SAFETY AT THE MARGINS: A RHETORICAL ANALYSIS OF OCCUPATIONAL
RISK COMMUNICATION IN CONSTRUCTION

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ABSTRACT

This dissertation focuses on occupational risk communication created by grantees of the Occupational Safety and Health Administration's Susan Harwood Training Grant (SHTG) Program. Although the SHTG program is aimed at workers in most high-hazard industries, I focus on occupational risk communication developed for residential construction workers, who remain the most at-risk for on-the-job injuries and fatalities. In 2011 (the most recent year for which statistics are available), 721 construction workers died in work-related accidents (Bureau of Labor Statistics, 2012). In this study, I relied primarily on two research methods: context-sensitive text analysis of deliverables created by twelve SHTG program grantees from 2006-2009 and interviews with representatives of four of these twelve grantees. The findings from this research illustrate the complexity of creating occupational risk communication in grant-related institutional settings. Although the process might seem straightforward, it is composed of twelve milestones, each of which can result in difficulties for the final deliverables. Grantees are asked to create safety training deliverables that includes principles of active workplace learning; however, qualitative analysis of these deliverables indicates that such principles are rarely enacted. Instead, the deliverables are marked by an emphasis on technical language, as well as by death-focused justification strategies that scare trainees into following the guidelines being presented. Each of these characteristics can alienate audiences of varied linguistic and cultural backgrounds, such as those found in the construction industry.

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TABLE OF CONTENTS

CHAPTER 1. OSHA'S SUSAN HARWOOD TRAINING GRANT PROGRAM: RESPONDING TO WORKERS AT RISK

1.1 Problem Statement

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. The agency has created

standards for personal protective equipment, occupational noise exposure, and safe working

tools, among others, for workers in many occupations (U.S. Department of Labor, 2011a).

Despite the advances made since OSHA was established, workers in certain industries remain at

high risk for workplace injuries and fatalities. One of these industries is construction: in 2011

(the most recent year for which statistics are available), 721 construction workers died in work-

related accidents; this number represents 17.5 percent of the 4,114 workplace fatalities for that

year (Bureau of Labor Statistics, 2012), which is the highest of any industry. Given the high rate

of fatalities in the construction industry, OSHA has made the industry an area of focus within its

training and outreach (Occupational Safety and Health Administration, 2012).

One way in which the agency attempts to counter the dangers of the construction work

site is through safety training, which must be presented in a way that workers understand,

including adaptation for their languages or literacy levels (Michaels, 2010). The field of

technical communication is becoming increasingly interested in training as part of its interest in

instructional design (Carliner, 2012), though Carliner cautions technical communicators against

assuming that their own disciplinary knowledge is wholly sufficient to succeed in training. The

safety training created by OSHA's Susan Harwood Training Grant (SHTG) program thus

represents a rich site for examining the overlaps and conflicts between training and technical

communication. The training deliverables created as part of the SHTG program represent another

growing area of interest in technical communication: risk communication. Technical

communication research attempts to understand how risk communicators persuade audiences to

believe and act upon risk information (Grabill & Simmons, 1998). Furthermore, grantees within this program are responsible for developing and writing grant proposals and training deliverables; in short, these grantees do the work of technical communicators, even if they do not identify as such and may not have the disciplinary knowledge of technical communication.

The SHTG program is only one of several training initiatives from OSHA, but it is potentially the most far-reaching: 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[1] 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 grant program's purpose of developing safety training documentation 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 keeping with OSHA's overall mandate to provide comprehensible safety training, SHTG documentation attempts to communicate technical information about risk and safety in a way that reaches most, if not all, of these audiences. However, it is unclear how well the SHTG deliverables meet the needs of their audiences, many of whom have complicated learning needs. In 2009, 2.26 million construction workers in the United States were Latino, with the majority of these workers being born in Mexico (Dong, Wang, & Daw, 2010). Furthermore, these workers frequently have limited fluency in English and varied levels of literacy in either Spanish or English (Associated General Contractors of America, 2008). The risk of workplace death for these construction workers is 40 to 80% higher than for their non-Latino peers, and their risk of

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[1] The Bureau of Labor Statistics (2013) reports that 68 percent of construction contractors employ fewer than five workers, and that nearly 12 percent of all construction workers are employed by these small companies.

work-related injuries is 30% higher (Dong, Wang, & Daw, 2010). These statistics suggest that this audience particularly needs effective occupational risk communication.

In this dissertation, I analyze safety training documentation by grantees of OSHA's SHTG program; specifically, I focus on safety training documentation developed for construction workers, who remain the most at risk for workplace-related injuries and fatalities (Bureau of Labor Statistics, 2012). In doing so, the study seeks to answer the following questions:

- **RQ1:** To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

- **RQ2:** How do the grantees respond to OSHA's institutional communication?

- **RQ3:** To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

These questions emerge from an interest in what a technical communication lens can provide for the SHTG deliverables. Technical communication research has turned to risk communication, or communication about health, environmental, or safety risk topics (Lundgren & McMakin, 2009), as an extension of the field's concern with workplace communication. Much of the early risk communication research emerging from risk analysis emphasizes a "just the facts" approach to communication (Fischhoff, 1995). This approach is what Miller (1979) characterizes as the scientific belief that language is a windowpane, that language "provides a

view out onto the real world, a view which may be clear or obfuscated" (p. 612). Scholars and practitioners of risk communication adhering to this perspective may fear rhetoric as unethical persuasion of their audiences, preferring instead to present audiences with facts and numbers in the belief that clear information will convince those audiences to follow recommendations. However, as Fischhoff (1995), Reynolds (2011), and others argue, these "just the facts" approaches are rarely enough for audiences.

In direct reaction to this perspective, technical communication scholars have focused on risk communication's rhetorical nature. Waddell (1995) argues that the ways in which communicators and audiences interact in the practice of risk communication affect how audiences respond to that risk communication. Stratman, et al. (1995), Katz and Miller (1996), and Simmons (2007) confirm and extend many of Waddell's assertions, exploring how the rhetoric of risk communication produced by governmental bodies can constrain and alienate its audiences. Other scholars 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; Blythe, Grabill, & Riley, 2008). More recently, technical communication research into risk communication examines how technical communicators can serve as such advocates: Kain, de Jong, & Smith (2010) address the usability of risk communication, while Sauer (1993; 1998; 2003), whose work is perhaps the closest antecedent to the research in this study, focuses more closely on how occupational risk communication evolves as it incorporates workers' embodied knowledge. Despite the attention paid to risk communication within the technical communication field, there is still a need for further research into *occupational* risk communication, as opposed to health or environmental risk communication (which have received the most scholarly attention). This dissertation responds to that gap by examining how occupational risk information is communicated to intercultural audiences with varied literacy levels. In addition, this dissertation provides insight

into the communication among OSHA's SHTG program and its grantees, a move that extends

earlier work into organizational and government communication. Thus, this research has

ramifications for technical communication scholars interested in risk communication, grant

writing, organizational communication, and intercultural communication.

The next sections provide overviews of the construction industry, the Occupational

Safety and Health Administration, and the Susan Harwood Training Grant (SHTG) program.

These sections argue for the SHTG program as a site for technical communication research and

outline the possible effects of this research on construction safety and training.

1.2 Safety Communication in Construction

The construction industry has a number of characteristics that complicate its safety

communication. It is one of the largest industries in the United States, with nearly six million

workers at the end of 2012; although this number is currently fluctuating due to the ongoing

recession, the size is expected to increase over the next five years (Bureau of Labor Statistics,

2013). Given its size, safety training aimed at this industry can have significant, widespread

impact.

The industry also has other traits that make its safety training documentation worthy of

study. Perhaps the industry's most defining characteristic is its "quasifirm" model (Eccles,

1981): although the industry has a number of large contractors who can take on sizable projects,

it is dominated by smaller, specialized contractors. These contractors partner with each other in

configurations that can change with every project, although some contracting relationships are

relatively stable. One side effect of this quasifirm nature is that much of the workforce may be

hired by the project, by the month, or even by the day. Such inconsistency in the term of

employment means that safety training at many organizations can be spotty at best: construction

workers may not experience the organizational push for training that usually exists in more

permanent organizations (Egbu, 2000). Despite—or perhaps because of—the inconsistency in

training availability, more highly trained individuals are more highly sought after by contractors and receive higher salaries (Davis-Blake & Uzzi, 1993). Another side effect of the quasifirm nature of the industry is that the safety culture can differ dramatically from company to company. The safety culture of an organization, or the beliefs and values that an organization holds about safety (Fang, Chen, & Wong, 2006), is one of the most important factors influencing workers' safety behavior on jobsites (Gherardi & Nicolini, 2000; Choudhry & Fang, 2008; Taylor, 2010). Organizational beliefs and values are expressed through the organization's discursive representation and actions, such as training (Lundin & Söderholm, 1995; Porter, et al., 2000). Although at least one researcher argues that the workers are the only ones who can establish an organization's safety culture (because they are "on the ground," so to speak), most researchers agree that higher-ups in the company, i.e., supervisors and company owners, bear the most responsibility for establishing safety culture on a job site (Choudhry & Fang, 2008; Taylor, 2010). One way of providing consistency in a construction organization's safety culture is through formal (written policy) and informal (day-to-day behavior) adherence to the standards created by OSHA. The next section discusses the historical contexts that have influenced OSHA's impact on safety communication.

1.3 OSHA's Impact on Safety Communication

Although OSHA has been around since 1971, the agency has often struggled to gain acceptance and exert authority in its 40 years, a struggle that can be tied to diverging views about risk. From the 1960s to the mid-1980s, risk and risk communication were relatively undertheorized—or, at least, they were dominated by perspectives that saw the process of risk communication as one that required "just the numbers" approaches (Fischhoff, 1995). If workers just knew the numbers, the thinking went, then the workers could make rational choices based on that knowledge. If this is the case, at least one author argues, then workers "deserve" the results

of their risky choices, even if those choices result in injuries or fatalities (Viscusi, 1983). Thus, many failed to see the need for OSHA, arguing that it was interfering in private industry at a cost to both employers and employees. Indeed, books aimed at helping employers navigate the early OSHA regulations spoke of the agency as an opponent that had employers in its crosshairs: one handbook prominently featured a bulls-eye with the tag, "Now you can survive an OSHA assault" (Moran, 1980). Despite this view of OSHA as a nearly omnipotent antagonist, the early years of the agency are characterized by inconsistency in regulations and enforcement, which diminished the agency's effectiveness (Mintz, 1984). For example, the OSH Act, which provided the founding authority for OSHA, did not include provision for training workers in safe working behaviors (U.S. Department of Labor, 1998). However, the Act does demand that employers comply with all of the provisions of any standards related to the Act, many of which include a requirement for training. Furthermore, the agency was chronically underfunded and understaffed, making enforcement of the regulations difficult (Mintz, 1984). These characteristics prevented the agency from developing its ethos in its early years.

OSHA has developed participatory approaches that address the regulatory needs of companies and entire industries. For example, OSHA now relies heavily on alliances with companies, many of which are based on a pioneering partnership with the construction industry (U.S. General Accounting Office, 2004) in which the agency and partner focus on training, outreach, and awareness of workplace safety and health topics. That's not to say that OSHA has it easy today. Even now, it struggles with the common institutional difficulty that Stratman, et al. (1995), noted in their study of the Environmental Protection Agency's risk communication: even though the agency wants to collaborate with its partners, it must also be the final authority on risk.

1.4 Overview of OSHA's Susan Harwood Training Grant Program

The Susan Harwood Training Grant program reveals some of the rhetorical tensions evident in OSHA's communication with employers and grantees. Originally developed in 1978 as OSHA's New Directions grant program, the SHTG program seeks to "provide training and education programs for employers and workers on the recognition, avoidance, and prevention of safety and health hazards in their workplaces and to inform workers of their rights and employers of their responsibilities under the Occupational Safety and Health (OSH) Act" (U.S. Department of Labor, 2012). In 1997, the program was named after Susan Harwood, a former director of OSHA's Office of Risk Assessment who helped develop safety standards on asbestos, benzene, cotton dust, and other potential health hazards (U.S. Department of Labor, 2012). The grant includes three categories of funding:

1. Capacity Building: this type of grant seeks to increase an organization's ability to provide in-house training for its employees.

2. Target Topic: this type of grant allows organizations to provide training on one of OSHA's targeted topics, which in the construction industry include fall protection and work zone safety, among other topics.

3. Training Materials Development: this type of grant allows grantees to develop, refine, and evaluate new training materials on an approved OSHA training topic (U.S. Department of Labor, 2012).

The third category of funding, Training Materials Development, is the topic of interest in this study: the texts that are developed as part of this grant category are the ones that are published on the SHTG website for further dissemination.

Although SHTG grantees create training documentation for a number of industries, most of the deliverables available on the program's website (Figure 1.1) are aimed at the construction industry; this is unsurprising, given the relatively high number of fatalities and injuries on construction worksites. Furthermore, the SHTG deliverables address topics that OSHA considers vital or under-developed (U.S. Department of Labor, 2006). As a result, a significant portion of the SHTG deliverables concentrate on the four categories of physical hazards most commonly experienced by construction workers: fall hazards, struck-by hazards, caught-in/caught-between hazards, and electrocution hazards. These four categories, known collectively as "Focus Four" hazards, have plagued the construction industry for decades (U.S. Department of Labor, 1995).

Figure 1: OSHA's Susan Harwood Training Grant Program Website (2013)

Any nonprofit group that is not an agency of state or local governments, including labor unions, faith-based organizations, or community-based organizations, may apply for SHTG grant monies. Universities and their associated research centers are also eligible, despite receiving funds from state and federal governments (Occupational Safety and Health Administration, 2010a). The grantees whose work is available on the OSHA SHTG website represent many of these nonprofit categories: universities and colleges (e.g., University of Nevada, Las Vegas), professional associations (e.g., Associated Builders and Contractors-Central Texas Chapter and

National Safety Council), and other nonprofit organizations (e.g., Compación Foundation). To assist these organizations in applying for grant funding and in developing deliverables, the SHTG program website (Figure 1.1) includes general program information, application instructions, previously developed training materials, and resources for creating effective training programs.

Trainers and individuals can download the deliverables for public, nonprofit educational use (U.S. Department of Labor, 2012). The availability and adaptability of the SHTG program deliverables can be vital to smaller residential construction companies, many of which would not otherwise have easy access to training. For example, in Virginia's Roanoke and New River valleys, there are more than 300 construction companies, the vast majority of which are smaller, residential construction companies. However, the national OSHA Training Institute is in Arlington Heights, Illinois, and the nearest regional OSHA Training Institute Education Centers are four hours away in Silver Springs, Maryland, and five hours away in Morgantown, West Virginia (U.S. Department of Labor, 2012). To travel safely to either of these OTI Education Centers would require at least an overnight stay, which takes away from employees' work time and requires either the employee or the employer to pay for hotels and meals during training.

In contrast to the more formalized training opportunities offered by OSHA, the SHTG program deliverables allow employers to adapt the training according to their own working contexts—they can fit the training into lunch hours, "toolbox talks," etc. Several scholars argue that this flexibility in training schedules can benefit workers by engaging them within the work affected by the training (Brunette, 2005; Hewage & Ruwanpura, 2009). As a result, these deliverables can potentially be powerful methods of communicating occupational risk information.

1.5 Document Overview

The remainder of this document contains a literature review (Chapter 2), as well as a full description of methods, results, and discussion of the two stages of this study (Chapters 3-5). Chapter 2, "Motivating Change: How Is Risk Information Communicated at Work?," assesses current research in technical communication (particularly risk communication), workplace learning, and construction safety. These fields are loosely related and construct a useful framework for regarding the SHTG deliverables. Risk communication research, particularly that which emerges from the field of technical communication, indicates how the research in construction safety training can gesture towards the real-world contexts that shape the documentation. Chapter 3, "Considering Occupational Risk Communication as Process & Product: Methods for Tracing SHTG Deliverables," discusses the methods undertaken in this project, which were conducted in two stages. Chapter 4, "Analyzing Occupational Risk Communication Deliverables: How SHTG Grantees Incorporate OSHA's *Best Practices,* Theories of Occupational Risk Communication, and Theories of Workplace Learning," reports the results of a context-sensitive textual analysis of SHTG deliverables created by twelve grantees whose work was represented on the SHTG program website as of October 2011. Chapter 5, "Uncovering the Occupational Risk Communication Process: How OSHA's Institutional Communication Shapes the SHTG Deliverables," reports the results of qualitative interviews with representatives of four grantees who received funding from the SHTG program for construction safety training. This chapter focuses on the processes of applying for grant funding and of creating deliverables aimed at construction workers. Finally, Chapter 6, "Safety at the Margins: Concluding Thoughts on the Susan Harwood Training Grant Program," explores the wider implications of this study for technical communication, as well as for OSHA and its Susan Harwood Training Grant program.

CHAPTER 2. MOTIVATING CHANGE: HOW IS RISK INFORMATION COMMUNICATED AT WORK?

2.1 Overview

The research conducted in this dissertation examines the contexts of occupational risk communication training materials created as part of the Occupational Safety and Health Administration's Susan Harwood Training Grant (SHTG) program. Through the SHTG program, nonprofit organizations use grant funding to create safety training deliverables for workers in hazardous industries. This dissertation focuses on deliverables created for workers in the construction industry, who are the most at-risk for on-the-job accidents that result in serious injury or death (Bureau of Labor Statistics, 2012).

As Dayton (2002) argues, research into critical rhetorical documents such as occupational risk communications must take into account the social and historical contexts in which they were developed. The contexts surrounding the SHTG safety training documentation are complex: the documentation is the result of oral and written communication between OSHA's SHTG program and its grantees, and between grantees and their potential audiences. In response to these contexts, this chapter brings together strands of research in rhetoric and technical communication (particularly research that is focused on risk communication and organizational communication), construction safety culture, and workplace learning. This chapter explores ongoing research in each of these areas, with particular emphasis on occupational risk communication and workplace learning.

2.2 Risk Communication

As the introduction to this dissertation explains, construction workers experience the risk of injury or death at a far greater rate than workers in other industries (Bureau of Labor Statistics, 2012). Construction workers are at risk on jobsites because of the hazards of the heavy

equipment that they operate, the heights of the structures that they must build, and the weather in which they perform their work. They are at risk because of the conditions in which they work— and even because of the very work that they do. However, construction workers are also at risk because of their apparent disregard for safety on the jobsite. One factor that contributes to this disregard is the social construct of masculinity that exists on construction jobsites. Iacuone (2002) contends that certain dimensions of masculinity, particularly the "importance of risk and physical prowess in men's activities" (p. 250) and horseplay, directly affect how construction workers behave on the jobsite. Valorizing physical strength and dangerous work influences the workers to accept risk as just another part of their jobs. In addition, workers' risk perception can also be skewed by differing cultural perceptions of risk, a significant problem given the high number of foreign-born workers in the construction industry (Dong, Wang, & Daw, 2010). The heterogeneous cultural makeup of the construction workforce results in varying risk perceptions that affect the safety behaviors of individual workers. For example, many Latino workers are less confident that they can take safety precautions that will mitigate their on-the-job risk (Smith-Jackson, Wogalter, & Quintela, 2010). These researchers argue that Latino workers feel less in control of their work environment in part because their employment on the jobsite is tenuous: 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.

This research into workers' risk perception has immediate impacts on how risk communication products are developed (Rohrmann, 2006). Risk communication is broadly defined as any communication about health, safety, or environmental risks (Lundgren & McMakin, 2009). Although this definition encompasses at least part of risk communication, it only skims the surface of what both scholars and practitioners mean when they discuss risk communication. For both of these groups, risk communication concerns practice and theory, as well as process and product. The tensions between these binaries serve as a productive starting

point for discussing the SHTG program deliverables. Carliner (2012) argues that training and technical communication share a number of characteristics, among them a concern for effective documentation. He notes that the differences are significant enough to create problems for unwary communicators caught in the middle; however, each discipline can learn from the other.

The practice of risk communication "evolved out of the legislated need of risk assessors to gain public acceptance for policies grounded in risk assessment methodologies and generally came to be defined as any purposeful exchange of scientific info between interested parties regarding health or environmental risks" (Simmons, 2007, p. 1). However, the discipline of technical communication turned to risk communication as an extension of its interest in workplace communication, and scholars began to address the challenges of persuading audiences who are often suspicious of expert knowledge. Despite the increasing attention to the rhetorical aspects of risk communication, many of the early, arhetorical concepts of risk communication remain in place in practice. Waddell (1995) recognizes four models of audience participation in the risk communication process: 1) *technocratic*, 2) *one-way Jeffersonian*, 3) *interactive Jeffersonian*, and 4) *social constructionist*. Building on the work of Plough and Krimsky (1987), Waddell describes the *technocratic* model of public participation as one that assumes that any decisions regarding risk should be left up to experts on the topic, and that those experts should then be able to communicate those decisions to a compliant public—or not, as the case may be. In some cases, he notes, organizations following this model do not communicate their decisions at all, or communicate only perfunctorily. In situations such as these, audiences frequently react with distrust and may challenge the work being done by the experts or the organization. The work of Katz and Miller (1996) supports this assertion: in their study of the North Carolina Low-Level Radioactive Waste Management Authority, the authors find that the organization failed to communicate with its audience in a timely fashion and frequently displayed outright contempt for its audience, which propelled opponents of the Authority to declare its communication "a

farce" (p. 111). As these researchers suggest, the technocratic model reserves power in risky situations for the communicators and expert decision-makers, with little granted to audiences.

The *one-way Jeffersonian* model described by Waddell (1995) maintains the unidirectional flow of information. Experts communicate information to audiences, who then use that information to make decisions in risk situations. The one-way Jeffersonian model at least acknowledges that audiences should be able to make decisions that affect them; however, the amount of power that this actually entails is quite limited: Audiences still cannot contribute their own lived experiences to the discussion of the risk situation and risk communication. Even in situations when the institution seeks to be more inclusive in its communication processes, representatives of the institution may reveal through their actions that the institutional knowledge is more important (Stratman, et al., 1995). The one-way Jeffersonian model remains common in risk communication practice, particularly in occupational risk communication, which is also associated with organizations simply wanting to "educate" their audiences (Waddell, 1995; Fischhoff, 1995). Occupational risk communication is mandated by Occupational Safety and Health Administration Standard 1926.59; thus, audiences have very little choice about whether or not to listen to the training. Furthermore, occupational risk communication often presents risk information in a highly technical or autocratic manner. As a result, audiences may be likely to tune out of or challenge the occupational risk communication (Sauer, 2003). As a result, workers may appear to carelessly fail to follow expert advice (Plough & Krimsky, 1992).

The best practices of the SHTG program, as represented in the *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (Occupational Safety and Health Administration, 2010), attempt to move away from this one-way Jeffersonian model, instead representing occupational risk communication as a process that Waddell (1995) calls *interactive Jeffersonian*. In this model, risk communication is a "process by which people become informed about hazards, are influenced towards behavioral change and can participate in

decision-making about risk issues" (Rohrmann, 2006, p. 9). Communicators following this risk communication model recognize the importance of understanding the varied needs, beliefs, and values of audiences (Morgan, et al., 2002). For example, communicators might conduct open-ended interviews regarding audience beliefs about a risk, or their mental models of a risk. These open-ended interviews feature questions such as "Tell me about X risk," giving communicators a glimpse into audience motivations and allow audiences to express their own concerns about the topic. In return, communicators give audiences all of the "information that they need in order to make informed decisions about risk" (p. 2), such as directions for safe practice and the principles behind a safety measure. Implicit in the authors' use of the phrase "informed decisions" is the idea of encouraging audiences to take actions based on their own needs and situations. The interactive Jeffersonian model of risk communication involves communicators and audiences adapting their communication practices to each other. Like the one-way Jeffersonian model, though, this model is flawed by what Waddell (1995) terms its "implicit paternalism" (p. 205) that values expert knowledge at the expense of audiences' embodied knowledge about the jobsite.

Another problem with the more audience-oriented approach of the one-way Jeffersonian model is that its practitioners discount the role of persuasion in risk communication. In a 2007 reflection on "Risk Communication, Metacommunication, and Rhetorical Stases in the Aspen-EPA Superfund Controversy," Stratman notes that little has changed in risk communication practice since he and his collaborators published this article in 1995. Stratman posits that persuasion is seen as something dangerous in most risk communication, except in cases of life-or-death emergency. In this view, which he says is held by many risk communication practitioners, persuasion is seen as unethical. Neutral communication, which Miller (1979) calls the "windowpane theory of language," is valued. Thus, these communicators stick to "just the facts" approaches, which are not enough for effective risk communication, as Fischhoff (1992)

16

indicates. Reynolds (2011) chastises subject-matter experts who naively believe in the power of information over an understanding of what persuades audiences to act. This tension between persuasive and informative approaches creates an opening for technical communication scholars to participate in risk communication practice in significant ways. As Bowdon (2004) noted in her work with a nonprofit HIV-prevention organization, her partners did not have time to study the history and theory of rhetoric; instead, she was able to contribute her expertise in those areas to the organization.

Bowdon's experience suggests that what occupational risk requires are approaches that both bring audiences into discussions about risk and use ethical modes of persuasion, what Waddell (1995) terms the *social constructionist* model. This fourth model is more in line with what many researchers seek to establish as the standard in risk communication: it "acknowledge[es] the values, beliefs, and emotions of experts…[that] play a significant part in risk communication" (p. 142). Technical communication scholars and practitioners, already knowledgeable in "mak[ing] tacit knowledge explicit" (Durack, 1997), are uniquely positioned to help with these approaches. Unsurprisingly, scholars in technical communication already call for greater inclusion of rhetoricians in the risk communication process. Grabill and Simmons (1998) present a critical rhetoric of risk communication that encourages technical communicators to bring their disciplinary knowledge to discussions of risk communication. In their critical rhetoric, technical communicators should approach risk communication with the following three perspectives:

1. "see risk as socially constructed and rhetorical"

2. "focus on the processes of decision making, seeing these processes as the key institutional locations for knowledge"

3. "seek to contextualize and localize risk situations and processes" (p. 428).

The authors argue that reconceptualizing their clients as the audiences of documents, rather than institutions, is necessary for this critical rhetoric to work, and it is also necessary for effective, ethical risk communication. This echoes other calls in technical communication research that regard the communicator's position to be that of audience advocate (Johnson, 1997). Sauer (2003) also strongly advocates this risk-as-rhetoric perspective, contending that rhetoricians can help risk communicators draw out their audiences' prior risk knowledge and expectations without introducing new or conflicting concepts and develop risk communication that persuades in an ethical, effective manner. Furthermore, technical communicators' involvement in risk communication may be an ethical obligation to publics and the organizations who work with them: people working in organizations, particularly small non-profits, may not have the time to study rhetorical theories that would benefit their work with publics (Bowdon, 2004). Bowdon adds that technical communicators "don't have simply the opportunity to engage in textual activism; in many cases [they] have no alternative" to such engagement (2004, p. 326). On the construction jobsite, activist communication might rely on existing worker communication networks, social activities that incorporate safety communication, and collaboration with native speakers of Spanish and other languages spoken on the jobsite (Evia & Patriarca, 2012). These strategies respect the workers' previous knowledge and cultural perspectives about the jobsite.

However, the social constructionist model and the activist communication strategies suggested in the previous paragraph pose challenges for even skilled communicators. Changing risk communication practices requires change at the levels of those institutions that are involved in risk communication, many of which currently operate in ways that make risk communication participation difficult at best (Simmons, 2007). Transitioning them to a social constructionist model would entail changing their discursive and active practices, and that transformation would have to occur from within the institutions (Porter, et al., 2000). Sauer (2003) argues that change can be enacted in the following six "critical moments" for occupational risk communication:

1.   when oral testimony and embodied experience are captured in writing;

2.   when the info in accident reports is re-represented for a different audience;

3.   when statistical accounts are re-represented as arguments for particular policies;

4.   when policies and standards are transformed into procedures;

5.   when written procedures are transformed into training;

6.   when training is re-represented to workers at local sites. (p. 17)

As these critical moments indicate, occupational risk communication entails a complex web of

rhetorical activities. In the SHTG program, these activities are conducted by multiple

organizations, opening the process up to the difficulties faced in any collaboration (Spilka,

1995). In addition, changes in any of these critical moments may demand an investment of time

and other resources that institutions might not be willing to give. Another serious challenge to

incorporating the social constructionist model of risk communication into the SHTG program are

the safety cultures of the organizations and individuals who are its audiences. The next section

discusses this factor in more depth.

2.3 Construction Safety Culture

Occupational risk communication such as the safety training documentation in the SHTG

program represents a significant part of the construction industry's safety culture, or its safety

beliefs, values, attitudes, artifacts, and behaviors (Turner, 1991; Vredenburgh, 2002). Despite the

term's commonly used singular form, safety culture is not a monolithic entity. At least one group

of researchers cautions that it, like any other culture, should be understood as multiple safety

cultures (Gherardi & Nicolini, 2000). These researchers argue that construction industry

stakeholders—owners, supervisors, engineers, workers, etc.—have varied beliefs, values, and

attitudes about safety, and they are also likely to perform safety behaviors in different ways.

Furthermore, different organizations—sometimes even those working on the same project—have

unique safety cultures. These divergences create problems when organizations assume that all of the individuals within the organization share the same safety culture: when organizations act according to that assumption, accidents are more likely to occur.

Construction safety culture research allows organizations to discover potentially unsafe beliefs, values, attitudes, artifacts, and behaviors *before* significant accidents or fatalities occur. Budworth (1997) likens this approach to taking an organization's "safety temperature." Examining the safety culture of an organization thus represents a more proactive approach to safety management than accident and fatality reports. Mohamed (2002) argues that these traditional, reactive approaches fail to account for a construction worker's actual exposure to risk and do little to protect other workers. Furthermore, accidents—particularly those involving undocumented workers—are frequently unreported, which means that organizational changes or training based on those reports may be inherently flawed (Thompson & Siddiqi, 2007).

An organization's safety culture is physically represented by its safety program. Rajendran (2006) has identified more than 100 components of safety programs; however, few organizations are actually able to enact most of these components because the potential resources for a safety program are limited (Hallowell & Gambatese, 2009). Thus, the most effective safety program components are more likely to receive the available resources. Based on current research, a strong safety program features at least the following components: 1) supportive environment, 2) occupational risk communication, 3) workers' commitment, and 4) continual appraisals of jobsite hazards (Mohamed, 2002; Robson, et al., 2007; Hallowell & Gambatese, 2009). OSHA mandates occupational risk communication and appraisals of jobsite hazards; however, a supportive environment and commitment from workers cannot be mandated (Kirwan, Hale, & Hopkins, 2002; Robson, et al., 2007). As a result, these latter components can be the most difficult to achieve and require the most effort from all of the industry's stakeholders.

2.31 Supportive Environment

Many researchers acknowledge that a supportive environment, particularly commitment from employers and supervisors, is the most important component of a safety program. Mohamed (2002) argues that if employers show "a committed and nonpunitive approach to safety," workers are more likely to pay attention to safety training and adopt/retain safe work behaviors on the worksite. Choudhry and Fang (2008) attribute the importance of employers' and supervisors' commitment to the power of the two groups to set working procedures and policies on a worksite. However, even if employers and supervisors create written procedures that emphasize safety, they may undermine those artifacts by pressuring workers to complete work quickly. This work pressure is likely to create a *non*-supportive environment by encouraging workers to take unsafe shortcuts in order to receive hazard pay or time-completion bonuses (Sawacha, Naoum, & Fong, 1999; Mohamed, 2002). Sawacha, Naoum, and Fong strongly criticize the practice of hazard pay, arguing that it is "tantamount to an inducement to [take] risks" even in the presence of an otherwise effective safety program (1999, p. 311). Situations such as these indicate that an organization truly values speedy completion over worker safety, and such cultural conflict should be avoided whenever possible in an organization. Thus, the supportive environment is one that is difficult to mandate: even if organizations legally adhere to safety regulations, they may also violate the spirit of those regulations.

2.32 Occupational Risk Communication

Occupational risk communication within the construction industry is mandated by OSHA Standard 1926.59. This standard is virtually identical to the agency's original chemical hazard communication standard, 1910.1200. Standard 1910.1200 demands that all job-related hazards be properly identified, evaluated, and communicated to both employers and employees (Occupational Safety and Health Administration, 1996). Occupational risk communication

includes training, rules and procedures, posters, and discussion with supervisors or "competent persons," who OSHA defines as individuals "capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who ha[ve] authorization to take prompt corrective measures to eliminate them" (Occupational Safety and Health Administration, 2010). Communication in safety culture research thus refers primarily to printed or computer artifacts, although it also refers to the everyday, unrecorded communication that occurs on a worksite. Such communication is considered to be the most important following a supportive environment (Choudhry & Fang, 2008). Training, which may include both oral and written communication, is particularly important; however, it must be combined with regular, informal refreshers of the risk information communicated at those training sessions. Carliner (2012) argues that this is one way in which technical communication approaches to risk communication differ from training: training requires additional interactions between the trainers and trainees, while technical communication would provide documentation to support the trainees' current needs. The former approach is thus dependent on the expertise of a single communicator who presents the information, whereas the latter approach encourages the trainees to adapt and use content according to their current or evolving needs. The processes and best practices of risk communication research are described in greater detail earlier in this literature review.

2.33 Worker Commitment

Worker commitment includes involvement in procedures, communication, and safe behavior; personal appreciation of risk; work competence; and safe work behavior (Mohamed, 2002). Though it may seem to be the most significant part of an organization's safety culture, worker commitment is truly dependent on each of the other components. For example, even

workers who begin with a strong commitment to safety may find that commitment erode in a non-supportive work environment or on a jobsite where communication is ignored.

2.34 Continual Hazard Appraisals

Continual hazard appraisals assess the potential for accidents on a jobsite, including physically unsafe conditions and unsafe worker actions. Vredenburgh (2002) argues that unsafe physical conditions on a jobsite are responsible for only 10 percent of accidents; thus, examining the physical conditions is important, but it is by no means the only component of a strong safety culture—or, in some cases, even the most important element.

Each of these four components of construction safety culture affects or is affected by at least one other: for example, even the strongest worker commitment can dim in the face of a working environment that does not value worker safety in attitude and/or artifact. As a result, any organization that attempts to focus on one component to the detriment of the others is not developing an organizational culture that encourages safe behavior in workers and supervisors alike. That being said, an organization can never be completely safe: even in organizations that create strong safety programs, accidents can and do occur (Gherardi, Nicolini, & Odella, 1998). Or, as risk research puts it, an individual's risk is never zero (Jardine & Hrudey, 1997; Nakayachi, 1998). The goal of a "safe" safety culture is simply to mitigate the risk caused by jobsite hazards as much as possible.

The next section elaborates on the theories and best practices behind safety training, which is a crucial element of occupational risk communication construction.

2.4 Workplace Learning

As the previous section argues, safety training is one of the most important elements of an effective safety culture within an organization. It is also the primary method by which risk

information is communicated to construction workers, in large part because OSHA requires all industries to provide appropriate safety training through Standard 1926.59. However, even though this safety training requirement is widely known throughout the construction industry, the qualities that make such safety training effective are less widely understood. This project approaches the construction safety training found in OSHA's Susan Harwood Training Grant program from a workplace learning framework, which is important to this project because many construction safety trainers possess technical knowledge of the safety principles but lack knowledge of workplace learning principles. This discrepancy causes the training programs— and, ultimately, the workers themselves—to suffer the consequences (Wilkins, 2011).

Workplace learning is a type of adult learning, an umbrella term that includes all formal and informal adult educational experiences. Adult learning thus includes experiences as varied as high school equivalency courses aimed at adults, extension or cultural activity courses, and workplace learning (Merriam & Brockett, 2007). Workplace learning, which includes both formal training programs and informal learning experiences, is particularly important given the amount of time adults spend on the job: According to March 2013 data, construction workers spend an average of 38.9 hours per week, or about 23 percent of their week, on the construction site (Bureau of Labor Statistics, 2013). However, workplace learning also places the worker in an uncomfortable and potentially untenable situation in the workplace. Although researchers recognize that context can make any adult an adult learner (Knowles, 1984; Jarvis, 2004), adult learners may be less likely to identify themselves as such because "learning...is existentially discomforting" (Barnett, 1999; p. 35). This discomfort develops in part because learning is typically associated with children and young adults (Barnett, 1999; Illeris, 2011). For many workers, identifying as an adult learner may be difficult to reconcile with their previous identities as experienced workers within an organization. This challenge to professional identity may be

even more difficult given the valorization of masculinity on many construction jobsites, which does not allow for the vulnerability that being an adult learner implies (Iacuone, 2002).

Despite the discomfort that learning as an adult worker can cause, certain situations can motivate these individuals to pursue learning. In many cases, there must be a "need to learn" (Kyndt, Dochy, & Nijs, 2009). For most workers, this exigence is a disjuncture between the individual's prior experience/knowledge and perception of his or her work environment (Jarvis, 2004). For the construction workers who comprise the majority of the SHTG training audience, the exigence is the mandate inherent in Occupational Safety and Health Administration standards for construction safety, specifically Standards 29 CFR Parts 1926.21(a) and 1926.21(b)(1) through (6)(i) and (ii). These two standards require OSHA to "establish and supervise programs for the education and training of employers and employees in the recognition, and prevention of unsafe conditions," employees to "avail [themselves] of the safety and health training programs the Secretary provides," and employers to "instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury" (U.S. Department of Labor, 1998). Thus, there are institutional, rather than individual, motivations for the training that is provided through the Harwood grant. Although the exigence differs from that of traditional workplace learning, many of the workers also may have identified a disjuncture between their knowledge of safe practices in construction and their current construction jobsites. Other financial and health needs are directly met by training, which makes workers more likely to maintain their current jobs, obtain new jobs, or receive salary increases (Aguinis & Kraiger, 2009). Workers who receive safety training are also less likely to experience deteriorating mental health, which can occur as a result of unsupportive work environments (Tsutsumi, et al., 2009).

Balanced against these benefits is the fact that, in the short term, workplace learning costs employers and employees in terms of jobsite time lost (Branch, 2009); as a result, trainers must

be able to defend the need for and benefits of training. In addition, workplace learning may also suffer from one or more of the learner deterrents noted by McGivney (1990): 1) lack of time, 2) negative effects from a learner's prior school experiences, 3) lack of confidence, 4) distance from classes, 5) lack of child care, 6) lack of daytime opportunities, and 7) view of education as irrelevant. Some of these deterrents can be addressed, if not countered, by incorporating workplace learning principles such as the following:

- **Learning should be practical and task-centered (rather than subject-centered).** Although workplace learners find it helpful to understand *why* they are being asked to complete certain tasks, they also need to be shown *how* to complete those tasks (Merriënboer, Kirschner, & Kester, 2003; Piskurich, 2006). In construction safety training, this perspective translates into training activities that directly relate to the trainees' daily work. Hands-on activities are especially valuable to workplace learners.

- **Learning should involve some element of self-direction.** Adult learners prefer to have some say in what they learn and when, rather than passively receiving information. For construction workers, this may translate into activities that are self-paced and participatory (Piskurich, 2006).

- **Learning should incorporate social interaction (Jarvis, 2004).** Workplace learning derives its perspectives on social learning from Vygotsky (1978), who argues that experience and social interaction are inextricably linked to learning. In workplace learning, Vygotsky's theory has translated into a model that posits learning as mutual between student and teacher (Wertsch & Sohmer, 1995).

- **Learning should be experiential.** Experiential learning simply recognizes that adult learners bring significant prior experiences with them to education; thus, education should respect and incorporate that prior experience (Raines, Hedeen, & Barton, 2010). Construction safety training that incorporates experiential learning might involve trainers

taking into account the prior embodied knowledge of the workers and workers coming

away with an understanding of the theoretical and technical knowledge about safety that

the trainer possesses, as in Sauer's (1998, 2003) interactions with mine workers.

- **Learning should be concerned with both immediate and future competencies (Boud & Garrick, 1999).** This final point is the most important for all workplaces, particularly the construction jobsite. Training is often characterized by its attention to immediate task completion, but for true learning to occur, trainers must also consider trainees' long-term learning. Boud and Garrick thus argue that it would not be enough to instruct construction workers to wear personal protective equipment (PPE) that prevents falls and then test the workers on the correct way to wear PPE. Trainers must also communicate *why* it is important to wear the PPE in the manner described and/or *how* PPE protects workers from falling. In this way, workplace learning is similar to risk perception and communication: communicators must indeed emphasize what individuals need to do *now,* but they must also include background information—particularly the *how* and the *why*— that their audiences will be able to retain and use in the future.

Training developers can ensure that these workplace learning principles are included in

their safety training documentation through the use of instructional design (ID) to develop that

documentation. ID guides instructional designers (who may or may not be responsible for

training itself) through the process of developing effective training in an efficient, timely manner

(Piskurich, 2006). This training may be developed within an organization, or it may be

developed by external consultants, such as those communicators who develop the SHTG

Program training documentation. Perhaps most importantly, ID models such as ADDIE

(Analyze-Design-Develop-Implement-Evaluate) depict training development as a multi-step,

recursive process. Instructional design also encourages training developers to understand the

problem facing an organization before attempting to respond to that problem (Rowland, 1993).

27

When instructional designers are ready to create training for learners within an organization, they take a learner-centered approach that adheres to the social constructionist model of learning (Shambaugh & Magliaro, 2006). The ADDIE model for instructional design has many benefits, among them the intense learner-centeredness of the training it develops. It also urges training developers to include multiple methods of delivery for training and to use only those methods that work for the audience and the material being delivered.

Instructional design, despite becoming quite popular in training, can be difficult to enact in dispersed networks of organizations because it requires in-depth knowledge of the organization and its members. The next section of the literature review discusses the importance of organizational communication and how that affects the SHTG program.

2.5 Organizational Communication

This research investigates, in part, the textual interactions of three very different types of organizations—a federal agency (OSHA), its grantees (nonprofits, universities, and others), and construction companies—and how those interactions shape the occupational risk communication products that the grantees create for construction workers. An organization's "members share in a potentially unique worldview embodied by the idiosyncratic content and structure of its knowledge system" (Harrison, 1987, p. 11). Organizations are thus discourse communities in which the "potentially unique worldview" that Harrison notes creates guidelines that may be explicitly described in company documents, or they may be tacitly understood by experienced members of the community and taught to new members by example (Beaufort, 1999). The previous experience and knowledge of individual, experienced communicators may also influence the behavior of these organizational discourse communities (Bazerman, 1988). The distinctiveness of the organizational worldview can thus create challenges when individuals

within an organization attempt to collaborate. The same individuals who might at one point serve as sounding boards during a brainstorming or revision session might in the next moment create distractions from the task at hand (Beaufort, 1999). Interaction among members of different organizations is similarly fraught with difficulty: "workplace professionals are likely to display insensitivity to their 'outside collaborators,' perhaps to the extent that they interact with them in a clumsy and alienating way" (Spilka, 1995, p. 438). As a result, understanding the complexities of organizational communication is particularly important for this research.

Organizational communication serves a number of rhetorical functions for organizations. Perhaps most importantly, communication is a primary way by which organizations develop and maintain their identities (Ran & Duimering, 2007). Mission statements, websites, and letters to stakeholders, among others, are some of the ways in which organizations communicate its identity claims. Geisler (2001) argues that the "more public a text becomes, the more significant it becomes for other members of the organization" (cited in Anderson, 2004, p. 158). Thus, any of the organization's texts that are available to all members of the organization—or those that are available to or directed at audiences outside of the organization—are highly significant to understanding the organization's identity because they publicly represent that identity. OSHA has made a number of guideline documents widely available via the SHTG program that shape how grantees and construction companies see the agency, and that vision can, in turn, eventually shape how individuals within the agency view it. Furthermore, the grantees represent themselves discursively through grant applications to OSHA and through the safety training documentation to construction workers. Both types of discourse must identify the grantee organization as an authority on the topic to be presented, and the topic as one that is compelling to the audience.

Public texts such as the SHTG program guidelines, grant applications, and safety training documentation represent the most stable elements of each organization's identity, because such texts are the last and most difficult texts to change (Anderson, 2004). Schneider argues that the

"social practices that make up the act of writing, produce and reproduce the apparently objective facts" of organizational identity (2002, p. 176). For individuals within an organization, it is much more difficult to challenge the ways in which tasks have always been performed and the messages that organizations have always presented: The power and authority of the organization are reified through its textual representations. This difficulty is why Porter, et al. (2000) suggest that the critique—and, ultimately, change—of organizations and institutions must begin at the level of those textual representations. Writing serves as an enforceable record of alterations in organizational policy (Anderson, 2004); as the safety culture section of this writing sample makes clear, written policy and safety training are obligatory elements of a safety culture that promotes safe worker and supervisor behavior. They are also what Sauer (2003) calls critical moments at which change can be enacted through text. Thus, policy and training serve as both contested sites of change and records of change that has already occurred. However, without tacit supervisory buy-in of the policies that are explicitly outlined in such safety communication, workers will likely ignore its recommendations and requirements in favor of those behaviors that are valued by supervisors and employers so that workers can retain their jobs (Sawacha, Naoum, & Fong, 1999; Mohamed, 2002).

What further complicates the organizational communication for the grantees and for OSHA's SHTG program is the unique organizational structure that constrains its audience. As the introduction emphasizes, construction is a quasifirm industry (Eccles, 1981). Rather than having all tasks in a project be completed by a single organization, each construction project is undertaken by several smaller organizations, each of which specializes in one or two areas (such as roofing or painting). The collection of organizations on a single project creates a temporary organization for the duration of that project (Lundin & Söderholm, 1995). In a temporary organization, an action or task legitimizes the organization: once the task is complete, the temporary organization dissolves into its previous components.

The impermanence of this structure means that the audience for the SHTG safety training documentation is even more complex than the usual audiences for workplace writing. As Beaufort (1999) notes, most communicators find that creating documents for complex audiences can be a strain on their individual and organizational resources. Ede and Lunsford (1984) argue that this is because the audience that communicators address in their work is always at least partly a fiction: that is, communicators can never adequately account for all of the needs of their audience members. Communicators must "envision" their audiences, which inevitably leads to an oversimplification of their needs, values, and characteristics. In the context of the SHTG program, grantees must envision their audiences for the training documentation in a way that matches the ways in which OSHA envisions those audiences; for example, the grantees may see their audiences primarily as the construction workers who they will be training in their own localities, while OSHA may consider broader audiences of construction workers in multiple areas. The grantees may also have to account for audiences that include supervisors, company owners, or even employees of multiple companies due to the distributed nature of construction work. Otherwise, the grantees face the possibility that risk and safety information will be communicated in the same manner as much of the information on a construction jobsite, which Dainty, Moore, and Murray (2006) characterize as resembling the game of "telephone." In this game, messages quickly become garbled as they are communicated to more and more people. However, unlike the game of telephone, communication on a construction jobsite cannot be characterized as linear: rather, the loose networks of contractors and workers (which shift by the project or even by the day) make jobsite communication more of a web. Although oversimplification of the audience may be tempered by in-depth research and reliance on a communicator's previous knowledge, it remains potentially dangerous for these webbed audiences of the SHTG program. Training documentation that does not account for the real needs of audience members can result, directly or indirectly, in injury or death.

31

Following from Carliner's (2012) examination of the overlaps between training and technical communication, occupational risk communication is one area in which training can learn from technical communication. The latter has, especially in recent years, emphasized participatory design methods that involve audience expertise throughout deliverable development (Spinuzzi, 2005). Prior research into occupational risk communication, such as that conducted by Sauer (2003), indicates both how such communication can benefit from participatory design methods and how difficult it can be to enact such participation.

Given these contexts, learning how communicators develop the SHTG safety training deliverables is an important part of understanding the occupational risk communication that it represents—and how audiences respond to and learn from that risk communication. In the next chapter, I introduce the research questions that guide this dissertation and discuss the methods used in this dissertation research.

CHAPTER 3. CONSIDERING OCCUPATIONAL RISK COMMUNICATION AS PROCESS AND PRODUCT: METHODS FOR TRACING SHTG DELIVERABLES

3.1 Overview

As Chapter 2 argues, the contexts in which the Susan Harwood Training Grant (SHTG) deliverables are created affect how they are received by audiences. In this study, I ask the following questions about the SHTG deliverables:

- **RQ1:** To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

- **RQ2:** How do the grantees respond to OSHA's institutional communication?

- **RQ3:** To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

These research questions acknowledge that the contexts surrounding the process of creating and distributing SHTG training documentation are complex: the documentation is the result of verbal and textual communication between OSHA and its grantees, between grantees and their potential audiences. The training documentation develops from external factors as well; for example, significant accident patterns in one grant year can drive OSHA's preferred training topics for the

next grant year, and emerging worker populations in the construction industry determine the audiences to which grantees aim their training documentation.

In responding to these questions, I rely on a mix of qualitative research methods that allow researchers to understand the "meaning individuals or groups ascribe to a social or human problem" such as the risk communication in the SHTG training documentation (Creswell, 2009, p. 4). The primary methods chosen for this project, context-sensitive text analysis and qualitative interviews, encourage a holistic reading of the texts as situated in a particular time and place.

This chapter outlines the research methods used in this project. The first section provides the methodology, or the rationale for the choice of methods and research design. The second section discusses the first stage of research, which includes context-sensitive text analysis of the SHTG training documentation and the research questions to which this method responds. The third section describes the second stage of research, which includes qualitative interviews with representatives of grantee organizations and the research questions to which this method responds.

3.2 Background: Qualitative Research Methods

Qualitative research is valuable to this study of SHTG training documentation because it does not *assume* meaning for the constructs being researched; rather, it allows the researcher to "discover and construct meaning" (Cochran & Dolan, 1984, p. 23, cited in Halpern, 1988). This lack of assumption enables the qualitative research process to be a flexible, changeable one, although the structure for the process is designed by the researcher (Halpern, 1988). Rude (2009) argues that there is one important assumption made in qualitative research: "Methods must accommodate the assumption that writing is a social activity, often produced collaboratively but also influenced by and influencing the context" (p. 192). The SHTG training documentation is

certainly the result of multiple social activities: 1) the development and publication of an initial call for proposals from OSHA, 2) the development of a proposal from a nonprofit organization, 3) the communication between OSHA and the nonprofit organizations that become grantees, 4) the internal communication of the nonprofit organizations, 5) the communication of the nonprofit organizations with the construction workers and supervisors who make up their potential audiences, and 6) the development and revision of the SHTG training documentation. These general activities are themselves broken into multiple smaller tasks as well.

In addition, the mix of methods in this study allowed me to address a more complex group of research questions than a single research method would have allowed. In this study, I relied primarily on two research methods: 1) context-sensitive text analysis of the SHTG training documentation and SHTG organizational documents, and 2) interviews with representatives of SHTG grantees. This combination of methods is necessary because, as Berkenkotter (2002) notes, "we cannot ... learn through records alone how an organization actually operates day by day. The competent qualitative researcher 'follows the actors' in the setting as well as 'following the texts'" (p. 51). Rude (2009) also notes an overreliance on textual analysis within technical communication: this method provides important information about texts, but it only provides a certain type of information. Incorporating mixed research methods allows the researcher to triangulate findings and develop a detailed, rich understanding of the phenomenon under consideration (Creswell, 2009).

The two methods in this study were conducted in sequential stages. In a sequential research design, the researcher "elaborate[s] on or expand[s] on the findings of one method with another method" (Creswell, 2009, p. 14). This approach was appropriate for this study because the questions asked in the second stage's interviews were shaped by conclusions drawn from the context-sensitive text analysis. Planning for the second stage was conducted concurrently with

the first stage, but data collection for the second stage occurred primarily after the first research stage was complete.

3.3 Stage 1: Context-Sensitive Text Analysis

The first research stage of this study, which focuses on the safety training deliverables created by the SHTG program's grantees, incorporates context-sensitive text analysis. This analysis responds to the following research questions:

- **RQ3:** To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

Context-sensitive text analysis is a type of rhetorical analysis that allows researchers to examine the "sociological and cultural dimensions" of texts (Huckin, 1992, p. 85); that is, this type of research allows researchers to examine "what texts do" and "how texts mean," not just what they mean (Bazerman and Prior, 2004, p. 3). While this type of analysis is sensitive to context, it remains grounded in the content of the text under examination. Researchers select an initial corpus, identify prominent patterns in the text to develop units of analysis, determine whether the analysis is worth pursuing, select a formal study corpus, and verify or revise the initial patterns (Grant-Davie, 1992; Huckin, 1992).

3.31 Corpus

This study's initial corpus included the 720 SHTG training documents available on the

SHTG program's website from 72 grantees as of October 2011; however, this initial corpus

included documents from different industries, not just the construction industry. The corpus was

quickly narrowed to the 76 training documents that focus on residential construction, meaning

that I eliminated training documentation focusing on non-residential construction, such as

highway workzones, in addition to the training documentation aimed at other industries. The

corpus was narrowed dramatically for several reasons. First, workers in the construction industry

are highly at risk for workplace injuries and fatalities. In 2011 (the most recent year for which

statistics are available), 721 construction workers died in work-related accidents; this number

represents 17.5 percent of the 4,114 workplace fatalities for that year (Bureau of Labor Statistics,

2012), which is the highest of any industry. Furthermore, the construction industry is the largest

in the United States, employing nearly six million workers at the end of 2012 (Bureau of Labor

Statistics, 2013), and its "quasifirm" structure (Eccles, 1981) creates frequent employee turnover,

meaning that both new and experienced workers constantly need training. Workers in the

residential sector of the construction industry may be even more likely than those in other sectors

to need training. Before the U.S. economic slowdown, the residential construction sector was the

fastest growing within the industry (Mullins, 2006). Since the recession, the overall number of

residential construction jobs has decreased (Cover, 2011), which suggests that SHTG safety

training programs may be even more important to individual workers seeking jobs than to the

companies that hire them: having the training might give individual workers an edge in getting

and keeping construction jobs in a competitive job-seeking market.

The final corpus for this stage of the study consists of all safety training deliverables

aimed at residential construction workers, which were available on the SHTG program website

in October 2011. These deliverables were created by twelve grantees from 2006-2009:

1. *Southwest Safety Training Alliance (2006)*

   The Arizona-based Southwest Safety Training Alliance received $187,725 to develop Focus Four training materials for trainers and workers in the southwestern United States (Occupational Safety and Health Administration, 2006).

2. *University of Texas at Arlington (2007)*

   The University of Texas at Arlington received $145,131 to develop English and Spanish training courses on excavation safety for construction workers in OSHA Region VI, which includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas (Occupational Safety and Health Administration, 2007).

3. *University of Maryland Fire and Rescue Institute (2007)*

   The University of Maryland Fire and Rescue Institute received $169,147 to develop training courses for construction workers that "include interactive models and hands-on activities" (Occupational Safety and Health Administration, 2007).

4. *Maysville Community and Technical College (2007)*

   Kentucky-based Maysville Community and Technical College received $140,379 to create a four-hour training course on roofing safety (Occupational Safety and Health Administration, 2007).

5. *Indian River Community College (2007)*

   Florida-based Indian River Community College, now known as Indian River State College, received $217,121 to develop 25 safety training courses for construction

workers in the four counties served by its campus in Fort Pierce, Florida (Occupational

Safety and Health Administration, 2007).

6. *National Association of Homebuilders Research Center (2007)*

The Maryland-based NAHB Research Center, a subsidiary of the National Association of

Homebuilders, received $241,248 to revise training materials developed through an

earlier Harwood grant and present them to construction workers in the 20 top home

building markets in the United States (Occupational Safety and Health Administration,

2007).

7. *National Safety Council (2008)*

The Illinois-based National Safety Council has received multiple SHTG grants, though

not all for construction-related topics. In 2008, the NSC received an unidentified amount

of funding to develop Focus Four training (Occupational Safety and Health

Administration, 2012).

8. *Compación (sic) Foundation (2008)*

The Texas-based Compación Foundation received $190,000 to train 500 Spanish-

speaking construction workers in the industry's Focus Four hazards: falls, electrocutions,

caught-in and struck-by (Occupational Safety and Health Administration, 2008).

9. *Associated Builders and Contractors - Central Texas Chapter (2008)*

The central Texas chapter of Associated Builders and Contractors, Inc., received

$162,649 to develop two-day Focus Four training materials that included a one-day lab to

familiarize workers with safety equipment (Occupational Safety and Health Administration, 2008).

10. *Trimmer Foundation (2009)*

The Virginia-based Trimmer Foundation, which is the educational branch of the Associated Builders and Contractors, received $183,426 to develop Focus Four training for apprentices and other at-risk employees on the construction worksite (Occupational Safety and Health Administration, 2009).

11. *University of Nevada, Las Vegas (2009)*

The University of Nevada, Las Vegas received $287,674 to conduct English- and Spanish-language fall protection training that includes both classroom-based and hands-on modules (Occupational Safety and Health Administration, 2009).

12. *Philadelphia Area Project on Occupational Safety and Health (2009)*

The Philadelphia Area Project on Occupational Safety and Health received $277,456 to revise training courses developed through a previous grant (Occupational Safety and Health Administration, 2009).

Each grantee's training documentation is available via the SHTG program website, http://www.osha.gov/dte/sharwood/index.html. The corpus of SHTG training documentation used in this dissertation includes 76 documents:

- 27 English-language PowerPoint slide decks
- 15 Spanish-language PowerPoint slide decks
- 18 activities (including quizzes, lab activities, etc.)

- 6 trainer manuals

- 5 trainee manuals

- 5 course governance documents (including check-in sheets, evaluations, etc.)

One Southwest Safety Training Alliance presentation module was eliminated because it was a "train the trainer" document; as such, it does not fit the parameters of this study. In addition, National Safety Council divided its trainer and trainee manuals into smaller PDF files; however, each of those documents has been counted as a single file here to maintain consistency in the coding and analysis. In addition, the number and range of genres in this corpus is consistent with the range found in the overall corpus. However, each grantee created different numbers and genres of documentation. For some grantees, only training presentation modules are available on the SHTG program website. Other grantees contributed trainee manuals, registration documents, and outlines for potential training classes, in addition to the presentation modules.

3.32 Coding and Analysis

In this study, I incorporated qualitative coding to account for implicit and explicit characteristics of the conventions and content in each grantee's corpus. To maintain consistency in the analysis, the unit of analysis was the individual slide (for PowerPoint documents or PDFs of those documents) or page (for Word documents or PDFs of those documents).

In the first round of coding, I focused on document-level conventions and slide- or page-level content. Conventions are the practices, techniques, or characteristics that a genre acquires as a result of audience or creator expectations (Kostelnick & Hassett, 2003), and the SHTG deliverables display certain consistent characteristics across the corpus. Each slide or page was hand-coded for the following conventions and content:

1. document genre (PowerPoint slide deck, instructor guide, student manual, etc.)

2. title pages/slides

3. tables of contents or overviews

4. page or slide numbers

5. introductions to the trainer or training organization

6. disclaimers about the training

7. objectives for the training

8. end summary of the training

9. appendices

10. justification strategies for the training

11. background information (including definitions, descriptions, and explanations)

12. instructions

13. information attribution

14. trainer's notes

15. graphics

16. activities

A full description of the content coding schema is available in Appendix 1, and a sample coded deliverable from this round of coding is available in Appendix 4. Following this initial coding, I analyzed each grantee's content (Appendix 2), and I compared and analyzed types of content across grantees (Appendix 3). Once I completed the first round of content coding, I coded each activity to account for its type and to determine if it:

1. was self-directed

2. was interactive

3. asked workers to examine visuals

4. encouraged trainees to ask questions

5. asked workers to practice with equipment

6. asked workers to read and/or write

7. asked workers to identify and/or solve problems

8. asked workers to plan future actions

A full description of the activity characteristic coding schema is available in Appendix 1.

Following the first round of coding, I narrowed the content types down to those that drew from current research in workplace learning, construction safety training, and risk communication. In some cases, these theories coincided with recommendations from OSHA's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (2011). As discussed in the literature review, workplace learners learn best when training is 1) practical and task-centered, 2) self-directed, and 3) voluntary (Cranton, 1994; Knowles, 1996; Jarvis, 2004; Kyndt, Dochy, & Nijs, 2009). Furthermore, research in construction safety training and broader risk communication suggests that safety training documentation should provide spaces for workers to contribute their own prior experience and knowledge (Bust, Gibb, & Pink, 2008). Thus, the second round of coding focused on the following content in deliverables:

1. Genre (PowerPoint slide deck, manual, etc.)

2. Justification strategies for the training

3. Tasks and conceptual information

4. Graphics

5. Activities

Research in the fields of workplace learning and occupational risk communication indicate that these types of content can contribute to adult learners' overall learning, making them valuable to understanding how construction workers process and retain safety information. I focused particularly closely on activities, which is a significant element of practical, self-directed training (Merriënboer, Kirschner, & Kester, 2003; Piskurich, 2006) as well as a learning opportunity that

43

encourages workers to bring their own experiences and knowledge into the training. However, I also looked for a balance in the types of content that were included: the key to an effective training presentation is ensuring that a single type of content does not dominate, which can dull even the most interactive content (Piskurich, 2006).

In addition, certain types of content can serve multiple functions within the documentation. For example, graphics can also be part of activities and justification strategies. In such situations, the coding accounted for this overlap. The content types are discussed in more depth below.

The grantee's choice of **genre(s)** suggests, at least in part, how they envision their roles in relation to the SHTG program and the construction worker trainees. Genre, as Devitt (1993) argues, is not merely a way to sort documents into types or categories; instead, a genre is a predictable pattern of organizing information that responds to a specific purpose or situation. Furthermore, genres are reflections of social actions in a particular discourse community (Miller, 1984), such as the SHTG program (part of the larger OSHA discourse community), the grantee organizations, or the trainees. The genres that appear on the SHTG program website are thus important because they represent the SHTG program's social expectations for new grantees. When patterns appear consistently throughout documentation created by different grantees, it suggests that these have been successful, even if not with trainees, then with the SHTG program that serve as the gatekeepers for the documentation.

Justification strategies respond to the discomfort that trainees may feel when they are positioned as workplace learners. This type of content aims to persuade the trainees that the training is worthy of their time and attention; thus, slides and pages containing justification are the most blatantly rhetorical of all the content in the SHTG deliverables. Justification strategies are particularly necessary within these deliverables because the imperative for this workplace learning comes from the institution rather than the individual; that is, the "need to learn" that

Kyndt, Dochy, and Nijs (2009) posit as vital to the experience of the workplace learner does not exist prior to the SHTG training.

The SHTG deliverables attempt to create the "need to learn" through several strategies, among them case studies, images, and statistics. Most frequent among the SHTG PowerPoint slide decks are statistics that indicate the prevalence of accidents, injuries, and deaths as a result of unsafe behavior on the construction jobsite, with nearly all of the grantees including at least one slide with this type of justification strategy. Statistics are usually not the only type of justification strategy included on documentation; rather, they are often paired with case studies and/or images. Combining the hard numbers with the narratives of case studies or the visual impact of images can clearly share stories of workers who were injured or died as a result of workplace accidents. In some cases, the case studies encourage active participation from the learners, such as when they ask learners how the individual in the case study might have avoided the accident. However, a structure that simply presents the narrative to passive trainees is far more common.

Tasks and conceptual information are two of the most important types of information that grantees include in their deliverables. Tasks are "step-by-step instructions on how to do an action, plus the rationale or context for the action." (Hargis, et al., 2004, p. 11). The phrasing in these instructions is a key characteristic of analysis: Loorbach, Steehouder, and Taal (2006) argue that motivational elements such as friendly, conversational phrasing and occasional reminders of how much the audience has accomplished in the task can increase the audience's appreciation of the instructions; however, the researchers find little evidence that these elements increase individuals' ability to complete the tasks. Conceptual information, which includes extended definitions and explanations (Hargis, et al., 2004) is often found on the same slide as tasks. Although this type of content may seem less important for experienced workers, including them can also establish a common language for the trainers and workers. Their inclusion

addresses the "clarity" best practice of safety training, which argues that "the training must be both in a language and vocabulary that the workers can understand" (Occupational Safety and Health Administration, 2010). In addition to establishing a common ground for the trainer and trainees, knowing the disciplinary definitions of terms used in an individual's workplace is essential to succeeding in that workplace (Johnson-Sheehan, 2010). Furthermore, this background information should generally be included before learners begin to work on complex tasks such as those found in construction: this type of scaffolding makes the task less challenging for trainees as they begin to practice the task (Merriënboer, Kirschner, & Kester, 2003). Furthermore, trainees want—and deserve—to know why they are being asked to perform an action (Redish & Carroll, 1998; Boud & Garrick, 1999). Although the direct practicality of learning remains foremost for trainees (Knowles, 1996), they also seek to understand the rationale for that learning. The *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (Occupational Safety and Health Administration, 2011) document emphasizes that explanations can help trainees learn instructions more quickly and thoroughly. Research in risk communication also supports this emphasis on sharing the "why" of actions. Such information can indicate a level of respect for the audience members and their needs, and this is an important step for grantees to consider. Rhodes (2009) emphasizes that risk communication requires a building of trust, which certainly includes an assumption that trainees can and should know why they are being asked to behave in a certain way. Merely saying "it's for your safety" as in the technocratic model of risk communication is not enough; in fact, such a strategy is likely to alienate trainees who are also experienced workers (Waddell, 1995). Sharing the "why" of the research also opens up space for trainees to share their own narratives from working on jobsites.

The third type of content, **graphics**, includes pictures, illustrations, and data displays such as graphs or charts. As Kostelnick and Roberts put it, graphics can "instruct, persuade,

motivate, announce a topic, or set a mood" (1998, p. 313). In the SHTG training documentation, graphics serve all of these purposes and more. Pictures in particular can evoke emotional responses, and these responses can either support or hinder the training. Many trainees respond negatively to explicit pictures of injuries or fatalities, suggesting that such pictures are not worth including in the training (Sauer, 2003; Evia, 2011); however, as the documentation indicates, such images are often included anyway. Furthermore, unrelated graphics can actually diminish a learner's information retention (Amare, 2006).

Finally, **activities** can take the following forms: image review, quizzes, role play, equipment demonstration, case studies, group discussion, and practice exercises, among others. The sheer variety of possible activities provides grantees with options that will make both trainers and trainees more comfortable than lectures. Furthermore, lectures are not always the best way to communicate risk and safety information. The *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (Occupational Safety and Health Administration, 2011) document promotes activity-based learning as the best way to improve trainees' retention of risk sand safety information. Piskurich (2006) argues that the quality of a training session can be directly tied to the quality of the activities in that training session, which is a clear indicator that activities are perhaps the most important content included in SHTG training documentation. This does not mean that all activities are equally effective at all points in the training. Activities that present learners with "worked-out examples," such as image reviews with labels that identify unsafe behavior, can reduce the initial cognitive load on the trainees (Merrienboer, Kirschner, & Kester, 2003). These "worked-out examples" are thus vital in the early stages of training for complex tasks, when trainees may find it uncomfortable or may be unable to identify problematic behaviors; however, these types of activities do not oblige trainees to consider them carefully in the context of the knowledge that trainers want them to retain. As the training progresses, trainers will need to ask trainees to apply their own knowledge to a

situation, as in image review sessions that ask trainees to identify what is wrong with a situation presented in an image or as in practice exercises that ask trainees to practice start-of-day jobsite safety inspections.

3.4 Stage 2: Qualitative Interviews

This study's second research method, qualitative interviews of the SHTG training documentation developers, allowed me as the researcher to discover the grantees' perspectives on their training documentation and on OSHA's institutional communications. The interviews respond to the following research questions:

- **RQ1:** To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

- **RQ2:** How do the grantees respond to OSHA's institutional communication?

Qualitative interviews are useful when seeking to develop detailed, holistic descriptions of a process or document, when integrating multiple perspectives, and when learning how phenomena are interpreted (Weiss, 1994). Tanggaard (2007) argues that individual interviews can provide heteroglossic—resistant, contradictory—responses to institutional discourse, such as that offered by OSHA through the SHTG program documents; such contradiction enriches our understanding of the institution and the individuals. Thus, this method is particularly appropriate for understanding how OSHA's SHTG program constrains and enables the development of safety training documentation.

3.41 Participants

Concurrent with the context-sensitive text analysis, I contacted (via phone and e-mail) each of the grantee organizations whose work was represented on the SHTG website as of

October 2011 to interview the individuals who were involved in developing the documentation. I

contacted each organization as soon as I completed the coding for their organization's training

documentation. The first round of communication resulted in an immediate agreement from a

representative of one organization. Additional communication resulted in three more

interviewees. The time spent at each organization differed according to each participant. One

participant had been with the organization for just over two years, and another had been with

hers for over five years. The other two had been with their respective organizations for well over

ten years.

This project initially was designed to include responses from representatives of OSHA,

particularly the SHTG program. Identifying a willing representative from OSHA was a complex

and, ultimately, unsuccessful process. The contact information available on the SHTG website is

a single programmatic e-mail address, meaning that all inquiries about the grant must be directed

to that e-mail address. Initial e-mail communication with this address received a negative

response: the organization responded that it was unable to participate in the project, though it

declined to say why it refused. Direct contact with another individual in OSHA suggested that it

might be possible to interview someone connected with the SHTG program; despite additional

requests through this contact, OSHA again declined to participate in the project.

3.42 Structure

Although interviews often appear to be conversations, they have a far different structure:

an interviewer should allow the respondent sufficient time and freedom to discuss what the latter

finds important, but also guide the discussion back to the main topic of discussion (Weiss, 1994).

All of this must also be done in a way that does not alienate or irritate the respondent.

With the above guidelines in mind, I developed a list of interview questions that address

key concerns about the SHTG training documentation. These questions prioritized the process of

developing and implementing the SHTG training documentation over than the content, although interview participants were encouraged to discuss content when the topic arose within the interview. These questions also emerged from the five research questions that guide this study:

1. How did your organization decide to pursue the SHTG grant opportunity?

2. Who was involved in the grant process? How did they become involved?

3. How did your organization decide on the topic(s) for the documentation?

4. How did your organization decide on the genre(s) (PowerPoint, manual, etc.) for the documentation?

5. Describe the process of translating the documents from English to Spanish (and/or other languages).

6. How did you test the documentation?

7. In what ways (if any) did the SHTG policies and website influence the organization's development process? The training documentation itself?

8. What types of communication (e-mail, phone, etc.) did the program have as you develop the training documentation (and vice versa)? How frequent was that communication?

9. How did the communication with the SHTG program influence the development process? The training documentation itself?

Interview questions 1, 2, and 3 address the organization's motivations and qualifications for applying to the SHTG program and developing the SHTG deliverables. Clearly identifying qualifications for completing a grant's designated activities is one of the most important elements of proposals; organizations that are able to demonstrate how their qualifications match the needs of a grant program are more likely to be funded than those that do not (Hall & Howlett, 2003; Grove, 2004). The responses to these questions also suggests the qualities that the SHTG

program values in a grantee organization and the topics and strategies that the program seeks to emphasize, given that all of the participants interviewed were part of successful grant applications.

Questions 2, 3, 4, and 5 address more practical aspects of developing the training documentation, such as determining the topics and delivery style for the training. These aspects are driven in large part by SHTG guidelines, but there is some room for the grantee organizations to put their own stamps on the training documentation. For example, many of the grantees chose to incorporate images and case studies from their own areas, rather than use similar information from other grantees in order to create a sense of what faced local workers. As mentioned earlier in this section, Question 5 was added after the first interview, in which the participant indicated that translation of the documentation is increasingly important to the SHTG program.

Question 6 addresses how the intended primary audiences—workers, in most cases, but also supervisors and contractors—responded to the training documentation. This question emerged from prior research in instructional design and user experience, which indicates that user or audience satisfaction with communication is closely related to the effectiveness and efficiency of that communication (Jokela, Iivari, Matero, & Karukka, 2003). Satisfaction is particularly important for the communication of complex information, such as that regarding safety (Albers, 2011). Several of the respondents discussed the topic of audience response without prompting, suggesting that it was a key consideration for them.

Interview questions 7, 8, and 9 address the project's research questions about SHTG institutional constraints and how those constraints influence the training documentation. Porter, et al. (2000) argue that local institutions are constructed through discourse; thus, these questions were intended to elicit responses indicating how the institution of OSHA, and the SHTG program in particular, were perceived by the grantees. For example, participants responded to these questions with discussion of how OSHA responded to their training documentation at

various points in the development process, and how they revised the documentation based on that feedback.

Although I did not necessarily ask the questions above in the exact order shown here, each interview included all of these topics. In addition, some questions and follow-up topics arose during interviews based on participant cues. For example, the first participant mentioned translating the documents as part of his response to a question; this topic was not covered in the initial list of questions, but it was clearly an important element of the development process for the participants. Thus, in this early interview, the participant was given time to discuss translation at length, and the topic was added to the list of interview questions for later interviews. To accommodate the participants' priorities, I asked at the end of each interview if the participant would like to address anything else in the interview; this move also allowed participants some agency over the direction of the interview. Although not every participant opted to discuss anything new in this section of the interview, two of the participants used this opportunity to continue the interview for five to ten more minutes, resulting in fruitful avenues of discussion.

Each interview lasted approximately 45-50 minutes over the telephone. The choice of telephone interviews was primarily a practical one. Although telephone interviews can make it more difficult to establish rapport with participants (Weiss, 1994), they also impose less on busy participants. This type of interview also allowed me to talk to participants without needing to travel to their locations. As mentioned earlier in the chapter, grantee organizations were located in Illinois, Nevada, and other locations that would be difficult and expensive to visit in person. In addition, the length of these interviews enabled participants to discuss each topic in depth, without demanding too much of their time.

3.43 Transcription/Coding

Immediately following each interview, the interviews were transcribed and coded for overarching issues and themes. Transcription is a time-consuming process, as noted by a number of scholars (Weiss, 1994; MacNealy, 1999; Bird, 2005). However, it is also a necessary and valuable process that allows researchers to analyze participant discourse accurately and quickly (Weiss, 1994). Transcription of these interviews required approximately 5-10 minutes for every minute of the recording; the average time needed for transcribing each interview was 4-6 hours.

The transcription process accounted for each participant's direct words; verbal fillers such as "uh" and "you know" were occasionally indicated in these transcriptions to represent pauses where participants were considering their responses, but for the most part these filler words were omitted to focus on the primary discussion of the SHTG process and product. This strategy is consistent with current research: Lapadat and Lindsay (1999) and Bird (2005) remind scholars that the key to transcription is not to try to represent everything that was said or done in an interview; rather, researchers should instead determine how and what to represent in the transcription.

After transcribing the documents, I situated the information from the interviews within the context of the institutional discourse available on the SHTG website. The website currently includes a program overview, links to the official call for proposals, best practices information, and work from prior grantees (including "success stories" that report numbers of trainees), among other information. Comparing the institutional discourse to participant interviews reveals the overlaps and the variations in institutional guidelines and practice. This comparison also suggests how the constraints enacted by the simple practice of having a formalized grant program can help and/or hinder the grantees as they attempt to create technically and emotionally effective safety training documentation for construction workers.

The next two chapters present and analyze the results of the two stages of research described in this chapter. Chapter 4 focuses on the results of the context-sensitive text analysis of the SHTG deliverables from the twelve grantees introduced in this chapter. In this chapter, I determine how well the deliverables adhere to current theories in workplace learning and risk communication, as well as OSHA's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*. Chapter 5 focuses on the results qualitative interviews with representatives from three different SHTG grantee organizations. In this chapter, I examine the process of creating the SHTG deliverables and how the SHTG program's formal and informal institutional discourse shapes the deliverables.

CHAPTER 4. ANALYZING OCCUPATIONAL RISK COMMUNICATION DELIVERABLES: HOW SHTG GRANTEES INCORPORATE OSHA'S *BEST PRACTICES,* THEORIES OF RISK COMMUNICATION, AND THEORIES OF WORKPLACE LEARNING

4.1 Overview

In this chapter, I report my analysis of deliverables created by twelve grantees of the Occupational Safety and Health Administration's Susan Harwood Training Grant (SHTG) program. These deliverables, which are focused on construction workers, include safety training presentations, quizzes, manuals, and other documentation genres. Although the SHTG program provides training for workers in a number of hazardous industries, I focus on deliverables aimed at construction workers because they are the most at risk for on-the-job injuries and fatalities (Bureau of Labor Statistics, 2012). In this chapter, I focus on analysis of deliverables from the following twelve grantees:

- Southwest Safety Training Alliance (2006)

- University of Texas at Arlington (2007)

- University of Maryland-Maryland Fire and Rescue Institute (2007)

- Maysville Community and Technical College (2007)

- Indian River Community College (2007)

- National Association of Homebuilders Research Center (2007)

- National Safety Council (2008)

- Compación Foundation (2008)

- Associated Builders and Contractors - Central Texas Chapter (2008)

- Trimmer Foundation (2009)

- University of Nevada, Las Vegas (2009)

- Philadelphia Area Project on Occupational Safety and Health (2009)

4.2 Framework

   As the previous chapter explains, these deliverables are created after extensive review by the SHTG program. As a result, they should be what the SHTG program calls "sound training programs" (Occupational Safety and Health Administration, 2010); that is, these deliverables should be accurate, credible, clear, and practical, according to the program's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*. Furthermore, these deliverables must persuade trainees that the training is worth their time and attention, even before the deliverables present occupational safety information.

   These deliverables also represent one of Beverly Sauer's "critical moments" in which change can occur in occupational risk communication: "when written procedures are transformed into training" (2003, p. 17). As I proposed in the previous chapter, this critical moment can be expanded into multiple milestones that grantees must reach in order to present the final deliverables to OSHA and to trainees. In this chapter, I analyze the results of those milestones: the deliverables that the grantees create. The analysis in this chapter is based on three research questions asked in Chapter 3 ("Methods"):

- **RQ3:** To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

Both risk communication research and workplace learning research emphasize respecting the audience's previous experience (Sauer, 2003; Raines, Hedeen, & Barton, 2010), persuading the audience that the information being communicated is important and applicable to the audience

members' lives (Reynolds, 2011; Merriënboer, Kirschner, & Kester, 2003), and providing both

concrete tasks that the audience can implement immediately and long-term information retention

(Boud & Garrick, 1999; Sauer, 2003; Piskurich, 2006; Simmons, 2007). In my analysis, I

focused on features of the deliverables that emphasize these overlaps. The next section of this

chapter describes these features and the methodology used in the analysis.

4.3 Analysis

In the remainder of the chapter, I report the results of analyzing the deliverables created

by SHTG grantees for audiences of construction workers. This section focuses on the most

common content types of the SHTG deliverables. These content types have been predetermined

in part by the SHTG program and are represented in the program's official documentation. For

example, in the *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood*

Training Grants (Occupational Safety and Health Administration, 2010), the SHTG program

explicitly endorses the use of activity-based learning. In other cases, grantees implicitly agreed

on certain conventions by adopting ideas from deliverables created by previous grantees; in

doing so, they confer unofficial approval on those ideas. In this section, I begin by discussing the

genres that the grantees use to communicate risk information and then shift into more specific

content: the grantees' justification strategies, instructions, graphics, and activity-based learning.

4.31 Genre

Since the introduction of Microsoft PowerPoint in 1990, PowerPoint slide decks have

evolved into the dominant mode of presentation in business, government, and higher education

(Yates & Orlikowski, 2007). OSHA is no exception. Although the agency does not formally

require its grantees to include a PowerPoint slide deck as its primary delivery method for

training, the genre is strongly emphasized in the organization's annual request for SHTG

program proposals and *Best Practices for the Development, Delivery, and Evaluation of Susan*

Harwood Training Grants (Occupational Safety and Health Administration, 2010; 2012). Even

OSHA's own proprietary fall-prevention training, which provides a model for grantees to emulate, emphasizes PowerPoint as an approved medium through which training can be presented (Occupational Safety and Health Administration, 2011c). The grantees responded to this emphasis by including at least one PowerPoint slide deck within their deliverables, and a number of the grantees included several slide decks. As a result, these slide decks dominate the corpus of deliverables: Nearly half (47%) are slide decks, and another 12% are PDF versions of PowerPoint slide decks. Seven of the twelve grantees consolidated all of their training presentations into one longer slide deck, while the remaining five grantees split their presentations into multiple, smaller slide decks, as shown in Table 1. Furthermore, seven of the twelve grantees included Spanish-language versions of their slide decks (Table 1).

	SSTA	UTA	UMFRI	MCTC	IRCC	NAHB	NSC	CF	ABC-CTC	TF	UNLV	PhilaPOSH
English-language	6	2	1	1	1	1	4	5	1	1	1	2
Spanish-language	6	0	1	0	1	1	0	5	1	1	0	0

Table 1: PowerPoint Slide Deck (including Slide Deck PDFs) Deliverables

OSHA's rationale for focusing on PowerPoint slide decks as the primary deliverables is that the slide decks can potentially be part of effective presentations (Occupational Safety and Health Administration, 2010): the software permits presenters to embed movies, images, and other media that, integrated effectively, can theoretically improve learner recall and comprehension (Adams, 2006; Cherette, et al., 2009). Furthermore, learners often claim that they are more engaged and learn more from PowerPoint presentations than by traditional instruction methods like lecture (Amare, 2006). However, some researchers have noted that this effect is, like many self-reported effects, at least partially illusory: when tested even a short time later, students' knowledge on the presentation topic is often limited (Bartsch & Coburn, 2003; Amare, 2006; Craig & Amernic, 2006).

PowerPoint also offers a number of pitfalls for the unwary trainer. Perhaps most distressing is the software's tendency to downplay key or complex information. The software's emphasis on a bulleted topic-subtopic structure of information can de-emphasize important information by flattening the hierarchy of topics, subtopics, and body content. Farkas (2005) argues that this flattening destroys the clarity of the presentation's structure, a move that reduces comprehensibility of the presentation as a whole. As Albers (2011) argues, individuals need information to be clearly and carefully organized for it to be useful. Furthermore, complex knowledge that cannot be easily represented in bullet form tends to be left out of slides, and

learners disregard information that is not included on a slide as being unimportant (Adams, 2006). This sets up a troubling dichotomy: 1) if presenters try to reduce the amount of information conveyed in each slide, learners may ignore crucial material that isn't visually or textually represented on the slide, or 2) if presenters attempt to crowd as much information as possible onto the slides, the slides become harder to read or the presentation becomes unreasonably long as a whole (Tufte, 2003). Given that the length of the slide decks in the corpus averages 69.25 slides, most grantees elected to include as much information as possible.

The PowerPoint software, the PowerPoint text itself, and the PowerPoint presentation genre all have significant differences. Yates & Orlikowski (2007) note that the presentation genre combines orality and textuality via the interaction of the text and the speaker. As a result, any information that is not directly represented in text form in the slides can be communicated by the speaker. However, the SHTG program website only presents the slide decks, which have been divorced from the presentation genre; although these texts were most likely created as part of full presentations given by instructors associated with the grantees, secondary audiences (which include future grantees and applicants) now can only access the text and images that are present on the slide. Yates and Orlikowski note that a shift from presentation to slide deck often has unintended effects on both the presenter and audience:

> When the creator of the PowerPoint texts could no longer count on being present to interpret and amplify them, he or she often put many more words and images on each slide than could realistically be absorbed by the viewer watching the presentation in real time. So creating the same PowerPoint texts for use as part of both the PowerPoint presentation as well as the corollary deck-as-deliverable genre produced the dual problems of information overload and loss of meaning referred to before. (2007, p. 86)

In other words, because secondary audiences are seeing only the slide deck rather than the presentation, it is difficult to establish the full effects of the presentations. Instead, these

secondary audiences can only establish how well the document works as a stand-alone slide deck.

Although the PowerPoint slide deck serves as the primary way in which risk information is communicated to trainees on the corpus of SHTG deliverables, seven of the twelve grantees included at least one type of additional deliverables. These additional deliverables can be loosely grouped into two categories. The first category, which includes activity handouts and trainee manuals, primarily reinforces the risk information that is communicated in the training course. The most common deliverable in this category focuses on testing and evaluation: Thirteen of the seventeen activity handouts are pre- and/or post-tests that attempt to measure the growth in trainees' immediate recall of risk information communicated through the PowerPoint presentations.

	SSTA	UTA	UMFRI	MCTC	IRCC	NAHB	NSC	CF	ABC-CTC	TF	UNLV	PhilaPOSH
Trainee-Oriented Deliverables	5	1	2	0	0	2	2	0	0	0	1	2
Trainer-Oriented Deliverables	6	0	0	0	0	2	2	0	0	0	1	2

Table 2: Supplementary Deliverables by Audience

In their *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (Occupational Safety and Health Administration, 2010), the SHTG program strongly recommends including this type of pre- and post-test system as a scientific way to measure such learning and recall. This recommendation follows similar calls within risk communication research. Rohrmann acknowledges three ways in which the effectiveness of risk communication can be measured: "advancing/changing knowledges and attitudes, modifying risk-relevant behavior, and facilitating cooperative conflict resolution" (1992, p. 170). Pre- and post- tests, however extensive and sensitive the questions, primarily measure the first of these

ways, "advancing/changing knowledges and attitudes." However, this measurement is itself limited to trainees' *immediate* changes in knowledges or attitudes. As Shannon, Robson, and Guastello (1999) argue, occupational safety interventions such as the SHTG program rarely result in long-term changes in behavior on their own: even when pre- and post-testing reveals a change in trainees following the session, trainee behavior may remain the same when on the jobsite. That is not to say that the pre- and post-tests, much less occupational risk communication, have no value. Rather, as Chapter 2 argues, occupational risk communication must be paired with other elements of a safety culture such as a supportive environment (Mohamed, 2002; Choudhry & Fang, 2008) and continual hazard appraisals (Vredenburgh, 2002) to be truly effective. The pre- and post-tests that measure changes in trainees' knowledges and attitudes serve a valuable function by providing empirical data that the grantee can share with the SHTG program as a measure of the immediate effectiveness of the deliverables.

Two other grantees, UNLV and National Safety Council, include deliverables beyond the pre- and post-tests. UNLV's first handout is a list of activities, including demonstrations of rescue plans, safety nets, and other safety equipment; several other grantees refer to at least one of these activities within their slide decks, although they do not include them on a separate document. UNLV's second handout, which describes a roleplaying exercise focused on assertiveness, is distinct from activities created by other grantees. Narratives such as the one in this roleplaying exercise play a significant role in adult education that seeks to change student behavior as well as knowledge (Slater & Rouner, 2002). Furthermore, risk communication research suggests that narratives are far more persuasive than statistics for most audiences (Krimsky & Golding, 1992). In contrast to the other deliverables in this category, National Safety Council's pocket reference guide is designed for trainees to use on the jobsite. Like reference manuals in technical communication contexts, this manual includes information that trainees can find quickly and easily. This particular reference guide includes checklists for safe

conditions on the jobsite, procedures to follow in case of electric shock emergencies, and other, similar information. Unlike the slide decks, including those created by the same grantee, this deliverable includes very little conceptual information. It is thus clearly intended as a reference that refreshes the trainee's memory rather than as a deliverable that explains new concept.

The second category of deliverables, which includes trainer manuals and course governance documents (sign-in sheets, recruitment flyers, etc.), assists trainers with training course facilitation. As a result, this category is essential for smoothing the way of two frequently unacknowledged audiences: individuals who adapt and repurpose the deliverables for training within their own (presumably smaller) construction companies and later applicants or grantees of the SHTG program. Although these audiences are likely not those that the grantees creating the deliverables sought to reach with their work, these groups constitute significant portions of the SHTG website audience, whether they are acknowledged or not. As the previous chapter notes, many successful SHTG grant applicants review previously published SHTG deliverables to determine if any content can be reused or repurposed. The course facilitation category of deliverables, then, provides a fuller picture of a grantee's previous training courses and serves as a model for how future courses can be managed or, in some cases, mismanaged. Those grantees that included supplementary deliverables chose from a variety of genres ranging from deliverables that reinforce risk information for trainees to those that help trainers facilitate the courses. Although both categories of deliverables enrich the learning potential in the training course, the latter is particularly helpful for the secondary audience of trainers who seek to adapt the materials for use at smaller construction companies, which may otherwise not be able to afford required safety training for their employees.

4.32 Justification Strategies
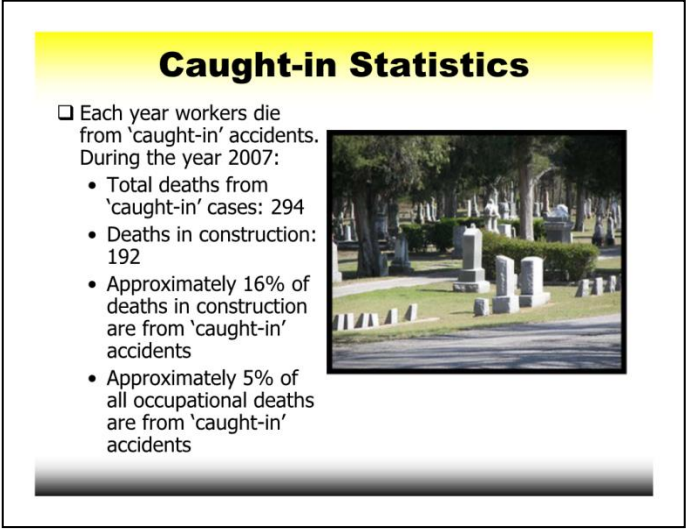
Justification strategies, which can be defined as those strategies that grantees employ to persuade trainees that safety training—and safe behavior on the jobsite—are valuable and worthy of their attention. These strategies respond to the discomfort that trainees may feel when they are positioned as workplace learners (Barnett, 1999). This type of content aims to persuade the trainees that the training is worthy of their time and attention; thus, slides and pages containing justification are the most blatantly rhetorical of all the content in the SHTG training documentation. Justification strategies are particularly necessary within the SHTG training documentation because the imperative for this workplace learning comes from the institution rather than the individual; that is, the "need to learn" that Kyndt, Dochy, and Nijs (2009) posit as vital to the experience of the workplace learner does not exist prior to the SHTG training.

The SHTG training documentation attempts to create the "need to learn" through several strategies, among them case studies, images, and statistics. Most popular among the grantees are statistics that indicate the prevalence of accidents, injuries, and deaths as a result of unsafe behavior on the construction jobsite, with all of the grantees including at least one slide with this type of justification strategy. Tyler (1992) argues 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 distrust the communication. Despite statistics' prevalence in the SHTG program deliverables, they are only rarely the only type of justification strategy included on documentation; instead, they are often paired with case studies and/or images that reinforce the argument being made by the statistics. Combining the hard numbers with the narratives of case studies or the visual impact of images can clearly share stories of workers who were injured or died as a result of workplace accidents. Narratives in risk communication are far more persuasive to lay audiences than bare statistics and are more likely to induce audiences to change their behaviors (Krimsky & Golding, 1992). Narratives are not all created alike, however.

In some cases, the case studies encourage active participation from the trainees, such as when they ask trainees how the individual in the case study might have avoided the accident. This kind of active participation encourages trainees to build on the knowledge that they have acquired during the training, which fosters information retention (Merriënboer, Kirschner, & Kester, 2003). However, a structure that simply presents the narrative to passive trainees is far more common, as the following examples indicate.

Although statistics are the most common type of justification strategy used in the SHTG deliverables, the grantees themselves may not view statistics as a persuasive strategy. As Chapter 4 notes, SHTG grantees consider statistics as a way of communicating the reality of a dangerous workplace to their audiences. From this perspective,

Figure 2: CF, Module 1, Slide 5. This slide shows statistics about on-the-job accidents leading to death, the most common type of justification strategy used by grantees.

persuasion becomes akin to unethical manipulation. Furthermore, risk communication research indicates that 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, which is not enough to persuade most audiences. Stratman (2007) says 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 safer to share. In the example (Figure 1), the Compación Foundation pairs a photograph of a cemetery with the statistics, a juxtaposition that seems startling. This type of decorative photograph, which does not have an immediate

connection to the textual content of the slide, serves to confuse or even alienate audiences (Alley & Neeley, 2005; Manning & Amare, 2006).

As the beginning of this section indicates, most of the grantees do not rely on statistics alone, instead pairing the quantitative evidence of the injury and fatality statistics with photographs or case studies. These photographs and the narratives in case studies can enhance occupational risk communication for construction workers, particularly

Figure 3: UTA, Module 1, Slide 3. Like Figure 2, this slide emphasizes death as the primary outcome of on-the-job hazards.

multicultural audiences (Bust, Gibb, & Pink, 2008). However, many grantees included selections that can detract from effective communication with grantees. One of the most compelling—and disturbing—of these secondary justification strategies occurs early in the first PowerPoint slide deck from University of Texas Arlington (Figure 3). The photograph's lack of focus makes it difficult to tell whether the pictured worker is dead or dying, but the picture is clearly intended to frighten trainees into conforming to safe jobsite behavior. Other persuasive strategies focus solely on death as the outcome for exposure to hazards on the jobsite. In addition to the danger of alienating the trainees by showing needlessly gruesome images, these attempts at persuasion illustrate the problematic nature of emphasizing only the risk of death. Injuries related to work, whether mild or serious, are more likely to occur on the construction jobsite than death (Bureau of Labor Statistics, 2012); however, this grantee (and Compación Foundation, in its statistics) chooses to dwell on the likelihood of death. 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 Killingsworth (1981) and Dayton (2002)

66

suggests, omitting such vital information can erode trainees' trust in trainers, employers, and ultimately OSHA itself. Furthermore, Altheide (2010) argues that an emphasis on fear, particularly a fear of death, is inherent to risk communication. Although he writes about risk communication dealing with the subject of terrorism, fear clearly serves as a foundation for the justification strategies used in grantee deliverables; however, analysis indicates that fear is not the most appropriate rhetorical strategy to use when communicating risk information.

Fear serves as a foundation for other types of justification strategies as well. For example, UMFRI begins its training documentation with qualitative, pathos-laden images and case studies. Focusing on a construction worker's "freak" decapitation (as in Figure 4) can make workers think that this particular hazard is unusual enough that it will not

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 l 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.

Figure 4: UMFRI Module 1, Slide 6. This slide juxtaposes a narrative about a "freak accident" with design that minimizes its seriousness.

affect them. Furthermore, the design of this slide diminishes the effectiveness of the communication. The creators use a common typeface for the headline, which 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. To avoid the discordance between the subject of the slide and its design, the grantee could choose a more straightforward, sans serif or serif font that conveys professionalism or even relative neutrality. Like the statistics and images in the previous two examples, this narrative from an article focuses solely on death; however, unlike the previous examples, this one focuses on a "freak" or highly unlikely accident.

Because the unlikelihood of this accident is continually emphasized within the narrative, the

trainees may understandably view it as something that will not happen to them on the jobsite.

The explicit message here thus directly contradicts the grantees' intended message in this slide.

These first three types of

justification strategies frame justification

in terms of the immediate, personal

effects (lost limbs, death) on trainees only.

According to the occupational risk

communication created by these grantees

(as in Figure 5), the hazards of the jobsite

and the risk of injury or death affect only

the workers. In contrast, a very few

Figure 5: SSTA, Module 1, Slide 6. This slide reframes on-the-job accidents as affecting more than just the workers.

grantees frame their justification strategies through the effects of a worker's injury or death on

the worker *and* his/her family. In addition, these strategies are presented in a relatively positive

tone compared to those of other grantees. 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. 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) and remind the trainees that such a culture should not be their motivation for

jobsite behavior. 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.

In analyzing the grantees' justification strategies, a pattern forms across most of the

deliverables: most of the grantees are interested, whether they are explicit about that interest or

not, in scaring trainees into conforming with predetermined safe behavior. As the work of Scott

(2003) and others suggests, the use of 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. As the next section argues, this desire to

communicate *to* rather than *with* audiences frequently results in text written in vague, technical

language that only serves to further distance the expert knowledge from the embodied, tacit

knowledge held by experienced trainees.

4.33 Tasks and Conceptual Information

The language used in the slide decks is of utmost importance for the trainees. Adams

(2006) finds that audiences may ignore information that is not represented on the slide decks,

even if the information is communicated orally by a presenter. As a result, grantees attempt to

include as much information as possible into these slide decks, which frequently results in decks

that exceed 100 slides. One of the most important types of information that grantees include here

are tasks, which are "step-by-step instructions on how to do an action, plus the rationale or

context for the action." (Hargis, et al., 2004, p. 11). Thus, tasks are in many ways the most

important element of training documentation. After all, the training documentation would not

exist if there were not OSHA standards regulating safe performance on construction jobsites, as

well as OSHA standards that require workers to undergo training that teaches them how to

perform safely. These standards dictate that SHTG trainers must instruct trainees in how to behave on the jobsite. Even experienced workers must receive instruction in case their prior actions violate these standards of safe behavior.

The SHTG deliverables also include conceptual information, or "background information that users need to know to do the tasks, including extended definitions and explanations." (Hargis, et al., 2004, p. 11). Definitions, descriptions, and explanations all provide key information that can help new or inexperienced trainees understand concepts that may otherwise be unclear until they are out on the jobsite (Hewage & Ruwanpura, 2009). Conceptual information may seem less important for experienced trainees; however, including this information can establish a common language for the trainers and trainees. As a result, conceptual information addresses the "clarity" best practice of safety training, which argues that "the training must be both in a language and vocabulary that the workers can understand" (Occupational Safety and Health Administration, 2010). Furthermore, this information should generally be included before learners begin to work on complex tasks such as those found in construction: this type of scaffolding makes the task less challenging for trainees as they begin to practice the task (Merriënboer, Kirschner, & Kester, 2003).

Many grantees present both tasks and concepts in language that is highly formal and technical, as shown in Figure 6. The language in this slide is both formal and vague, requiring trainees to be familiar with both the excavation standard and the General Duty Clause of the OSHA Act. Although the purpose of this training presentation is to prepare workers

General Responsibility of the Competent Person

It is the general responsibility of the Competent Person to insure that all aspects of the excavation process are in compliance with the excavation standard and the General Duty Clause of the OSHA Act (5a1.), which requires the employer to provide a safe, healthy workplace, free of known or recognizable hazards.

Susan Harwood Program Grant – The University of Texas at Arlington

Figure 6: UTA, Module 1, Slide 34. This slide presents both task and conceptual information in a way that may confuse trainees with lower levels of literacy in English.

to fill the Competent Person role on the jobsite, the technical, ambiguous description of the job as provided here may convince trainees that it is a role that they cannot perform, even if they have the experience and capability to do so. A significant proportion of UTA's other text-based slides, which provide definitions of terms and instructions for the trainees to follow on the jobsite, rely on equally formal language. Although the grantee includes conceptual information, which can help trainees understand the rationale for the instructions they are being asked to follow (Redish & Carroll, 1998; Boud & Garrick, 1999), the way in which this information is presented emphasizes the grantee's preference for expert knowledge. The language used in much of the concepts and tasks is both technical and vague: such language presumes that the audience has a prior understanding of the information, or at least the vocabulary (Mazur, 2000; Center for Plain Language, 2012). A revision of this slide might list more specific job duties for the Competent Person or describe specific aspects of the excavation process. The text of the slide could at least be revised to eliminate wordiness: "The Competent Person must ensure that the excavation process complies with the excavation standard and the General Duty Clause of the OSH Act." Later slides would explain the specific job duties and the standards in more detail.

Some tasks seem to be copied directly from OSHA standards, which can cause problems for many trainees. For example, Figure 7, which is part of University of Maryland Fire and Rescue Institute's excavation and trenching training, attempts to explain the circumstances in which "surface encumbrances" must be removed. Even
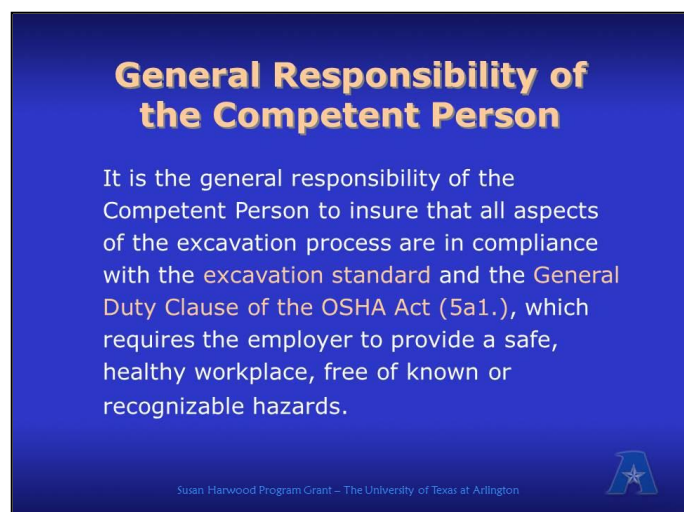

Figure 7: UMFRI, Module 1, Slide 39. This slide presents both task and conceptual information in a way that may confuse trainees with lower levels of literacy in English.

without considering the proofreading errors in Figure 7, it is likely a confusing one for workers

71

with lower literacy or less fluency in English. The structure of the sentence is complex enough

that such trainees may find it difficult to navigate. As Trajkovski and Loosemore (2006) argue,

this kind of language can affect workers in immediate, physical ways: in the researchers' study,

47.8 percent of the workers reported that they had made mistakes on the jobsite as a result of

misunderstanding instructions from their supervisors. To avoid potential jobsite mistakes

resulting from the communication in this slide, the sentence needs additional conceptual

information to help trainees understand the task. In this context, "encumbrances" could mean any

kind of burden or restriction on the workers, so providing examples of potential encumbrances

would help workers understand what they might encounter on the jobsite. Furthermore,

explaining how the encumbrances might create hazards for the trainees would help them

understand why they are being asked to perform a task, which is a key characteristic of effective

workplace learning. (Boud & Garrick, 1999; Jarvis, 2004). Finally, the trainees must receive

more explicit direction on how to support the encumbrances "as necessary." Explaining how

trainees can support the encumbrances would adhere to theories of workplace learning that

suggest trainees need practical, concrete explanations of how to perform tasks (Piskurich, 2006).

Despite the value of such content, it is not included on this or surrounding slides. As a result, the

overly formal language in this presentation module's definitions and descriptions—content types

that are intended to clarify more technical information (Johnson-Sheehan, 2010)—mars the

grantee's attempts to be inclusive of different audiences.

Other grantees, such as National Safety Council, attempt to accommodate the needs of their audiences through the language in their PowerPoint slide decks and supplementary materials. In the grantee's first slide deck, the "competent

Figure 8: NSC Module 1, Slide 12. This slide identifies concrete tasks that a competent person must complete.

person" is defined in terms of specific tasks the person in this role must complete (Figure 8). By framing the definition in terms of the concrete responsibilities rather than vague official standards, the role becomes one that is seen as more attainable for the trainees. In addition to the language in the sample slide, the text of the NSC pocket reference guide compares the technical information to more common, easily understood information:

- 1 milliamp (mA) - Barely perceptible

- 16 mA - Maximum current an average person can grasp and "let go"

- 20-30 mA - Paralysis of respiratory muscles

- 100 mA - Ventricular fibrillation threshold

- 2 Amps - Cardiac standstill and internal organ damage

- 15/20/30 Amps - Common U.S. household breakers (NSC, 2008, p. 11).

Describing the effects of these electricity levels in this way gives the trainees an easy method of understanding technical information. This type of comparison is an accepted way in which to communicate risk information to audiences (Fischhoff, 1995; Reynolds, 2011), although it cannot be the only way in which risk communicators reach out to their audiences.

In an analysis of the SHTG grantees' instructions and conceptual information the majority of the language used in these slides is technical jargon that would be difficult for trainees with lower educational levels or to those who do not speak English as their first language to understand. However, even those grantees that rely heavily on jargon or otherwise vague language occasionally feature slides that explain instructions or other information in language that speaks directly to the trainees, and vice versa: those grantees that, like National Safety Council, usually communicate information clearly sometimes include language that can be confusing for trainees. Slides within the same grantee's slide deck appear to be written by different authors, based on the changes in language. This discrepancy suggests the possibility of multiple authors, or it may simply confirm the intertextuality of these slide decks, or the amount

to which each slide deck relies on previous slide decks and other documents. As Bazerman (2004) argues, intertextuality can be either explicit or implicit; within the SHTG deliverables, much of the intertextuality seems to come from grantees reusing or adapting work from earlier grantees (as the interviews in Chapter 4 suggest). If grantees repurposed information from earlier grantees while developing their own slide decks, then it makes sense that the language in some slides is different from that in the majority of the slides.

In the next section, I analyze how graphics, the other key part of visual-verbal collaboration in documents, are incorporated into the SHTG deliverables.

4.34 Graphics

In this study, graphics include pictures, illustrations, and data displays such as graphs or charts. Each of these types of graphics is represented within the SHTG safety training documentation, although here I will focus on photographs, which are the dominant type of graphic in the SHTG deliverables. As Kostelnick and Roberts put it, graphics can "instruct, persuade, motivate, announce a topic, or set a mood" (1998, p. 313). Pictures in particular can evoke emotional responses. Hill (2004) and others argue that visuals can be powerful when communicating potentially emotional messages such as those contained in the SHTG safety training documentation: using rhetorically appropriate visuals early in a presentation can serve as shorthand for those messages later in a presentation, a highly effective strategy when seeking to reinforce complex information. However, these visuals are not always used in a rhetorically sensitive manner. Many trainees respond negatively to explicit pictures of injuries or fatalities, suggesting that such pictures are not worth including in the training (Sauer, 2003; Evia, 2011). Furthermore, Kress and van Leeuwen (2009) argue that many individuals see graphics as a clear, unproblematic way to communicate with audiences of varied backgrounds; for example, Horton (1999) contends that visuals and symbols are less ambiguous than written language. However,

graphics and other visual elements (such as color) can have varied meanings across cultures, as the work of Bosley (1999) and Forslund (1996) suggests.

Within the corpus of SHTG safety training documentation, graphics serve all of the functions that Kostelnick and Roberts (1998) address; however, two of these functions (instruction and persuasion) dominate the safety training documentation. Instruction is perhaps the most dominant. In this use, the type of graphic is either a photograph or a

Figure 9: NAHB, Module 1, Slide 39. This slide, which is part of the grantee's image review activity, illustrates safety precautions that will prevent falls.

technical illustration. Many of the photographs in the training module include symbols that clearly indicate whether they represent safe or hazardous situations. For example, photographs that indicate unsafe situations also include the standard symbol for "no," a red circle with a diagonal line drawn through it. As Smith-Jackson and Wogalter (2000) find, the color red is most easily recognized by individuals from multiple cultures as indicative of a caution or warning, making the color suitable for identifying photographs of unsafe jobsite situations for workers with varying degrees of English fluency. Using the red circle also adheres to the International Organization for Standardization's (ISO) regulations for indicating the concept of "no" or warning against an action (International Organization for Standardization, 2012). Photographs representing safe situations include a green check mark, as in Figure 9 (NAHB, 2007a, slide 39). Although ISO does not address green check marks as standard symbols, the organization does typically use bright shades of green to refer to "safe" or "okay" actions or objects. Using these symbols means that trainees may be able to identify safe or unsafe actions quickly and correctly. Furthermore, these symbols are added using PowerPoint software's animation tool and only

appear on the photographs after the trainer clicks the appropriate button; trainees are thus given time to think carefully about the situations in the photographs, which strengthens their ability to process and retain the safety information (Merriënboer, Kirschner, & Kester, 2003).

Another significant use of graphics in the SHTG deliverables is as justification strategy, which attempts to persuade trainees that the training is useful for them. As persuasion, photographs can produce "empathetic associations" with the actions and individuals pictured (Bust, Gibb, & Pink, 2008, p. 598); thus, photographs can be

Figure 10: IRCC, Module 1, Slide 36. This slide shows a worker who was burned in an arc-flash accident on a jobsite. This photograph is used as a justification strategy to persuade trainees to pay attention to the training.

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. The photograph in Figure 10, which is part of Indian River Community College's PowerPoint slide deck, 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 (IRCC, 2007a, slide 36). Though the man is alive and presumably has recovered 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 (Lancaster, 2006; Evia, 2011). In this photograph's favor, though, the image is also preceded by a series of photos that show how the accident occurred, suggesting that this

photograph actually serves multiple functions within the documentation: justification and instruction. This series of photographs helps establish that this serious injury was caused due to unsafe behavior at work, clearly indicating the potential consequences of unsafe behavior for the trainees. In its full context, then, this image may be more effective than it initially appears.

At least one grantee, Associated Builders and Contractors-Central Texas Chapter, uses graphics in a way that Kostelnick and Roberts do not address as a primary function of graphics. As Figure 11 indicates (ABC-CTC, Module 1, Slide 35), this graphic is related to the overall topic of training; however, it is used solely as decoration for the slides. In every slide,

Figure 11: ABC-CTC, Module 1, Slide 35. This slide illustrates the difficulty of reading text against the visual noise of a background photograph.

the grantee includes a single photograph of overturned equipment that serves as a background. Although the intent seems to be to avoid the bland, boring PowerPoint background that can make presentations dull (Craig & Amernic, 2006; Farkas, 2009), using the photograph here only makes the slide text less readable by decreasing the text-background contrast. The photograph thus serves as visual noise on the slide that competes with the risk information, as well as any additional graphics (Kostelnick & Roberts, 1998). Using a photograph in this way can serve to diminish trainee recall of information rather than attracting trainee attention to the slides.

As with the verbal/textual information being communicated in grantee slides, graphics are frequently used within the SHTG deliverables in ways that do not positively impact trainees. Although graphics perform a range of functions in these deliverables, they are primarily used to instruct and to persuade trainees. In some cases, the graphics serve as mere decoration, which can actually detract from any text or other, related graphics on the slides. However, the uses of

graphics in the SHTG deliverables are fraught with complex interpretations, particularly when a graphic performs multiple functions. How trainees interpret the graphics may be completely different than how the grantee intended it to be read, resulting in a discrepancy between the communicator's and audience's understanding of the information that can create uncertainty and distrust (Reynolds, 2011).

In the next section, I discuss the activities that the grantees include. In particular, I focus on graphics-based activities and quizzes, which are the two most common activities, and discuss the implications of poorly supported activities.

4.35 Activities

Within the SHTG deliverables, activities can take the following forms: image review, quizzes, role play, equipment demonstration, case studies, group discussion, and practice exercises, among others. The variety of possible activities provides grantees with options that will make both trainers and trainees more comfortable than lectures. Furthermore, lectures are not always the best way to communicate risk and safety information. The *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (Occupational Safety and Health Administration, 2011) promotes activity-based learning as the best way to improve trainees' retention of risk sand safety information. Piskurich (2006) argues that the quality of a training session can be directly tied to the quality of its activities, which indicates that activities are perhaps the most important content included in SHTG deliverables. However, not all activities are equally effective throughout the training. Activities that present learners with "worked-out examples," such as image reviews with labels that identify unsafe behavior, can reduce the initial cognitive load on the trainees (Merriënboer, Kirschner, & Kester, 2003). These "worked-out examples" are vital in the early stages of training for complex tasks, when trainees may find it uncomfortable or may be unable to identify problematic behaviors; however, these

types of activities do not oblige trainees to consider them in the context of the knowledge presented in the training. As the training progresses, trainees need to apply their own knowledge to a situation, as in image review sessions that ask trainees to identify what is wrong with a situation presented in an image or as in practice exercises that ask trainees to practice start-of-day jobsite safety inspections.

All of the grantees punctuate lecture content with at least one type of activity that encourages trainees to make connections among the material. One type of activity, the image review, appears in every grantee's deliverables, although the form may vary. In this activity, trainers typically introduce a photograph via a PowerPoint slide, which is usually paired
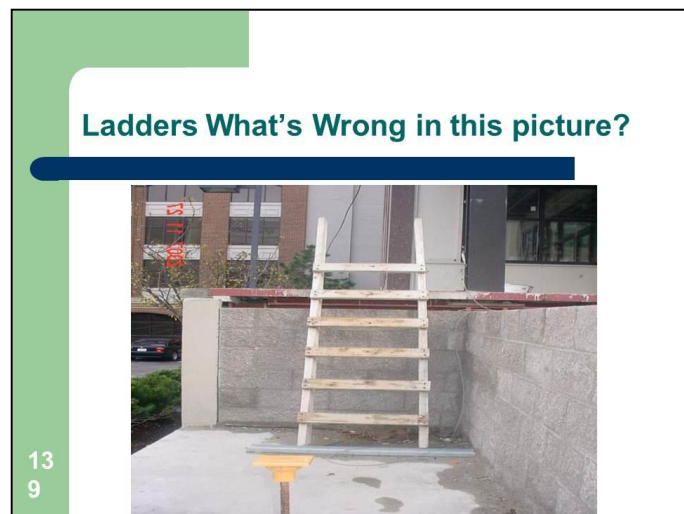
Figure 12: MCTC, Slide 139. This slide illustrates one of the most common activities, which asks trainees to determine the unsafe element(s) in a situation.

with the headline "What is wrong with this picture?" as in Figure 12 or similar text indicating that the slide illustrates an unsafe situation. In some grantees' slide decks, photographs may not have text identifying the situation as unsafe; in these situations, the photograph may instead have an animated symbol identifying it as safe or unsafe (see Figure 9 in previous section). However, this symbol may not immediately appear, which requires trainees to determine based on their knowledge whether the situation is unsafe and, if so, what makes it unsafe. As Merriënboer, Kirschner, and Kester (2003) argue, this kind of activity requires sophisticated understanding of the principles involved in the training. Trainees are thus encouraged to incorporate their previous workplace knowledge as well as what they have learned during the training session. Bust, Gibb, & Pink (2008) use a similar technique, which they term "photo-elicitation," to learn what participants understand of a situation illustrated in a photograph. Like pre- and post-tests, this

79

activity measures what trainees know; however, unlike the pre- and post-tests, this activity does

not require rote memorization of information. Instead, the image review applies the trainees'

knowledge to a situation that they may encounter on the jobsite. As a result, knowledge and

understanding of complex concepts is reinforced and, for many trainees, more likely to be

retained (Boud & Garrick, 1999). This activity allows trainees to bring in prior experience,

which acknowledges that experienced trainees have developed their own safety expertise, even if

they cannot yet articulate that expertise (Boud & Garrick, 1999; Sauer, 2003). In other words,

this activity asks trainees to transition from tacit, embodied knowledge of safe working practices

to explicit, articulated knowledge about safety practices.

Aside from the image review, few activities appear consistently across grantees' deliverables. Some grantees include multiple types of activities, which prevents trainees from losing interest in the training and also acknowledges different learning styles (Wooldridge, 1995). One of these activities is the quiz. This activity may initially seem to test

Figure 13: NSC, Module 3, Slide 14. This slide includes an individual quiz question. Grantees frequently use quizzes to review material.

trainees' retention of the presentation material, but its use in grantees' slide decks suggest that

the activity is far more useful for reinforcing the concepts being presented. In the deliverables

created by National Safety Council (as in Figure 13), each PowerPoint slide deck includes a short

quiz that establishes the trainees' prior knowledge about the module topic. The quiz also

structures the training session: after each question, the trainer provides the answer and discusses

the concept in more depth. In contrast to the pre- and post-test handouts that supplement the

PowerPoint slide decks for other grantees, this activity serves less as a formal measurement of

trainees' change in learning and more as an opportunity to reinforce previously introduced

concepts. Thus, this particular activity is trainee-centered, or user-centered, rather than

gatekeeper-centered as a quantitative measurement of learners' change.

Other grantees claim to value activity-based learning, which can support trainees' understanding of complex information, but their documentation reveals a more conflicted stance. For example, activities seem to play a large role in the NAHB Research Center's training presentation, with slides such as Figure 14 appearing at regular
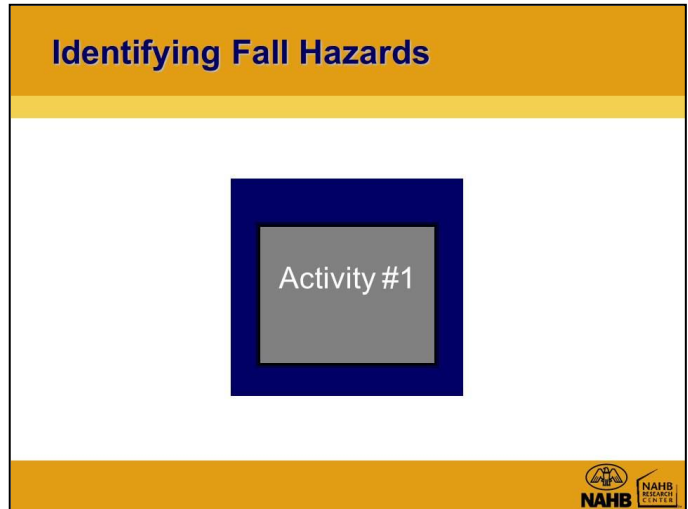
Figure 14: NAHB, Module 1, Slide 19. This slide indicates that an activity should occur, but it includes no directions or other information about the activity.

intervals throughout the grantee's slide decks that direct trainers and trainees to pause in the

lecture for an activity. However, the current representation of activity slides is not useful to other

trainers or audiences outside of the NAHB Research Center. For example, the grantee includes

slides that refer to planning exercises on handouts (Figure 13), which would require trainees to

apply their knowledge of the jobsite and the training. Unfortunately, the full content of these

exercises is not included in the NAHB Research Center's section of the SHTG website. This

discrepancy is repeated in every document from this grantee. As Sauer (2003) argues, incomplete

documentation is particularly dangerous for workers in high-hazard occupations. Failing to

include such key elements of the occupational risk communication suggests that the grantee

and/or the SHTG program do not value the documentation's ongoing life as an openly accessible

publication on the SHTG program website. As a result, the small-business audiences purportedly

being aided by the SHTG website receive incomplete deliverables that do not help those

audiences deliver training to their own workers.

Although activities are explicitly mentioned by the SHTG program as a learning element that the program values and wants to see in the work produced by grantees, this analysis finds that such activities are included less frequently within that work than such an emphasis might suggest. However, that does not necessarily mean that the grantees are being insensitive to the SHTG requirements. In the previous chapter, at least one grantee notes that, although she developed activities to include in the training presentation, the SHTG program asked her to remove them to cut down on training time. As Stratman, et al. (1995) found in their research into the Environmental Protection Agency, the SHTG program wants to be inclusive of the trainees and to encourage active learning, but the program is stymied by its need to include a great deal of information in a very short time. In a choice between activities that might take more time but encourage information retention and lecture that might not promote learning but addresses legally required topics, the SHTG program will likely choose the latter. Thus, as Stratman and his collaborators found, the institutional nature of the SHTG program deters it from promoting truly effective risk communication.

4.4 Conclusion

In this chapter, I presented and analyzed the results of context-sensitive textual analysis of deliverables created by twelve SHTG grantees. These grantees produced a total of 76 deliverables, the majority of which were PowerPoint slide decks intended to be part of a training presentation that combines the slide decks with oral gloss on the written and visual text. Additional deliverables fall into one of two categories: genres intended to assist trainers in facilitating training courses and genres intended to reinforce risk information for trainees. The former category includes trainer's manuals and attendance sheets, and the latter category includes trainee manuals and activity handouts, among other genres.

In analyzing these documents, I found that the SHTG deliverables do adhere, at least on the surface, to what OSHA requires of its SHTG grantees. The deliverables include a primary training presentation, which the program encourages grantees to develop as a PowerPoint slide deck, as well as varying content types: grantees include a mix of tasks, concepts, photographs, activities, and other content. However, some of this content (such as full descriptions of activities) is missing from some grantees' published deliverables. In responding to research question 3 ("To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?"), then, the grantees do seem to incorporate OSHA requirements; however, not all of the grantees address the best practices, possibly because of the organization's evolving recommendations. For example, the current version of the organization's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* was not published until September 2010, although earlier versions were available in 2003 and 2009 (Occupational Safety and Health Administration, 2010).

The primary problems with the SHTG deliverables comes in responding to research questions 4 and 5, as presented in Chapter 3:

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

The ways in which the deliverables' content is delivered often undermines the stated purpose of creating deliverables that incorporate theories of occupational risk communication, and more specifically, current theories of construction safety training. Consistently, the theories of the two fields suggest that effective occupational risk communication for construction workers should incorporate the following:

- active learning strategies that encourage workers with lower literacy levels to participate in the training (including graphics and activities that reinforce different learning styles),

- instructions written in short, clear, imperative form that presents concrete steps that trainees can take on the jobsite, and

- persuasive strategies that take into account trainees' previous experience and goals for the future.

Unfortunately, these recommendations are often contradicted in the deliverables themselves. Although all of the grantees include persuasive strategies, they frequently rely on fear-based strategies, which can alienate trainees (Evia, 2011). Specifically, death is presented as the sole outcome of jobsite accidents; this reliance on death contradicts many grantees' previous experiences on the jobsite. Furthermore, grantees focus on jargon that represents the expert knowledge of the grantees, the SHTG program, and OSHA. Grantees frequently replicate OSHA standards to ensure that their slides are legally and technically correct, although OSHA's own *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (2011) recommends that tasks and conceptual information be designed for the trainees' wildly different literacy levels. However, the *Best Practices* rarely provides guidance on how to develop the content in such a manner. The grantees succeed most often in adhering to theories of occupational risk communication within activities; in their activities, grantees demonstrate equipment and require students to apply their knowledge of jobsites and safety to resolve problematic situations. Not all grantees succeed with this type of content, though. First, several grantees do not include specific instructions for activities, requiring later trainers to develop their own versions whether they have experience in industrial design or not. This problem suggests that the grantees may permit their own trainers some flexibility in how activities are presented to trainees; however, it creates difficulties for the SHTG program website's audiences, many of

whom will download the training to present to other workers. Second, as Chapter 5 reports, some

grantees found that these activities were among the first types of content they were asked to cut

when the SHTG program recommended shortening the training sessions. This second issue

suggests that the SHTG program does not value these activities as highly in practice as it claims

in its *Best Practices* (2011).

CHAPTER 5. UNCOVERING THE OCCUPATIONAL RISK COMMUNICATION PROCESS: HOW OSHA'S INSTITUTIONAL COMMUNICATION SHAPES THE SHTG DELIVERABLES

5.1 Overview

In Chapter 3, I outlined the methods used in the research conducted for this dissertation. In that chapter, I claimed that qualitative interviews can provide detailed, rich description of writing processes (Weiss, 1994), as well as openings for responses to institutional discourses such as that created by the Occupational Safety and Health Administration's (OSHA)Susan Harwood Training Grant (SHTG) program. This combination makes qualitative interviews of technical communication practitioners an appropriate method for examining the process of creating safety training documentation that serve as deliverables within the SHTG program. Following the conclusions of Bazerman (1988), Blyler (1998), and others, I assume that technical communication is an inherently social activity that is often produced collaboratively and is certainly influenced by its contexts. The qualitative interviews in this chapter enrich a scholarly understanding of the contexts that influence the safety training documentation created by the SHTG program grantees. Furthermore, the interviews reveal that these grantee representatives are performing the work of technical communicators, even though they do not describe themselves as such and may not even recognize that they are doing so. Finally, a complex understanding of the processes that create this safety training documentation exposes moments and ways in which the deliverables could be improved (which is the goal of this dissertation).

In the first part of this chapter, I introduce the conceptual model on which the qualitative research in this dissertation is based. In the second section, I analyze the results of interviews with representatives of four different SHTG program grantees whose work is represented in the corpus introduced in chapter 3. The final section returns to the conceptual model and draws

together common threads from the interviews and analysis to develop an overall picture of the technical communication process that takes place within the SHTG program.

5.2 Milestones in the Development of SHTG Deliverables

      The conceptual model for this research illustrates the specific moments at which technical communicators can effect substantive change in workers' physical safety through communication products. Within the SHTG program, grantees produce deliverables that include PowerPoint slide decks, training or reference manuals, activity sheets, and course governance documents. The conceptual model for my research is built in part on Beverly Sauer's groundbreaking work on occupational risk communication in the mining industry. In her 2003 *The Rhetoric of Risk*, Sauer notes these six "critical moments" in risk communication in which change can be enacted:

1. when oral testimony and embodied experience are captured in writing;

2. when the info in accident reports is re-represented for a different audience;

3. when statistical accounts are re-represented as arguments for particular policies;

4. when policies and standards are transformed into procedures;

5. when written procedures are transformed into training;

6. when training is re-represented to workers at local sites. (p. 17)

In this dissertation, I have focused on Sauer's "moment five," which addresses the process of creating training documentation from the written safety procedures of the Occupational Safety and Health Administration (OSHA) standards. I focused on this moment for two reasons: 1) considering this moment allows us to see how the deliverables created in this process could be improved, and 2) it allows us to recognize the SHTG grantee representatives as technical communication practitioners. In addition, examining this moment reveals the institutional constraints on the SHTG deliverables, which I address in the research questions that guide this

chapter. Understanding the processes of grant writing and training development, in which the bulk of the communication occurs between the SHTG program and its grantees, is essential to understanding how the grantees respond to the constraints imposed by that communication. Unpacking the SHTG deliverables, as well as the processes through which the grantees and SHTG program create those deliverables, indicates that what appears to be a single moment is more complex below the surface. Moment five, as it exists for the SHTG program and its grantees, encompassed two processes: the process of creating grant proposals and the process of creating safety training documentation deliverables. Even the first process of creating grant proposals can be divided into a set of milestones. Kent-Drury (2000) describes the "ideal" proposal writing process as a ten-step process that involves significant collaboration within an organization. However, Kent-Drury's process is designed to address the needs of large intra-organization collaborative teams. For the grantee representatives interviewed in this chapter, collaboration involved small intra-organization teams, if any collaboration occurred at all. Furthermore, the gatekeepers for the proposals were the developers themselves. As a result, the proposal writing process was somewhat less complicated than that found in a large organization.

In fact, I propose that the two processes that make up Sauer's moment five, "when written procedures are transformed into training," can be expanded into twelve milestones, which are themselves complex enough to be examined further. Each grant cycle's milestones emerge from OSHA's institutional assumption that construction workers are at particular risk for on-the-job injuries and fatalities. These twelve milestones are the following:

1. OSHA, through the SHTG program, issues a call for proposals (CFP) for occupational risk communication in the form of training that includes requirements for translation into Spanish and other languages.

2. Grantee organizations—which are typically nonprofits in higher education, the construction industry, or safety and health—develop a proposal that outlines their plan for developing deliverables, recruiting trainees, and presenting the training.

3. The SHTG program selects grantee organizations as recipients of funding.

4. The SHTG program provides guidelines and training (workshops, documentation, etc.) about its expectations for the grantee organizations and the deliverables they create.

5. Grantee organizations develop deliverables.

6. Grantee organizations begin to recruit construction companies and workers for training sessions.

7. Grantee organizations submit their deliverables to the SHTG program for approval.

8. The SHTG program sends the deliverables back to the grantee organizations with approval and/or required changes.

9. After receiving institutional approval from the SHTG program, grantee organizations begin to translate the deliverables into Spanish or other required languages.

10. Grantee organizations submit their translated deliverables to the SHTG program for approval.

11. The SHTG program sends the translated deliverables back to the grantee organizations with approval and/or required changes.

12. Grantee organizations present the deliverables to construction workers during in-person training sessions[2].

The number of milestones required to reach Sauer's (2003) moment five, represented in this list as the final milestone, complicates the final deliverables. At any of these twelve milestones,

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[2] At least one grantee suggested an additional milestone, pre-delivery testing of the deliverables; however, most grantees included in this dissertation conducted "rolling testing" in which they evaluated deliverables as they were being presented to trainees and adjusted later training sessions according to trainee feedback. As a result, I do not include it as an official milestone here.

communication could break down between the SHTG program and the grantee organization, which inevitably affects that moment when the risk information is re-represented to the construction workers as safety training documentation. Within technical communication research and practice, these milestones are probably familiar; they align fairly closely with the stages of the information development life cycle as described by Hackos (2007). She explains that each stage should require the following time investment from project teams such as the SHTG grantee organizations:

1. Planning (10 percent)

2. Design (20 percent)

3. Development (50 percent)

4. Production (20 percent)

5. Evaluation

Hackos notes that the evaluation stage should come after the deliverables have been given to the audience; in this, her proposed life cycle differs somewhat from the SHTG program, which required ongoing internal evaluation of the deliverables from OSHA representatives, as well as later external evaluation with trainees.

In addition to the challenges of achieving these milestones, cultural differences—or worse, cultural tensions—between the SHTG program and grantee organizations loom large within this process. Navigating the needs of such disparate stakeholders and organizational cultures can be daunting for even skilled communicators; for individuals who do not consider their primary role to be that of communicator, the task may be nearly impossible. Cross-organizational partnerships such as these pose some of the greatest challenges for communicators (Spilka, 1995; Kent-Drury, 2000). Even if successful grant writers are those who can show overlap between their organizational culture to the culture of the funding agency (Beaufort, 1999), significant differences between the two cultures may exist. When this happens, tensions

arise and affect the documentation. For example, conflicts over the types of content that the documentation should include will inevitably end in favor of the funding agency (OSHA, via the SHTG program). As Grantee 1's interview indicates, the grantee organization can still resist the textual dominance of the funding agency by hurrying through any content that the grantee does not consider important. The document life cycle and organizational cultures of grantees thus represent ways in which the SHTG program places constraints on its grantees, as well as ways in which grantees resist and respond to those constraints.

In this chapter, I reconstruct the process of developing the Susan Harwood Training Grant (SHTG) safety training documentation for its intended audiences of construction workers and contractors, as well as the gatekeeping SHTG program. In doing so, I examine the tensions between grantees and SHTG expectations as represented in grantee interviews and SHTG's institutional discourse (requests for proposals, best practices, etc.). Through analyzing these tensions, this chapter responds to the following research questions:

- **RQ1:** To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

- **RQ2:** How do the grantees respond to OSHA's institutional communication?

This chapter also approaches the study's research questions in ways that analyzing the safety training deliverables alone could not. Evaluating communication products is quite different from examining the intent of their authors (Scott, 2003). More importantly, understanding the author's intent (*intentio auctoris*), and how it compares to that of the audience (*intentio lectoris*), is a vital step towards establishing trust in the risk communication process (Boholm, 2009). Trust is perhaps the most important factor in effective risk communication in the social constructionist model, as Waddell (1995), Dayton (2002), Rhodes (2009), Reynolds (2011), and others have argued. Thus, it was important to speak with the authors themselves—here, the representatives of

the grantee organizations—to learn more about their experiences and intents for their

documentation.

5.3 Grantee 1

Grantee 1, a representative of one of the industry-oriented non-profit grantee

organizations, was responsible for most of the logistics of his organization's grant with the

SHTG program: writing the grant proposal, developing training materials and a corresponding

website, recruiting instructors, and scheduling training sessions, among other tasks. Grantee 1's

background is in safety and environmental management, with nearly three years of professional

experience in safety training.

5.31 Applying for the Grant

Although Grantee 1 had only been involved with the SHTG grant process for three years,

his organization has a much longer history of working with OSHA, a factor that he believed

helped his organization secure funding for the 2008 fiscal year. He argued, however, that his

organization's understanding of the need for fall protection training aimed at small businesses

and expertise in technical safety were more important than its prior history with OSHA and the

SHTG program: "The training that we're able to conduct...due to the Susan Harwood Training

Grant is one of the only formal training classes that contractors and workers will be able to get to

in the year" (Grantee 1, 2011). As Chapter 1 indicates, 68 percent of construction contractors

employ fewer than five workers (Bureau of Labor Statistics, 2013), and these companies do not

have the training resources that larger construction organizations enjoy; therefore, smaller

contractors and their workers rely on organizations such as Grantee 1's to provide external

training that they can access. Grantee 1's organization is large enough to train a significant

number of individuals: within a more recent fiscal year, this organization trained about 1,500

workers (Grantee 1, 2011).

However, he acknowledged that the prior relationship-building that the organization had done with OSHA played a role in its continued funding success. Project managers such as Grantee 1 must develop strong working partnerships with their stakeholders, particularly those that serve as gatekeepers for the deliverables (Hackos, 2006). More specifically, this relationship building is a process that new grantee applicants are wise to cultivate (Beaufort, 1999): granting agencies have implicit criteria they seek from their grantees, in addition to the explicit criteria listed in the agency's request for proposals. Those implicit criteria are usually communicated in feedback from earlier grant applications and in informal communication with granting agency representatives. This prior relationship and feedback benefited Grantee 1's organization in other ways as well. His organization had an advantage over others in terms of the amount of work required during the grant application process: specifically, Grantee 1 found that it was "pretty easy to tailor our prior years' submittals" to the address SHTG's request for proposals for that year. This meant that his organization could focus on planning next-level tasks such as advertising the training sessions, which many first-time grantees struggled to complete during the grant year.

5.32 Creating and Revising the Deliverables

Because of its size and prior connection to OSHA and the SHTG program in particular, Grantee 1's organization both created new training documentation and presented that training to workers and subcontractors at various locations. As a result of these audience needs, Grantee 1 attempted to use strategies that make the training documentation clearer and more memorable: "Every slide, pretty much, has photos, regardless of the mandatory OSHA things we need to throw in there—and we tr[ied] to make it as easy to understand as possible" (2011). In his concern for trainee literacy levels, Grantee 1 aligns himself with technical communicators who create user-centered documentation that meets the literacy and information needs of their

audience. Salvo (2001) sees user-centeredness as a first step towards participatory design, which has become a recommended practice for technical communicators because it encourages users to recognize and use their own expertise. Furthermore, Cargile-Cook (2002) suggests that such user-centeredness is a basic literacy for technical communicators. This emphasis on user-centered communication as a first step in technical communication is echoed in textbooks that urge students to embrace audience research as one of the first steps they must take as technical communicators (e.g., Johnson-Sheehan, 2010; Markel, 2012). In his audience research, Grantee 1 found that "job hazard analysis" or "job safety analysis" was one of the most popular activities with trainers and trainees alike. In this activity, trainers asked workers to examine potential or existing hazards on a jobsite, whether through images or through the workers' prior experiences at their jobsites. Because the workers may not have thought about their jobsites in such a critical manner, the activity "really open[ed] their eyes...and provide[d] some simple solutions" (Grantee 1, 2011). Grantee 1's desire to "open [the trainees'] eyes" echoed frequent scholarly arguments that technical communicators should be advocates for their audiences (e.g., Slack, Miller, & Doak, 1993; Grabill & Simmons, 1998; Blyler, 1998; Rude, 2004).

Despite his apparent alignment with audience-centered technical communication, Grantee 1 was careful to clarify that his organization does not have the expertise to analyze its audience completely:

> That's such a wide range of participants. We just try to focus on the fact that we recognize that most of them learn best through adult learning techniques - instead of just reading the data to them, actually showing how you can apply specific standards and real world applications. (2011)

Grantee 1, in his claims that he and others in his organization do not have adequate expertise to account for many different audiences, expressed a hesitation that is familiar to writing researchers. As Ong (1975), Ede and Lunsford (1984), and others argue, writers can never truly

address all of their possible audiences; instead, they can only envision their audiences, a vision which is necessarily built on their own prior experiences. This partial audience means that the communicator will nearly always focus on one or more preferred or ideal audiences, and Grantee 1 seemed to have no problem doing so. Even though he referenced both subcontractors and workers as the audiences for his organization's safety training documentation, he frequently focused more on the subcontractors than on the workers.

Grantee 1's organization built its training documentation on legacy training documentation from previous grant cycles, which likely enabled it to train higher numbers of workers in less time than other grantees. As Grantee 1 noted, it let the organization "just jump right in and start offering training" (2011). When small revisions became necessary, the organization made them on a rolling basis, allowing the training to continue. In cases like this, Grantee 1 worked with each of the organization's trainers directly to ensure that they implemented the changes. Occasionally, though, significant revision was required when new standards were enacted or others were revised. When this happened, the organization partnered with a local association to run a pilot test of the revised training documentation.

Throughout the development process, Grantee 1's organization faced disruption over ownership of the documentation. OSHA, through the SHTG program, requires that each grantee include the following types of slides:

1. Slides that focus on OSHA's purpose,

2. Slides that acknowledge the funding the organization received from the SHTG program,

3. Slides that feature the following disclaimers: "It [the training] does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government…. These materials are meant for informational purposes only. No representation is made as to the thoroughness of the presentation."

4. Slides that address worker responsibilities and rights under OSHA, and

5. Slides that address employer responsibilities and rights under OSHA (Occupational
    Safety and Health Administration, 2012).

Although grantee organizations also were able to include slides that introduced their own

organizations, such slides were not mandatory; as a result, the OSHA and SHTG slides assume

more importance in comparison, and the SHTG program appears to exert its ultimate

endorsement over the safety training documentation. That endorsement, however, is undermined

by the simultaneous disclaimers about the training as non-representative of OSHA views and

policies. This contradiction opens a space for tension between the SHTG program and its grantee

organizations. The biggest problem, according to Grantee 1, was that most of the audience,

particularly subcontractors, at least "have an idea of what OSHA is; what they do" (2011). He

argued that other content, such as the frequent photograph-based activities that illustrated the

concepts under discussion, was more important for the trainees to experience. Grantee 1 was

resigned to including these slides, however, seeing them as just "one more thing" that the

organization must include in training.

Despite Grantee 1's resignation to including these slides, members of his organization

found methods of resistance that allowed them to reclaim ownership over the presentations, if

not the training documentation itself. He noted that trainers with his organization frequently

adhered solely to the letter rather than the spirit of the requirement to include the OSHA-

mandated slides: "most of our instructors realize[d] what areas of the training they [could] speed

up on and what areas they need[ed] to focus on, some things they [could] really just, not skip

over but go faster through" (Grantee 1, 2011). This subtle resistance emphasizes those parts of

the presentation that the trainers present at a "normal speed," an emphasis that clearly indicates

which types of content the trainers valued. The resistance also becomes a silent debate over

author-ness (who owns the writing in the documentation) and authority (who owns the

knowledge in the documentation). Given this tension, the grantees and SHTG program are performing what Slack, Miller, and Doak (1993) term "articulation." In this model, technical communicators, gatekeepers, and audiences constantly renegotiate power through the discourse being produced. However, the negotiation within the SHTG program consistently appears to favor the SHTG program, which results in deliverables that reflect the program's and OSHA's perspective rather than any other stakeholders' expertise.

5.33 Translating the Deliverables

As Chapter 1 indicates, OSHA now requires all training documentation, including SHTG documentation, to be provided in Spanish or in the language(s) needed by the intended audiences. As part of this requirement, OSHA has enacted certain institutional oversights of the translation process. For example, the translation must be based on the agency's English-Spanish construction dictionary to ensure that terms remain consistent, a move that Grantee 1 supports: "It would be impossible to tailor the Spanish or even the English to certain areas of the country, so we just try to keep it uniform" (2011). The grantee organization does not have in-house capability to translate all of the materials, so it outsources this task to a third-party organization. However, the organization does have a "fail-safe" in the form of a volunteer who reviews the presentation to ensure the translation makes sense in a colloquial fashion. This volunteer is a bilingual safety manager with 10 years of experience in residential construction. This process suggests that Grantee 1 seeks to have not just a linguistically correct translation for the documentation, but also a culturally appropriate one. Most translations of occupational risk communication are "mere translations, often inaccurate, of existing English materials" (Brunette 2005, p. 255). Such translations emphasize strict compliance with regulations rather than ensuring that trainees actually understand those regulations (Evia & Patriarca, 2012).

Grantee 1 was also careful to point out that each grantee's documentation was reviewed by OSHA's director of construction even before it was reviewed by SHTG program administrators. This communication pattern is a clear argument that the program values both the technical correctness of the safety information being communicated and the manner in which that information is communicated, although the former takes precedence over the latter. Fischhoff (1995) suggests that OSHA's preference for technical correctness over rhetorical effectiveness is in keeping with the expert perspective on risk communication; although such technical review is vital for the deliverables, technical correctness frequently isn't enough to persuade most audiences (Stratman, et al., 1995; Waddell, 1995; Reynolds, 2011). The translation process, then, is one to which technical communicators can contribute within occupational risk communication. For example, the field's prior research into participatory design (Spinuzzi, 2005; Evia & Patriarca, 2012, among others) suggests that incorporating workers as experienced subject-matter experts early in the translation process could prevent many later difficulties with translation.

5.34 Grantee 1 and "Moment Five"

Grantee 1's experiences throughout the grant application and training documentation development processes suggest the complexities that emerge as Sauer's moment 5 (when written procedures are transformed into training) is expanded. Within these two processes, we see that grantee organizations have multiple opportunities for communication and trust-building with their large regulatory organizations, as well as with the audiences of the training documentation. Grantee 1 sees most of the activities within moment five as being important activities for his organization; however, the first four activities (the SHTG program issues the call for proposals, grantee organizations develop a proposal in response to the CFP, the SHTG program selects funding recipients, and the SHTG program offers training to grantee organizations) are less

significant because of his organization's prior relationship with OSHA. His organization already

has a deep knowledge of OSHA's and the SHTG program's cultural values; as a result, he has

less need to know about or value these initial activities in the process.

Grantee 1's prior organizational relationship with OSHA is also pivotal to his experience

with the processes of grant proposal and training documentation development, as Beaufort

(1999) suggests. Primarily, this insider relationship is a positive one for both the SHTG program

and Grantee 1's organization. Grantee 1 enjoys the benefit of pre-established trust between his

organization and the SHTG program, and he is able to skip that stage of grant development in

favor of revising his organization's earlier safety training documentation. This puts him at an

advantage over most grantees, who must first convince the SHTG program representatives that

they can do the work of creating effective training documentation and recruiting trainees.

5.4 Grantee 2

When Grantee 2 developed the training documentation for the SHTG program, she was

the director of a regional, union-supported, safety agency. Grantee 2 has also directed her

organization since spring 2005; however, her personal experience with construction safety

training began in 2006 when she began attending construction-focused trade safety meetings. As

a result, she had extensive knowledge of safety, though not the specific technical knowledge that

an industry veteran would have. Grantee 2's background strongly influenced her attitude towards

the processes involved in transforming OSHA's written procedures into construction safety

training. She and her organization posited a single audience construct for their training: the

construction workers. Though she acknowledged the role of the contractors and OSHA, she saw

that her role within a union-supported agency positioned her as an advocate for those vulnerable

workers.

5.41 Applying for the Grant

      In her interview, Grantee 2 indicated a very personal element to the organization's

involvement with the SHTG program. In 2006, she and many of her organization's board

members, all of whom live in the urban area it serves, noticed that the rate of construction

growth in the area enabled conditions that endangered the workers:

> People were tearing down dilapidated homes or doing major renovations, gutting old
>
> structures, and with this mad rush to buy up land and complete construction as quickly as
>
> possible, what we were observing going on was horrifying. That work was almost
>
> exclusively done non-union, and I actually had observed it going on next door to my
>
> home, and the unsafe working conditions were horrifying. (Grantee 2, 2011)

Grantee 2 addresses a topic here that many of the other grantees do not, that of the potential

safety difference between union versus non-union work. The organization that Grantee 2 directs

includes union representatives, and this inclusion shapes how she sees the cause of the problem.

From her perspective (which may not be shared by the other grantees), the union is a necessary

safety advocate for the workers that can counter the power held by the contractors. To a certain

extent, this perspective is supported in research arguing that trainees learn better from union

representative trainers versus professional trainers (Kurtz, Robins, & Schork, 1997).

      Grantee 2 also expressed the extreme urgency of the safety issue for these workers:

"People were trying to bring down the side of a brick house by taking a ladder and straddling it

thirty feet in the air with an axe and trying to bring it down with an axe. I mean, I saw

scaffolding that's so ready to collapse that you can't believe anybody is working on it" (Grantee

2, 2011). As the director of an organization that has a mission to assist workers in different

industries, saw herself and her organization as activists on behalf of these workers, many of

whom were disadvantaged through job insecurity, language barriers, legal status, or other issues.

In doing so, she positioned herself and her organization within an emerging rhetorical tradition

of risk communication that attempts to advocate for audiences (Grabill & Simmons, 1998; Killingsworth & Palmer, 1998). Although this tradition establishes a process of risk communication that can be lengthy and complicated for the communicator, it also often results in deliverables that are more effective and audience-aware than deliverables created from a non-advocate perspective.

All of these motivations—the danger that workers faced, the desire to advocate for those workers, and the unique perspective that her organization has on safety—convinced Grantee 2 and the board of the organization that they needed to apply for funding through the SHTG program. Grantee 2 was responsible for writing most of the document, although the organization's finance officer worked on the budget. Grantee 2 also continually sought feedback on drafts from colleagues across the country. A few of these colleagues, particularly individuals closely involved with the building trades, provided extra motivation for Grantee 2: "the sort of popular feeling when word was out that we were doing this was that 'those girls will never do this'" (Grantee 2, 2012). A culture of masculinity continues to dominate the construction industry, as Maynard (1989), Iacuone (2002), and Ness (2012) have found. This particular culture of masculinity most often manifests in increased risk-taking on the jobsite and dismissal of perceived feminine or weaker traits (Iacuone, 2002; Ness, 2012).

5.42 Creating and Revising the Deliverables

Despite the negative external reaction to the organization's application, the process led to a document that emphasized two key areas: extensive outreach and participatory training sessions that would not necessarily "reinvent the wheel" (Grantee 2, 2011). In the proposal, Grantee 2's organization promised "aggressive outreach and recruitment techniques that [would] build interest and participation in the training" (Grantee 2, 2011), signaling that the organization recognized that the recruitment process, or milestone six of the expanded model of Sauer's

(2003) moment five, would be difficult. Although the SHTG program mentions outreach and recruitment in its *Helpful Tips for Improving Your Susan Harwood Grant Application* PowerPoint slide deck (2009) and allocates funds for the process, other aspects of the application process receive far more emphasis. Grantee 2 attributes her organization's success with the grant application process in part to this emphasis on outreach and recruitment. This discrepancy supports Beaufort's (1999) argument that neither requests for proposals nor supplementary documentation can encompass all of a funding agency's values.

This plan built on more inclusive theories of risk communication that encourage communicators to develop partnerships with audiences as quickly as possible in the process of communicating persuasive risk information (Fischhoff, 1995; Waddell, 1995; Grabill & Simmons, 1998; Reynolds, 2011). Instead, Grantee 2 found that her organization's targeted outreach did not work as expected: the organization mailed out 1,000 recruitment brochures to area contractors but only received two return responses. Even worse, early training sessions had low attendance, to the point that the organization had to request a time extension from the SHTG program in order to meet its attendance and training goals. Risk communication theory suggests that this strategy *should* have worked. However, the outreach targeted not the construction workers who made up the primary audience of the training documentation; rather, it targeted the contractors who served as gatekeepers to the workers. This shift in audience became problematic for the training process because, as Grantee 2 found, the contractors had priorities that sometimes superseded worker safety training:

> Why aren't they interested? One, they're in a rush to completion. Safety is as far from their mind as possible until they have a big lawsuit, someone gets killed, whatever. Secondly, they think that to adhere to those safety things would cost them time and money also. They wouldn't be able to move as quickly. (Grantee 2, 2011)

Grantee 2's experience echoes previous research into safety culture on construction jobsites. Workers, supervisors, and contractors all have different concepts of what safety entails on a jobsite; thus, each group has a different safety culture that may overlap or even conflict with those of the other groups. The inclusive, participatory nature of Grantee 2's outreach may persuade the workers, who bear the brunt of the risk on jobsites and therefore may value the safety training more highly than the contractors (Bust, Gibb, & Pink, 2008); however, research also suggests that workers consider management approval of safety training as a necessary requirement before participating in the training (Choudhry & Fang, 2008). That approval is not always available, though. The additional priorities—specifically, completing a job on time and within budget—that supervisors and contractors must hold often outweigh the risks associated with unsafe behaviors on the jobsite, risks that can be mitigated by effective safety training and other safety-positive communication (Sawacha, Naoum, & Fong, 1999; Bust, Gibb, & Pink, 2008). That is not to lay the blame solely at the feet of supervisors and contractors: workers themselves can become numbed to or appear apathetic about the risks they face (Slovic, 2007) or behave on the jobsite in a way that indicates masculinity and toughness (Choudhry & Fang, 2008).

By the time the organization applied for its second SHTG program grant, Grantee 2 noted that the organization "had planted a lot of seeds" in terms of outreach and revising the documents that developed into a successful program: "People we'd been reaching out to and reaching out to and nothing – just nothing happening…all of a sudden, they were calling. "Do you still have that?" (Grantee 2, 2011). The relationships that the grantee developed, even though those relationships were not with the funding agency, paid off in the form of increased attendance at training sessions (Beaufort, 1999). Individuals who had not attended the training themselves learned from their colleagues that this training was available for free at a time when the local OSHA office had begun a period of heavy enforcement in response to the increase in accidents.

As Cheng, Li, Love, and Irani (2001) suggest, these informal, collegial networks that construction contractors form are often the most effective and persuasive methods of communication for contractors. In other cases, contractors and workers for several companies received training from Grantee 2's organization, but had to come back several times after receiving citations from the area OSHA office. In these situations, contractors assigned most of the blame to workers, and vice versa. These "repeat offenders" showcased the tensions that occur between workers and contractors when attempting to improve a jobsite's safety culture: each side sees the other as bearing primary responsibility for safety, which means that few individuals actually take responsibility (Gherardi, Nicolini, & Odella, 1998). In Grantee 2's experience, "strong enforcement [such as that by the local OSHA office] in very vulnerable high-risk industries [such as construction] is critical coupled with training. Either one by itself cannot translate into the same positive outcome as the two together" (2011). Her organization's experience suggests that this is the case; until the local OSHA office created an environment in which the contractors were forced to seek training, there was little external motivation for them to attend the training. Grantee 2's experience also suggests that the SHTG program may need to build programs or networks to encourage workers and contractors alike to attend training. Such institutional support could reduce the problems grantees encounter when attempting to recruit trainees in milestone 6. It would also reduce the amount of time and money needed by grantees.

Along with its emphasis on outreach and recruitment, Grantee 2's organization proposed to review previous grantees' safety training programs, which were available on the SHTG program website (just as their own work was eventually published on the website), and use that work as the basis for their own training program rather than beginning from scratch. However, when Grantee 2 began to review the work of previous grantees, she found that much of it was ill-suited for the highly participatory training she sought to create. Although some of the previous grantees included useful material, such as photographs that could be re-used in interactive ways,

many of the training programs contained a significant number of slides that focused too heavily

on text-based explanations. As Chapter 4 argues, training materials that rely too heavily on text-

based explanations can result in training programs that favor highly literate trainees at the

expense of those who have lower educational levels or have limited proficiency in English.

OSHA's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood*

Training Grants (2011) also challenges grantees to develop deliverables that rely heavily on

visuals, which encourages participation. Furthermore, Grantee 2 and her colleagues felt that the

slides were not always applicable to the situations their trainees experienced on the job, while

others were overly repetitive. Despite these critiques, Grantee 2 noted that the work of several

previous grantees informed early drafts of her organization's training materials. These previously

existing materials aided Grantee 2's organization in one other key way: providing photographs of

jobsites that could illustrate key concepts in the training. As Grantee 2 made contacts with local

organizations, she was able to replace these recycled photographs with images of local jobsites.

In this regard, the recommendations promoted by OSHA's *Best Practices* differ from

current technical communication processes that emphasize single sourcing, or content reuse in

different media, such as the workflows outlined by Rockley (2001), Ament (2003), and

Giammona (2004). Instead, Grantee 2's experience echoes arguments made by Albers (2003),

who suggests that single sourcing requires the same nuance as any other strategy for developing

technical communication: in other words, as the rhetorical situation changes, the communication

must change as well. Grantee 2's audience differed from those of earlier grantees, and the SHTG

program's constraints on the safety training documentation had evolved as well: it is thus

unsurprising that her attempts to reuse content created by earlier grantees proved insufficient for

her needs. Instead, grantees working with the SHTG program could perform a more adaptive

version of single-sourcing. In Rockley's (2001) description of "level 3" or "on the fly" single-

sourcing, technical communicators develop flexible audience profiles and provide additional

content based on the audience's use of the communication. In addition, audiences can select additional content that relates to their needs and interests. This type of single-sourcing might entail a radical re-envisioning of the SHTG deliverables into more heavily multimedia options, which might require different kinds of funding. However, such a re-envisioning would also move the program away from its heavy emphasis on PowerPoint as training medium.

5.43 Translating the Deliverables

In her interview, Grantee 2 acknowledged that translating the safety documentation into Spanish (milestone nine) was more challenging than she expected. Part of the difficulty emerged because her organization did not employ anyone who could translate the documentation in-house; instead, the organization hired freelance translators. Evia (2008) notes that such outsourced, translated technical communication is particularly "vulnerable to cultural differences" that can damage the ultimate effectiveness of the communication, and Grantee 2's experience supports that argument. Initially, she expected the translators to have little trouble with the task: they had access to OSHA's English-Spanish dictionary, which includes all of the required terminology for use in Spanish-language documentation. However, the translators did not have backgrounds in occupational health and safety, which posed problems for them and for the organization. Byrne (2006) argues that an overwhelming emphasis on terminology over cultural appropriateness in technical translation diminishes the effectiveness of translated technical documentation, suggesting that translators of these documents should also be trained to create the genres that they are being expected to translate. However, translators are rarely exposed to technical documentation such as that found in the SHTG program, nor do they have the subject-matter expertise to handle such technical documentation (Byrne, 2006). As the previous paragraph indicates, the translators' lack of subject-matter expertise caused such difficulty that the SHTG program representatives required multiple revisions of the translated

safety training documentation (Grantee 2, 2011). In short, technical translators are themselves technical communicators working in multiple languages, although they have not been recognized as such and are rarely equipped to succeed at the tasks expected of them even if they are trained as technical communicators (Maylath, 1997). Similarly, Kastberg (2007) argues that technical translators need four competencies to succeed:

1. Competence or fluency in both languages

2. Knowledge of the subject matter

3. Competence in technical communication for both languages

4. Competence in translating technical communication for both languages.

As this and other interviews indicate, many of the translators were missing at least one and often several of these competencies. As a result, the deliverables sometimes suffer from oddly translated terminology, which Chapter 5 supports.

5.44 Grantee 2 and "Moment Five"

The recruitment process (milestone six) loomed largest for Grantee 2 in her interview, dominating her memory of the documentation process. Its emphasis within her discussion suggests that recruitment is a far more important milestone than the SHTG program perhaps realizes or currently supports within its process. The model at the beginning of the chapter places recruitment as early as milestone six, which may initially appear to be out of place; however, newer grantee organizations such as Grantee 2's confirmed that they began working on this milestone at the same time as developing their deliverables (the safety training documentation), if not before. This experience suggests that the trainee recruitment process requires significant time for new grantee organizations. The challenge of recruiting trainees is one that plagues safety intervention research; as Kidd, Parshall, Wojcik, and Struttman (2004) found, many contractors perceive their jobsites as having positive safety records (whether the data supports this

perception or not), and they are concerned that training will take away too much time from the jobsite and contracts being completed. Within the quasifirm construction industry, workers are hired by the project, by the week, or even by the day (Eccles, 1981); because of this instability within the industry's structure, the one constant is the contractor/owner, who controls access to the construction workers who make up the potential trainees. As a result, novice grantee organizations are at a disadvantage in terms of recruitment unless they have previous relationships with these gatekeepers. Grantee 2 may have been at a particular disadvantage with these gatekeepers because of her organization's strong connection to unions and position as an advocate for workers. In contrast to Grantee 2's experience, Grantee 1's organization was able to delay recruitment because it had prior existing relationships with the SHTG program and with construction industry gatekeepers.

Despite the stark differences in their approaches to recruitment, Grantees 1 and 2 shared some similarities in their approach to creating deliverables (milestone five). Like Grantee 1, Grantee 2 sought to create participatory training to capture and maintain the trainees' attention. For both of these grantees, "participatory" is being used to describe training that asks trainees to interact with trainers or their fellow trainees. The term is not being used in the same way as in participatory design: in projects that employ participatory design methods, "participatory" means that it has involved users (or, in this case, audiences) of the documentation from the beginning; furthermore, it empowers workers to rely on their own expertise in developing the documentation (Namioka & Rao, 1996; Spinuzzi, 2005). Grantees 1 and 2 both revised previously developed training documentation: Grantee 1 making changes to his own organization's documentation, and Grantee 2 building on the work of previous grantees.

5.5 Grantee 3

Grantee 3, unlike the previous two grantees, did not serve as the sole or primary creator of her organization's SHTG deliverables. Instead, she participated in a team that included experts in occupational health and construction management. Grantee 3, who served as a co-director of the grant and editor of the training documentation, has worked in the field of occupational health for nearly 30 years. Her co-director, who has expertise in construction management, provided the majority of the background information and knowledge of OSHA standards. The combined experience of Grantee 3 and her co-director likely served as a benefit for her organization, given that the SHTG program institutional discourse places a high value on organizational staff qualifications. Each year's request for proposals explicitly calls for grantees to discuss their prior experience with occupational safety and health, as well as with grant management (Occupational Safety and Health, 2012). The SHTG program's less formalized discourse, such as the program's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (2011) and the *Helpful Tips for Improving Your Susan Harwood Grant Application* PowerPoint slide deck, echoes this emphasis.

A third collaborator, who conducted most of the training for this organization, works as a contractor during the summer. Grantee 3 notes that the workers especially appreciated this collaborator's "on-the-ground practical experience … he was really able to speak their language when he did the training" (2011). It is notable that Grantee 3 uses the phrase "speak their language" here. Though this collaborator did not speak Spanish and so did not conduct those sessions that were in the language, he had the personal, embodied experience with the jobsite that allowed him to understand the hazards that the workers faced. As Sauer (2003) argues in her work with mining safety, such embodiment is crucial, and it precedes explicit knowledge. This embodied knowledge gave the third collaborator significant *ethos* with the trainees, which Reynolds (2011) argues is often more important to risk communication audiences than the bare

109

facts being communicated. The idea of embodied knowledge as possessing more *ethos* than

expert knowledge violates the norms of risk communication practice, which has typically

developed from arhetorical, quantitative risk analysis research; however, the idea is in line with

rhetorical analyses of risk communication that have developed within technical communication

research (e.g., Stratman, et al., 1995; Grabill & Simmons, 1998; Scott, 2003; Simmons, 2007;

Blythe, Grabill, & Riley, 2008), which indicate that risk communication depends at least in part

on the credibility of the communicator.

5.51 Applying for the Grant
        Like Grantee 2, Grantee 3 had a local reason for getting involved in the SHTG program.

Her move to the area in which her organization operated coincided with the housing boom of the

early 2000s: during the first half of that decade, an average of 1,448,000 single-family homes

were being constructed every year across the United States, and in her region, the rate of new

construction was even higher (U.S. Census Bureau, 2013). As the demand for housing increased

exponentially in her area, the number of construction-related deaths and injuries in her area

increased as well: over a nearly two-year period, 12 deaths were reported, the vast majority of

them due to falls[3].

        In response to public outcry over the accidents, the federal branch of OSHA came to the

area to investigate. These accidents caught the attention of the local newspaper, which conducted

what Grantee 3 called a "muckraking" investigation. This particular investigation charged the

local OSHA office with a lack of oversight that contributed to the accidents. Although Grantee 3

seems somewhat dismissive of the role that the local newspaper played in this situation, its

coverage of the accidents served to draw attention to the lack of safety training and enforcement

occurring within the city. Muckraking journalism has a long history with occupational risk

communication: in fact, Dake (1992) argues that increased attention to safety and occupational

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[3] Some details have been altered to protect the participant's identity.

risk communication frequently occurs only as a result of extended, public investigations of significant accidents. Although Sauer (2003) does not explicitly mention journalist coverage of accidents as a critical moment of transformation within occupation, such coverage could easily be considered part of her moment two ("when the info in accident reports is re-represented for a different audience") and/or moment three ("when statistical accounts are re-represented as arguments for particular policies"). As journalists re-represent the information for broad public audiences, institutions and organizations can no longer prioritize their own view of a safe jobsite as the only one (Dayton, 2002). Furthermore, such public re-representation of the accidents and related statistical information serves as a potent argument in favor of increased oversight on the construction jobsite. Despite Grantee 3's dismissal of the newspaper's role in occupational risk communication, the publication seems to have been instrumental in the SHTG program's decision to fund her organization's proposal. Kasperson, et al. (1988), Stallings (1990), and McComas (2006) argue that news media play a significant role in the amplification of risk by selecting which stories to report, who to interview, and even what order in which information is presented. As the news media increase their attention on a hazard, so do members of the public and governmental institutions.

5.52 Creating and Revising the Deliverables

Even before applying for the grant, Grantee 3 conducted focus groups with Spanish-speaking immigrant construction workers to learn why they were more likely to be injured or killed than their English-speaking counterparts. In doing so, she adopted the more participatory approach found in social constructionist theories of risk communication (Waddell, 1995; Simmons, 2003) and occupational risk communication in particular (Sauer, 2003; Evia & Patriarca, 2012). In these focus groups, Grantee 2 found that the workers' unfamiliarity with protective equipment, combined with a nearly fearful respect for authority, made them less likely

to ask for help or clarification: as the workers described their situation, "they interpreted that the supervisor would view [the request] as insubordination and fire them" (Grantee 3, 2011). The experiences of the workers in Grantee 3's focus groups are consistent with other research into the needs of immigrant Hispanic construction workers. Frequently, communication between Spanish-speaking workers and English-speaking supervisors is deemed "good enough" (O'Connor, Loomis, Runyan, dal Santo, & Schulman, 2005), a designation that cloaks the subtleties and difficulties of communicating between second-language and first-language speakers of a language. Hispanic workers, particularly those from Mexico, are apprehensive about communicating with their superiors in any way that might be perceived as confrontational (Madlock, 2012); in fact, these workers are often afraid to "rock the boat," sometimes to the point of failing to report accidents when they occur (Thompson & Siddiqi, 2007).

When the SHTG program approved her organization's proposal, Grantee 3's primary goal was to incorporate what she learned into the safety training documentation. However, Grantee 3 and her colleagues "didn't want to reinvent the wheel" as they developed the documentation (2011). In using this phrase, Grantee 3 echoed Grantee 2's perspective on developing the training documentation. In both situations, the grantees echoed current technical communication practice that emphasizes content reuse and single sourcing (Swarts, 2010; McCarthy, Grabill, Hart-Davidson, & McLeod, 2011). However, like Grantee 2, Grantee 3 found that she and her collaborators sometimes *had* to "reinvent the wheel" (2011) more than they expected. As they examined the work of previous grantees that was available on the SHTG program website, they found that the previous work did not meet the needs of her organization or her audience and could not be reused in its current form. However, they did find valuable resources from OSHA's website and alternate, OSHA-approved, sources.

As the deliverables were being developed, Grantee 3's collaborators had primary responsibility for drafting the initial English-language documentation; then, Grantee 3 edited it

112

for second-language issues and clarity. Grantee 3 found that she frequently needed to address second-language issues for one of her collaborators, who was originally from India. The intercultural nature of this situation adds another layer of complexity to the training documentation created by this grantee. At least three languages—Hindi, English, and Spanish—were involved, and translation issues could potentially occur at any stage of developing the deliverables. Non-native speakers, even those who are fluent in the language, may struggle with the task of writing technical documentation such as this safety training documentation in their second or third languages because of the cultural dimensions of language (Evia, 2008).

Based on the early focus groups that Grantee 3 conducted, her organization also developed activities intended to alleviate the workers' fear of confrontation and to teach them how to behave in a more self-confident manner on the jobsite without losing their jobs. These activities responded to the SHTG program's best practice for grantees to develop participatory materials that encourage trainees to interact with each other and with their trainers (Occupational Safety and Health Administration, 2010). This best practice itself is in response to workplace learning principles arguing that adults in the workforce learn best when the learning activities are practical, task-centered, and interactive (Cranton, 1994; Knowles, 1996; Jarvis, 2004). Furthermore, these activities are concerned not just with immediate safety competencies, but with long-term competencies that will help workers long after the current safety standards are revised; such long-term competency development is among the most difficult and most important learning to occur in workplace learning (Boud & Garrick, 1999).

As the primary editor, Grantee 3 also worked closely with her collaborators to ensure that the documentation was written at about a fifth-grade reading level, which was the general standard that the SHTG program asked them to achieve. Although the SHTG program does not specify a reading level in its *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (2011), the program does ask grantees to address the needs of

workers with varied skill or literacy levels. Many of the Hispanic workers who made up a large part of their audience had less than a ninth grade education, so the fifth-grade reading level was considered a relatively safe level for the slides (Occupational Safety and Health Administration, 2010).

However, the information still needed to adhere to SHTG's standards of correctness, and the grant program had procedures in place to confirm those standards and the readability of the information. Once Grantee 3's organization developed the documentation to the desired level, they sent it to the SHTG program for approval. This approval process was complicated by the SHTG program representative's inability to communicate specifics about how slides should be revised. Grantee 3 noted that the representative was not a content expert; rather, this representative functioned as an intermediary between the grantee organization and the subject-matter experts in the SHTG program. When Grantee 3 had content-based questions about her drafts, she had to wait until the question could go through her representative to the subject-matter experts and then back again.

Other challenges emerged after the deliverables were ready to present to trainees. Like that of Grantee 2's organization, Grantee 3's training was initially plagued by low attendance. Originally, the training session was structured as two four-hour sessions; as attendance became a clear problem, the SHTG program representative urged Grantee 3 to condense the training presentation to fit into a single, five-hour session. Although Grantee 3 and her collaborators revised the training presentation according to that suggestion, they retained copies of the full version as handouts for the trainees. However, this revision meant that the collaborators had to reduce the interactive portions of the presentation, including the companion activities that were intended to help trainees with immediate communication issues and to prepare them for long-term involvement with the construction industry. Grantee 3 expressed understandable frustration

with this late revision; however, the changes also meant that the activities that remained received greater emphasis. These activities also proved eye-opening for trainers and trainees alike:

> The trainers were stunned that so many of these construction workers really did not know how to correctly put on their fall protection vests. So that [activity] was probably more valuable than the three guys in the front row pointing out safety hazards in the slides.
>
> (Grantee 3, 2011)

In this activity, Grantee 3 positions her organization's deliverables as empowering the construction workers trainees, a position that aligns her with advocacy-based technical communication research (e.g., Slack, Miller, & Doak, 1993; Grabill & Simmons, 1998; Blyler, 1998; Rude, 2004). Her statement also suggests that, even when grantees thoroughly research their audience before developing the deliverables, the reality that faces them in the training sessions can still catch them unaware. As Ede and Lunsford (1984) argue, communicators can never fully anticipate all of their audiences' needs, values, or desires; as a result, communicators develop documentation for somewhat idealized audiences. This seemed to be the case with Grantee 3 and her trainers: even though the collaborators knew from the early focus groups that trainees misunderstood jobsite safety measures because of their difficulties communicating with their supervisors, the trainers still envisioned an audience that had some level of understanding.

Despite the popularity of the training activities, Grantee 3 found that at least one part of this participatory, active training was not immediately effective for trainees. When she conducted follow-up testing that focused on workers' ability to communicate with their supervisors in a confident, assured manner, she found that the trainees' behavior had not changed significantly: they continued to defer to their supervisors, even when such deference resulted in workers misunderstanding safety measures or having to rush projects to completion even when doing so was not safe. This finding, which seemed to disappoint Grantee 3, coincides with that of other

115

researchers focused on workplace learning. As Boud & Garrick (1998) suggest, repeated and longer-term guidance may be required to enact this type of behavioral change.

5.53 Translating the Deliverables

When OSHA approved the English-language version of the documentation, Grantee 3 had a construction management student translate it into Spanish using the OSHA Spanish-English Construction Dictionary. After the documentation was translated, it was tested by bilingual supervisors and workers at the local construction workers' union to ensure that it was clear and correctly translated. Finally, the translated documentation was sent to the SHTG program for approval, and this last step seemed easiest for Grantee 3's organization. In contrast to the organization's experience with approval for the English-language documentation, the SHTG program "more or less took [her] word for it that the Spanish was translated faithfully" (2011). The primary requirement for the Spanish translation as she understood it was that it needed to use the approved terminology in the *OSHA Spanish-English Dictionary,* a requirement that she said was not in place for the English-language documentation. As in Grantee 2's experience, the emphasis in translating these deliverables was on the terminology rather than culture; as Brunette (2005) and Byrne (2006) indicate, this often results in translated documentation that may be technically correct, but culturally insensitive or otherwise inappropriate. At times, the emphasis on terminology in translation breeds documentation that makes little sense to the language's native speakers (Brunette, 2005).

5.54 Grantee 3 and "Moment Five"

In her interview, Grantee 3 emphasized several of the activities included in Sauer's (2003) moment five (when written procedures are transformed into training). First, she acknowledged that the local contexts—a series of severe injuries and fatalities on construction

116

jobsites—spurred her and her collaborators to pursue the second milestone (developing the grant proposal). In fact, these local contexts dominated her impression of that milestone to the exclusion of developing the proposal, much as it did with Grantee 2. Local contexts thus influence risk communicators in powerful ways, just as they do the audiences of the risk communication. Grantee 3 also acknowledged the difficulty of developing safety training documentation as part of a collaborative group (milestone five) and working with the SHTG program for approval. The SHTG program representative's lack of prior experience in occupational health and safety seems to have been the biggest problem for Grantee 3; although the representative served as a gatekeeper for the safety training documentation and could withhold official approval on behalf of the SHTG program, this person could not successfully communicate *why* and *how* Grantee 3's documentation needed to be revised in order to obtain SHTG approval. As Moeller and Christensen (2009) argue, program representatives are invisible to most viewers of the grant writing process, but to the grant writers, these representatives are the most important individuals in the process: they are the primary point of contact with the funding agency. When the communication is smooth, the program officer aids the grantee in the enculturation process by imparting the funding agency's organizational values and priorities. Otherwise, the communication process resembles a game of telephone, in which a message becomes increasingly garbled, and participants become increasingly frustrated. Finally, Grantee 3's experience suggests that translation (milestone nine) may have been less important to the SHTG program than it seemed to other grantees. She did note that the program stressed terminology in the Spanish-language training documentation more than in the English-language versions. This emphasis suggests that the translated safety training documentation becomes, as Brunette (2005) argues, "mere translations" of the original English training documentation that fails to account for the subtle (and not-so-subtle) variations in the two languages (p. 255).

Grantee 3's interview also raised a key issue that did not come up with other participants: participatory input from the intended audience of construction workers and second-language issues on the parts of the communicators. This issue is not represented in the extended model at the beginning of the chapter. The lack of participatory input from the audience is particularly troubling in regards to the occupational risk communication created by SHTG program grantees. Safety training is all too often a one-way communication: a trainer in the front of a room instructs audiences about what they must do (Piskurich, 2006), with no input from those audiences about what they value or what they need to feel safe on the jobsite. Both adult learning research and risk communication research argues that audiences resent having such learning forced upon them (Donavant, 2009; Waddell, 1995; Sauer, 2003). As Scott (2003) notes, this kind of communication both disciplines and "others" the workers. As a result, if workers experience an accident, it is easy for outsiders to view the workers as being automatically at fault for not following directions. Such an *othering* creates a cycle in which workers are asked to bear sole responsibility for their safety. This requirement contradicts current research on safety culture, which argues that workers, supervisors, and contractors alike bear some responsibility for safety on the job (Gherardi, Nicolini, & Odella, 1998). To break the cycle, participatory research would need to be integrated into nearly every milestone of the SHTG program: certainly, the program would need to emphasize such research in the call for proposals and other official documentation so that grantee organizations would recognize that it is valuable, if not essential, to the process of developing deliverables. It would also need to be a key element of the early stages of developing the training documentation, as Grantee 3's experience demonstrates.

5.6 Grantee 4

Grantee 4 was perhaps the most closely tied to the SHTG program as a former OSHA compliance officer for her state; however, at the time she applied for SHTG program funding, she worked with a small educational institution along the east coast. Despite her insider

perspective, she did not pursue the funding or create the deliverables alone. Instead, she worked

as part of a three-person team that applied for the grant, developed the safety training

documentation, and presented the training to construction workers in the area. Collaboration

within technical communication is not unusual: as early as 1982, researchers reported that

communicators were collaborating frequently as part of their job duties (Faigley & Miller, 1982).

Nor is collaboration rare within the construction industry: as Chapter 1 indicates, contractors and

sub-contractors create partnerships on nearly every construction project (Eccles, 1981). This type

of collaboration is becoming increasingly common within the SHTG program as well. Although

Grantee 1 did not collaborate frequently with others in creating his organization's deliverables,

the other three grantees (including Grantee 4) participated in some form of collaboration.

However, the type of collaboration varied. Grantee 3 relied on what Thompson (2001) terms

"swap-meet" collaboration; in this type of collaboration, individuals may work separately on

parts of the project within their own expertise, but then come together for revision. In contrast,

both Grantee 2 and Grantee 4 were the leaders of their respective collaborative projects, resulting

in what Thompson calls hierarchical collaboration. Although others may contribute to the

project, Grantees 2 and 4 had the primary grantee-level authority on content and structure.

However, it should be noted that the SHTG-grantee collaboration is overtly hierarchical in

Thompson's terms: the SHTG program has ultimate control over the deliverables, which links to

OSHA's need to be the regulatory authority on occupational risk communication.

5.61 Applying for the Grant

    Grantee 4's prior experience with OSHA's compliance process made her acutely aware

of the training challenges faced by construction workers and contractors alike: the quasifirm

nature of the construction industry (Eccles, 1981), the language and cultural differences within

the audience of trainees (Brunette, 2005; Evia, 2011; Thompson & Siddiqi, 2007), and the need

to complete projects on time and on budget (Choudhry & Fang, 2008), among others. Given those challenges, she and her collaborators relied heavily on her subject-matter expertise to respond to the rhetorical situation.

Like Grantees 2 and 3, her prior experience shaped her desire to work with this population, particularly smaller contractors. In her work with OSHA, she found that smaller contractors and their employees had less access to safety training, resulting in increased numbers of compliance issues or, worse, increased numbers of on-the-job accidents. The grantee's findings echoed those of a number of scholars focusing on the construction industry; for example, Hewage and Ruwanpura (2009) found that workers on many jobsites were unable to access training available on other jobsites, even those sites operated by the same configuration of contracting partnerships. In addition, Latino workers were at increased risk for accidents on the jobsite. The risk of workplace death for Latino construction workers is 40 to 80% higher than for their non-Latino peers and their risk of work-related injuries is 30% higher (Dong, Wang, & Daw, 2010). Furthermore, a 2012 study found that these injuries and fatalities may actually be underreported to OSHA and its regional branches (Arcury, et al.). As a result of these factors, Grantee 4 and her collaborators focused on smaller contractors, particularly those who hired primarily Hispanic workers.

This decision served Grantee 4's organization well as the grant process began. Grantee 4, like Grantee 1, had extensive prior experience with OSHA, which positioned her as an insider for the grant process. Unlike Grantee 1, she did not have prior experience in applying for the SHTG program grant. This lack of application experience offset her advantage because she did not have direct, personal or professional relationships with the grant program coordinators who could guide her through the grant process. However, Grantee 4 did have key background knowledge of the SHTG program's organizational culture, priorities, and its unstated requirements for its grantees. As Beaufort (1999) argues, these unstated requirements can stymie unprepared

120

grantees; this suggests that the knowledge of organizational culture and values is just as important to grant writers as prior grant writing experience, if not more so. Given her knowledge of the SHTG program, Grantee 4 was able to quickly develop a funded proposal and focus on other grant-related activities such as developing the safety training documentation (milestone five in the expanded model of Sauer's moment five) and recruiting trainees (milestone six). This extra time was necessary: like Grantees 2 and 3, this grantee needed significant time to develop relationships with the local construction industry in order to recruit trainees.

5.62 Creating and Revising the Deliverables

Grantee 4 was the primary person on her team responsible for developing the safety training documentation. Even before she began developing the documentation, she recognized that her audience was complex and contained construction workers, supervisors, and smaller contractors—all of whom had varied work experience. In her interview, she displayed awareness of the complicated needs of this audience, citing the dispersed, "quasifirm" structure of the industry (Eccles, 1981) as a primary reason that smaller contractors and their employees made up more of their audience than larger contracting companies. Although her audience was heterogeneous in terms of work experience and power on the jobsite, it shared other characteristics. Grantee 4 noted that many of the contractors had not had much more formal education than their company's employees.

As a result of these contexts, her organization needed to develop safety training documentation that accommodated varied educational needs. As OSHA's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants* (2011) suggests, she sought to include multiple types of material, among them photographs illustrating key concepts, the legal standards to be followed, and case studies that served as cautionary tales for the audience. Photographs can "instruct, persuade, motivate, announce a topic, or set a mood"

(Kostelnick & Roberts, 1998, p. 313). Furthermore, case studies are a recommended way to vary

instruction, particularly for adult learners (Piskurich, 2006). Grantee 4's weakest proposed

content—at least in terms of its value to trainees—is the OSHA standards. In communicating

many of these standards, grantees tend to replicate the standards exactly; however, these

standards are frequently written in vague language that can confuse trainees and ultimately lead

to accidents on the construction jobsite (Trajkovski & Loosemore, 2006). Despite the difficulties

that trainees have in understanding legal standards, this type of content appears to be the most

highly valued by OSHA and the SHTG program. As Grantee 3's experience indicates, the SHTG

program rarely asked grantees to remove this type of content, though it occasionally requested

that activity-based content be removed to ensure there would be enough time to cover the

standards.

Grantee 4 also localized much of the content in her organization's deliverables for the

audience. She specifically wanted to draw her cautionary tales from nearby, so that workers

could see that the effects of unsafe behavior were real and affected people they might know.

However, she was careful not to include images of those accidents, understanding that such

photographs might traumatize trainees as Lancaster (2006), Slovic (2007), and Evia (2011)

argue. She noted that her audience responded best to the photographs and other interactive

elements, which aligns with the recommendations in the SHTG program's *Best Practices*

document and workplace learning research (Knowles, 1996; Barnett, 1999; Boud & Garrick,

1999). In this localization process, Grantee 4 followed the radical localization process described

by Hoft (1995) and Bosley (1999), in which communicators adapt communication to

accommodate variation in cultures; although this localization process focused primarily on

including nearby examples, it also accounted for Latino cultural preferences for less emphasis on

fear in occupational risk communication (Brunette, 2005; Evia, 2011; Evia & Patriarca, 2012).

5.63 Translating the Deliverables

Given her organization's grant emphasis on Hispanic construction workers, translating the documentation was a key milestone for Grantee 4. During translation, the organization relied heavily on one of the collaborators, who spoke both Spanish and English fluently. This collaborator first translated the materials into Spanish and then revised the wording to ensure it used the vocabulary required by OSHA in its English-Spanish construction dictionary. Following this order helped the translator complete the process more quickly and, Grantee 4 argued, helped the materials be more accurate within the language. This experience stands in contrast to that of several other grantees, who had to bring in freelancers to translate the English-language training documentation into Spanish. However, Grantee 4 did have to attest that the translated documentation used only OSHA-approved terminology. As with Grantees 2 and 3, the terminology—the literal form of translation—became the primary measure of the translated documentation's accuracy and effectiveness for the SHTG program. As Brunette (2005) argues, a focus on the form of translation at the expense of cultural translation loses the essence of the message being communicated. In this case, though, it is clear that the emphasis on literal as opposed to cultural translation is on the part of the SHTG program rather than the grantees.

In addition, the organization's primary trainer was bilingual, meaning that the presentation was able to shift back and forth between English and Spanish. This collaborator, who Grantee 4 praised for her "vast knowledge of the construction industry" (2012), thus had both the language and technical knowledge to be able to communicate well with many different workers. As Evia and Patriarca (2012) argue, including trainers with extensive translation experience can put workers at ease. In fact, as a 2010 memo from OSHA suggests, it must become the norm as organizations meet workers "where they are" linguistically (Occupational Safety and Health Administration, 2010).

5.64 Grantee 4 and "Moment Five"

Grantee 4 was somewhat less forthcoming than the other grantees, and that showed in a slightly shorter interview time (35 minutes as opposed to 45 minutes for most grantees). However, even in this relatively brief interview, she acknowledged several of the key activities in the expanded model of Sauer's moment five. Out of these, developing the documentation (milestone five) received most of her attention. Translating the documentation (moment six) received a significant amount of Grantee 4's attention as well. This emphasis on developing the training documentation is unsurprising: given her prior knowledge of the SHTG program's organizational culture, she was able to sidestep the process of enculturation that other, inexperienced grant writers had to endure. Furthermore, her concentration on translating the documentation makes sense in light of her proposal's emphasis on Hispanic workers as a primary audience.

5.7 Conclusion

To return to the model that opens this chapter, twelve common milestones lead to Sauer's (2003) moment five in the SHTG program:

1. The SHTG program issues a call for proposals (CFP) for occupational risk communication in the form of training.

2. Grantee organizations develop a proposal that outlines their plan for developing deliverables, recruiting trainees, and presenting the training.

3. The SHTG program selects grantee organizations as recipients of funding.

4. The SHTG program provides guidelines and training (workshops, documentation, etc.) about its expectations for the grantee organizations and the deliverables they create.

5. Grantee organizations develop deliverables.

6. Grantee organizations begin to recruit construction companies and workers for training sessions.

7. Grantee organizations submit their deliverables to the SHTG program for approval.

8. The SHTG program sends the deliverables back to the grantee organizations with approval and/or required changes.

9. After receiving institutional approval from the SHTG program, grantee organizations begin to translate the deliverables into Spanish or other required languages.

10. Grantee organizations submit their translated deliverables to the SHTG program for approval.

11. The SHTG program sends the translated deliverables back to the grantee organizations with approval and/or required changes.

12. Grantee organizations present the deliverables to construction workers during in-person training sessions.

These milestones result in the re-representation of occupational risk information for a non-expert audience through safety training documentation. Within the SHTG program, the grantees all recognized these activities as being common ones for them; however, the emphasis each placed on particular activities suggests the priorities of both the grantees and the SHTG program. For example, as the grantees began creating their safety training documentation (milestone five), the grantees shared a similar approach to intertextuality. Each of the interviewees claimed that at least a small part of their training documentation was based on prior training documentation, whether their own or another grantee's. Intertextuality, or the extent to which a text relies on its antecedents (Porter, 1986), suggests that recent texts should share some characteristics with earlier texts; within the SHTG program, that seems to hold true. The interview participants all suggested that early versions of their deliverables relied heavily on their predecessors, although the dependence lessened as they tested the deliverables with audiences. The next chapter, which focuses on the safety training documentation created by SHTG grantees, supports this theory.

This borrowing can be attributed in part to the short timeframe in which the grantees must work: the SHTG program limits the grant term to one year in which grantees must develop training documentation, recruit workers, and host training courses with a previously specified number of workers. In some cases, this intertextuality is a way to build on successful prior work. However, all of the grantees noted that their organization found significant problems with the earlier materials: some found that the previous documentation had to be revised significantly to be appropriate for their own, local audiences, while others found that the earlier documentation simply wasn't up to their standards.

This situation has several possible explanations. First, new grantees may be expecting too much from previous documentation. If grantees rely primarily on this prior documentation to build their own, they may be limiting themselves from new or innovative approaches to training. Second, the twelve milestones that make up Sauer's (2003) moment five ("when written procedures are transformed into training") are rhetorically complex, and the SHTG program is asking grantees to complete them in too little time. On the other hand, the ambition in the grant application claims could be attributed to grantees who are relatively inexperienced in project management for documentation. First, as Kent-Drury (2000) suggests, the proposal leaders may be new to this experience because they are being tested for full project management. The experience of these grantees seems to support Kent-Drury's claim. Only Grantee 1 had prior experience with writing proposals for the SHTG program, and his organization also had previous projects on which to base any new proposals and deliverables; as a result, he and his organization were more prepared to complete the deliverables and, thus, the project within the specified time. Although several of the other grantees had prior experience with writing grant proposals, most did not have prior experience with managing a complex project funded by a government agency. As a result, two of these three remaining grantees needed to request short extensions of the grant terms.

Some of these ambitious grant application claims may also stem from an attempt to meet the program's unspoken requirements for successful grantees. As Beaufort (1999) argues, first grant applications to a funding agency are rarely, if ever, successful. The goal with initial proposals and applications is instead to develop a relationship with the funding agency in order to submit a stronger proposal during the next funding cycle. In addition, once an organization has successfully applied for a grant with a funding agency, that organization generally has a greater possibility of applying successfully later. Although these truisms are never explicitly stated by the SHTG program in its official program documents, they are supported by the number of repeat grantees on the grant program's website. Of the 103 collections of training documentation (for any industry) available on the SHTG program website in February 2013, 49 were created by 19 grantees with multiple grants from the SHTG program. The high percentage of repeat grantees suggests that new grantee applicants are less likely than previously successful grantees to receive funding in a particular grant year. Beaufort (1999) suggests that new grantees are at a disadvantage because funding agencies rarely include all of the requirements in their requests for proposals.

Finally, and perhaps most importantly, the grantee representatives in this chapter are doing the work of technical communicators, even though they are hesitant to describe themselves in such a fashion and are rarely prepared for such work. Most important in the grantees' work are project management and writing—two key elements of the technical communicator's job, according to Carliner (2001) and Whiteside (2003), among others. As the work of Henry (2000), Thatcher (2006), and others indicates, this situation is increasingly common: individuals who would not call themselves technical communicators are frequently asked to perform the work of technical communicators. As a result, these individuals are asked to complete a "deceptively simple mission" (Pringle & O'Keefe, 2009, p. 25) to create clear, effective documentation about difficult concepts for an audience with complicated learning needs. If or when they fail at this

127

mission, the consequences can be painful or even disastrous for their audiences. Several of the grantees indicated their awareness that their audiences faced work-related injury or death on a daily basis. As a result of these consequences, unintentional technical communicators who focus on hazardous situations must be prepared to create effective documentation. This finding has implications for technical communication majors and minors, including service courses offered within such programs. Technical communication programs have the ability to prepare unintentional technical communicators for the work they will do. Although this implication is explored in more depth in Chapter 6, it's important to note here that project management and the rhetorical implications of technical communication should be an explicit, ongoing element in technical communication courses at every level.

The next chapter summarizes the results of Chapters 4 and 5, recommends possibilities for the SHTG program and its grantees, and suggests avenues for further research. In addition, Chapter 6 suggests broader implications of this research for technical communication, particularly those scholars working in risk communication.

CHAPTER 6. SAFETY AT THE MARGINS: CONCLUDING THOUGHTS ON THE SUSAN HARWOOD TRAINING GRANT PROGRAM

6.1 Overview

In this dissertation, I analyzed safety training deliverables created for construction workers as part of the Occupational Safety and Health Administration's (OSHA's) Susan Harwood Training Grant (SHTG) program. Although grantees in the SHTG program create safety training deliverables for workers in industries as varied as farming and retail, I focused on deliverables aimed at workers in the construction industry because these workers are the most at risk for on-the-job injuries and fatalities (Bureau of Labor Statistics, 2012).

In this study, I asked the following questions about the SHTG deliverables:

- **RQ1:** To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

- **RQ2:** How do the grantees respond to OSHA's institutional communication?

- **RQ3:** To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

- **RQ4:** To what extent do the SHTG deliverables adhere to current theories of workplace learning?

- **RQ5:** To what extent do the SHTG deliverables adhere to current theories of risk communication?

To address these questions, I relied primarily on two research methods: context-sensitive text analysis and qualitative interviews. I began by conducting context-sensitive text analysis on deliverables created by the twelve grantees receiving SHTG program funding for construction safety training in 2006-2009, as well as SHTG program documents that are publicly available on OSHA's website. The corpus comprised 76 total deliverables available on the SHTG program website as of October 2011:

- 27 English-language training presentation modules

- 15 Spanish-language training presentation modules

- 18 activity sheets (including quizzes, lab activities, etc.)

- 6 trainer manuals

- 5 trainee manuals

- 5 course governance documents (including check-in sheets, evaluations, etc.).

As I completed the textual analysis of each grantee organization's deliverables, I contacted representatives of that organization to request interviews with the individuals who created its deliverables. In this research, I was able to interview representatives from four of the twelve grantee organizations. Each of these grantee representatives was responsible wholly or in part for creating the deliverables. These grantee representatives had also been part of their respective organizations for at least two years, although two had worked with their organizations for more than ten years; thus, they had significant experience with their own organizational culture. Despite their knowledge of their own organization's culture, the grantees had varied experiences with and understandings of the OSHA organizational culture and construction industry culture. These varied experiences were complicated by the fact that three of the four grantee representatives were females attempting to work within a construction industry culture that Iacuone (2002) and others note is heavily male-dominated. In addition, all of the grantees in the

study identified as specialists in occupational safety and health or related fields and had little to no knowledge of prior research in technical communication.

6.2 Findings

1. *The SHTG program serves as a contact zone in which organizational cultures collide.*

Certain spaces or cultures are what Pratt (1991) terms "contact zones," or areas in which multiple cultures meet. The SHTG program is one such zone, with the cultures of OSHA, grantees, and the construction industry meeting within its boundaries. Such contact zones can be messy, yet productive, places for understanding other cultures; however, the SHTG program is rarely able to acknowledge that multiple organizational cultures even exist within the program. Instead, each culture remains its own distinct discourse community. Killingsworth (1992) describes the local discourse community as a geographically similar group of individuals that share certain needs, values, beliefs, and communicative practices. Within these local discourse communities, individuals may have their own values, needs, beliefs, and communicative practices; however, those of the community will dominate. The grantees who develop the SHTG program deliverables thus negotiate the needs of their own individual discourse communities and cultures and the external discourse communities with which their communities collide. As Beaufort (1999) explains, grant proposals and management rely on successful negotiation of such collisions. In her study of technical writers, she argues that the first step in effective grant writing is for the writers to develop a positive relationship with the funding agency. The grantees in this study, then, developed a relatively positive relationship with the SHTG program. However, their experiences with the SHTG program suggest that even those grantees with positive initial relationships with their funding agencies can struggle with communication.

2. *OSHA's role as the final authority on technical issues frequently conflicts with its own*

   and grantees' intentions to be inclusive of the construction workers who make up their

   primary audience.

In its public documents (its annual requests for proposals and the 2010 *Best Practices for the*

Development, Delivery, and Evaluation of Susan Harwood Training Grants, all of which are

available on the SHTG program website), OSHA claims to value participation from the workers

it serves through the SHTG program. However, in practice, it is clear that the organization

defines "participation" as active learning rather than "participatory" as in participatory design or

community-based participatory research. The SHTG program's *Best Practices* document

encourages grantees to call on trainees' prior experience in participatory activities that encourage

"teamwork and group problem solving" (2010), though no mention is made of using trainees'

previous experience and values to develop deliverables.

      As the work of Stratman, et al. (1995) and Simmons (2007) suggests, this tension is

common in regulatory agencies. Although the organization wants to be inclusive, it also requires

grantees to include certain types of content that frequently push out the more active learning-

oriented content. Within the deliverables, this tension results in PowerPoint slide decks that

focus overwhelmingly on tasks and conceptual information. Of the twelve grantees, eight

included task information on more than 40% of their slides; one of these grantees includes task

information on nearly two-thirds of its slides. Three of the remaining grantees included task

information on 20%-35% of their slides, with the final grantee including task information on

2.4% of its slides. Conceptual information (definitions, descriptions, and explanations) also

appeared regularly in the PowerPoint slide decks, although not at the same frequency as the task

information. Such information, particularly conceptual information, is extremely important for

trainees according to research in both workplace learning and occupational risk communication.

6.3 Answering the Research Questions

6.31 RQ1: To what extent does OSHA's institutional communication—including the agency's formal regulations and informal communication such as e-mail—shape the SHTG deliverables?

OSHA's institutional communication with grantees through the SHTG program was often confusing to grantees or, in some cases, even in conflict with other institutional communication. The processes of applying for funding through the SHTG program and developing deliverables were more complex than they initially appeared; in fact, the two processes can be expanded into twelve milestones, and each of these milestones can be a moment of conflict in the grantees' and OSHA's expectations. In Chapter 5, for example, at least one grantee claimed that her program representative could not articulate how she and her collaborators should revise their deliverables to adhere to OSHA requirements.

As a result, the deliverables created by this and other grantees reflects their confusion. For example, grantees often replicate OSHA standards in their slide decks. Two grantees, Trimmer Foundation and Maysville Technical and Community College, each included standards on more than 50% of their slides. However, OSHA standards appeared with less frequency in other grantees' slide decks, with five grantees featuring the standards on 10%-20% of their slides, and the remaining five grantees featuring them on fewer than 10% of their slides. Even slide decks with a relatively lower rate of inclusion suffer from the audience-alienating effects of these standards, which are characterized by vague, imprecise language and incorporate abstract concepts; as the Center for Plain Language (2012) argues, such language fails its readers by making tasks harder to understand and accomplish. Furthermore, Sims (1993) suggests that such imprecise language can even be unethical; although this language follows the letter of the requirement to communicate safety information to trainees, it fails the spirit of the requirement to

communicate that information to them in a way that they understand. For example, Trimmer

Foundation (2009) offers OSHA standard 1926.501(b)(2) in its slide deck:

- Each employee who is constructing a leading edge 6 feet (1.8 m) or more above lower

  levels shall be protected from falling by guardrail systems, safety net systems, or personal

  fall arrest systems. Exception:

  - When the employer can demonstrate that it is infeasible or creates a greater

    hazard to use these systems, the employer shall develop and implement a fall

    protection plan which meets the requirements of paragraph (k) of 1926.502. (TF,

    2009, slide 31)

Although the first bullet point is relatively straightforward, the second bullet point uses terms

such as "infeasible" that may be unfamiliar to workers; in addition, the text fails to explain what

would constitute a greater hazard in using these safety systems and fails to outline the

requirements of the other cited standard in this or nearby slides.

6.32 RQ2: How do the grantees respond to OSHA's institutional communication?

In their interviews, the grantees acknowledged that they learned to work within the

institutional constraints established by OSHA through the SHTG program. Several grantees

began to develop deliverables that included active learning principles, but the activities that

emerged from that development rarely survive testing and revision due to time and content

requirements. The grantees also admitted to working around OSHA's institutional constraints,

particularly when the deliverables had already been approved. For example, Grantee 1 and his

organization's trainers hurried through elements of the training programs that they considered

less important, such as OSHA-mandated disclaimers about the training. This supports Yates and

Orlikowski's (2007) assertion that the distinction between PowerPoint slide decks and the full

PowerPoint presentation genre is a significant one. Simply by looking at the SHTG deliverables,

secondary audiences might presume that the slides were each handled in equal fashion. For

example, the SHTG program required each grantee to include at least one slide containing a

variation on the following disclaimer: "No representation is made as to the thoroughness of the

presentation, nor to the exact methods of remediation to be taken" (IRCC, 2007, slide 3). In

addition, grantees were required to acknowledge that OSHA and the SHTG program did not

endorse their training programs. Slide decks containing these disclaimers, located at the

beginning of the slide deck, are given greater visual weight than later slides that contain safety

information. However, as the interviews in Chapter 4 indicate, some slides may have been

skipped or placed on a handout rather than discussed at length in the presentation.

6.33 RQ3: To what extent do the SHTG deliverables adhere to OSHA recommendations as outlined in the agency's *Best Practices for the Development, Delivery, and Evaluation of Susan Harwood Training Grants*?

OSHA recommendations for SHTG program deliverables are outlined in *Best Practices*

for the Development, Delivery, and Evaluation of Susan Harwood Training Grants (2010).

According to these recommendations, many of which derive from workplace learning research,

deliverables should account for the learning needs of adult workers. Specifically, these

recommendations ask grantees to account for workplace learners' need for self-direction,

interaction, active engagement, and sharing prior experience (2010). The deliverables created by

grantees pay lip service to these needs, including short activities such as image reviews;

however, these activities are outnumbered in the deliverables by slides that focus on what Hargis,

et al. (2004) term conceptual information, or extended definitions and explanations. Activities

included image reviews that ask trainees to determine whether or not a situation was unsafe,

quizzes, hands-on demonstrations, and others. Of the twelve grantees, five included activities on

more than 20% of their slides (with one, National Safety Council, including activities on nearly

60% of its slides), three included activities on 10-20% of their slides, and four included activities

on less than 10% of their slides (with two, PhilaPOSH and Indian River Community College,

including an activity on only one slide each).

6.34 RQ4: To what extent do the SHTG deliverables adhere to current theories of workplace learning?

Construction communication research acknowledges that safety training is one of many

elements of an overall culture that can protect workers from accidents on the jobsite. The

previous section discusses four characteristics of effective safety training; in addition to those

characteristics, workplace learning such as that in the SHTG deliverables should be concerned

with both immediate and future competencies for the trainees (Boud & Garrick, 1999). Two

grantees—University of Nevada, Las Vegas (UNLV) and National Safety Council (NSC)—

included content that encourages trainees to continue learning beyond the safety training sessions

and the immediate tasks needed to ensure safety on the jobsite. UNLV includes an "assertiveness

scenario" that models how trainees can communicate with their supervisors about safety in a way

that asserts workers' rights without alienating or challenging the supervisor. Similarly, NSC

created a reference manual for workers to use on the jobsite when needed. The reference manual

is not an immediate part of the grantee's safety training presentation, but it responds to real needs

of the workers.

6.35 RQ5: To what extent do the SHTG deliverables adhere to current theories of risk communication?

Risk communication, as it is described in current technical communication research,

should adhere to a participatory model. This model builds on earlier social constructionist ideas

of risk communication such as Waddell's (1995), which notes that risk experts and

communicators have values, beliefs, and desires that shape the risk communication and

recognizes the prior needs and experiences of the audience members. The participatory model

acknowledges the situatedness of risk experts, communicators, and audience members, and

encourages participation from the audience at every stage of the development process.

Specifically, participatory design approaches call for flexibility (Namioka & Rao, 1996) and a

willingness to improvise and revise (Spinuzzi, 2005). These participatory design approaches are

not being included in the SHTG program deliverables, though. Only one of the four

interviewees, Grantee 2, included the results of focus groups with construction workers in her

organization's deliverables. Most, if not all, deliverables avoid referring to workers' prior

experiences. However, Chapter 5 suggests a certain flexibility on the part of grantees: each of the

four grantee representatives remarked that they revised their deliverables based on feedback from

their first safety training presentations with trainees. This positive reaction to feedback suggests

that grantees would be open to early and ongoing participation from workers if they are able to

recruit them earlier in the process of developing safety training deliverables.

6.4 Implications for Practice and Research

   This dissertation contributes a broader understanding of technical communication in

practice. Although none of the grantee representatives involved in this dissertation identified as

technical communicators, they do the work of technical communicators: they plan, develop, test,

and (in some cases) present grant proposals, training documentation, and other deliverables. This

research suggests that many grantees would benefit from developing their skills in either

occupational safety knowledge or grant development knowledge, as few have full skill sets in

both areas. The SHTG program encourages grantees to partner with other organizations to boost

their abilities; given this encouragement, technical communication academic programs could

consider partnering with grantees to assist with both the grant writing process and the

development of deliverables. These academia-industry connections would offer benefits to both

partners. First, the scholar would have the ability to conduct ethnographic research into the grant

writing and management process that could broaden scholarly understanding of how trust and

relationships develop among grantees and funders. In addition, this partnership would address a key limitation of this study by establishing a relationship between the researcher and OSHA; such a relationship could allow the researcher to research and/or work with the agency. In addition, the partnership could open up new internships for undergraduate technical writing students who need professional experience. Grantees would benefit from such partnerships as well. Not only would the grantees gain the potential assistance of interns, they would also benefit from the disciplinary knowledge of researchers in technical communication.

Given the limitations of this dissertation, one future study could test the usability of SHTG program deliverables in participatory design sessions. Such sessions would, as Spinuzzi (2005) asserts, attempt to negotiate the workers' tacit, embodied knowledge of the jobsite with the expert knowledge of the occupational safety and health experts. These sessions would also present the deliverables as works in progress that need input from the workers' experience. As in a study conducted by Evia and Patriarca (2012), this research would encourage workers' contributions in developing new prototypes for the SHTG safety training presentations.

A second study could focus on grant writing and management, which is a fraught process for SHTG program grantees: both experienced and new SHTG grantees can underestimate the effort needed to build trust with audiences, which is a key activity in occupational risk communication (Brunette, 2005; Reynolds, 2011). Thus, learning more about the grant writing process for new and returning SHTG grantees would reveal the points of stasis between the SHTG program and its potential grantees. This research would follow potential grantee organizations throughout the grant application process to learn in depth how they navigate the SHTG program requirements. If possible, the project would also incorporate feedback from representatives of the SHTG program regarding what they seek from successful grant applications, as well as compare that feedback to what grantees understand from the feedback.

APPENDIX 1. Initial Coding Schema

Document-Level Characteristics (DL)

Title (Ti)
0 = Document does not include a title slide
1 = Document includes a title slide
Table of Contents (TOC)
0 = No TOC is included in the document
1 = TOC is included in the document

Appendices (App)
0 = The document includes no appendices
1 = The document includes 1 appendix
2 = The document includes multiple appendices

References (Ref)
0 = The document includes no separate list of references
1 = The document includes a list of references separate from in-text citations

Dedication (Ded)
0 = The document includes no dedication
1 = The document includes a dedication to workers, families, etc.

Slide/Page Numbers (PN)
0 = Document does not include page numbers
1 = Document includes page numbers

Introduction to the Training Topic (Int)
0 = Introduction to the training topic is not included
1 = Introduction to the training topic is included
Introduction to the trainer or training organization (Int2)

0 = Introduction to the trainer or training organization is not included
1 = Introduction to the trainer or training organization is included

Overview of the Training Organization (OTO)
0 = Overview of the organization for the training session is not included
1 = Overview of the organization for the training session is included

Disclaimer about Training (Dis)
0 = A disclaimer about the scope of training is not included in the document
1 = A disclaimer about the scope of training is included in the document

Objectives for Training (OT)
0 = Objectives for training are not included in the document
1 = Objectives for training are included in the document

Funding Information (FI)
0 = Funding information is not included in the document
1 = Funding information is included in the document

Audience Information (AI)
0 = Information about the intended audience is not included.
1 = Information about the intended audience is included.

End Summary (ES)
0 = End summary is not included
1 = End summary is included

Genre
0 = PowerPoint slide deck
1 = Participant/trainee manual
2 = Instructor's manual
3 = Misc. classroom documents (sign-in, etc.)
4 = Quiz/activity documents
5 = Other

Content Types

Justification for the training (Jus)
0 = Justification of any kind is not included
1 = Case study justification is included
2 = Statistics justification is included
3 = Image (workers /families) justification is included
4 = Justification is included in another form

OSHA Standards (OS)
0 = Standard is not included
1 = Standard is included verbatim
2 = Standard is paraphrased or written in "plain language" (as def. by Federal Plain Language Guidelines)

Technical Definition of a Topic (Def)
0 = Technical definition is not included
1 = Technical definition is included verbatim
2 = Technical definition is paraphrased or written in "plain language" (as def. by Federal Plain Language Guidelines)

Technical Description of a Topic (Des)
0 = No technical description is included
1 = Visual characteristics (size, color, etc.) are described
2 = Tactile characteristics (weight, etc.) are described
3 = Olfactory characteristics are described
4 = Sonic characteristics are described
5 = Multiple characteristics (visual, tactile, etc.) are described

Directions for Safe Practice (Dir)
0 = Directions are not included
1 = Directions are included, but not in full (these may go on to another page/slide)
2 = Directions are included in full

0 = The page contains no information attribution
1 = The page contains information attribution

Examples (Ex)
0 = The page includes no examples of what might happen in a hazardous situation
1 = The page includes positive examples of what might happen in a hazardous situation
2 = The page includes negative examples of what might happen in a hazardous situation

Activity (ACh)
0 = No activity is included
1 = Activity is included (see Activity Characteristic Coding for more detailed activity information)

Warnings/Cautions/Hazards (WCH)
0 = Page includes no warnings, cautions, or hazards
1 = Page includes warnings, cautions, or hazards

Subheadings (Sub)
0 = No subheading is included on the page
1 = Subheading is included on the page

Instructor Notes (IN)
0 = Instructor notes are not included on the page/slide
1 = Instructor notes are included on the page/slide

Attribution of Information (Ai)

Activity Characteristics

ACh

0 = No activities in this unit of analysis (PPT slide, page, etc.)

Self-directed (SD)

0 = Activity is not self-directed (nor is it adaptable for self-direction)

1 = Activity is not self-directed (but it is adaptable for self-direction)

2 = Activity is self-directed

Interactive

0 = Activity is individual, allowing for no interaction with colleagues or trainers

1 = Activity allows for interaction with colleagues only

2 = Activity allows for interaction with trainers only

3 = Activity allows for interaction with colleagues and trainers

Listen (Li)

0 = Activity does not ask learners to listen

1 = Activity asks learners to listen to trainers only

2 = Activity asks learners to listen to colleagues only

3 = Activity asks learners to listen to trainers and colleagues

Look @ visuals (LVis)

0 = Activity does not ask learners to look at visuals

1 = Activity asks learners to look at visuals

Ask questions (AQ)

0 = Activity does not ask learners to ask question

1 = Activity asks learners to ask questions

Read (Rd)

0 = Activity does not ask learners to read

1 = Activity asks learners to read

Write (Wri)

0 = Activity does not ask learners to write

1 = Activity asks learners to write

Practice w/equipment (PWE)

0 = Activity does not ask learners to practice with equipment

1 = Activity asks learners to practice with equipment

Discuss critical issues (DCI)

0 = Activity does not ask learners to discuss critical issues

1 = Activity asks learners to discuss critical issues

Identify problems (IP)

0 = Activity does not ask learners to identify problems

1 = Activity asks learners to identify problems

Plan actions (PA)

0 = Activity does not ask learners to plan actions

1 = Activity asks learners to plan actions

APPENDIX 2. CODING DATA BY GRANTEE

University of Maryland Fire and Rescue Institute

CT=DL?
PPT - 8/181 (4.4%)
Instructor's Guide - 2/28 (7.1%)

SUBHEADS
PPT - 138/181 (76.2%)
Instructor's Guide - 3/28 (10.7%)

JUSTIFICATION
PPT - 10/181 (5.5%)
Instructor's Guide - 2/28 (7.1%)

OSHA STANDARDS
PPT - 20/181 (11.0%)
Instructor's Guide - 8/28 (28.6%)

DEFINITIONS
PPT -19 /181 (10.5%)
Instructor's Guide - 13/28 (46.4%)

DESCRIPTIONS
PPT - 26/181 (14.4%)
Instructor's Guide - 11/28 (39.3%)

DIRECTIONS
PPT - 45/181 (24.9%)
Instructor's Guide - 15/28 (53.6%)

UNDERLYING PRINCIPLES OF PRACTICE
PPT - 29/181 (16%)
Instructor's Guide - 7/28 (25%)

ATTRIBUTION OF INFORMATION
PPT - 17/181 (9.4%)
Instructor's Guide - 6/28 (21.4%)

EXAMPLES
PPT - 83/181 (45.9%)
Instructor's Guide - 14/28 (50%)

ACTIVITIES
PPT - 38/181 (20.9%)
Instructor's Guide - 8/28 (28.6%)

WARNINGS, CAUTIONS, OR HAZARDS
PPT - 2/181 (1.1%)
Instructor's Guide - 0/28 (0%)

INSTRUCTOR'S NOTES
PPT - 62/181 (34.3%)
Instructor's Guide - 0/28 (0%)

IMAGES
PPT - 90/181 (49.7%)
Instructor's Guide - 0/28 (0%)

University of Nevada, Las Vegas

CT=DL?
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 18/194 (9.3%)

SUBHEADS
Lab Activities - 0/1 (0%)
Assertiveness Training - 2/2 (100%)
Fall Protection - 189/194 (97.4%)

JUSTIFICATION
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 16/194 (8.2%)

OSHA STANDARDS
Lab Activities - 0/1 (0%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 20/194 (10.3%)

DEFINITIONS
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 9/194 (4.6%)

DESCRIPTIONS
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 28/194 (14.4%)

DIRECTIONS
Lab Activities - 1/1 (100%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 92/194 (47.4%)

UNDERLYING PRINCIPLES OF
PRACTICE
Lab Activities - 0/1 (0%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 5/194 (2.6%)

ATTRIBUTION OF INFORMATION
Lab Activities - 0/1 (0%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 28/194 (14.4%)

EXAMPLES
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 159/194 (81.9%)

ACTIVITIES
Lab Activities - 1/1 (100%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 32/194 (16.5%)

WARNINGS, CAUTIONS, & HAZARDS
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 6/194 (3.1%)

INSTRUCTOR'S NOTES
Lab Activities - 0/1 (0%)
Assertiveness Training - 1/2 (50%)
Fall Protection - 47/194 (24.2%)

IMAGES
Lab Activities - 0/1 (0%)
Assertiveness Training - 0/2 (0%)
Fall Protection - 168/194 (86.6%)

University of Texas, Arlington

CT = DL?
PPT Part 1 - 3/95 (3.2%)
PPT Part 2 - 3/119 (2.5%)
Manual - 2/33 (6.1%)

SUBHEADS
PPT Part 1 - 68/95 (71.6%)
PPT Part 2 - 81/119 (68.1%)
Manual - 20/33 (60.6%)

JUSTIFICATION
PPT Part 1 - 3/95 (3.2%)
PPT Part 2 - 0/119 (0%)
Manual - 8/33 (24.2%)

OSHA STANDARDS
PPT Part 1 - 12/95 (12.6%)
PPT Part 2 - 3/119 (2.5%)
Manual - 13/33 (39.4%)

DEFINITIONS
PPT Part 1 - 12/95 (12.6%)
PPT Part 2 - 1/119 (0.8%)
Manual - 12/33 (36.6%)

DESCRIPTIONS
PPT Part 1 - 34/95 (35.8%)
PPT Part 2 - 7/119 (5.9%)
Manual - 4/33 (12.1%)

DIRECTIONS
PPT Part 1 - 25/95 (26.3%)
PPT Part 2 - 32/119 (26.9%)
Manual - 15/33 (45.4%)

UNDERLYING PRINCIPLES OF
PRACTICE
PPT Part 1 - 17/95 (17.9%)
PPT Part 2 - 45/119 (37.8%)
Manual - 19/33 (57.6%)

ATTRIBUTION OF INFORMATION
PPT Part 1 - 17/95 (17.9%)
PPT Part 2 - 4/119 (3.4%)
Manual - 18/33 (54.5%)

EXAMPLES
PPT Part 1 - 10/95 (10.5%)
PPT Part 2 - 97/119 (81.5%)
Manual - 12/33 (36.4%)

ACTIVITIES
PPT Part 1 - 21/95 (22.1%)
PPT Part 2 - 9/119 (7.6%)
Manual - 0/33 (0%)

WARNINGS, CAUTIONS, & HAZARDS
PPT Part 1 - 1/95 (1.1%)
PPT Part 2 - 4/119 (3.4%)
Manual - 0/33 (0%)

INSTRUCTORS' NOTES
PPT Part 1 - 3/95 (3.2%)
PPT Part 2 - 1/119 (0.8%)
Manual - 0/33 (0%)

IMAGES
PPT Part 1 - 42/95 (44.2%)
PPT Part 2 - 99/119 (83.2%)
Manual - 15/33 (45.4%)

Indian River Community College

CT=DL? - 7/130 (5.4%)
Sub - 121/130 (93.1%)
Jus - 9/130 (6.9%)
OS - 3/130 (2.3%)
Def - 7/130 (5.4%)
Des - 17/130 (13.1%)
Dir - 66/130 (50.7%)
UPP - 29/130 (22.3%)
Ai - 13/130 (10%)
Ex - 21/130 (16.2%)
ACh - 1/130 (0.8%)
WCH - 6/130 (4.6%)
IN - 70/130 (53.8%)
Im - 97/130 (74.6%)

Trimmer Foundation
CT - 5/96 (5.2%)
Sub - 76/96 (79%)
Jus - 9/96 (9.4%)
OS - 62/96 (64.6%)
Def - 9/96 (9.4%)
Des - 10/96 (9.6%)
Dir - 50/96 (52.1%)
UPP - 11/96 (11.5%)
Ai - 67/96 (69.8%)
Ex - 3/96 (3.1%)
ACh - 15/96 (15.6%)
WCH - 6/96 (6.25%)
IN - 56/96 (58.3%)
Im - 67/96 (69.8%)

National Association of Home Builders
CT=DL - 16/187 (8.6%)
SUBHEAD - 115/187 (61.5%)
JUSTIFICATION - 11/187 (5.9%)
OSHA STANDARDS - 5/187 (2.7%)
DEFINITIONS - 11/187 (5.9%)
DESCRIPTIONS - 28/187 (14.9%)
DIRECTIONS - 58/187 (31.0%)
UPP- 13/187 (6.9%)
AI - 10/187 (5.3%)
EXAMPLES - 50/187 (26.7%)
 ACTIVITIES - 66/187 (35.3%)
WCH - 14/187 (7.5%)
INSTRUCTORS' NOTES - 31/187 (16.6%)
IMAGES - 97/187 (51.9%)

Maysville Community and Technical College
CT=DL - 4/161 (2.5%)
SUBHEAD - 156/161 (96.8%)
JUSTIFICATION - 33/161 (20.5%)
OSHA STANDARDS - 88/161 (54.7%)
DEFINITIONS - 22/161 (13.7%)
DESCRIPTIONS - 22/161 (13.7%)
DIRECTIONS - 81/161 (50.3%)
UNDERLYING PRINCIPLES OF PRACTICE - 34/161 (21.1%)
ATTRIBUTION OF INFORMATION - 82/161 (50.9%)
EXAMPLES - 28/161 (17.4%)
ACTIVITIES - 33/161 (20.5%)
WARNINGS, CAUTIONS, AND HAZARDS - 1/161 (0.6%)
INSTRUCTORS' NOTES - 60/161 (37.3%)
IMAGES - 29/161 (18%)

Association of Building Contractors-Central Texas Chapter

CT=DL? - 7/123 (5.7%)
SUB - 115/123 (93.5%)
JUS - 22/123 (17.9%)
OS - 5/123 (4.1%)
DEF - 3/123 (2.4%)
DES - 1/123 (0.8%)
DIR - 79/123 (64.2%)
UPP - 27/123 (21.9%)
AI - 6/123 (4.8%)
EX - 17/123 (13.8%)
ACH - 12/123 (9.7%)
WCH - 14/123 (11.4%)
IN - 13/123 (10.6%)
IM - 14/123 (11.4%)

Southwest Safety Training Alliance

CT
Module 1 - 8/23 (34.8%)
Module 2 - 2/18 (11.1%)
Module 3 - 1/36 (2.8%)
Module 4 - 1/8 (12.5%)
Module 5 - 2/13 (15.4%)
Module 6 - 2/14 (14.3%)

SUBHEAD
Module 1 - 16/23 (69.6%)
Module 2 - 17/18 (94.4%)
Module 3 - 33/36 (91.7%)
Module 4 - 7/8 (87.5%)
Module 5 - 12/13 (92.3%)
Module 6 - 13/14 (92.8%)

JUSTIFICATION
Module 1 - 8/23 (34.8%)
Module 2 - 6/18 (33.3%)
Module 3 - 5/36 (13.9%)
Module 4 - 4/8 (50%)
Module 5 - 6/13 (46.2%)
Module 6 - 0/14 (0%)

OSHA STANDARDS
Module 1 - 2/23 (8.7%)
Module 2 - 5/18 (27.8%)
Module 3 - 3/36 (8.3%)
Module 4 - 0/8 (0%)
Module 5 - 1/13 (7.7%)
Module 6 - 2/14 (14.3%)

DEFINITIONS
Module 1 - 5/23 (21.7%)
Module 2 - 0/18 (0%)
Module 3 - 1/36 (2.8%)
Module 4 - 0/8 (0%)
Module 5 - 0/13 (0%)
Module 6 - 3/14 (21.4%)

DESCRIPTIONS
Module 1 - 0/23 (0%)
Module 2 - 1/18 (5.6%)

Module 3 - 9/36 (25%)
Module 4 - 1/8 (12.5%)
Module 5 - 1/13 (7.7%)
Module 6 - 1/14 (7.1%)

DIRECTIONS
Module 1 - 0/23 (0%)
Module 2 - 8/18 (44.4%)
Module 3 - 17/36 (47.2%)
Module 4 - 2/8 (25%)
Module 5 - 3/13 (23.1%)
Module 6 - 8/14 (57.1%)

UNDERLYING PRINCIPLES OF
PRACTICE
Module 1 - 1/23 (4.3%)
Module 2 - 4/18 (22.2%)
Module 3 - 5/36 (13.9%)
Module 4 - 0/8 (0%)
Module 5 - 0/13 (0%)
Module 6 - 5/14 (35.7%)

ATTRIBUTION OF INFORMATION
Module 1 - 0/23 (0%)
Module 2 - 3/18 (16.7%)
Module 3 - 1/36 (2.8%)
Module 4 - 1/8 (12.5%)
Module 5 - 2/13 (15.4%)
Module 6 - 0/14 (0%)

EXAMPLES
Module 1 - 2/23 (8.7%)
Module 2 - 2/18 (11.1%)
Module 3 - 3/36 (8.3%)
Module 4 - 3/8 (37.5%)
Module 5 - 2/13 (15.4%)
Module 6 - 0/14 (0%)

ACTIVITIES
Module 1 - 0/23 (0%)
Module 2 - 1/18 (5.6%)
Module 3 - 6/36 (16.7%)
Module 4 - 0/8 (0%)
Module 5 - 7/13 (53.8%)
Module 6 - 1/14 (7.1%)

WARNINGS, CAUTIONS, AND
HAZARDS
Module 1 - 1/23 (4.3%)
Module 2 - 0/18 (0%)
Module 3 - 0/36 (0%)
Module 4 - 0/8 (0%)
Module 5 - 0/13 (0%)
Module 6 - 0/14 (0%)

INSTRUCTORS' NOTES
Module 1 - 7/23 (30.4%)
Module 2 - 10/18 (55.6%)
Module 3 - 13/36 (36.1%)
Module 4 - 1/8 (12.5%)
Module 5 - 2/13 (15.4%)
Module 6 - 9/14 (64.3%)

IMAGES
Module 1 - 2/23 (8.7%)
Module 2 - 6/18 (33.3%)
Module 3 - 32/36 (88.9%)
Module 4 - 3/8 (37.5%)
Module 5 - 3/13 (23.1%)
Module 6 - 3/14 (21.4%)

Compación Foundation

CT=DL?
Focus 4 Handbook - 26/136 (19.1%)
Caught-In PPT – 7/60 (11.7%)
Electrical PPT - 7/74 (9.5%)
Fall PPT - 7/95 (7.4%)
Struck-By PPT - 7/58 (12.1%)

SUBHEADS
Focus 4 Handbook - 55/136 (40.4%)
Caught-In PPT – 53/60 (88.3%)
Electrical PPT - 67/74 (90.5%)
Fall PPT - 88/95 (92.6%)
Struck-By PPT - 57/58 (98.3%)

JUSTIFICATION
Focus 4 Handbook - 8/136 (5.9%)
Caught-In PPT – 1/60 (1.7%)
Electrical PPT - 1/74 (1.4%)
Fall PPT - 3/95 (3.2%)
Struck-By PPT - 1/58 (1.7%)

OSHA STANDARDS
Focus 4 Handbook - 88/136 (64.7%)
Caught-In PPT – 0/60 (0%)
Electrical PPT - 1/74 (1.4%)
Fall PPT - 0/95 (0%)
Struck-By PPT - 0/58 (0%)

DEFINITIONS
Focus 4 Handbook - 29/136 (21.3%)
Caught-In PPT – 6/60 (10%)
Electrical PPT - 4/74 (5.4%)
Fall PPT - 8/95 (8.4%)
Struck-By PPT - 1/58 (1.7%)

DESCRIPTIONS
Focus 4 Handbook - 14/136 (10.3%)
Caught-In PPT – 0/60 (0%)
Electrical PPT -5 /74 (6.7%)
Fall PPT - 7/95 (7.4%)
Struck-By PPT - 0/58 (0%)

DIRECTIONS
Focus 4 Handbook - 101/136 (74.3%)
Caught-In PPT – 23/60 (38.3%)
Electrical PPT - 32/74 (43.2%)
Fall PPT - 55/95 (57.9%)
Struck-By PPT - 18/58 (31.0%)

UNDERLYING PRINCIPLES OF PRACTICE
Focus 4 Handbook - 39/136 (28.7%)
Caught-In PPT – 2/60 (3.3%)
Electrical PPT - 12/74 (16.2%)
Fall PPT - 4/95 (4.2%)
Struck-By PPT - 14/58 (24.1%)

ATTRIBUTION OF INFO
Focus 4 Handbook - 31/136 (22.8%)
Caught-In PPT – 0/60 (0%)
Electrical PPT - 0/74 (0%)
Fall PPT - 0/95 (0%)
Struck-By PPT - 0/58 (0%)

EXAMPLES
Focus 4 Handbook - 26/136 (19.1%)
Caught-In PPT – 2/60 (3.3%)
Electrical PPT - 43/74 (58.1%)
Fall PPT - 45/95 (47.4%)
Struck-By PPT - 27/58 (46.6%)

ACTIVITIES
Focus 4 Handbook - 0/136 (0%)
Caught-In PPT – 22/60 (36.7%)
Electrical PPT - 22/74 (29.7%)
Fall PPT - 22/95 (23.2%)
Struck-By PPT - 22/58 (37.9%)

WARNINGS, CAUTIONS, HAZARDS
Focus 4 Handbook - 24/136 (17.6%)
Caught-In PPT – 8/60 (13.3%)
Electrical PPT - 14/74 (18.9%)
Fall PPT - 10/95 (10.5%)
Struck-By PPT - 7/58 (12.1%)

INSTRUCTOR'S NOTES
Focus 4 Handbook - 0/136 (0%)
Caught-In PPT – 0/60 (0%)
Electrical PPT - 0/74 (0%)
Fall PPT - 0/95 (0%)

Struck-By PPT - 0/58 (%)

IMAGES
Focus 4 Handbook - 26/136 (19.1%)
Caught-In PPT – 34/60 (56.7%)
Electrical PPT - 47/74 (63.5%)
Fall PPT - 69/95 (72.6%)
Struck-By PPT - 31/58 (53.4%)

Philadelphia Area Project on Occupational
Safety and Health

CT=DL?
Training Outline - 2/2 (100%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 7/66 (10.6%)
Fall Protection PPT 2 – 6/92 (6.5%)

SUBHEADS
Training Outline - 2/2 (100%)
Instructor Notes - 7/8 (87.5%)
Fall Protection PPT 1 – 53/66 (80.3%)
Fall Protection PPT 2 – 34/92 (36.9%)

JUSTIFICATION
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 12/66 (18.2%)
Fall Protection PPT 2 – 2/92 (2.2%)

OSHA STANDARDS
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 1/66 (18.1%)
Fall Protection PPT 2 – 18/92 (19.6%)

DEFINITIONS
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 4/66 (6.1%)
Fall Protection PPT 2 – 5/92 (5.4%)

DESCRIPTIONS
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 14/66 (21.2%)
Fall Protection PPT 2 – 24/92 (26.1%)

DIRECTIONS
Training Outline - 0/2 (0%)
Instructor Notes - 7/8 (%)
Fall Protection PPT 1 – 29/66 (43.9%)
Fall Protection PPT 2 – 55/92 (59.8%)

UNDERLYING PRINCIPLES OF
PRACTICE
Training Outline - 0/2 (0%)

Instructor Notes - 1/8 (12.5%)
Fall Protection PPT 1 – 8/66 (12.1%)
Fall Protection PPT 2 – 12/92 (13.0%)

ATTRIBUTION OF INFORMATION
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 3/66 (4.5%)
Fall Protection PPT 2 – 18/92 (19.6%)

EXAMPLES
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 39/66 (59.1%)
Fall Protection PPT 2 – 61/92 (66.3%)

ACTIVITIES
Training Outline - 0/2 (0%)
Instructor Notes - 8/8 (100%)
Fall Protection PPT 1 – 1/66 (1.5%)
Fall Protection PPT 2 – 0/92 (0%)

WARNINGS, CAUTIONS, OR HAZARDS
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 0/66 (0%)
Fall Protection PPT 2 – 8/92 (8.7%)

INSTRUCTOR'S NOTES
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 35/66 (53.0%)
Fall Protection PPT 2 – 27/92 (29.3%)

IMAGES
Training Outline - 0/2 (0%)
Instructor Notes - 0/8 (0%)
Fall Protection PPT 1 – 44/66 (66.7%)
Fall Protection PPT 2 – 60/92 (65.2%)

National Safety Council

CT=DL?
Pocket Reference - 1/30 (%)
PG TOC - 4/4 (100%)
PG Con. - 2/4 (50%)
PG Intro – 2/6 (33.3%)
PG Mod 1 - 1/16 (%)
PG Mod 2 - 3/16 (%)
PG Mod 3 - 2/16 (%)
PG Mod 4 – 1/14 (%)
FG TOC - 3/3 (100%)
FG Intro - 1/18 (%)
FG Mod 1 – 4/32 (%)
FG Mod 2 - 1/31 (%)
FG Mod 3 - 1/30 (%)
FG Mod 4 - 1/28 (%)
FG Conclusion - 1/6 (%)
Program Intro PPT - 5/11 (%)
Program Mod 1 PPT - 3/28 (%)
Program Mod 2 PPT - 3/26 (%)
Program Mod 3 PPT - 4/28 (%)
Program Mod 4 PPT - 4/27 (%)
Program Mod 5 PPT - 2/4 (%)

SUBHEAD
Pocket Reference - 30/30 (100%)
PG TOC – 0/4 (0%)
PG Con. - 3/4 (75%)
PG Intro – 6/6 (100%)
PG Mod 1 - 16/16 (100%)
PG Mod 2 - 16/16 (100%)
PG Mod 3 - 16/16 (100%)
PG Mod 4 – 14/14 (100%)
FG TOC - 0/3 (0%)
FG Intro - 18/18 (100%)
FG Mod 1 – 31/32 (96.9%)
FG Mod 2 – 31/31 (100%)
FG Mod 3 - 30/30 (100%)
FG Mod 4 - 28/28 (100%)
FG Conclusion - 6/6 (100%)
Program Intro PPT - 9/11 (81.8%)
Program Mod 1 PPT - 27/28 (96.4%)
Program Mod 2 PPT - 25/26 (96.1%)
Program Mod 3 PPT - 27/28 (96.4%)
Program Mod 4 PPT – 26/27 (96.3%)
Program Mod 5 PPT - 3/4 (75%)

JUSTIFICATION
Pocket Reference - 0/30 (0%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 0/6 (0%)
PG Mod 1 - 1/16 (6.3%)
PG Mod 2 - 1/16 (6.3%)
PG Mod 3 - 1/16 (6.3%)
PG Mod 4 – 1/14 (7.1%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 1/32 (3.1%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion – 0/6 (0%)
Program Intro PPT - 0/11 (0%)
Program Mod 1 PPT - 3/28 (10.7%)
Program Mod 2 PPT - 3/26 (11.5%)
Program Mod 3 PPT - 3/28 (10.7%)
Program Mod 4 PPT - 3/27 (11.1%)
Program Mod 5 PPT - 0/4 (0%)

OSHA STANDARDS
Pocket Reference - 7/30 (23.3%)
PG TOC - 0/4 (0%)
PG Con. – 0/4 (0%)
PG Intro – 1/6 (16.7%)
PG Mod 1 - 2/16 (12.5%)
PG Mod 2 - 2/16 (12.5%)
PG Mod 3 - 2/16 (12.5%)
PG Mod 4 – 4/14 (28.6%)
FG TOC - 0/3 (0%)
FG Intro - 4/18 (22.2%)
FG Mod 1 – 5/32 (15.6%)
FG Mod 2 - 5/31 (16.1%)
FG Mod 3 - 7/30 (23.3%)
FG Mod 4 - 5/28 (17.9%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 1/11 (9.1%)
Program Mod 1 PPT - 4/28 (14.3%)
Program Mod 2 PPT - 4/26 (15.4%)
Program Mod 3 PPT - 4/28 (14.3%)
Program Mod 4 PPT - 5/27 (18.5%)
Program Mod 5 PPT - 0/4 (0%)

DEFINITIONS
Pocket Reference - 6/30 (20%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 4/6 (66.7%)
PG Mod 1 - 2/16 (12.5%)
PG Mod 2 - 2/16 (12.5%)
PG Mod 3 - 1/16 (6.25%)
PG Mod 4 – 1/14 (7.1%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 0/11 (0%)
Program Mod 1 PPT - 1/28 (3.6%)
Program Mod 2 PPT - 1/26 (3.8%)
Program Mod 3 PPT - 1/28 (3.6%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

DESCRIPTIONS
Pocket Reference - 4/30 (%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 0/6 (0%)
PG Mod 1 - 0/16 (0%)
PG Mod 2 - 1/16 (6.25%)
PG Mod 3 - 0/16 (0%)
PG Mod 4 – 0/14 (0%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 0/11 (0%)
Program Mod 1 PPT - 0/28 (0%)
Program Mod 2 PPT - 1/26 (3.8%)
Program Mod 3 PPT - 0/28 (0%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

DIRECTIONS
Pocket Reference - 26/30 (%)
PG TOC - 0/4 (0%)
PG Con. - 2/4 (50%)
PG Intro – 1/6 (33.3%)
PG Mod 1 - 7/16 (%)
PG Mod 2 - 6/16 (%)
PG Mod 3 - 8/16 (50%)
PG Mod 4 – 5/14 (%)
FG TOC - 0/3 (0%)
FG Intro - 18/18 (100%)
FG Mod 1 – 29/32 (%)
FG Mod 2 - 30/31 (%)
FG Mod 3 - 29/30 (%)
FG Mod 4 - 27/28 (%)
FG Conclusion - 6/6 (%)
Program Intro PPT - 2/11 (%)
Program Mod 1 PPT - 1/28 (%)
Program Mod 2 PPT - 0/26 (0%)
Program Mod 3 PPT - 0/28 (0%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

UNDERLYING PRINCIPLES OF PRACTICE
Pocket Reference - 0/30 (0%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 0/6 (0%)
PG Mod 1 - 0/16 (0%)
PG Mod 2 - 0/16 (0%)
PG Mod 3 - 0/16 (0%)
PG Mod 4 – 0/14 (%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 1/11 (9.1%)
Program Mod 1 PPT - 0/28 (0%)
Program Mod 2 PPT - 0/26 (0%)
Program Mod 3 PPT - 0/28 (0%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

ATTRIBUTION OF INFORMATION
Pocket Reference - 9/30 (30%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 2/6 (33.3%)
PG Mod 1 - 3/16 (18.75%)
PG Mod 2 - 4/16 (25%)
PG Mod 3 - 5/16 (31.3%)
PG Mod 4 – 4/14 (28.6%)
FG TOC - 0/3 (0%)
FG Intro - 4/18 (22.2%)
FG Mod 1 – 5/32 (15.6%)
FG Mod 2 - 5/31 (16.1%)
FG Mod 3 - 7/30 (23.3%)
FG Mod 4 - 5/28 (17.9%)
FG Conclusion - 0/6 (0%)
Program Intro PPT – 1/11 (9.1%)
Program Mod 1 PPT - 4/28 (14.3%)
Program Mod 2 PPT - 8/26 (30.8%)
Program Mod 3 PPT - 9/28 (32.1%)
Program Mod 4 PPT - 9/27 (33.3%)
Program Mod 5 PPT - 0/4 (0%)

EXAMPLES
Pocket Reference - 5/30 (16.7%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 0/6 (0%)
PG Mod 1 - 2/16 (12.5%)
PG Mod 2 – 0/16 (0%)
PG Mod 3 - 2/16 (12.5%)
PG Mod 4 – 4/14 (28.6%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 3/11 (27.2%)
Program Mod 1 PPT - 5/28 (17.9%)
Program Mod 2 PPT - 6/26 (23.1%)
Program Mod 3 PPT - 3/28 (10.7%)
Program Mod 4 PPT - 1/27 (3.7%)
Program Mod 5 PPT - 0/4 (0%)

ACTIVITIES
Pocket Reference - 20/30 (66.7%)
PG TOC - 0/4 (0%)
PG Con. - 2/4 (50%)
PG Intro – 2/6 (33.3%)
PG Mod 1 - 11/16 (68.8%)
PG Mod 2 – 11/16 (68.8%)
PG Mod 3 - 12/16 (75%)
PG Mod 4 – 10/14 (71.4%)
FG TOC - 0/3 (0%)
FG Intro - 3/18 (16.7%)
FG Mod 1 – 21/32 (65.6%)
FG Mod 2 - 19/31 (61.3%)
FG Mod 3 - 19/30 (63.3%)
FG Mod 4 - 20/28 (71.4%)
FG Conclusion - 3/6 (50%)
Program Intro PPT - 2/11 (18.2%)
Program Mod 1 PPT - 16/28 (57.1%)
Program Mod 2 PPT - 18/26 (69.2%)
Program Mod 3 PPT - 17/28 (60.7%)
Program Mod 4 PPT - 19/27 (70.4%)
Program Mod 5 PPT - 2/4 (50%)

WARNINGS, CAUTIONS, OR HAZARDS
Pocket Reference - 0/30 (0%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 0/6 (0%)
PG Mod 1 - 0/16 (0%)
PG Mod 2 - 0/16 (0%)
PG Mod 3 - 0/16 (0%)
PG Mod 4 – 0/14 (0%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT – 0/11 (0%)
Program Mod 1 PPT - 0/28 (0%)
Program Mod 2 PPT - 0/26 (0%)
Program Mod 3 PPT - 0/28 (0%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

INSTRUCTOR'S NOTES
Pocket Reference - 0/30 (0%)
PG TOC - 0/4 (0%)
PG Con. - 0/4 (0%)
PG Intro – 2/6 (0%)
PG Mod 1 - 0/16 (0%)
PG Mod 2 - 0/16 (0%)
PG Mod 3 - 0/16 (0%)
PG Mod 4 – 0/14 (0%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 8/32 (25%)
FG Mod 2 - 5/31 (16.1%)
FG Mod 3 - 4/30 (13.3%)
FG Mod 4 - 9/28 (32.1%)
FG Conclusion - 1/6 (16.7%)
Program Intro PPT - 0/11 (0%)
Program Mod 1 PPT - 0/28 (0%)
Program Mod 2 PPT - 0/26 (0%)
Program Mod 3 PPT - 0/28 (0%)
Program Mod 4 PPT - 0/27 (0%)
Program Mod 5 PPT - 0/4 (0%)

IMAGES
Pocket Reference - 5/30 (16.7%)
PG TOC - 0/4 (0%)
PG Con. - 4/4 (100%)
PG Intro – 5/6 (83.3%)
PG Mod 1 - 6/16 (37.5%)
PG Mod 2 - 8/16 (50%)
PG Mod 3 - 7/16 (43.8%)
PG Mod 4 – 0/14 (0%)
FG TOC - 0/3 (0%)
FG Intro - 0/18 (0%)
FG Mod 1 – 0/32 (0%)
FG Mod 2 - 0/31 (0%)
FG Mod 3 - 0/30 (0%)
FG Mod 4 - 0/28 (0%)
FG Conclusion - 0/6 (0%)
Program Intro PPT - 6/11 (54.5%)
Program Mod 1 PPT - 15/28 (53.6%)
Program Mod 2 PPT - 13/26 (50%)
Program Mod 3 PPT - 14/28 (50%)
Program Mod 4 PPT - 11/27 (40.7%)
Program Mod 5 PPT - 3/4 (75%)

APPENDIX 3. CODING DATA BY TYPE

CT=DL? PPTs
UMFRI - 8/181 (4.4%)
UNLV Fall Protection - 18/194 (9.3%)
IRCC - 7/130 (5.4%)
UTA PPT Part 1 - 3/95 (3.2%)
UTA PPT Part 2 - 3/119 (2.5%)
TF - 5/96 (5.2%)
ABC-CTC - 7/123 (5.7%)
MCTC - 4/161 (2.5%)
CF Caught-In PPT – 7/60 (11.7%)
CF Electrical PPT - 7/74 (9.5%)
CF Fall PPT - 7/95 (7.4%)
CF Struck-By PPT - 7/58 (12.1%)
PHILAPOSH Fall Protection PPT 1 – 7/66 (10.6%)
PHILAPOSH Fall Protection PPT 2 – 6/92 (6.5%)
NAHB - 16/187 (8.6%)

CT=DL (Workbooks/Manuals aimed at trainees)
CF Focus 4 Handbook - 26/136 (19.1%)
UTA Manual - 2/33 (6.1%)
UNLV Lab Activities - 0/1 (0%) UNLV Assertiveness Training - 0/2 (0%)
NSC Participant Guide - 15/76 (19.7%)

CT = DL (Instructor's Guides/Notes)
UMFRI Instructor's Guide - 2/28 (7.1%)
PHILAPOSH Training Outline - 2/2 (100%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator Guide - 12/148 (8.1%)

JUSTIFICATION (PPTs)
UMFRI PPT - 10/181 (5.5%)
UNLV Fall Protection - 16/194 (8.2%)
UTA PPT Part 1 - 3/95 (3.2%)
UTA PPT Part 2 - 3/119 (2.5%)
IRCC - 9/130 (6.9%)
TF - 9/96 (9.4%)
MCTC - 33/161 (20.5%)

ABC-CTC - 22/123 (17.9%)
CF Caught-In PPT – 1/60 (1.7%)
CF Electrical PPT - 1/74 (1.4%)
CF Fall PPT - 3/95 (3.2%)
CF Struck-By PPT - 1/58 (1.7%)
PHILAPOSH Fall Protection PPT 1 – 12/66 (18.2%)
PHILAPOSH Fall Protection PPT 2 – 2/92 (2.2%)
NAHB - - 11/187 (5.9%)
NSC Program Intro PPT - 0/11 (0%)
NSC Program Mod 1 PPT - 3/28 (10.7%)
NSC Program Mod 2 PPT - 3/26 (11.5%)
NSC Program Mod 3 PPT - 3/28 (10.7%)
NSC Program Mod 4 PPT - 3/27 (11.1%)
NSC Program Mod 5 PPT - 0/4 (0%)

JUSTIFICATION (Workbooks/Manuals aimed at trainees)
UTA Manual - 8/33 (24.2%)
CSC - 4/31 (12.9%)
CF Focus 4 Handbook - 8/136 (5.9%)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 0/2 (0%)
NSC Pocket Reference - 0/30 (0%)
NSC Participant Guide - 4/76 (5.3%)

JUSTIFICATION (INSTRUCTOR'S NOTES/OTHER DOCS AIMED AT INSTRUCTORS)
UMFRI Instructor's Guide - 2/28 (7.1%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator's Guide - 1/148 (0.7%)

DEFINITIONS (PPTS)
UMFRI PPT -19 /181 (10.5%)
UNLV Fall Protection - 9/194 (4.6%)
UTA PPT Part 1 - 12/95 (12.6%)
UTA PPT Part 2 - 1/119 (0.8%)
IRCC - 7/130 (5.4%)
TF - 9/96 (9.4%)
MCTC - 22/161 (13.7%)
ABC-CTC - 3/123 (2.4%)
CF Caught-In PPT – 6/60 (10%)
CF Electrical PPT - 4/74 (5.4%)
CF Fall PPT - 8/95 (8.4%)
CF Struck-By PPT - 1/58 (1.7%)
PHILAPOSH Fall Protection PPT 1 –
4/66 (6.1%)
PHILAPOSH Fall Protection PPT 2 –
5/92 (5.4%)
NAHB - 11/187 (5.9%)
NSC Program Intro PPT - 0/11 (0%)
NSC Program Mod 1 PPT - 1/28 (3.6%)
NSC Program Mod 2 PPT - 1/26 (3.8%)
NSC Program Mod 3 PPT - 1/28 (3.6%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

**DEFINITIONS
(WORKBOOKS/DOCS AIMED AT
TRAINEES)**
UTA Manual - 12/33 (36.6%)
CSC - 8/31 (25.8%)
CF Focus 4 Handbook - 29/136 (21.3%)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training- 0/2 (0%)
NSC Pocket Reference - 6/30 (20%)
NSC Participant Guide - 10/76 (13.2%)

**DEFINITIONS (INSTRUCTOR'S
GUIDES/OTHER DOCS AIMED AT
INSTRUCTORS)**
UMFRI Instructor's Guide - 13/28
(46.4%)
PHILAPOSH Training Outline-0/2 (0%)
PHILAPOSH Instructor Notes- 0/8 (0%)
NSC Facilitator's Guide - 0/148 (0%)

DESCRIPTIONS (PPT)
UMFRI - 26/181 (14.4%)
UNLV Fall Protection - 28/194 (14.4%)
UTA PPT Part 1 - 34/95 (35.8%)
UTA PPT Part 2 - 7/119 (5.9%)
IRCC - 17/130 (13.1%)
TF - - 10/96 (9.6%)
MCTC - 22/161 (13.7%)
ABC-CTC - 1/123 (0.8%)
SSTA Module 1 - 0/23 (0%)
SSTA Module 2 - 1/18 (5.6%)
SSTA Module 3 - 9/36 (25%)
SSTA Module 4 - 1/8 (12.5%)
SSTA Module 5 - 1/13 (7.7%)
SSTA Module 6 - 1/14 (7.1%)
CF Caught-In PPT – 0/60 (0%)
CF Electrical PPT -5 /74 (6.7%)
CF Fall PPT - 7/95 (7.4%)
CF Struck-By PPT - 0/58 (0%)
PHILAPOSH Fall Protection PPT 1 –
14/66 (21.2%)
PHILAPOSH Fall Protection PPT 2 –
24/92 (26.1%)
NAHB - - 28/187 (14.9%)
NSC Program Intro PPT - 0/11 (0%)
NSC Program Mod 1 PPT - 0/28 (0%)
NSC Program Mod 2 PPT - 1/26 (3.8%)
NSC Program Mod 3 PPT - 0/28 (0%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

**DESCRIPTIONS (STUDENT
MANUALS, WORKBOOKS,
OTHER)**
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 0/2
(0%)
UTA Manual - 4/33 (12.1%)
CF Focus 4 Handbook - 14/136 (10.3%)
CSC - - 14/31 (45.2%)
NSC Pocket Reference - 4/30 (%)
NSC Participant Guide - 1/76 (1.3%)

DESCRIPTIONS (INSTRUCTORS' NOTES, ETC)
UMFRI Instructor's Guide - 11/28 (39.3%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator's Guide - 0/148 (0%)

DIRECTIONS (PPT)
UMFRI PPT - 45/181 (24.9%)
UNLV Fall Protection - 92/194 (47.4%)
UTA PPT Part 1 - 25/95 (26.3%)
UTA PPT Part 2 - 32/119 (26.9%)
IRCC - 66/130 (50.7%)
TF - 50/96 (52.1%)
MCTC - 81/161 (50.3%)
ABC-CTC - 79/123 (64.2%)
SSTA Module 1 - 0/23 (0%)
SSTA Module 2 - 8/18 (44.4%)
SSTA Module 3 - 17/36 (47.2%)
SSTA Module 4 - 2/8 (25%)
SSTA Module 5 - 3/13 (23.1%)
SSTA Module 6 - 8/14 (57.1%)
CF Caught-In PPT – 23/60 (38.3%)
CF Electrical PPT - 32/74 (43.2%)
CF Fall PPT - 55/95 (57.9%)
CF Struck-By PPT - 18/58 (31.0%)
PHILAPOSH Fall Protection PPT 1 – 29/66 (43.9%)
PHILAPOSH Fall Protection PPT 2 – 55/92 (59.8%)
NAHB - 58/187 (31.0%)
NSC Program Intro PPT - 2/11 (%)
NSC Program Mod 1 PPT - 1/28 (%)
NSC Program Mod 2 PPT - 0/26 (0%)
NSC Program Mod 3 PPT - 0/28 (0%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

DIRECTIONS (STUDENT MANUALS, WORKBOOKS, OTHER)
UNLV Lab Activities - 1/1 (100%)
UNLV Assertiveness Training - 1/2 (50%)
UTA Manual - 15/33 (45.4%)
CF Focus 4 Handbook - 101/136 (74.3%)
CSC - 12/31 (38.7%)
NSC Pocket Reference - 26/30 (86.7%)
NSC Participant Guide - 29/76 (38.2%)

DIRECTIONS (INSTRUCTORS' NOTES, ETC)
UMFRI Instructor's Guide - 15/28 (53.6%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 7/8 (%)
NSC Facilitator's Guide - 139/148 (93.9%)

WARNINGS, CAUTIONS, OR HAZARDS (PPTS)
UMFRI PPT - 2/181 (1.1%)
UNLV Fall Protection - 6/194 (3.1%)
UTA PPT Part 1 - 1/95 (1.1%)
UTA PPT Part 2 - 4/119 (3.4%)
IRCC - 6/130 (4.6%)
TF - 6/96 (6.25%)
MCTC - 1/161 (0.6%)
ABC-CTC - 14/123 (11.4%)
SSTA Module 1 - 1/23 (4.3%)
SSTA Module 2 - 0/18 (0%)
SSTA Module 3 - 0/36 (0%)
SSTA Module 4 - 0/8 (0%)
SSTA Module 5 - 0/13 (0%)
SSTA Module 6 - 0/14 (0%)
CF Caught-In PPT – 22/60 (36.7%)
CF Electrical PPT - 22/74 (29.7%)
CF Fall PPT - 22/95 (23.2%)
CF Struck-By PPT - 22/58 (37.9%)

PHILAPOSH Fall Protection PPT 1 – 0/66 (0%)
PHILAPOSH Fall Protection PPT 2 – 8/92 (8.7%)
NAHB - - 14/187 (7.5%)
NSC Program Intro PPT – 0/11 (0%)
NSC Program Mod 1 PPT - 0/28 (0%)
NSC Program Mod 2 PPT - 0/26 (0%)
NSC Program Mod 3 PPT - 0/28 (0%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

WARNINGS, CAUTIONS, OR HAZARDS (STUDENT MANUALS, WORKBOOKS, OTHER)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 0/2 (0%)
UTA Manual - 0/33 (0%)
CSC - 4/31 (12.9%)
CF Focus 4 Handbook - 0/136 (0%)
NSC Pocket Reference - 0/30 (0%)
NSC Participant Guide - 0/76 (0%)

WARNINGS, CAUTIONS, OR HAZARDS (INSTRUCTORS' NOTES, ETC)
UMFRI -Instructor's Guide - 0/28 (0%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator's Guide - 0/148 (0%)

UNDERLYING PRINCIPLES OF PRACTICE (PPTS)
UMFRI PPT - 29/181 (16%)
UNLV Fall Protection - 5/194 (2.6%)
UTA PPT Part 1 - 17/95 (17.9%)
UTA PPT Part 2 - 45/119 (37.8%)
IRCC - 29/130 (22.3%)
TF - 11/96 (11.5%)

MCTC - 34/161 (21.1%)
ABC-CTC - 27/123 (21.9%)
SSTA Module 1 - 1/23 (4.3%)
SSTA Module 2 - 4/18 (22.2%)
SSTA Module 3 - 5/36 (13.9%)
SSTA Module 4 - 0/8 (0%)
SSTA Module 5 - 0/13 (0%)
SSTA Module 6 - 5/14 (35.7%)
CF Caught-In PPT – 2/60 (3.3%)
CF Electrical PPT - 12/74 (16.2%)
CF Fall PPT - 4/95 (4.2%)
CF Struck-By PPT - 14/58 (24.1%)
PHILAPOSH Fall Protection PPT 1 – 8/66 (12.1%)
PHILAPOSH Fall Protection PPT 2 – 12/92 (13.0%)
NAHB - - 13/187 (6.9%)
NSC Program Intro PPT - 1/11 (9.1%)
NSC Program Mod 1 PPT - 0/28 (0%)
NSC Program Mod 2 PPT - 0/26 (0%)
NSC Program Mod 3 PPT - 0/28 (0%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

UNDERLYING PRINCIPLES OF PRACTICE (STUDENT MANUALS, WORKBOOKS, OTHER)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 1/2 (50%)
UTA Manual - 19/33 (57.6%)
CSC -11/31 (35.5%)
CF Focus 4 Handbook - 39/136 (28.7%)
NSC Pocket Reference - 0/30 (0%)
NSC Participant Guide - 0/76 (0%)

UNDERLYING PRINCIPLES OF PRACTICE (INSTRUCTORS' NOTES, ETC)
UMFRI Instructor's Guide - 7/28 (25%)
PHILAPOSH Training Outline-0/2 (0%)
PHILAPOSH Instructor Notes - 1/8 (12.5%)
NSC Facilitator's Guide - 0/148 (0%)

OSHA STANDARDS (PPT)
UMFRI PPT - 20/181 (11.0%)
UNLV Fall Protection - 20/194 (10.3%)
UTA PPT Part 1 - 12/95 (12.6%)
UTA PPT Part 2 - 3/119 (2.5%)
IRCC PPT - 3/130 (2.3%)
TF PPT - 62/96 (64.6%)
MCTC - 88/161 (54.7%)
ABC-CTC - 5/123 (4.1%)
CF Caught-In PPT – 0/60 (0%)
CF Electrical PPT - 1/74 (1.4%)
CF Fall PPT - 0/95 (0%)
CF Struck-By PPT - 0/58 (0%)
PHILAPOSH Fall Protection PPT 1 –
1/66 (18.1%)
PHILAPOSH Fall Protection PPT 2 –
18/92 (19.6%)
NAHB - - 5/187 (2.7%)
NSC Program Intro PPT - 1/11 (9.1%)
NSC Program Mod 1 PPT - 4/28
(14.3%)
NSC Program Mod 2 PPT - 4/26
(15.4%)
NSC Program Mod 3 PPT - 4/28
(14.3%)
NSC Program Mod 4 PPT - 5/27
(18.5%)
NSC Program Mod 5 PPT - 0/4 (0%)

**OSHA STANDARDS
(Workbooks/Manuals aimed at
trainees)**
UTA Manual - 13/33 (39.4%)
CF Focus 4 Handbook - 88/136 (64.7%)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 1/2
(50%)
NSC Pocket Reference - 7/30 (23.3%)
NSC Participant Guide - 11/76 (14.5%)

**OSHA STANDARDS
(INSTRUCTOR'S NOTES/OTHER
DOCS AIMED AT INSTRUCTORS)**
UMFRI Instructor's Guide - 8/28
(28.6%)
PHILAPOSH Training Outline - 0/2
(0%)
PHILAPOSH Instructor Notes - 0/8
(0%)
NSC Facilitator's Guide - 26/148
(17.6%)

**ATTRIBUTION OF INFORMATION
(PPTS)**
UMFRI PPT - 17/181 (9.4%)
UNLV Fall Protection - 28/194 (14.4%)
UTA PPT Part 1 - 17/95 (17.9%)
UTA PPT Part 2 - 4/119 (3.4%)
IRCC - 13/130 (10%)
TF - - 67/96 (69.8%)
MCTC - 82/161 (50.9%)
ABC-CTC - 6/123 (4.8%)
SSTA Module 1 - 0/23 (0%)
SSTA Module 2 - 3/18 (16.7%)
SSTA Module 3 - 1/36 (2.8%)
SSTA Module 4 - 1/8 (12.5%)
SSTA Module 5 - 2/13 (15.4%)
SSTA Module 6 - 0/14 (0%)
CF Caught-In PPT – 0/60 (0%)
CF Electrical PPT - 0/74 (0%)
CF Fall PPT - 0/95 (0%)
CF Struck-By PPT - 0/58 (0%)
PHILAPOSH Fall Protection PPT 1 –
3/66 (4.5%)
PHILAPOSH Fall Protection PPT 2 –
18/92 (19.6%)
NAHB - 10/187 (5.3%)
NSC Program Intro PPT – 1/11 (9.1%)
NSC Program Mod 1 PPT - 4/28
(14.3%)
NSC Program Mod 2 PPT - 8/26
(30.8%)
NSC Program Mod 3 PPT - 9/28
(32.1%)

NSC Program Mod 4 PPT - 9/27 (33.3%)
NSC Program Mod 5 PPT - 0/4 (0%)

ATTRIBUTION OF INFORMATION (STUDENT MANUALS, WORKBOOKS, OTHER)
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 1/2 (50%)
UTA Manual - 18/33 (54.5%)
CSC - 10/31 (3.2%)
CF Focus 4 Handbook - 31/136 (22.8%)
NSC Pocket Reference - 9/30 (30%)
NSC Participant Guide - 18/76 (23.7%)

ATTRIBUTION OF INFORMATION (INSTRUCTORS' NOTES, ETC)
UMFRI Instructor's Guide - 6/28 (21.4%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator's Guide - 26/148 (17.6%)

ACTIVITIES (PPTS)
UMFRI PPT - 38/181 (20.9%)
UNLV Fall Protection - 32/194 (16.5%)
UTA PPT Part 1 - 21/95 (22.1%)
UTA PPT Part 2 - 9/119 (7.6%)
IRCC - 1/130 (0.8%)
TF - 15/96 (15.6%)
MCTC - 33/161 (20.5%)
ABC-CTC - 12/123 (9.7%)
SSTA Module 1 - 0/23 (0%)
SSTA Module 2 - 1/18 (5.6%)
SSTA Module 3 - 6/36 (16.7%)
SSTA Module 4 - 0/8 (0%)
SSTA Module 5 - 7/13 (53.8%)
SSTA Module 6 - 1/14 (7.1%)
CF Caught-In PPT – 22/60 (36.7%)

CF Electrical PPT - 22/74 (29.7%)
CF Fall PPT - 22/95 (23.2%)
CF Struck-By PPT - 22/58 (37.9%)
PHILAPOSH Fall Protection PPT 1 – 1/66 (1.5%)
PHILAPOSH Fall Protection PPT 2 – 0/92 (0%)
NAHB - - 66/187 (35.3%)
NSC Program Intro PPT - 2/11 (18.2%)
NSC Program Mod 1 PPT - 16/28 (57.1%)
NSC Program Mod 2 PPT - 18/26 (69.2%)
NSC Program Mod 3 PPT - 17/28 (60.7%)
NSC Program Mod 4 PPT - 19/27 (70.4%)
NSC Program Mod 5 PPT - 2/4 (50%)

ACTIVITIES (STUDENT MANUALS, WORKBOOKS, OTHER)
UNLV Lab Activities - 1/1 (100%)
UNLV Assertiveness Training - 1/2 (50%)
UTA Manual - 0/33 (0%)
CSC - 3/31 (9.7%)
CF Focus 4 Handbook - 0/136 (0%)
NSC Pocket Reference - 20/30 (66.7%)
NSC Participant Guide - 48/76 (63.2%)

ACTIVITIES (INSTRUCTORS' NOTES, ETC)
UMFRI Instructor's Guide - 8/28 (28.6%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 8/8 (100%)
NSC Facilitator's Guide - 85/148 (57.4%)

INSTRUCTOR'S NOTES (PPTS)
UMFRI PPT - 62/181 (34.3%)
UNLV Fall Protection - 47/194 (24.2%)
UTA PPT Part 1 - 3/95 (3.2%)
UTA PPT Part 2 - 1/119 (0.8%)
IRCC - 70/130 (53.8%)
TF - 56/96 (58.3%)
MCTC - 60/161 (37.3%)
ABC-CTC - 13/123 (10.6%)
SSTA Module 1 - 7/23 (30.4%)
SSTA Module 2 - 10/18 (55.6%)
SSTA Module 3 - 13/36 (36.1%)
SSTA Module 4 - 1/8 (12.5%)
SSTA Module 5 - 2/13 (15.4%)
SSTA Module 6 - 9/14 (64.3%)
CF Caught-In PPT – 0/60 (0%)
CF Electrical PPT - 0/74 (0%)
CF Fall PPT - 0/95 (0%)
CF Struck-By PPT - 0/58 (0%)
PHILAPOSH Fall Protection PPT 1 –
35/66 (53.0%)
PHILAPOSH Fall Protection PPT 2 –
27/92 (29.3%)
NAHB - 31/187 (16.6%)
NSC Program Intro PPT - 0/11 (0%)
NSC Program Mod 1 PPT - 0/28 (0%)
NSC Program Mod 2 PPT - 0/26 (0%)
NSC Program Mod 3 PPT - 0/28 (0%)
NSC Program Mod 4 PPT - 0/27 (0%)
NSC Program Mod 5 PPT - 0/4 (0%)

**INSTRUCTOR'S NOTES
(STUDENT MANUALS,
WORKBOOKS, OTHER)**
UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 1/2
(50%
UTA Manual - 0/33 (0%)
CF Focus 4 Handbook - 0/136 (0%)
NSC Pocket Reference - 0/30 (0%)
NSC Participant Guide - 2/76 (2.6%)

**INSTRUCTOR'S NOTES
(INSTRUCTORS' MANUALS, ETC)**
UMFRI Instructor's Guide - 0/28 (0%)
PHILAPOSH Training Outline - 0/2
(0%)
PHILAPOSH Instructor Notes - 0/8
(0%)
NSC Facilitator's Guide - 27/148
(18.9%)

IMAGES (PPT)
UMFRI PPT - 90/181 (49.7%)
UNLV Fall Protection - 168/194
(86.6%)
UTA PPT Part 1 - 42/95 (44.2%)
UTA PPT Part 2 - 99/119 (83.2%)
IRCC - 97/130 (74.6%)
TF - 67/96 (69.8%)
MCTC - 29/161 (18%)
ABC-CTC - 14/123 (11.4%)
SSTA Module 1 - 2/23 (8.7%)
SSTA Module 2 - 6/18 (33.3%)
SSTA Module 3 - 32/36 (88.9%)
SSTA Module 4 - 3/8 (37.5%)
SSTA Module 5 - 3/13 (23.1%)
SSTA Module 6 - 3/14 (21.4%)
CF Caught-In PPT – 34/60 (56.7%)
CF Electrical PPT - 47/74 (63.5%)
CF Fall PPT - 69/95 (72.6%)
CF Struck-By PPT - 31/58 (53.4%)
PHILAPOSH Fall Protection PPT 1 –
44/66 (66.7%)
PHILAPOSH Fall Protection PPT 2 –
60/92 (65.2%)
NAHB - 97/187 (51.9%)
NSC Program Intro PPT - 6/11 (54.5%)
NSC Program Mod 1 PPT - 15/28
(53.6%)
NSC Program Mod 2 PPT - 13/26 (50%)
NSC Program Mod 3 PPT - 14/28 (50%)
NSC Program Mod 4 PPT - 11/27
(40.7%)
NSC Program Mod 5 PPT - 3/4 (75%)

IMAGES (STUDENT MANUALS, WORKBOOKS, OTHER)

UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 0/2 (0%)
UTA Manual - 15/33 (45.4%)
CF Focus 4 Handbook - 26/136 (19.1%)
NSC Pocket Reference - 5/30 (16.7%)
NSC Participant Guide - 30/76 (39.5%)

IMAGES (INSTRUCTORS' MANUALS, ETC)

UMFRI Instructor's Guide - 0/28 (0%)
PHILAPOSH Training Outline - 0/2 (0%)
PHILAPOSH Instructor Notes - 0/8 (0%)
NSC Facilitator's Guide - 0/148 (0%)

SUBHEADS (PPT)

UMFRI PPT - 138/181 (76.2%)
UNLV Fall Protection - 189/194 (97.4%)
UTA PPT Part 1 - 68/95 (71.6%)
UTA PPT Part 2 - 81/119 (68.1%)
IRCC - 121/130 (93.1%)
TF - 76/96 (79%)
NAHB - 115/187 (61.5%)
MCTC - 156/161 (96.8%)
ABC-CTC- 115/123 (93.5%)
SSTA Module 1 - 16/23 (69.6%)
SSTA Module 2 - 17/18 (94.4%)
SSTA Module 3 - 33/36 (91.7%)
SSTA Module 4 - 7/8 (87.5%)
SSTA Module 5 - 12/13 (92.3%)
SSTA Module 6 - 13/14 (92.8%)
CF Caught-In PPT – 53/60 (88.3%)
CF Electrical PPT - 67/74 (90.5%)
CF Fall PPT - 88/95 (92.6%)

CF Struck-By PPT - 57/58 (98.3%)
PhilaPOSH Fall Protection PPT 1 – 53/66 (80.3%)
PhilaPOSH Fall Protection PPT 2 – 34/92 (36.9%)
NSC Program Intro PPT - 9/11 (81.8%)
NSC Program Mod 1 PPT - 27/28 (96.4%)
NSC Program Mod 2 PPT - 25/26 (96.1%)
NSC Program Mod 3 PPT - 27/28 (96.4%)
NSC Program Mod 4 PPT – 26/27 (96.3%)
NSC Program Mod 5 PPT - 3/4 (75%)

SUBHEADS (STUDENT MANUALS, WORKBOOKS, OTHER)

UNLV Lab Activities - 0/1 (0%)
UNLV Assertiveness Training - 2/2 (100%)
UTA Manual - 20/33 (60.6%)
CF Focus 4 Handbook - 55/136 (40.4%)
NSC Pocket Reference - 30/30 (100%)
NSC Participant Guide - 71/76 (93.4%)

SUBHEADS (INSTRUCTORS' NOTES)

UMFRI Instructor's Guide - 3/28 (10.7%)
PhilaPOSH Training Outline - 2/2 (100%)
PhilaPOSH Instructor Notes - 7/8 (87.5%)
NSC Facilitator's Guide - 144/148 (97.3%)

APPENDIX 4. SAMPLE CODING OF A GRANTEE DELIVERABLE

Philadelphia Area Project on Safety and Health
Fall Protection #1 (PowerPoint Slide Deck)

Page	CT	Sub	Jus	OS	Def	Des	Dir	UPP	Ai	Ex	ACh	WCH	IN	Im
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4	0	1	0	0	0	0	0	1	0	0	0	0	1	1
5	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6	0	1	0	0	0	0	0	0	0	1	0	0	1	1
7	0	1	0	0	0	0	0	0	0	1	0	0	0	1
8	0	1	0	0	1	1	0	0	0	1	0	0	0	2
9	0	1	0	0	0	0	0	1	0	1	0	0	1	1
10	0	1	0	0	0	0	1	0	0	1	0	0	1	1
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16	0	1	0	0	0	0	1	1	0	1	0	0	1	1
17	0	1	0	0	0	0	1	0	0	1	0	0	0	1
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19	0	1	0	0	0	0	1	0	0	1	0	0	1	1
20	0	1	0	0	0	0	1	1	0	1	0	0	1	1
21	0	1	0	0	0	0	1	1	0	1	0	0	1	1
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32	0	1	0	0	0	0	1	0	0	1	0	0	0	1
33	0	0	0	0	0	0	1	0	0	1	0	0	0	1
34	0	0	1	0	0	0	0	0	0	0	0	0	0	1
35	0	0	0	0	0	0	1	0	0	1	0	0	0	1

Page	CT	Sub	Jus	OS	Def	Des	Dir	UPP	Ai	Ex	ACh	WCH	IN	Im
36	0	0	0	0	0	0	1	0	0	1	0	1	0	1
37	0	0	0	0	0	0	1	0	0	1	0	1	0	1
38	0	0	0	0	0	1	0	1	0	1	0	0	0	1
39	0	0	0	0	0	1	1	0	0	1	0	1	0	1
40	0	0	0	0	0	1	0	0	0	1	0	0	0	1
41	0	0	0	0	0	0	1	0	0	1	0	1	0	1
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45	0	1	0	0	0	1	1	0	0	0	0	0	0	0
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55	0	1	0	0	0	1	0	0	0	1	0	0	1	1
56	0	1	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	1	1	0	0	1	0	0	0	1
58	0	0	0	0	0	1	0	0	0	1	0	0	0	1
59	0	0	0	0	0	0	1	0	0	1	0	1	0	1
60	0	0	0	0	0	0	1	0	0	1	0	0	0	1
61	0	0	0	0	0	0	1	1	0	1	0	0	0	1
62	0	0	0	0	0	0	1	0	0	1	0	0	0	1
63	0	0	0	0	0	2	1	0	0	1	0	0	0	1
64	0	0	0	0	0	2	1	0	0	1	0	0	0	1
65	0	0	0	0	0	0	1	0	0	1	0	1	0	1
66	0	0	0	0	0	1	0	0	0	1	0	0	0	1
67	0	0	0	0	0	1	1	0	0	1	0	1	0	1
68	0	0	0	0	0	0	1	0	0	1	0	1	0	1
69	0	0	0	0	0	1	1	0	0	1	0	0	0	1
70	0	0	0	0	0	1	1	0	0	1	0	0	0	1
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73	0	1	0	0	0	1	0	0	0	1	0	0	1	1
74	0	1	0	0	0	0	0	0	0	1	0	0	0	1
75	0	1	0	0	0	0	0	0	0	1	0	0	0	1

Page	CT	Sub	Jus	OS	Def	Des	Dir	UPP	Ai	Ex	ACh	WCH	IN	Im
76	0	0	0	0	0	0	0	0	0	1	0	0	0	1
77	0	1	0	0	0	1	1	0	0	1	0	0	0	1
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81	0	1	0	1	0	0	1	0	1	1	0	0	1	1
82	0	1	0	1	0	0	1	0	1	0	0	0	1	0
83	0	1	0	1	0	0	1	0	1	0	0	0	0	0
84	0	1	0	1	0	0	0	0	1	1	0	0	1	1
85	0	1	0	1	0	0	1	0	1	0	0	0	1	0
86	0	1	0	1	1	0	0	0	1	0	0	0	1	0
87	0	1	0	1	1	0	0	0	1	1	0	0	1	0
88	0	1	0	0	0	0	0	0	0	1	0	0	0	0
89	0	1	0	1	0	0	1	0	1	1	0	0	1	0
90	0	1	0	1	1	0	1	0	1	1	0	0	1	0
91	1	1	0	0	0	0	0	0	0	0	0	0	0	0
92	1	1	0	0	0	0	0	0	0	0	0	0	0	0

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