Assessing the Safety Training Needs of Spanish-Speaking Workers in the Southeastern Logging Industry

Brandon O'Neal, Robert Shaffer, and Robert Rummer

Safety in logging operations in the southeastern United States has long been an important issue. Recently, a growing number of Spanish-speaking workers (SSW) have gained employment on logging operations in the region. There is concern that injury and fatality rates could increase due to inexperience, possible lack of proper safety training, and language-barrier problems attributed to SSW. The objectives of this study are to, (1) determine the current percentage of the logging workforce in the southeastern United States comprised of SSW, (2) document the current state of logging safety training as it relates to SSW, and (3) recommend strategies to address the short- and long-term logging safety training needs of SSW. Data regarding the current population of SSW were collected in 2005 through field surveys of 1,890 logging crews operating in the southeastern United States. Additional data were acquired through field interview questionnaires completed in the fall of 2005 with 41 sample logging contractors who employ SSW. As of 2005, SSW represented 3.37% of the logging industry workforce in the southeastern United States. Ten percent of the operations surveyed employed one or more SSW. Of the questionnaire respondents, 90% employed at least one SSW who understood English well enough to effectively interpret instructions to the other SSW. Seventy-three percent of the loggers interviewed believed that “hands-on” demonstration training was the most effective way to present safety training to SSW. A majority of the respondent loggers believed that simply distributing safety training manuals and brochures printed in Spanish was unlikely to be effective, because only about one-half of the SSW they employed were literate. Recommendations were developed, based on the relevant literature and data collected through the questionnaire, to address the safety concerns associated with SSW in the logging industry.

Keywords: safety, Spanish-speaking workers, logging

The safety of Spanish-speaking workers (SSW), sometimes referred to as Hispanic or Latino, in the workplace is a growing concern as their percentage of the US private-industry workforce rises. According to the Department of Labor and the Occupational Safety and Health administration, the active Hispanic workforce in the United States is approximately 17.5 million (DOL 2004). The 2000 U.S. Census notes that one in ten Americans over the age of five, or a little more than 28 million people, speak Spanish at home while speaking English “less than very well,” (Brooks 2003). The 2000 U.S. Census also revealed that 47% of the increase in the nation’s civilian labor force between 1990 and 2000 was due to new foreign immigrants, with nearly two-thirds of the growth in the male labor force being produced by new male immigrant workers (Sum et al. 2003). Additionally, immigrants arriving between 2000 and 2003, over 50% Hispanic, contributed to more than half of the growth in the nation’s labor force, exceeding their contribution in the entire decade of the 1990s (Sum et al. 2003).

The number of fatal work injuries involving foreign-born Hispanics or Latino workers was on a steady rise from 1995 to 2002, and, although fatalities were lower for Hispanic workers (native and foreign-born) for the first time in seven years in 2002, they experience a disproportionate share of work-related deaths, injuries, and illnesses as compared to other ethnicities (BLS 2003a, DOL 2004). A 2002 report by OSHA’s administrator, John Henshaw, reported that, although Hispanic and Latino workers represent 10.7% of the workforce, they experience 13.8% of workplace fatalities—possibly because many Hispanics or Latinos often work in the more dangerous industries (Anonymous 2002). Between 1992 and 2002, fatal occupational injuries for Hispanic workers increased by 58% while the rates for Caucasians decreased by 17% and African-Americans (the largest minority group in private industry) decreased by 21% (BLS 2003a). This is especially evident in the construction industry, where Hispanic workers represent about 18% of the workforce while accounting for 21% of job fatalities (DOL 2004).

This trend can also be seen in nonfatal injuries. In 2002, Hispanics made up 10.9% of the private-industry workforce, yet they accounted for 12.5% of the nonfatal injuries or illnesses that involved days away from work (BLS 2004a). This can be compared to African-Americans who accounted for 13.9% of the private-industry workforce and only 8% of the nonfatal injuries or illnesses that involved days away from work (BLS 2004a).

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Increasing numbers and high fatality rates of SSW in the US labor force have led many industries to focus on rebuilding and increasing safety procedures (Halverson 2003). The primary obstacle employers face is how to train the growing number of Spanish-speaking individuals entering the workforce (Brooks 2003). Many experts agree that high injury rates for SSW are, in part, due to the Spanish–English language barrier. As the president of a Texas-based electrical contracting firm noted, “The primary method of communication is language. If you can’t communicate effectively, then you can’t maintain legitimate safety practices on the job,” (Halverson 2003). In addition to language differences, other factors have been identified as barriers for training SSW. These barriers include the cultural differences between the employees and employer and the literacy level of the workers in their native language (Anonymous 2003, Boone 2003, Ceniceros 2001). Boone (2003) quotes a business owner as saying, “Many of the workers [Spanish-speaking] I interviewed couldn’t read or write Spanish, let alone English.” The illiteracy of SSW could be attributed to the lack of education in foreign-born SSW.

A report released by the Pew Hispanic Center in 2005 looked at both the English speaking ability and education levels of SSW in the US south. It found that, in the six southern states with the greatest Hispanic population growth, only 43% of Hispanics could speak English “well” or “very well” compared with 55% nationwide, and 54% said they speak English “not well” or “not at all” (Kochhar et al. 2005). Additionally, it was found that 62% of the foreign-born Latinos have less than a complete high school education, in comparison to 20% for Caucasians and 31% for African-Americans (Kochhar et al. 2005). Studies such as this have led many safety programs to focus on the translation of safety materials from English to Spanish, as well as developing alternative methods for helping SSW understand and practice proper safety procedures.

Recently, Hispanic employment in logging operations in the southeastern United States has been increasing (Shaffer, Virginia Tech, personal communications, Aug. 15, 2004). Richardson et al. (2004) note that it has recently become evident in the American south that a demographic shift has taken place in manual labor employment from what used to be primarily African-American workers to Hispanic workers. An increase in the number of SSW in the southern logging industry raises concern because of the safety issues that characterize the industry. In 1996, logging was the second most dangerous occupation in the United States (FRA 2002). During that same time period the southern forest region accounted for 49% of the OSHA-investigated logging fatalities (FRA 2002). From 1996 to 1998, 321 loggers died in the United States from injuries received in a job-related accident—the highest fatality rate for any industry during that period (FRA 1999).

Over the last decade logging injury and fatality rates have been in decline. In 1996, the US Bureau of Labor Statistics reported an injury rate of 8.7 injuries per 100 workers per year for the logging industry, whereas by 2001 the rate had dropped to 6.4 (FRA 2000). In fully mechanized logging operations in the southeast, where felling, delimbing, and bucking are done by a machine operator in an enclosed cab, injury rates have decreased from 10 injuries per 100 workers per year in 1996 to 4.9 in 2003 (Roberts and Shaffer 2004). Yet, even with these recent reductions in injury rates, logging workers continue to have a high annual fatality rate (131.6 per 100,000 workers in 2003), the highest of any industry and more than five times that of a construction laborer (BLS 2003b). Industry experts agree that the reduction of logging injuries has been primarily due to: (a) reduced exposure to manual chainsaw felling and delimbing as more loggers purchase and use mechanical felling machines and delimbing devices, and (b) increased industrywide emphasis on logging safety training (Shaffer and Roberts 2001).

To maintain reductions in fatalities and injuries in the logging industry, it is important that safety training be continued, or expanded, in a manner and form that will effectively reach all logging employees, including those whose primary language is Spanish. Thus, the objective of this study is to, (1) determine the current percentage of the logging workforce in the southeast comprised of SSW, (2) document the current state of logging safety training as it relates to SSW, and (3) recommend strategies to address the short- and long-term logging safety training needs of SSW in the region.

Methods

The study area includes the 12 southeast states: Alabama (AL), Arkansas (AR), Florida (FL), Georgia (GA), Louisiana (LA), Mississippi (MS), North Carolina (NC), Oklahoma (OK), South Carolina (SC), Tennessee (TN), Texas (TX), and Virginia (VA). Two sets of data were collected for this study. The first set of data was completed through on-site surveys performed by three major Worker’s Compensation Insurance (WCI) providers for the logging industry in the southeast. All logging businesses employing one or more workers are required by law to carry WCI. These WCI carriers insured loggers in every state of the study area. Field agents for the three WCI carriers conducted the surveys during the summer of 2005. The surveys took place during the field agent’s routine safety inspection visits to the logging operations, which they perform year-round. Three observations were recorded for each logging crew visited: (1) the state and geographic region of the operation, (2) the total number of employees on the logging crew, and (3) the total number of SSW on the logging crew.

For comparative purposes, data were then categorized into three regions: (1) Atlantic (VA, NC, SC, and TN), (2) eastern Gulf (AL, FL, GA, and MS), and (3) western Gulf (AR, LA, OK, and TX). A chi-square analysis was used to determine whether there are statistical differences between regions concerning the percentage of SSW employed and the percentage of crews employing at least one SSW.

The second set of data was collected from interview questionnaires completed in the field by selected sample loggers currently employing one or more SSW. The sample logging operations (respondents) were purposely selected from a representative group of logging business owners who were known to employ SSW. The field interviews were conducted by Virginia Tech researchers and project cooperators during the fall of 2005. The questionnaires were designed to capture information about logging safety issues with regards to SSW. The following information was recorded for each logger respondent:

1. The year the logger first hired a SSW and the state where the operation is located.
2. The total number of employees and the number of SSW.
3. The previous logging experience of the SSW.
4. The English comprehension level (both written and spoken) of the SSW.
5. The current type of safety training being provided for the SSW, and whether any accidents involving a SSW have occurred.
6. The overall safety attitude of the SSW (categorized as always focused, mostly safe, not as safe as they should be, or safety is a problem).
Previous logging experience before entering their current job. Of all respondents, four (10%) had not provided their SSW with formal safety training, and 44% of the loggers interviewed had experienced SSW injured on the job. When asked whether they believed their SSW have a positive attitude toward safety, 85% responded positively (44% believe they were “always focused on safety” and 41% believe they “work safely most of the time”) (Figure 1).

Ninety percent (90%) of the respondents employ at least one SSW who can understand English well enough to interpret instructions to other Spanish-speaking crew members, while 51% employed a SSW who could read English well enough to translate a safety training manual.

The respondent’s ratings of a list of potential safety training methods yielded some differences in the perception of the most effective way to provide safety training for SSW. Using “hands-on” demonstration training, where the worker observes a safe operating practice and then tries it himself, was considered by 73% of the loggers interviewed to be the most effective way to train SSW (Table 4).

Using a bilingual SSW to interpret a “tailgate” safety meeting at the landing, and attending a local safety training program presented by a Spanish-speaking safety instructor, were believed to be the next two most effective methods of training SSW by 59% and 54% of the respondents, respectively (Table 4). Two suggested methods for safety brochures and manuals, (1) printed in Spanish, and (2) using pictures and diagrams rather than text, were also not generally believed to be highly effective, with only 43% and 32% of the respondents, respectively, considering them to be “definitely effective” (Table 4). Showing English-language safety videos with Spanish subtitles appearing at the bottom of the screen was considered the least effective training method listed, with only 8% of the respondents believing it would be “definitely effective” (Table 4).

Logger respondents reported a variety of methods currently being used to present safety training to their SSW. Although few respondents reported using more than one method such as holding monthly “tailgate” safety meetings and using an interpreter, most respondents reported using only one method of safety training such as only having monthly safety meetings or sending their SSW along with other workers to formal logger training programs. The following is a summary of the safety training methods currently being provided by the respondents for their SSW:

- 23% use hands-on/demonstration type training
- 14.5% use crewwide tailgate safety meetings
- 14.5% talk to their employees about safety in a general sense or when needed
- 12% use a bilingual employee to interpret a safety training program
- 12% use third-party training programs (Sustainable Forestry Initiative (SF1), Insurance Company, Extension, etc.)
- 9% use safety training materials printed in Spanish
- 3% use safety brochures that emphasize pictures rather than text
- 12% use a combination of the previously listed methods

Loggers’ open-ended comments regarding Spanish-speaking logging workers and safety were generally positive. Nearly all of the respondents believe their SSW are generally safe workers. Only two respondents replied negatively regarding SSW and safety, one stating that he would not hire another SSW because of language problems he had experienced, whereas another expressed major concern about access to effective Spanish-language safety training materials. Overall, however, the respondents were generally pleased with their SSW’s work and safety habits.
Table 2. Comparison of sampled and population data by employees and crews.

<table>
<thead>
<tr>
<th>Region</th>
<th>Employees sampled</th>
<th>2004 (BLS) population</th>
<th>% sampled</th>
<th>Crews sampled</th>
<th>2004 (BLS) population</th>
<th>% sampled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>3,218</td>
<td>10,068</td>
<td>31.96</td>
<td>617</td>
<td>1,781</td>
<td>34.64</td>
</tr>
<tr>
<td>Eastern gulf</td>
<td>3,409</td>
<td>16,049</td>
<td>21.24</td>
<td>612</td>
<td>2,345</td>
<td>26.10</td>
</tr>
<tr>
<td>Western gulf</td>
<td>4,898</td>
<td>8,390</td>
<td>58.38</td>
<td>661</td>
<td>1,291</td>
<td>51.20</td>
</tr>
<tr>
<td>Total</td>
<td>11,525</td>
<td>34,507</td>
<td>33.40</td>
<td>1,890</td>
<td>5,417</td>
<td>34.89</td>
</tr>
</tbody>
</table>

Table 3. Demographic statistics by sub-region.

<table>
<thead>
<tr>
<th>Region</th>
<th>Crews</th>
<th>Personnel</th>
<th>SSW</th>
<th>%</th>
<th>Crews w/SSW</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western gulf</td>
<td>661</td>
<td>4,898</td>
<td>218</td>
<td>4.45</td>
<td>108</td>
<td>16.34</td>
</tr>
<tr>
<td>Eastern gulf</td>
<td>612</td>
<td>3,409</td>
<td>45</td>
<td>1.32</td>
<td>22</td>
<td>3.59</td>
</tr>
<tr>
<td>Atlantic</td>
<td>617</td>
<td>3,218</td>
<td>125</td>
<td>3.88</td>
<td>62</td>
<td>10.05</td>
</tr>
<tr>
<td>Total</td>
<td>1,890</td>
<td>11,525</td>
<td>388</td>
<td>3.37</td>
<td>192</td>
<td>10.16</td>
</tr>
</tbody>
</table>

Figure 1. Percentages of different attitudes toward safety by SSW as reported in a survey of logging supervisors. Note: Zero respondents believed that safety is a problem with their workers.

From the study results, it can be concluded that the population percentage for SSW in the southeastern US logging industry (3.4%) is substantially less than that of the national workforce average for Hispanics (13%). A more critical statistic is that 10% of the surveyed crews employed a SSW. Thus, 10% of all the logging crews in the southeast must deal with the necessity of providing effective safety training to SSW. Currently, logging safety training for SSW is being conducted somewhat haphazardly across the southeast, using a variety of methods that may or may not be effective given the potential language barrier problems. For example, although the loggers interviewed generally agreed that "hands-on" demonstration training was best, that training method may not be suitable for all required safety topics (example: explaining OSHA requirements). Also, although most loggers had one SSW who could interpret verbal instructions to other crew members, this "second-hand" method may not effectively communicate detailed or technical safety information that may be critical to employee welfare and safety (example: lock-out/tag-out procedures for a specific machine).

Recommendations

Based on the study results, the following recommendations regarding safety training of Spanish-speaking logging workers are offered:

- Determine the education/literacy levels of Spanish-speaking employees in the logging crew. Spanish-language safety training materials would obviously not be appropriate for employees who cannot read.

  - Provide hands-on/demonstration training whenever feasible. Hands-on/demonstration training provides a visual safety training method that does not involve a written component and minimizes the verbal component of communication.

  - Use a bilingual employee/translator to assist with any safety training. This increases the chances that the SSW will comprehend the safety training he or she is receiving, and provides an outreach for the relay of questions between the demonstrator and the employee.

  - Use multiple safety training methods to maximize the SSW’s learning ability. The combination of hands-on/demonstration training and the use of a bilingual employee/translator may be the optimal combination safety training method for some topics. These two safety training methods were ranked by respondents as the two potentially most effective methods for training SSW, and were also the most common methods that are presently being used by loggers to train SSW.

  - Safety training methods used for SSW will likely require more “customization” than training for non-SSW. This is, in part, due to language barriers, variable levels of literacy, and the fact that in other comparable industries, SSW have a higher injury rate than non-SSW. Specific safety training should be tailored to accommodate the unique needs of SSW on logging crews in contrast to standard safety training given to non-SSW.

  - Certain logging tasks are more hazardous than others, such as manual felling, trimming, or bucking with a chainsaw. Assigning an inadequately trained and inexperienced SSW to this task would certainly be risky, and could be exacerbated by language problems. Before assigning SSW to do manual chainsaw work, ensure that they have the necessary training and experience to carry out the job safely, or provide them such training through hands-on demonstration. Also, assign an experienced (preferably bilingual) employee for a period of at least one week who can closely monitor the SSW and correct any unsafe practices.

  - Operations on the log deck are dangerous due to the high traffic and frequent movement of heavy machinery. Teach and use universally accepted hand signals around the landing area to enhance communication between Spanish-speaking and non-Spanish-speaking workers.

  - Consider providing SSW with formal English-language classes (perhaps at a local community college) and requiring their attendance. This concept is successfully used by many employers.
Table 4. Respondent’s effectiveness ratings (in percentage of respondents) of various safety training methods.

<table>
<thead>
<tr>
<th>Safety training methods</th>
<th>Definitely effective</th>
<th>Probably effective</th>
<th>Probably not effective</th>
<th>Definitely not effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Hands-on” demonstration training</td>
<td>72.97</td>
<td>24.32</td>
<td>2.71</td>
<td>0.00</td>
</tr>
<tr>
<td>Spanish speaking bilingual worker as an interpreter</td>
<td>58.97</td>
<td>28.21</td>
<td>5.13</td>
<td>7.69</td>
</tr>
<tr>
<td>Attending safety programs presented by a Spanish-speaking safety instructor</td>
<td>53.85</td>
<td>33.33</td>
<td>10.26</td>
<td>2.56</td>
</tr>
<tr>
<td>Safety brochures and manuals printed in Spanish</td>
<td>42.50</td>
<td>42.50</td>
<td>12.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Safety brochures with pictures and diagrams rather than text</td>
<td>32.43</td>
<td>43.24</td>
<td>16.22</td>
<td>8.11</td>
</tr>
</tbody>
</table>

in the construction industry to not only teach English, but also integrate the SSW into the community.

- Consider assembling a crew comprised entirely of SSW to ensure better communication throughout the workplace. Although the limited availability of SSW in some areas may currently restrict this idea, it may be feasible in the future as more SSW enter the logging workforce.

- It would be beneficial for a logger who employs SSW to learn Spanish, at least enough to relay basic messages.

- Finally, the industry should monitor the SSW population in the logging workforce closely. Depending on political and economic factors, this population could grow quickly and may begin to impact safety/injury rates. Further research in 2–3 years would be advisable to measure population growth (or decline) and determine precisely whether SSW are affecting logging injury/fatality rates.

Literature Cited


