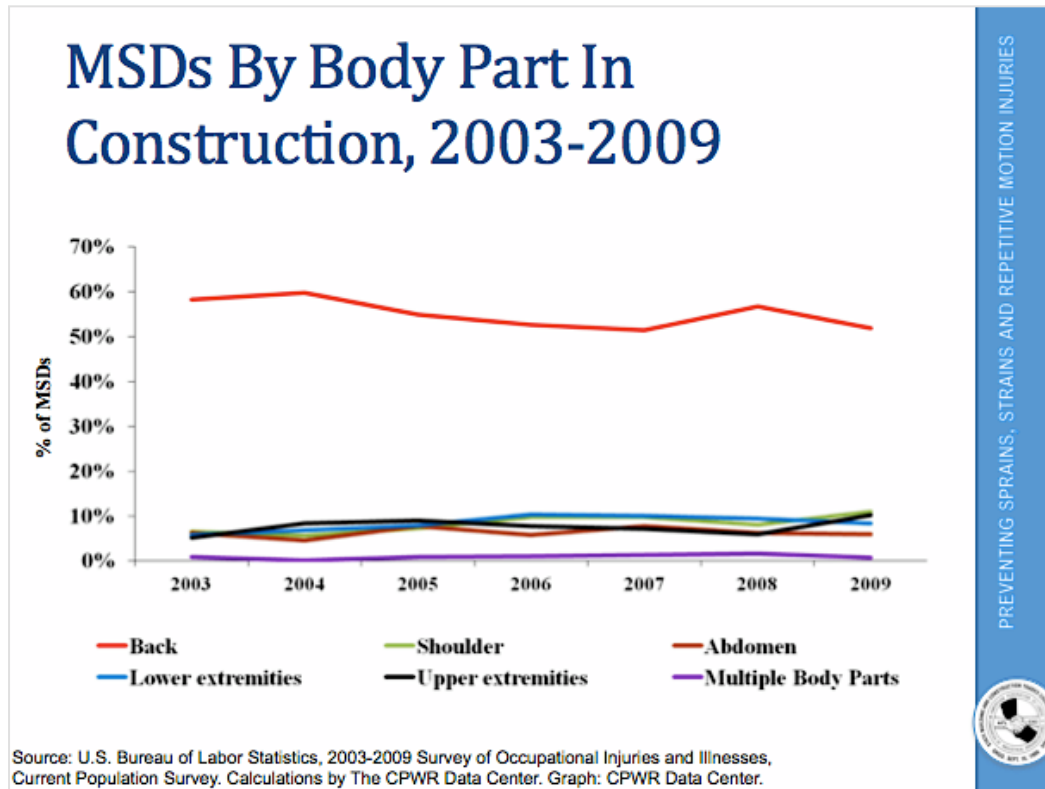
In this section, I share typical examples of each category of justification strategy and discuss each type's effectiveness for intercultural audiences of construction workers.

Statistics of injuries and/or fatalities. SHTG program grantees were most likely to rely on statistics of injuries and/or fatalities as a justification strategy. Of the 28 grantees, 17 included at least one slide with this kind of information.

In Figure 1, the State Building & Construction Trades Council of California, AFL-CIO presents the frequency of musculoskeletal disorders by body part over a period of seven years using a broken line graph. Even with a trainer present to explain the different elements of this graph, the complexity of its information presents a potential challenge for workers with lower numerical literacy. Furthermore, this graph's legend relies on terms (e.g., "lower extremities") that may not be familiar to individuals with lower literacy levels in

Figure 1

State Building & Construction Trades Council of California, Slide 10 (2011)



English. Using “legs, feet, or toes” would be far clearer for all of the training’s intended audience members.

As the literature review discusses, this impulse to “show audiences the numbers” about hazards is a common, early stage in the risk communication process (Fischhoff, 1995). The problem, Fischhoff warns, is that too many communicators end with this stage. Tyler (1992) warns that relying solely on statistics suggests to audiences that the communicators value expert knowledge over any other kind of knowledge, and this belief can cause audiences to distrust the communication. Stratman (2007) agrees, noting that this emphasis on numbers and statistics is all too common with risk communicators who have little

background in rhetoric: they fear persuasion as an unethical tactic, and cling to statistics, which seem safe to share because of their supposed objectivity. However, as Dragga and Voss (2001) argue, relying on statistics can hide the humanity of the individuals whose lives were lost.

News articles or case studies of recent accidents. Eight of the 28 grantees included news articles or case studies of recent accidents. Some grantees focused closely on unusual accidents; others chose to present a collection of shorter, wide-ranging accident reports to indicate that a particular type of accident could happen quite easily. Narratives in risk communication, such as news articles or case studies, can be more persuasive to lay audiences than bare statistics and are more likely to induce audiences to change their behaviors (Krimsky & Golding, 1992); however, the narratives presented within the SHTG program's training deliverables are in no way alike. Some of these case study narratives encourage active participation from the trainees, asking trainees to identify the hazards that led to the accident or how the worker might have avoided the accident. This kind of active participation encourages trainees to reflect on the knowledge that they already possess prior to training and then build on that knowledge during training, a process that fosters information retention (Merriënboer, Kirschner, & Kester, 2003).

Despite the potential for active participation, grantees rarely incorporate such a strategy; instead, they are far more likely to present the narrative to passive trainees. For example, the University of Maryland Fire and Rescue incorporated a description of a construction worker being decapitated by a tractor while being rescued after an accident (Figure 2). Though the creators of this training deliverable clearly sought to shock workers into paying attention out of fear something like this would happen to them, it could actually have the opposite effect. Focusing on what the reporters describe as a “freak” decapitation can make workers think that this particular hazard is unusual enough that it will not affect them. Furthermore, the design of this slide diminishes the effectiveness of the communication. The creators use a common typeface for the headline, which

Figure 2

University of Maryland, Fire and Rescue Institute, Slide 20 (2007)

Staten Island Worker Decapitated In 'Rescue'

JAMIE SCHRAM and LORENA MONGELLI
Courtesy of The New York Post

A construction worker was decapitated and another hurt yesterday in a freak accident on Staten Island.

Two employees of Formica Construction were digging a ditch in the street to install a sewer for 1 townhouses being built at Taylor Street and Degroot Place in Port Richmond, officials said. Suddenly, dirt and cement collapsed, burying the men under the debris.

One man was buried up to his waist. The other, a 39-year-old man, whose name was withheld, was completely buried.

He was decapitated when the workers tried to rescue him with a tractor.

"No doubt the fellow using it had good intentions, but there were extremely tragic results," said fire battalion Chief Daniel O'Gara.

Stefan Konowalskyj, 40, who lives nearby, was returning home from some errands when the workers realized what had happened.

"I saw these guys running around frantically screaming, 'The other guy is dead! The other guy is dead! His head is off,' " Konowalskyj said.

"There was a lot of commotion. There was also one guy down there trying to pull the other guy out . There were about a half a dozen workers standing around, not knowing what to do."

Rescuers arrived and pulled out the injured worker, 66, who was in stable condition at St. Vincent's Hospital.

The Department of Transportation issued two citations for inadequate protection procedures because the crew had not put up a retaining wall in the trench, a department spokesman said.

Mackiewicz (2007b) argues is important for a text's on-screen legibility; however, the choice of a playful, comic-style typeface contradicts the horror of the narrative. As Brumberger (2003) and Mackiewicz (2007a) argue, conflict between a typeface's personality and the content it visualizes can distract audiences and lessen retention of the information.

In addition to the problems posed by selecting rare, horrific accidents (and presenting them in an inappropriate visual manner), grantees who selected case studies as a justification strategy primarily relied on reports of fatal accidents, rather than accidents that resulted in injuries. This choice suggests to audience members that the only possible outcome of a jobsite accident is death, which may contradict the workers' lived experiences. The choice to include only fatalities also

suggests that these grantees seek to frighten the workers into paying attention to the training and behaving safely on the jobsite.

Images of injured, dying, or dead workers (or other images signifying death). Eleven of the 28 SHTG program grantees included images of injured/dying workers or another image signifying death, such as a graveyard. These images are usually photographs, which convey a presumably objective reality of jobsite danger, but grantees occasionally include clip art-style illustrations of ghosts and gravestones. Photographs can produce “empathetic associations” with the actions and individuals pictured (Bust, Gibb, & Pink, 2008, p. 598); thus, photographs can be especially powerful persuasion for construction workers (Hill, 2004), who see in these photographs individuals who look like them and do the same kinds of work that they do. As a result, they view photographs as more persuasive than other types of graphics (Bust, Gibb, & Pink, 2008). However, grantees often use photographs that attempt to persuade through fear.

One of the most compelling—and disturbing—of these images occurs early in the first PowerPoint slide deck from University of Texas at Arlington. A worker is buried up to his neck in caved-in dirt, surrounded by fallen equipment. In the corner of the frame, we can see the helmet of rescue personnel come to dig the worker out of the cave-in. The text attached to the image explicitly associates it with imminent death: “It’s About Dying (*sic*)...but it doesn’t have to be.” This combination of image and text is clearly intended to frighten trainees into conforming to appropriate, safe behavior. “It [behavior, the jobsite] doesn’t have to be” about dying, *if you behave correctly*, that is.

Other images may not show explicit images of death, but they still rely on graphic images to persuade workers. The photograph in Figure 3, which was part of both Indian River Community College’s and Associated General Contractors of America’s PowerPoint slide decks in 2007, is among the most graphic shown by any of the grantees: this photograph shows a man, lying in a hospital bed, suffering the effects of an electrical arc-flash accident (AGCA, 2007, slide 36; IRCC, 2007a, slide 36). Though the man is alive and presumably has recovered

Figure 3

Associated Figure 3: General Contractors of America, Slide 36 (2007)



from this accident, the closeness of the shot and the seriousness of the injuries are dramatic. It's unclear how effective the image will be: on the one hand, the grantee clearly indicates how injuries can affect workers, but the explicit nature of the image may detract some workers from heeding the warning in the photograph (Sauer, 2003; Lancaster, 2006; Evia, 2011).

When grantees include images signifying (but not actually showing) death, they frequently combine those images with statistics or case studies. In their training deliverable, the University of Puerto Rico's Medical Sciences Campus combines a stock photo of a graveyard with accident fatality statistics⁵. Unrelated graphics such as this one can serve to diminish a learner's information retention (Amare, 2006). In addition to the danger of alienating the trainees by

showing needlessly grim images, these attempts at persuasion illustrate the problematic nature of emphasizing only the risk of death, rather than the risk of injury. If trainees are only provided with one potential outcome to risks on the jobsite, they do not get a full picture of the hazards they face and thus cannot make an informed decision; as the work of Dayton (2002) suggests, omitting such vital information can erode trainees' trust in trainers, employers, and, ultimately, OSHA itself.

Images of workers in unsafe situations. Although all of the 28 grantees included images of workers in unsafe situations at some point in their slide decks, only seven chose to use these images as justification strategies in the early sections of a slide deck. Images that present unsafe situations are far less triggering than post-accident images for audience members; most obviously, they do not present the same association with death. It's also easier for audience members to imagine themselves in the situations being pictured. In Figure 4, the National Safety Council asks audience members to identify the excavation and trenching hazards in the slide's photo. This format applies to all of their modules; at the beginning of each one, there's at least one slide that justifies training by showing workers in unsafe situations. Like the use of active case studies, this strategy allows audience members to identify with the individual in the situation. Have they seen this kind of behavior on the jobsite? How did they react? Explicitly framing the situation as dangerous has the potential to de-normalize it for those workers who have seen similar situations on the jobsite. Furthermore, using an image rather than a written case study allows individuals of varying literacy and language familiarity levels to participate more fully in the training.

References to family and/or culturally relevant images. Four of the 28 grantees—the Construction Safety Council, the Brazilian Immigrant Center, the Southwest Safety Training Alliance, and the Trimmer Foundation—included references to family or other culturally relevant details as a justification strategy.

Figure 4

National Safety Council, Module 3, Slide 5 (2008)



Two of these grantees, the Construction Safety Council and the Brazilian Immigrant Center, included these images as their *only* justification strategies. Southwest Safety Training Alliance paired their references to family with case studies of recent accidents, while the Trimmer Foundation combined theirs with statistics about injuries.

In this category of justification strategy, the risk is framed as affecting not only the individual worker, but also that worker's family and ambition. This strategy contrasts with the first four types, which frame justification in terms of the immediate, personal effects (lost limbs, death) on trainees *only*. For example,

Figure 5

Construction Safety Council, Module 1, Slide 7 (2009)

Responsibility to Self & Family



Occupational health hazards can unexpectedly be brought home; wear personal protective equipment (PPE) on the job and do not bring home health hazards that can harm your family!

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the Construction Safety Council (Figure 5) includes a photograph of a family, with the father wearing a hard hat. The text reminds trainees that some jobsite hazards (such as dangerous dust) could be brought home, and that they should wear protective personal equipment on the job to prevent that from occurring.

In addition to shifting attention to the family that could be affected if the worker does not behave in a safe manner, strategies such as the one in the previous example are less likely to emphasize death and/or unusual accidents. As Brunette (2005) and Evia (2011) argue, showing the wider implications of injury is a more persuasive rhetorical strategy for audiences of construction workers, particularly Hispanic construction workers. As with the images of workers in unsafe situations, this strategy recognizes the workers' own lived experiences,

which is key to persuading these audiences. Although workers may have colleagues who died on jobsites, they are far more likely to have missed work and money due to an injury, or to know colleagues who have done so. Furthermore, they are able to imagine how such injuries or careless behavior could affect their loved ones.

Although this strategy still relies to a certain extent on workers' fear of injury, it is likely to be far more persuasive than those slides that only present horrific injuries; it also reminds workers that even lesser injuries can negatively affect them. Unlike the work of other grantees, this slide presents a breadth of information that allows trainees to make informed decisions about their behavior on the jobsite. The slides also redefine the overtly masculine, even macho, culture that exists on the jobsite (Iacuone, 2002). Instead, the jobsite culture is defined as one that offers advancement and opportunity for trainees who understand—and conform to the instructions from—the occupational risk communication in this training presentation. Safe behavior is thus characterized as a way to maintain the trainee's status quo, as well as increase opportunity on the job and outside of it.

The most recent grantee, the Brazilian Immigrant Center, adopted a radically different approach to its justification strategies. Rather than appealing to the workers' care for their loved ones, or to their fear of dying, this grantee acknowledged that the training could be long and potentially unfamiliar or boring. The grantee does so with a simple series of images chosen to illustrate both Brazilian and American idioms. Figure 6 (p. 22) shows one Brazilian idiom, "tea with chairs," which the slide deck's presenter notes describe as meaning a situation in which listeners are stuck in a chair for a long period of time. This and the other idioms combine to create an argument that yes, this training could be boring, but it is important to the workers' well-being and advancement in the company. The grantee's use of this humor suggests that it is attuned to the intercultural nature of their audience, as well as a respect for the workers' intelligence. In choosing to use humorous images as a justification strategy, the grantee acknowledges that the workers understand the importance of the training and of safe behavior, and that conflicts in the workers' behavior on a jobsite might stem from factors other than believing the jobsite is not a risky place.

Figure 6

Brazilian Immigrant Center, Module 1, Slide 4 (2014)



Discussion

In this section, I return to the research questions that framed this research: How effectively do the SHTG construction safety deliverables justify safety training to their intended, intercultural audiences using risk information? Based on the findings in the previous section, a clear response emerges in response to this research question: few of the deliverables justify safety training in a manner that we could truly term *effective*. All but four grantees relied *solely* on justification strategies that attempt to frighten trainees into conforming to predetermined safe behaviors. As the work of Scott (2003) and others suggests, the reliance on fear as a justification strategy is ultimately less about empowering audiences to make

informed decisions about risk and more about disciplining audiences into the behavior that experts have determined to be safe. It is communication *to*, rather than communication *with*, audiences. This emphasis suggests that grantees are not communicating with audiences as effectively as they could and should in such a critical situation, nor are they responding to the needs and values of their intercultural audiences.

Given that the SHTG program began publishing guidelines for grantees in 2011, we might expect to see an evolution in how grantees justify training to their intended audiences; however, this is not the case. Grantees from both the earliest year available (2006) and the most recent (2014) include strategies such as the emphasis on family and use of humor, and grantees from 2007-2011 present a range of statistics, photographs of dying workers, and case studies of fatal accidents, most of which require workers to sit and absorb information in a passive manner. Based on the published training deliverables, the SHTG program has not encouraged its grantees to alter their justification strategies over the past ten years. Indeed, the level of intertextuality among deliverables from grantees in different years suggests that the SHTG program encourages its grantees to reuse or update materials, perhaps in an attempt to create consistency among the training deliverables.

Nor do connections to activist nonprofits rather than contractor/owner-led organizations indicate that grantees will create more appropriate or culturally relevant training. Three of the four grantees that included culturally relevant justification strategies were nonprofits that included owners, workers, and/or activists. Only one—the Brazilian Immigrant Center—can be identified solely as a workers’ advocacy organization. Further, many of the grantees presenting images of fatal accidents were workers’ advocacy groups or university grantees.

Recommendations

In this final section, I provide recommendations for improving the justification strategies in training deliverables aimed at adult, intercultural learners. Although the specific examples within each recommendation are primarily aimed at the

SHTG program and its grantees, there are also key takeaways here for technical communicators with interest in intercultural communication, particularly in high-hazard industries.

1. **Explicitly identify appropriate justification strategies for training within institutional guidelines.** Any organization that approves and publishes training deliverables aimed at adult, intercultural audiences must develop clear policies regarding appropriate justification strategies. This is particularly important for high-hazard, intercultural industries such as construction. Organizations in some industries may not face such significant consequences for ineffective justification strategies, but they could face consequences such as lost time, poorly trained employees, or high employee turnover. As a result, the strategies that justify training to employees deserve greater organizational attention. Focusing on the SHTG program, the program's guiding *Best Practices* document should include a section that explicitly directs grantees away from fear-based justification strategies and towards strategies that emphasize the broader consequences of injury. As the findings indicate, fear-based justification strategies are common within the SHTG program deliverables; thus, this institutional change may be relatively difficult and time-consuming to implement, particularly for returning grantees.
2. **Give training developers the tools to develop effective training justification strategies.** In addition to providing institutional support for effective justification strategies through written policy, organizations should encourage effective strategies through models and other practical support. The SHTG program could add such support for its grantees in several ways. First, the program could publish training deliverables that include family- or humor-based justification strategies, if any are available but not published. Alternately, the program could at least create sample justification slides, or revise problematic justification strategies in existing training deliverables. This inclusion is key: Even when grantees do not directly reuse or adapt previous training deliverables, they rely on those deliverables as models for what the SHTG program expects. Thus,

providing samples with relevant, appropriate justification strategies would reinforce the support for such strategies that is established within the organization's written policies.

In addition to effective justification strategy models, the SHTG program could provide its own training on intercultural communication or hire grant coordinators or reviewers with expertise in this area. As noted in the previous section, this is a place where technical communicators could partner with the SHTG program to assist grantees as they develop their training deliverables. The field's ongoing interest in risk communication means that both scholars and practitioners are uniquely positioned to contribute to these conversations.

- 3. Encourage training developers to work with members of the affected communities as they create training deliverables.** This recommendation builds on previous research from technical communication scholars to include members of a targeted audience in the development of any communication efforts (e.g. Blythe, Grabill, & Riley, 2008; Evia & Patriarca, 2012). Safety training is no exception. Specifically, the SHTG program should encourage its grantees to include Hispanic and Latinx construction workers at all stages of development for training deliverables, given that these communities remain most at risk for injury or death on the construction jobsite. Other research has indicated that such participation within training development is both more effective and more culturally appropriate (Evia & Patriarca, 2012). This is another method by which technical communicators can contribute to the development of effective safety training deliverables. Our connections with local communities, as well as our field's increasing experience with participatory design, would assist training developers as they seek to include the perspectives and values of those communities.

These three recommendations would not merely improve the justification strategies in construction safety training, important as those strategies are: implementing these recommendations would benefit the training deliverables as a whole. Each of these changes to the current structure of the Susan Harwood

Training Grant program would contribute to a program that is more in line with current risk communication theory and practice and more in tune with the needs of its intercultural audiences. ■

Notes

- ¹ The Bureau of Labor Statistics (2013) reports that 68 percent of construction contractors employ fewer than five workers, and that nearly these small companies employ 12 percent of all construction workers. †
- ² For example, reporting a jobsite risk to a supervisor could result in lost time on a project, resulting in lost wages, or even in a worker being fired. Fear of these economic risks emerges frequently in construction safety culture literature (e.g., McGlothlin, et al., 2009; Smith-Jackson, Wogalter, & Quintela, 2010; Roelofs, et al., 2011; Burns & Conchie, 2013). †
- ³ Both the SHTG program website and the GuideStar nonprofit profile for this organization indicate that this is the correct spelling of the organization's name, which appears to be a mistranslation of the Spanish *compasión*. Materials from the organization's 2008 funding cycle name the organization as *Compación* Foundation, yet another mistranslation. †
- ⁴ The residential construction is the largest sector within the construction industry, and it employs the highest number of Hispanic and Latinx workers (Bureau of Labor Statistics, 2016). †
- ⁵ *Compacion* Foundation used the same slide design with updated statistics the following year. Like the image of the injured worker in the previous example, this reuse of a slide suggests a significant amount of intertextuality and borrowing between grantees. †

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