9 | Consequences of the English-Spanish Language Barrier in the Construction Industry

AE Construction Management Critical Industry Research Issue

9.1 Introduction

The Partnership for Achieving Construction Excellence (PACE) roundtable event inspired research of a critical issue facing the construction industry. The PACE event motivated me to look more closely at the English-Spanish language barrier in the construction industry, and what problems are created from this barrier. I have long been a supporter of becoming bilingual, and this skill would be a very beneficial in the construction industry. With schedules as strict as they are today, it is necessary that all involved parties on a project act as a team. Having a language barrier only complicates this process, and ultimately delays the project completion or success.

9.2 Problem Statement

The English-Spanish language barrier between general contractors, subcontractors, and laborers in the Washington, DC and surrounding areas creates problems with efficiency, safety, and a general level of respect. Information is needed to determine which consequences are the most common, and how these consequences can be remedied.

9.3 Goal

The goal of this analysis is to identify the five leading problems the language barrier creates in the industry. The research will focus on the issues presented in the problem statement, and any others that may be prevalent in the industry. Furthermore, it is a goal of this research to determine how industry members currently view the status of the barrier. Viable solutions will be explored in order to remedy these frequent issues.

9.4 Methodology

1. In order to provide a sound basis, step one is to research the history of the language barrier in the Washington, DC construction industry by reading articles and literature focused on this topic.
2. Make a questionnaire for industry members; specifically project managers and superintendants that have been in the industry for at least three years.
3. Survey at least 50 industry members from the eastern United States in order to obtain a statistically appropriate sample size.
4. Compile responses, identify the top five problems related to the language barrier, and graphically represent the data.

5. Research what companies, individuals, and universities are doing to combat against these consequences.
6. Form conclusions and make recommendations on what the industry can do to improve the language differences.

9.5 Tools/Resources

1. Internet and online resources
2. Forrester Construction Company
3. Penn State Architectural Engineering Faculty
4. Microsoft Office and Adobe applications
5. Industry members who serve as survey participants

9.6 Expectations

I expect that the surveys will yield the top five problems relating to the English-Spanish language barrier on the jobsite. I suspect that three of the top five are listed in the problem statement. I expect that the answers on the surveys will vary substantially because many of the answers will be based on personal experience, which varies greatly from person to person. This research will also show ways to break down this barrier and remedy the most frequent problems.

9.7 Research Information on the Language Barrier

The intent of my research is to determine the current status of the language barrier in the industry. In order to do this, I think it is necessary to gain a background of knowledge regarding the current standing of Hispanic workers in the construction industry. According to the U.S. Census Bureau, in 2003 Hispanics made up approximately 18% (1.4 million)[5] of the workforce in the construction industry. One year later, 2004, Hispanics made up approximately 21.4% of the construction workforce (see Figure 9.1). In fact, the construction industry comes second only to agriculture in employing Hispanic workers. This proves that the Hispanic influence in the construction industry is growing, and fast.

[5] According to information found at the US Center for Disease Control
http://www.cdc.gov/eLCOSH/docs/d0100/d000038/pdfs/page%2017.pdf

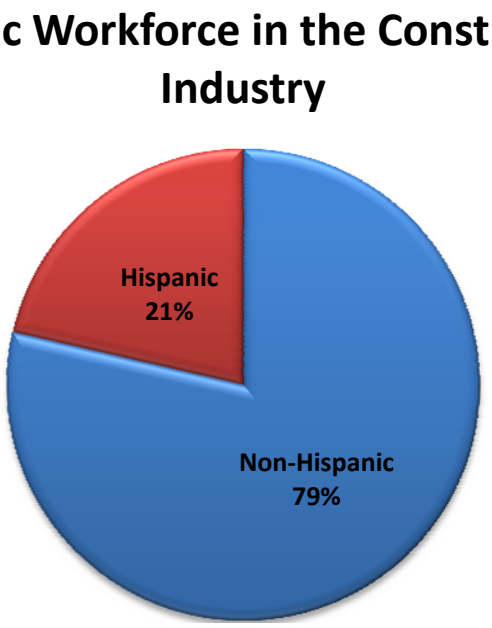

Figure 9.1 Graphical representation of the breakdown of Hispanic and Non-Hispanic workers in the construction industry. Data from http://www.ctre.iastate.edu/pubs/t2summaries/hispanic2.pdf

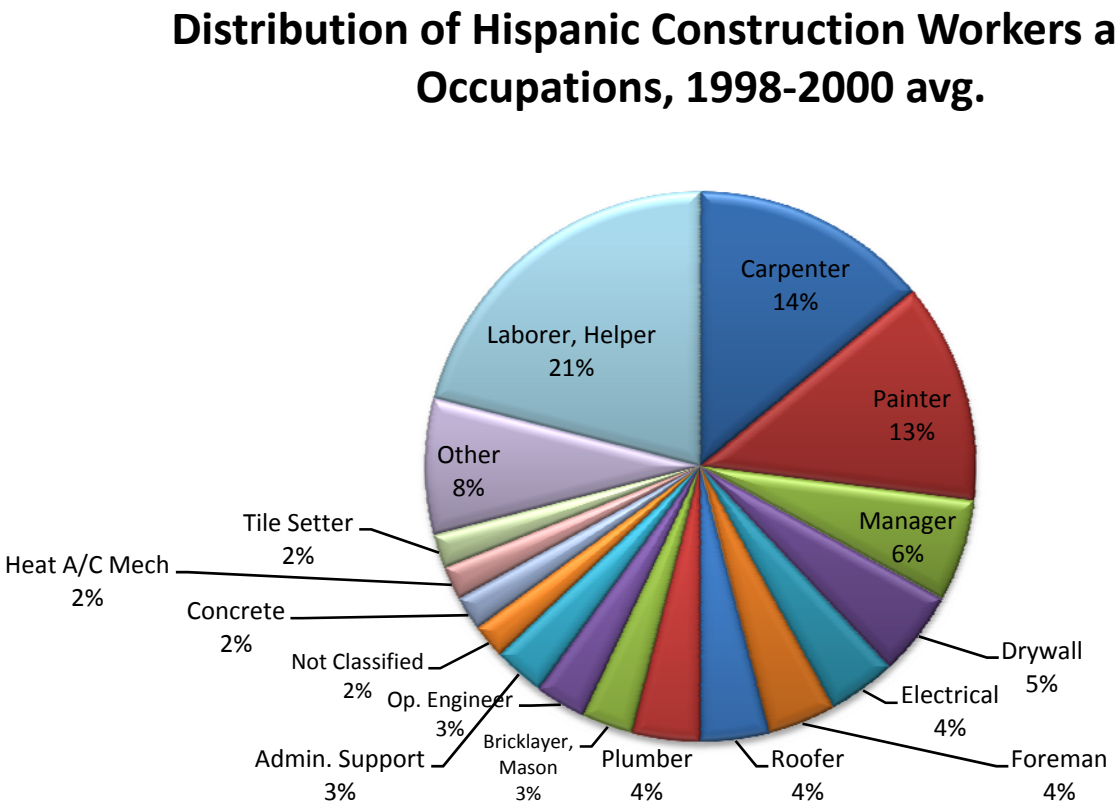

Figure 9.2 Graphical representation of the breakdown of Hispanic construction workers by trade. Data from http://www.cdc.gov/eLCOSH/docs/d0100/d000038/pdfs/page%2017.pdf

Figure 9.1 shows the percentage of construction workers that are Hispanic. In order to be classified as Hispanic, a person has to voluntarily identify themselves as Hispanic. Figure 9.2 displays the breakdown of Hispanic workers by trade. It does not account for Non-Hispanic workers. This chart also proves that Hispanics are much less likely to be managers and more likely to work in the field or perform laborious tasks.

The number of Hispanic workers in the U.S. is growing rapidly. They are most heavily concentrated in the Southern and Western United States, where as much as 86%[6] of Hispanic construction workers work. The Northeast employs about 8% of the Hispanic construction workforce, and the Midwest employs about 6%. Approximately three quarters of Hispanic construction workers are of Mexican origin, with 70% of all Hispanic construction workers born outside the United States. Between 1980 and 2000, construction workers in the U.S. who identified themselves as Hispanic grew 150%[2] (see Figure 9.3).

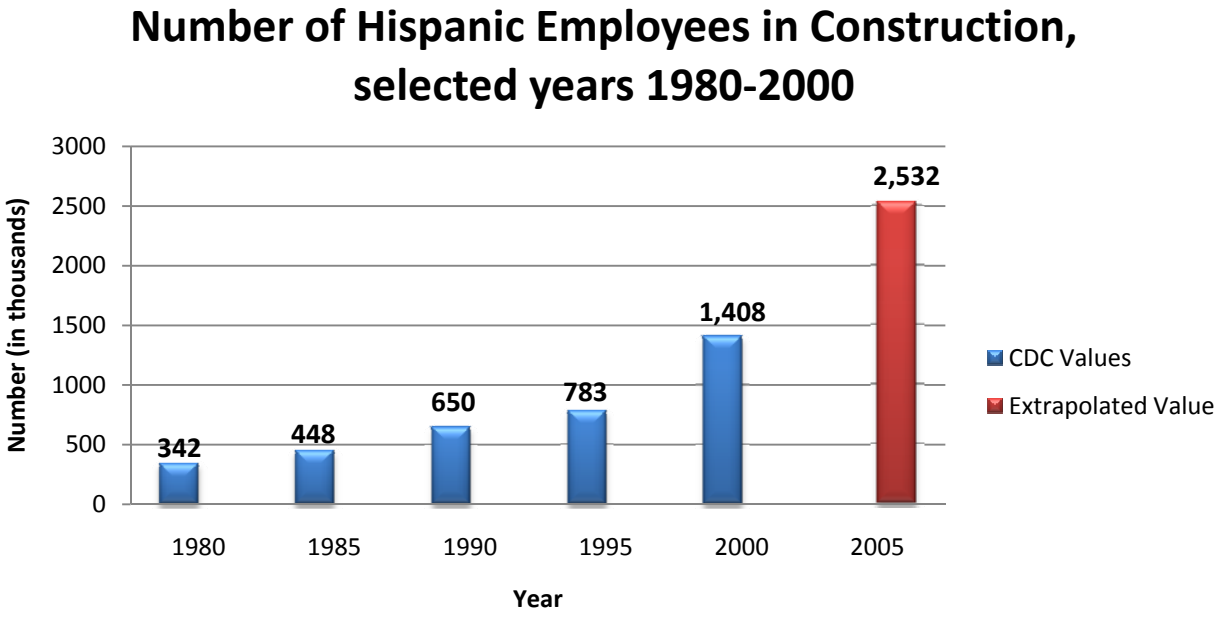

Figure 9.3 Graphical representation of the increase of Hispanic construction workers from 1980-2000. Data from http://www.cdc.gov/eLCOSH/docs/d0100/d000038/sect16.html. *Please note, 2005 data extrapolated and not based on cdc.gov data.*

Figure 9.3 reflects an exponential growth of Hispanic workers in the construction industry. The values for 2005 were extrapolated as follows:

Year 1995 / Year 2000 = 783,300 / 1,408,000 = **55.6%** *or 1.8 times the population growth*

[6] According to information found at the US Center for Disease Control http://www.cdc.gov/eLCOSH/docs/d0100/d000038/sect16.html

Assuming that 2000-2005 grows at the same rate:

1,408,000 / 0.556 = **2,532,000** *or* 1,408,000 X 1.8 = 2,533,000

This estimate is conservative because the chart clearly shows that the growth rate is not constant. Therefore, it can be safely assumed that the current number of Hispanic employees is well above 2.5 million.

But why do all of these statistics matter when considering the English-Spanish language barrier? For a few reasons; the top three being Spanish speaking immigrants, fatalities, and unions. The fact that 70% of the Hispanic workforce was not born in the United States may indicate that 70% of the workforce speaks a native language that is not English. It is estimated that 32% of Hispanic workers speak only Spanish at their homes[7]. This difference in language creates many problems, especially when considering fatality rates. Hispanics have the highest rate of fatal work injuries among all racial/ethnic groups; 4.5/100,000 which considers all occupations (not just construction). Construction accounts for more than any other labor sector (1,126 Hispanic fatalities in 2003)[8]. In 2001, 41% of all construction related deaths in the state of Georgia were people of Hispanic ethnicity.

It is also reported that Hispanic workers are much less likely to join a union than Non-Hispanic construction workers. It may be assumed from this information that the chances for a non-English speaking individual to learn English is increased when in a union due to the rules and regulations of most unions and the apprenticeship practices that new union members endure. The statistical figures provided above for the Northeastern United States say that only 8% of all Hispanic construction workers work in that region. It should be pointed out that the focus of this study is the Washington, DC area which has a much lower union workforce than other Northeastern cities. As such, the quantity of Hispanic workers in the DC area may be quite large when compared to other union-dominated Northeastern cities (NYC, Philadelphia, & Boston).

[7] According to information found at the US Center for Disease Control http://www.cdc.gov/eLCOSH/docs/d0100/d000038/sect16.html

[8] According to information found at the Center for Transportation, Research, and Education at Iowa State University http://www.ctre.iastate.edu/pubs/t2summaries/hispanic2.pdf

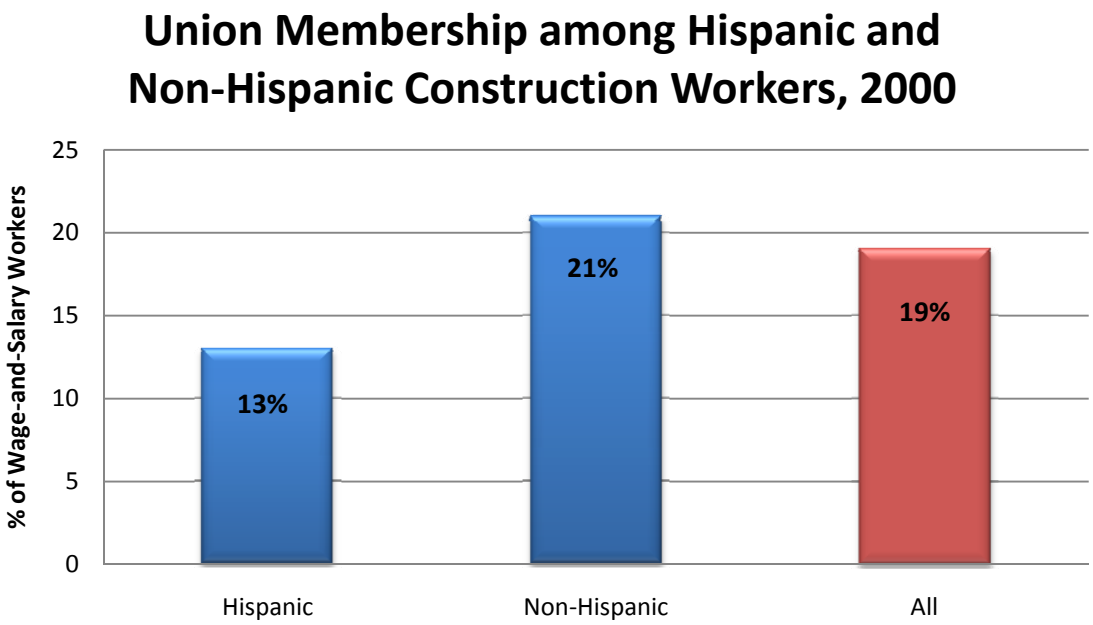

Figure 9.4 Graphical representation of the union membership of Hispanics vs. Non-Hispanics out of the total amount of union construction workers. Data from http://www.cdc.gov/eLCOSH/docs/d0100/d000038/pdfs/page%2017.pdf

Overall, this research has enlightened me to the scope of the Hispanic workforce in the construction industry. There is no denying that there is a valid presence of Spanish speaking workers in the industry. The surveying of industry members will assist in the understanding of how this language difference affects the success of construction projects.

9.8 Industry Survey

After creating a survey entitled "Consequences of the English-Spanish Language Barrier in the Construction Industry", I sent the survey to professionals in the construction industry. The basic requirements for participating in the survey were having at least 3 years of construction experience and currently working somewhere in the Northeastern/Mid-Atlantic U.S. region. It should be noted that the vast majority (approximately 95%) of surveyed professionals were from Washington, DC and surrounding areas. To view a blank version of the survey, please see **Appendix D.**

9.9 Survey Result Summaries & Evaluations

In total, 65 qualified industry members responded to the survey.

Table 9.1 Breakdown of 65 participants by job title.

Job Title	Number of Participants	Percentage of Participants	Average Years Worked in Construction Industry
Superintendent & Asst. Superintendent	16	24.6%	21
PM, Asst. PM, Executive, VP	32	49.2%	15
Field/Project Engineer	12	18.5%	4
Other: estimator, drywall foreman, structural engineer	5	7.7%	10

Project managers, assistant project managers, executives, and vice presidents made up the highest group of professionals that responded to this survey. It is interesting to compare the average years worked in the industry versus some of the answers that each group reported. More on that detail will be discussed in later results.

Table 9.2 Selected survey question results considering all 65 participants.

Q. No.	Question Summary	Answer	Result (people)	Result (percent)
5	Does English-Spanish Language Barrier exist?	Yes	62	**95.4%**
		No	3	**4.6%**
6	Is it getting better or worse?	Better	21	**35.0%**
		Worse	39	**65.0%**
7	Are jobsite signs bi-lingual?	Yes	51	**78.5%**
		No	14	**21.5%**
8	Have you attempted to speak Spanish?	Yes	32	**50.0%**
		No	32	**50.0%**
9	Encounters with Spanish speaking industry members.	Never	2	**3.1%**
		Monthly	1	**1.6%**
		Weekly	6	**9.4%**
		Daily	55	**85.9%**

Table 9.2 presents interesting results from the survey. It should be noted that not all *Results (people)* add up to 65. This is because some participants did not answer every question. In these instances, the *Results (percent)* were calculated by the amount of people who responded to that question rather than 65. Below are some conclusions based on the data above.

- An overwhelming percentage of participants believe that there is currently an English-Spanish language barrier in the construction industry. Therefore, this indicates that my research is based on a realistic problem and that something needs to be done to fix it. Generally, the three

people that responded “no” to question 5 are from union areas where most workers are required to speak English.

- The results representing whether or not the barrier is getting better or worse is not overwhelming. While two-thirds of people believe it is getting worse, there are still a significant amount of people thinking that this problem is going away. This result is expected because this answer would be based completely on experience and everyone’s experiences are very different.

- I was pleased to see the results of question 7. Having bi-lingual jobsite signs is one way to communicate dangers and hazards in both languages. Also, the signs begin to slowly teach each respective language the other language. After reading “hazardous” and “peligroso” on the same sign over and over, workers may be able to remember and utilize the word when speaking.

- Only 50% of participants reported that they have attempted to learn or speak Spanish on a construction site. This could also be seen in a positive light that half of all participants have tried. My personal opinion is that this number is too low, and that when working with individuals different from you it is important to at least attempt to compromise and learn a few phrases or words from their language. They should be doing the same as well.

- Question number 9 results indicate that the strong majority of participants interact with Spanish speaking individuals on a daily basis. This only emphasizes the fact that there is an immediate need for action to begin dissolving this barrier.

The chart and diagrams on the following pages represents the results from survey question 12.

Which do you think is more *likely* to happen?

A. Teach English to Spanish speaking people
B. Teach Spanish to English speaking people

Instinctually, I feel that some participants may have answered the question “which would you prefer to happen?” rather than “which do you feel is more likely to happen?”. In that case, answers would vary greatly depending on how people read or interpreted the question. The misinterpretation turns an already subjective question into a completely personal, biased question which is unfoundedly subjective. However, for research purposes we must assume that people read and understood the question the way it was intended (which is how it was clearly worded). In my opinion, these results are the most intriguing of the entire survey.

Table 9.3 Results on the likelihood of teaching English to Spanish speaking people and vice versa.

Answer	Total (all participants)		Per Participant Category			
	Results (ppl.)	Results (%)	Super. (%)	PM (%)	F/P Eng. (%)	Other (%)
Teach English to Spanish speaking people	29	**46%**	56%	52%	27%	20%
Teach Spanish to English speaking people	34	**54%**	44%	48%	73%	80%

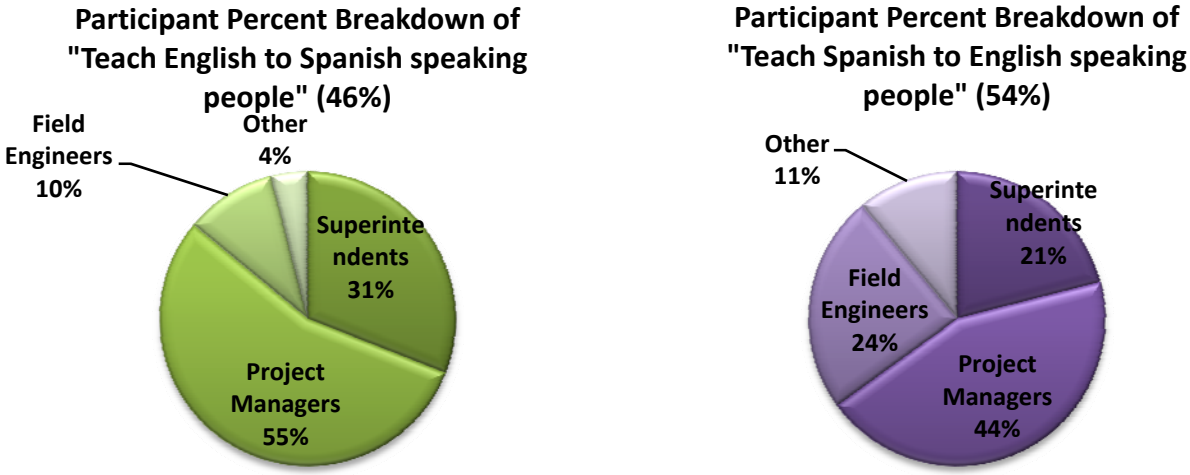

Figure 9.5 Graphical representations of the percent of participants that make up the Total Results

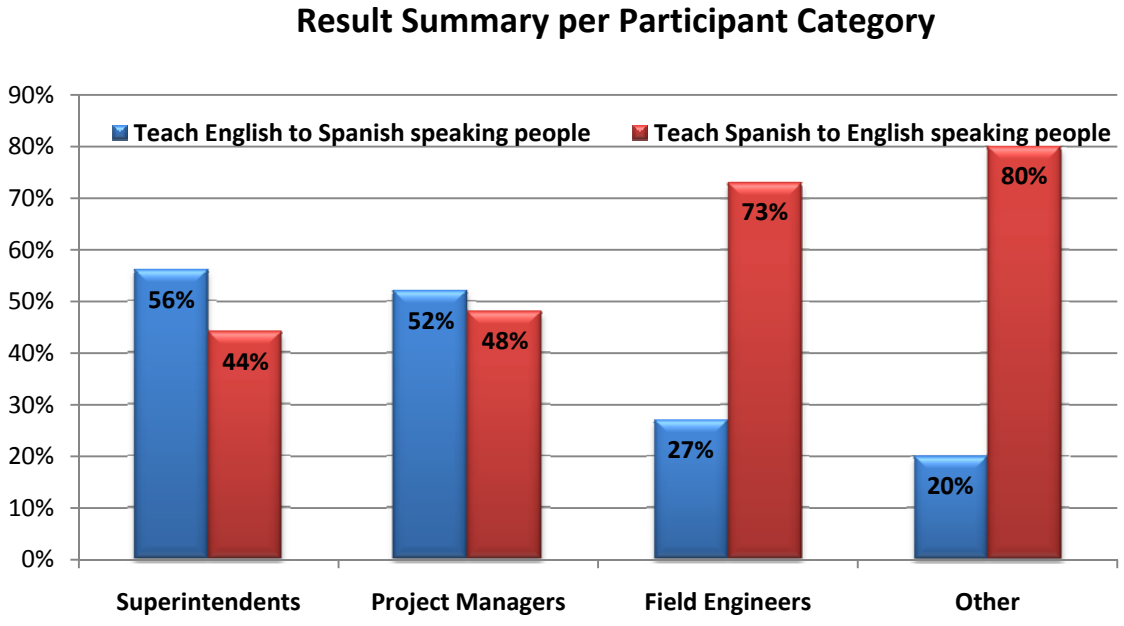

Figure 9.6 Graphical representation of percent breakdown based on participant category

Figure 9.6 is more informative than Figure 9.5. This is because the ratios in Figure 9.5 represent the percent of people who make up the total results. For instance, 16 *Project Managers* out of the total 29 results answered "Teach English to Spanish speaking people". This results in a higher percent than any other participant category, but only because *Project Managers* have more participants.

On the contrary, Figure 9.6 shows relative information per participate category. It is very intriguing to see the breakdown per job position. This chart shows that the *Field Engineers* and *Other* participants were so strongly opinionated that they swayed the outcome of the total in their favor. *Superintendents* and *Project Managers* were more divided in their answers; and neither category's majority was the final total result.

I stated earlier that I thought it was interesting to compare years in the industry with results, and this figure demonstrates why. The strong majority of *Field Engineers* and *Other* participants felt that it is more likely to teach Spanish to English speaking people. The average years in the industry for the two categories are 4 years and 10 years, respectively. It is safe to conclude that generally younger, newer industry members view this issue in a much different light than veteran professionals. This could be for many reasons, including different mentalities from different generations, more vs. less experience with Spanish speaking persons, the more recent education (high school or college) with foreign language studies, the recent growth explosion of the Hispanic workforce, and lastly a generational acceptance of diversity.

The world is becoming a smaller place, and global industry is the wave of the future. The younger generations have been recently educated in the necessity to adapt to globalization and accept diversity. The time is now for everyone to become bilingual, not just in the construction industry. School systems are teaching foreign languages at a much younger age. Advanced foreign nations are leaps and bounds beyond the United States when it comes to bilingual capabilities. It is my opinion that the younger members of the construction workforce have been exposed to this mentality, and therefore responded that it is more likely and assumedly more beneficial to teach Spanish to English speaking individuals.

Below are the summarized explanations from the survey participants.

Teach English to Spanish speaking people:

- Helps Spanish speaking people personally and professionally. Gives workers a competitive advantage and therefore they are more likely to obtain leadership/management roles.
- With only one English speaking foreman who may speak broken English, you are relying on someone who may understand only part of what you say.
- English is part of the American culture.

Teach Spanish to English speaking people:

- Many Spanish speaking workers are uneducated or illiterate, so they are less able to learn.
- English is more difficult to learn because of slang and exceptions.
- It is important and valuable to be bilingual.
- General Contractors and English speaking managers have greater resources to learn Spanish.

9.10 Consequences of the Language Barrier

The survey listed four possible consequences of the English-Spanish Language Barrier and allowed participants to write in up to two more consequences of their choosing (optional). The consequences were then ranked 1-6, with 1 being the most severe or serious consequence and 6 being the least. The results were tallied using a reverse point system, therefore the consequence with the highest point total is considered the most important to survey participants. The results are below.

Table 9.4 Result rankings of the top consequences resulting from the language barrier.

Consequence	Total (all participants)	Super-intendents	Project Managers	Field Engineers	Other
Loss of Productivity/ Efficiency	22.4%	21.9%	22.6%	23.8%	19.5%
Greater Safety Risks	27.3%	29.1%	26.1%	27.5%	27.6%
Difficulty in Giving Instructions (Basic Jobsite Communication)	30.0%	29.8%	30.3%	30.3%	27.6%
Lack of Respect/ Diminished Team Atmosphere	17.9%	18.2%	16.7%	17.4%	25.3%
Other (Write In)	2.4%	1.0%	4.3%	1.0%	0.0%
1st 2nd 3rd 4th 5th	Color Key				

This table shows that the categories of survey participants agree with the overall order of the most serious to the least serious consequences of the English-Spanish Language Barrier. The overall ranked order from the most serious consequence to the least is:

1) Difficulty in Giving Instructions (Basic Jobsite Communication)
2) Greater Safety Risks
3) Loss of Productivity/Efficiency
4) Lack of Respect/Diminished Team Atmosphere
5) Other (Write In)

The only variations from this ranking were the members of the *Other* category, who had a tie for the first ranked consequence. In all of the categories, the first and second ranked consequences were extremely close; only an average difference of 2%. This indicates that participants view "Difficulty in Giving Instructions" and "Greater Safety Risks" as the two leading consequences, and that perhaps they go hand in hand. Instructions may include safety instructions or Tool Box Talks, which therefore greatly affects both of those categories.

Below are the #5 Other (Write In) responses.

Similar to #2
1) Cultural/Behavioral mores that safety is not important.
2) Lack of safety culture in Spanish speaking supervisors.

Similar to #4
3) Prejudice between Spanish speaking and Non-Spanish speaking employees.
4) Tougher to develop casual relationships from which to build long term relationships.

5) Quality of work.
6) Used as an excuse to ignore directions or changes.
7) Foreman promoted based on language skill, not construction experience.

There is not a clear cut top five consequences, but the top four are very distinct. A few of the optional write in responses corresponded to other categories, however none were so similar as to validate a fifth ranked result. In the survey area designated for "Any additional information you would like to share regarding this issue", many people spoke of discrimination. In my opinion, this corresponds to consequence number 4) Lack of Respect/Diminished Team Atmosphere. However, it was still interesting to read what some industry members had to say on this issue. Below are summaries of a few individual's comments.

- Discrimination between English speaking workers and Non-English speaking workers is a real and damaging problem. Managers have encountered Anti-English and Anti-Spanish slurs on the job site.
- Discrimination exists even within each language. A Mexican crew would not be very accepting of a Guatemalan member, even though they all speak Spanish (all be it varying forms).
- It seems as though the two parties (English speaking and Spanish speaking) are competing to occupy the site; and generally English speaking workers feel that they are more entitled.

This indicates that the fifth most serious consequence of the English-Spanish Language Barrier on jobsites is discrimination. Below are more summaries from participants regarding their choices for the rankings of the top consequences. There are interesting arguments for many of the categories.

Difficulty in Giving Instructions

- Frustrating to have to find a foreman to give the simplest of instructions.
- Giving instructions influences all of the other categories, especially safety.
- People will nod that they understand instructions, when really they do not.
- Immediate action instructions are nearly impossible to give.

Greater Safety Risks

- Many Spanish workers come from a lacking safety conscious culture.
- Many Spanish workers come from places where they must take large safety risks to get a job (because competition is so high) & they don't understand English culture of safety = #1 priority.
- Dangerous for all workers because they cannot warn each other of immediate harm.
- Effects EMR of entire company.

Loss of Productivity

- Spanish workers inability to read or understand drawings and specs. greatly hinders productivity. Once they learn, they generally are very productive.
- Time is always compromised to teach or communicate with Spanish speaking workers.
- Demonstrations become more necessary even for simple tasks.
- More supervision is needed.

9.11 Solutions to Breakdown the Language Barrier

Upon researching internet sources and reading survey participant's responses, the following solutions are currently being used in the industry to help alleviate the consequences created by the English-Spanish language barrier.

A) Teach English to Spanish speaking industry members

Research agrees with the survey results; and they say that it is much more likely and easy to teach Spanish to English speaking persons. Therefore, it was difficult to find solutions currently available to teach English as a Second Language (ESL) to Spanish speaking construction workers.

The leading tool on the market today is *Sed de Saber*[9].

Sed de Saber (Thirst for Knowledge) is a tool that uses the interactive LeapFrog (http://www.leapfrog.com/en/shop.html) technology to teach English to Spanish speaking construction workers at their own pace.

> Sed de Saber™ - Construction Edition was developed by a team of subject matter experts including superintendents, remodelers and builders to ensure that it is the most relevant and impactful product available. The seven book series covers job site terminology, tools, equipment and protocol. The entire seventh book focuses on safety and is modeled after the NAHB-OSHA Job Site Safety Handbook. Additionally, Sed de Saber™ - Construction Edition teaches life skills, such as going to the doctor, attending a parent-teacher conference and asking for directions.
>
> -http://www.seddesaberconstruction.com/buynow.aspx

The goals of the program are to create English-speaking jobsites, improve job site safety, improve quality, foster worker loyalty, boost worker recruitment, and reduce turnover. Many of these goals will help combat the consequences outlined in section 9.10 above.

Figure 9.7 shows a typical *Sed de Saber* learning book with the interactive technology. Users can touch the images, words, and phrases and hear them in English and in Spanish. Additionally, there is a microphone that they can speak into and an assessment will be conducted to determine if they are speaking correctly. The book may be reused and shared between coworkers, friends, and family. For 30 minutes a day, a participant could finish the program in about 4.5 months.

Figure 9.7 *Sed de Saber* interactive learning booklet

[9] All information regarding *Sed de Saber* obtained from http://www.seddesaberconstruction.com and http://www.nbnnews.com/NBN/textonly/2006-07-17/Front+Page/3.html

A second method of combating the language barrier was created by researchers at Georgia Tech. In 2003, researchers at Georgia Tech Research Institute (GTRI) took great strides in helping to make the English-Spanish Language Barrier less of a barrier, and more of a means of education. Safety specialist Juan Rodriguez collaborated on the GTRI project and stated, "Workers who need jobs often won't admit they don't understand the content of safety materials. They're going to nod their heads and say, 'Sure.'" This mentality inspired GTRI to translate OSHA safety information from English to Spanish so that the information is accessible on site to Spanish speaking workers. The safety curriculum they created will help Spanish speaking individuals understand the safety regulations through words and pictures. There are four major parts of the curriculum.

- Computer presentations for formal job orientations.
- Detailed presentations geared to supervisors and trainers who already possess a certain degree of safety expertise.
- Workplace posters and hazard bulletins that use colloquial Spanish and convey safety messages graphically for workers with poor reading skills.
- Pamphlets for foremen and supervisors to use during Toolbox talks.

-http://gtresearchnews.gatech.edu/newsrelease/osha.htm

B) Teach Spanish to English speaking industry members

By no small means, the construction industry is making much larger steps in the way of teaching Spanish to English speaking persons than the reverse. A large majority of survey participants responded that their respective company offers some form of company training sessions or classes intended to teach construction Spanish to employees. These classes are often only one or two sessions long, and focus on teaching basic words, phrases, and commands that are encountered daily on the jobsites. Some companies offer reference manuals and handbooks for employees to take with them to the sight, which many participants felt was helpful.

Other means that participants practiced in order to learn Spanish were:

- Use bilingual coworker as a mentor or teacher.
- Read books on commonly used terms for construction workers.
- Seek out bilingual speakers on site and spend time with them everyday.
- Carry and use a pocket translator.
- Enroll in a Spanish class at a local community college.
- Attempt to speak directly with workers and learn through trial and error.
- High school and college classes.
- Use online learning resources and then speak with workers for practice and guidance in proper usage of certain words.
- Bring a Spanish tutor into the office to work with employees.
- Use Rosetta Stone (http://www.rosettastone.com/) or other popular language teaching tools.

The results of the survey indicated that 50% of the participants are attempting to speak Spanish. In my opinion, I feel that if educational facilities (colleges, universities, and technical programs) teach more foreign language in construction programs, this percentage will grow significantly over the next decade. It was already discussed how younger professionals tend to agree that learning Spanish is more likely to happen. Some universities are leading the cause in helping their students become bilingual; specifically, Iowa State and Virginia Tech.

Iowa State[10]: The Center for Transportation Research and Education at Iowa State University attempted to create Effective Training for American Supervisors with Hispanic Construction Workers. This program focuses on teaching Spanish as a Second Language (SSL). They have developed two courses: the SSL course and the CPCB course.

- SSL: Spanish as Second Language Survival Course
  - Teaches Spanish to American supervisors in four segments: 1) meaning in Spanish, 2) meaning in English, 3) Spanish pronunciation, and 4) a picture of the word.
- CPCB: Concrete Paving Construction Basics
  - Teaches Spanish to American supervisors in any of 12 more specific subtopics that fit their field of work.

While the CPCB course is designed with Civil Engineers in mind, there is no reason that this program could not be implemented in all fields of construction. Iowa State recommends that the courses be taught by bilingual speakers to help students understand the two cultures and the dual meanings of many words or phrases.

Virginia Tech[11]: Virginia Tech is taking monumental strides in teaching students of construction programs Spanish. The Building Construction Department at Virginia Tech has incorporated *InterLingo*[12] into their undergraduate program requirements. *InterLingo* is an online one-on-one tool that has a specific program for the construction profession.

Details of the *InterLingo* Spanish learning tool:

- Course participants use the leading internet video conferencing service from WebEX to connect face-to-face with their personal, native-speaking language instructor from Columbia.
- The Spanish for Construction program uses a dual strategy of group presentations and personal one-on-one review sessions to maximize effectiveness.

[10] CRTE program information found at http://www.ctre.iastate.edu/pubs/t2summaries/hispanic2.pdf
[11] Information for the Building Construction Department at Virginia Tech found at http://www.bc.vt.edu/
[12] InterLingo website contains details of all information found above at http://www.interlingospanish.com/index-1.html

- Course Demands: 3 hours/week for 6 weeks.
- Classes start on an approximate 2 month cycle.
- $500 per participant, reduced group rates available.
- Students given references and resources to use in future.

9.12 Conclusion

After thorough research, surveying, and evaluation, there is no doubt in my mind that industry members believe that a language barrier does exist and that it affects the progress and success of a project. In open shop labor markets, industry members agree that there is a barrier and consequences arise because of that barrier; but beyond those two issues, participant's opinions, rankings, and comments vary greatly based on age, experiences, and biases.

Many English speaking, native born Americans have a mind set that immigrants arriving in this country should learn English. However, I feel it is time for industry members (of practically any industry, not just construction) to realize that what they prefer is irrelevant. In order to be successful in a market, a company needs to focus on doing a good job more costly and effectively than a competitor. According to the CRTE program at Iowa State, they think that "Training American supervisors in Spanish would be quicker, more cost-effective, and easier than training Hispanics in English because supervisors are fewer in number and are better educated." Training English speaking people to speak Spanish seems like the path of least resistance, and it is supported by the fact that so many young professionals agreed in the survey. Then, bilingual supervisors can slowly begin to communicate with the Spanish speaking workforce and possibly continue the learning cycle.

Company offered Spanish classes are a good start, but they are not doing enough to combat this problem. If a company truly intends for their employees to become bilingual (at least enough for a construction site), a one or two hour class with vocabulary words is insufficient. The way to solve this problem is to start in universities and colleges with construction training programs. It is my opinion that a full semester class with a bilingual teacher would be the most effective means in producing students and ultimately a management workforce that could communicate effectively on jobsite with English and Spanish workers. This problem would be lessened with each year, and many of the consequences would stop affecting the success of projects. Virginia Tech is leading the construction education language reform, and I think other schools should follow. Schools need to take a larger role in teaching Spanish because students are already in an active learning environment with the time to learn. Once in the field, it is difficult for companies and professionals to find the ample amount of time needed to actually learn the language.

In summary, the language barrier is no more a barrier than any other obstacle the industry has faced due to globalization. It can be eliminated. A company must develop a strategy to stay competitive in the market, regardless of what the barrier is. Effective communication is the key to success in construction; therefore companies and industry supporters (schools) need to work together to lessen the impacts of this changing industry.