

A Recommendation to Implement *Spanish in Construction* Topics Course

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The purpose of this report is to recommend the addition of a *Spanish in Construction* class to the Construction Management curriculum. Many of Cal Poly's graduates enter a construction workforce which is composed heavily of Hispanic and Latino members. Historically, Hispanics and Latinos account for not only the most rapidly growing populations of construction, but also the most proportionally at-risk. In an industry as dangerous as construction, it is important that students are well-rounded and well-prepared to contribute as safely, efficiently, and flawlessly as possible. Thorough literature review and an interview of part-time Cal Poly lecturer and industry veteran, Eric Brinkman, this project reveals the need for an increased understanding of the Spanish language amongst construction professionals. This need is complemented by a department-wide survey of Construction Management students and faculty, which gives this recommendation a discovery component, including the newfound knowledge of high levels of student interest in learning Spanish. Down the road, this research and discovery should translate into the implementation of a technical elective course that Cal Poly students can opt to participate in.

Keywords: Language, Bilingualism, Spanish, Safety, Communication, OSHA

Introduction

Among the most vulnerable workers in America are those who work in high-risk industries, particularly construction. Of these vulnerable workers, 28.5% are of Latin descent. Because of language barriers, literacy, and other limitations, these workers are often hard to connect with through traditional communications methods. Due partly to the language barrier between the Spanish and English languages, Latino workers tend to suffer injuries and/or fatalities on the job at a higher rate than other workers. About 13 Latino workers die on the job every week while doing the most difficult, unhealthy, and dangerous jobs in America. These hard-to-reach workers - who are vulnerable to serious harm - are sometimes exposed to health and safety hazards with little to no safety training and do not understand the importance or significance of personal protective equipment.

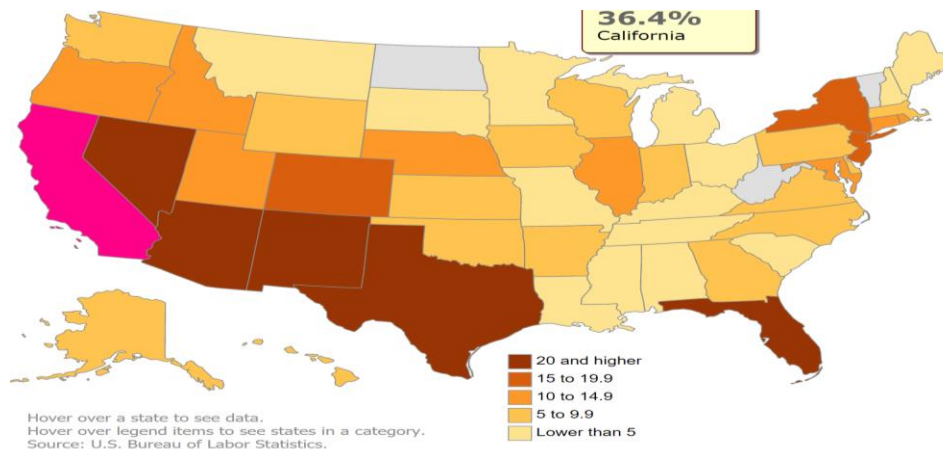


Figure 1. Percentages of Latino workers in each state's workforce; 36.4% of California's labor force was Hispanic in 2013. (http://www.bls.gov/opub/ted/2014/ted_20141001.htm)

Presumably, construction industry professionals need to be more knowledgeable of the Spanish language in order to keep Spanish-speaking individuals safe on the jobsite. As students at Cal Poly, this is of utmost relevance because we are most-likely to join the California labor force, where Latinos made up 36.4% of the workforce in 2013. In order for construction industry professionals to begin a transition to bilingualism, young students aspiring to become industry professionals must learn the Spanish language in their university curriculum. By teaching the Spanish language and its importance in the construction industry to aspiring students, the industry can and will evolve into a much safer workplace. “California had the highest number of Hispanics or Latinos in the labor force, at 6,786,000, followed by Texas at 4,934,000” (http://www.bls.gov/opub/ted/2014/ted_20141001.htm).

History of Safety Concerns Within Hispanic Workforce

The United States Bureau of Labor and Statistics has kept close track of the rising levels of Hispanic and Latino presence in the workforce. Between 1990 and 2013, the Hispanic labor force increased from 10.7 million to 24.8 million workers (http://www.bls.gov/opub/ted/2014/ted_20141001.htm). Unfortunately, with this rise in Hispanic labor force, the Bureau of Labor and Statistics also found that fatal work injuries among Hispanic workers, specifically in private construction, nearly tripled between 1993 and 2002 (<http://www.bls.gov/opub/mlr/2005/10/ressum.pdf>). Even worse, when we relate this scary historical data back to the notion that Cal Poly students will go on to contribute to the California workforce, we see that 25% of fatal work injuries involving Hispanics occurred in California between 1992 and 2004 (<http://www.bls.gov/opub/mlr/2005/10/ressum.pdf>).

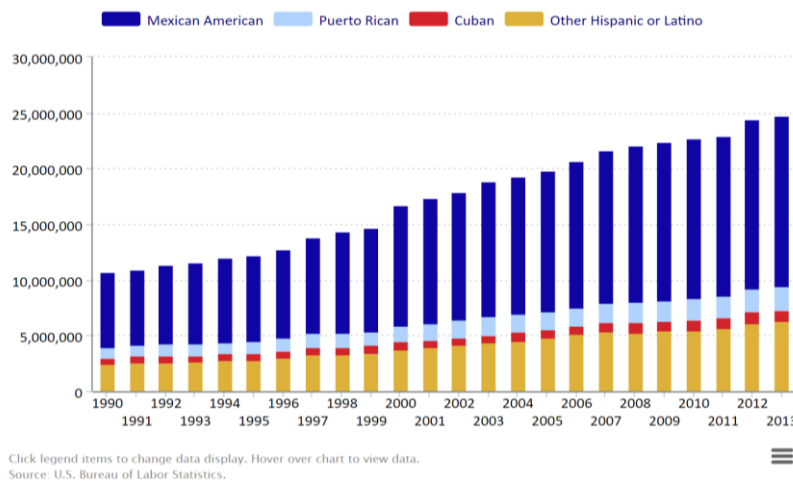


Figure 2. Civilian labor force levels for persons of Hispanic or Latino ethnicity age 16 and older, by detailed ethnic group, 1990-2013 (http://www.bls.gov/opub/ted/2014/ted_20141001.htm).

Incentive for Bilingualism

The Occupational Safety and Health Administration estimates that 25 percent of accidents can be attributed to language barriers caused by inadequate training in Spanish. This inadequacy can lead to misunderstanding instructions and not adhering to proper safety protocol. According to a Southern Polytechnic State University study "Best Practice for Improving Safety among Hispanic Construction Workers," 30 percent of Hispanic employees do not speak any English. For those Hispanics who do have an understanding of English, a disconnection exists due to the technical terms used in the field. Another major issue Hispanic workers experience can be cultural differences. Not understanding another's culture can result in misinformation, misunderstandings, and serious injuries (or even fatalities). These disconnects can build into barriers for team morale and camaraderie, while simultaneously affecting performance and safety.

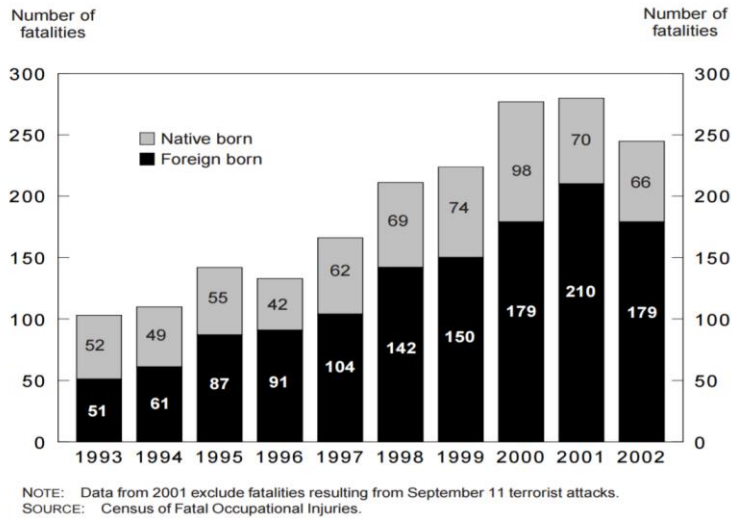


Figure 3. Fatal work injuries involving Hispanic workers in private construction by nativity, 1993-2002 (<http://www.bls.gov/opub/mlr/2005/10/ressum.pdf>).

This university study also explores the increasing demand for bilingual workers, specifically in Chinese and in Spanish, within the next decade. Another study conducted by the University of Phoenix Research Institute shows that 70 percent of employers expect business proficiency in Spanish to be in moderate or high demand within the next 10 years. "It can be a goldmine," said Beth Ross, an executive coach in New York City. "It's easier to find them jobs and they often get paid more," she said, referring to bilingual candidates.

Methodology

In order to recommend a new class for Cal Poly's Construction Management curriculum, there needs to be overwhelming evidence that support benefits of its existence. There must be data that supports the idea that a comprehensive knowledge of the Spanish language within the construction industry's professionals will promote a safer, more efficient workplace for all involved parties. Most of this data comes from government studies conducted by the Bureau of Labor and Statistics. In order to prove this data's relevance at Cal Poly, I need to bridge the gap between Cal Poly students and faculty opinions and the discoveries made during my literature review and research.

Survey

The most reliable form of gauging the interest and opinions of Cal Poly CM students and faculty was to design an online survey to be accessible program-wide. To effectively accumulate new knowledge, I needed to assemble background information about the survey's respondents, their relevant work experiences, their recollections of the use of Spanish within their experiences, and finally, I needed to gauge the personal beliefs respondents had on the value of learning Spanish. The survey assembled background information of respondents by asking for their grade level. I operated upon the assumption that Cal Poly seniors and faculty had similar enough tenure at Cal Poly to group their opinions together. Next, students and faculty were asked about their internship and work experiences within the industry. It was important to account for the possibility that communication in construction can be carried out differently in the field as a laborer versus as an intern or employee conducting office work like engineering and project management.

Students at Cal Poly are asked to sign up for classes based on their personal preferences. Their options are grouped within certain university requirements like Technical and General Electives, but within these categories, students are able to sign up for classes based on their personal desires. With this process of enrolling in mind, I attempted to ask

questions that might guide me towards an understanding of how students would view the option of a *Spanish in Construction* topics course. I asked students and faculty to describe their feelings about how a Spanish class would benefit the academic preparedness of students. This portion included an unframed question that asked students about areas of construction that would improve with increased bilingualism. Next, I framed the same question with statistics about injuries and Latino workers in construction. This technique was used in hopes of finding out whether students already see a need for learning Spanish, or whether the idea of bilingualism's benefits are novel. Lastly, I gave respondents an opportunity for some free responses, if they felt they had contributions to make for further discoveries to be made.

Interview

Eric Brinkman, part-time lecturer CM lecturer and contractor, volunteered his time and knowledge to assist me with my collection of new knowledge in regards to the need for and implementation of a Spanish class at Cal Poly. Professor Brinkman approached me via email claiming to use his fluent Spanish with his employees on a daily basis. Some of the questions I asked Brinkman included questions about safety, efficiency, morale, and camaraderie. Once my survey results were received, I asked Professor Eric Brinkman the following questions:

- From your experience, what applications do you think students would be best-suited with a knowledge of the Spanish language?
- Do you prefer Spanish as a means of communicating design and procedural instructions? Do your guys speak Spanish as a means of communicating safety risks?
- When people make remarks like, “construction workers should just learn English,” what are they missing most about the value of bilingualism in the construction workforce?
- With your experience as a lecturer at Cal Poly, how narrow or broad should a construction Spanish course be?

Brinkman's offer to share his thoughts and experiences turned out to be a very strong opportunity to complement and justify some of the data collected during the survey portion of the project's discovery phase.

Hypothesis

Whenever injuries occurring on construction sites, or any jobsite, can be clearly linked with contributing factors of association or causation, there is no excuse not to remedy the root problems behind those accidents. The facts of the matter are that Hispanics are injured on job sites and that there is some sort of language barrier in the construction industry. Injuries to working citizens should always warrant consideration for making corrections. The solution may begin in the education system, where aspiring industry leaders can take the time to make the necessary changes. Creating a *Spanish in Construction* class at Cal Poly might enable students to learn construction-specific Spanish words and phrases and immediately utilize them once they enter the workforce. In order to recommend a class at Cal Poly, however, I need to complement the need with substantiated desire of actual students and faculty to participate in such a class. I believe that my views are shared by other members of the Cal Poly Construction Management program. I predict that there will be a well-distinguished desire to implement a *Spanish in Construction* Topics Course that is revealed through my department survey.

Results

Cal Poly students and faculty are well-accustomed to helping their peers collect new knowledge via surveys and questionnaires. The older you get within the program, the more likely you are to participate in such efforts. A very thorough set of data was received from my department-wide request for survey responses. In total, 77 respondents from the Construction Management major took part in the online survey. Seniors and faculty made up almost half of the respondents, but there was a fairly even distribution between respondents from the other grades. Of the 77

respondents, only 11 students reported a lack of any construction internship or work experience. This statistic gave me confidence that further data was going to show accurate and revealing depictions of the circumstances that Cal Poly students actually experience in the workforce. There were several students and faculty who claimed to have manual labor (42%) and project engineering (58%) experience – which gave me hope that the potential discrepancies between office and field experiences might balance out.

When survey respondents were asked to describe how often they witnessed the use of Spanish in the field or office, only five respondents claimed they had never experienced Spanish being used. Instead, the overwhelming majority of respondents (73%) described that Spanish was either commonly used or sometimes used in the field and/or office. The most significant question in the survey asked respondents to describe how they felt that a Spanish class would benefit students. Of the survey-takers, 90% said that a *Spanish in Construction* topics course would provide students with an enhanced level of preparation for a career in construction. With this statistic, I confirmed that not only did past research support a need for more knowledge of Spanish, but I had also completed new discovery and had found a desire from Cal Poly students and faculty to be a part of a class like this. After this question, the survey went on to confirm that there is a belief amongst the CM department that Spanish could improve safety, quality, and efficiency on construction projects.

The results from Eric Brinkman’s interview were conclusive in other ways. Without numerical metrics like the survey, the interview relied on opinions and evidence based on Brinkman’s experiences. To my surprise, Brinkman’s primary focus was on his ability to boost morale among his Spanish-speaking employees. He described his ability to show respect and acceptance of his workers by speaking Spanish with them. He also claimed to be able to reduce the chances of miscommunications during the communication of design and procedural information. Overall, Brinkman explains the heavy prevalence of Spanish in the construction community. He pinpoints foremen as the go-to bilingual member of the construction team. He says the foremen’s ability to speak Spanish is the most pivotal influencer for being able to effectively communicate up and down the line.

New Knowledge

The survey results were stronger than I had anticipated. For starters, being able to achieve such a thorough collection of survey responses from the department was a success in itself. Regardless of the correctness of my hypothesis, a collection of this much data was instrumental in gathering a consensus opinion from the program. In the end, the data showed that 90% of students and faculty feel that implementing a *Spanish in Construction* Topics Course would indeed be beneficial to the preparation of students entering the workforce.

Answer Choices	Responses
<input type="checkbox"/> A Spanish in Construction topics course would provide me with an enhanced level of preparation for a career in construction.	89.33% 67
<input type="checkbox"/> A Spanish in Construction topics course would not impact the level of preparation for a career in construction.	5.33% 4
<input type="checkbox"/> A Spanish in Construction topics course would provide me a decreased level of preparation for a career in construction	0.00% 0
<input type="checkbox"/> I'm not sure how a Spanish in Construction topics course would impact my preparation for a career in construction.	5.33% 4
Total	75

Figure 4. 77 students were asked to describe how they felt a Spanish in Construction topics course would benefit Cal Poly CM students (SurveyMonkey Survey Analysis).

Deliverables

This senior project explored the idea of implementing a *Spanish in Construction* Topics Course at Cal Poly. This research and discovery opens the door for future students or faculty to design and develop a class that can be

integrated into the CM curriculum. This research, through new discoveries and literature review, draws the conclusion that there is both a need for bilingualism in construction, as well as a desire to learn Spanish (as it applies to construction) from within the CM department at Cal Poly.

Lesson's Learned

From the perspective of a student, taking classes at Cal Poly is a simple process of fulfilling graduation requirements. In recommending an addition to the curriculum, I made several discoveries about the atmosphere surrounding a college curriculum. One of the ways a Spanish class could be implemented into Cal Poly's CM curriculum was by making it an option for fulfillment of one of the schoolwide required GE courses. This would make for an inefficient route because it would require involving the California State Board of Education. Another option would be to require one of the existing Spanish courses as a part of the Construction Management curriculum. Instead of Board of Education approval, this approach to implementation would require approval from the American Council for Construction Education to add the course or to replace an existing required course with Elementary Spanish. The most flexible alternative to fulfilling the needs and desires of students who seek a Spanish education is to offer a topics class. This option alleviates scheduling and financial burdens from the program because it uses existing resources and only requires a willing professor and/or student assistant, as well as an allocation of classroom space. The option to implement a topics course requires only the approval of the Construction Management Curriculum Committee.

Application

The results from the research and data in this project can be used to help recommend and implement a *Spanish in Construction Topics Course* here at Cal Poly. Now that the need and desire has been shown to exist, the CM department can come together to review and discuss these findings. From these discussions, they can begin to develop the meat of the course's curriculum, and pinpoint exactly what the course should focus upon. Once the class description is ready for the course catalogue, a student faculty member must be brought on board to teach the class for \$12/hr. Most topics courses will be student taught, with faculty oversight by a professor who is compensated as part of his or her salary. The process of developing and preparing the class may take three to five months, but this schedule and budget is well within practical reach.

Future Research

The historical data regarding Hispanic and Latino presence in the workforce will always be changing, due to both political and economic factors. Regardless, this same research will procure similar data further down the road. In the event that the needs and desires to implement a Spanish course at Cal Poly remain steady or continue to grow, a future senior could develop the course curriculum and bring it forth to the Construction Management Curriculum Committee. If this implementation becomes a clear benefit for Cal Poly graduates as they head into the workforce, the option of taking these results to the California State Board of Education will always be viable. The mission statement of any college or university usually intends to develop students into better and more qualified candidates for the real world. By implementing a *Spanish in Construction Topics Course* at Cal Poly, our graduates will indeed be better qualified and better contributing members of the construction industry.

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