

Construction Management Spanish Language Class

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Some research was done by past Cal Poly students into the industry, faculty and student desire for a Spanish Language class through multiple surveys. The results indicated that all parties agreed that a Spanish Language Construction Management class would be beneficial to add to the curriculum. In this project a student at Cal Poly was tasked with creating a Construction Management Spanish Language Class. The deliverables for this project are to provide the Construction Management department with a syllabus, course schedule, thirteen PowerPoints for use as lecture material, thirteen activities for students to apply what they have learned, and thirteen quizzes and an exam to ensure students are retaining the information they are being taught. This class is designed to teach students how to use Spanish within a Construction setting with the outcome of providing students with the skills necessary to create toolbox talks and safety meetings in Spanish. The purpose of this project is to provide the curriculum necessary to implement a Construction Management Spanish Language Class to create a safer work environment for Hispanic workers who speak little to no English. This project is to have the deliverables implemented into a class to be taught at Cal Poly.

Key Words: Spanish, Class, Language, Construction, Safety

Introduction

As a senior project at California Polytechnic State University (Cal Poly) a Construction Management Spanish Language elective course was developed for the students of the Construction Management Department and associated majors.. A series of previous survey results indicate the need for such a course. The purpose of this class is to provide students with the knowledge of the Spanish language in relation to construction to increase safety on the jobsite by being able to discuss ongoing and emergent safety topics in Spanish directly to Spanish speaking employees that speak little to no English. The deliverables of this project include a syllabus, course schedule, thirteen PowerPoints for use as lecture material, thirteen activities for students to apply what they have learned, and thirteen quizzes and an exam to ensure students are retaining the information they are being taught. Overall this project will help students have a better understanding of the Spanish language in relation to construction.

Background

Cal Poly's Construction Management program is known nationwide within the Construction Industry that is constantly trying to improve. The department is very responsive to student feedback and therefore past students performed a senior project using surveys (Changras, 2018) to gauge the interest of students and faculty to reveal if they would be interested in adding a construction management Spanish language class into the curriculum as an elective. Through those surveys it was discovered that the students and faculty saw the value in such a class. The surveys also reached out to the construction industry to evaluate how much value being able to speak Spanish in the construction workspace would add to a potential employee. The results indicated that having taken such a class would increase the student's value to the industry. In accordance with industry needs and aligned

with student interest a senior project at Cal Poly developed this course. The class was centered around the data that showed that although industry wide fatalities and injuries have gone down, the fatality and injury rate of Hispanic workers has remained the same or possibly slightly increased. This is believed to be due to the language barrier. Jobsites have toolbox talks, safety meetings, and safety trainings that are all performed in English and as a Spanish speaker who knows little to no English these meetings end up being for the most part useless to these individuals.

Purpose

The purpose of this project is to develop a construction management Spanish language course at Cal Poly to align with industry needs. The goal of this class is to teach future project managers who will lead safety meetings the ability to present them in Spanish. In addition, the course will teach students to apply Spanish translation to important documents and critical conversations related to construction. The outcome of the course will increase safety on the jobsite for workers that speak Spanish as a primary language. These outcomes of understanding English to Spanish translation written and verbally as well as applying translation to key construction documents and situations will be accomplished through lectures and presentations, and evaluated through quizzes, and a final exam, which are the deliverables for this project.

Deliverables

Process

The first step taken in developing this course was putting together the course syllabus and establishing the course learning outcomes. These outcomes were decided on based on research indicating the need for increased safety on the jobsite for employees who speak Spanish as a primary language. The next step was to apply these course goals to the lectures by PowerPoint presentations that include an activity related to the lecture. Once the lectures were complete a series of quizzes and a final exam were created to assess students. Once all the course material was created the course schedule was designed so that all the lesson plans fit into the ten-week quarter.

Syllabus

The first deliverable of this project is the Syllabus outlining the course expectations, learning outcomes, class grading etc., (refer to figure 1) which is to act as a contract between the students and the teacher for what the teacher will teach, what the students will learn, and what the students are expected to do. The syllabus follows the Construction Management syllabus guidelines that are required for accreditation. The syllabus also comes with a separate tentative schedule per a recommendation by Professor Joseph Cleary.

Course Goals and Learning Outcomes

Course Goals: A comprehensive course in the Spanish Language that informs students on means and methods, safety, and documentation.

As a result of this course, you should be able to

- Prepare Toolbox Talks in Spanish
- Present Toolbox Talks in Spanish
- Translate critical construction documents

Course Learning Outcomes (CLOs)

1. Apply Spanish Language comfortably in relation to construction
2. Demonstrate the ability to speak Spanish on a jobsite
3. Apply Toolbox Talks and Presentations in Spanish
4. Apply translations for documents from English to Spanish or Spanish to English
5. Recognize and appreciate the importance of being able to communicate in both Spanish and English within Construction
6. Understand Spanish in relation to construction to better communicate with people in the construction profession and to critically think through problems.

Figure 1: Course Goals and Learning Outcomes from the Course Syllabus

Schedule

The class is broken up into ten weeks and a final during finals week. A document was created showing the given week, followed by the topics, course resources and assignments. Please refer to figure 2 to view the class schedule. The schedule is meant to give students a look ahead for the class as well as keep students on track with their work throughout the quarter.

CM 500 Class Schedule

Week	Topic/Lecture	Course Resources	Assignments
Week 0	Class Introduction	Lecture Slides	Quiz
Week 1	Lecture on Tools Lecture on Safety	<i>Seguridad y Salud en la construcción</i>	Tools Activity and Quiz Safety Activity and Quiz
Week 2	Lecture on Preconstruction Lecture on General Conditions	Lecture Slides <i>Spanish for the Construction Trade</i>	Preconstruction Activity and Quiz General Conditions Activity and Quiz
Week 3	Lecture on Substructure and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due presentations, and Quiz
Week 4	Lecture on Shell and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 5	Lecture on Interiors and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 6	Lecture on Services and in class time to work on Toolbox Talks Toolbox Talks due, presentation, and Quiz	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 7	Lecture on Equipment and Furnishings and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 8	Lecture on Special Construction and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 9	Lecture on Sitework and in class time to work on Toolbox Talks	Lecture Slides <i>Spanish for the Construction Trade</i>	Toolbox Talks due, presentation, and Quiz
Week 10	Lecture on Post-Construction	Lecture Slides <i>Spanish for the Construction Trade</i>	Quiz on Post-Construction Exam Review Session

*Which Toolbox talk you will be presenting is chosen at random so be prepared to present every day that a toolbox talk is due, each student will be presenting once a quarter.

Figure 2 – Class Schedule

Lectures

The class starts with a PowerPoint giving an introduction to the class outlining what the quarter will look like and what to expect from the class. The professor is to go over the class schedule and syllabus with the students. The second PowerPoint is designed to teach students vocabulary on how to say certain tools in Spanish, the purpose of this is to get students to feel more comfortable having

casual conversations related to construction in Spanish by knowing the tools used on a jobsite. On this day students will discuss the different trades and what tools a given trade is likely to use throughout construction. The third PowerPoint focuses on the importance of this class and how taking this class will help increase safety on the jobsite. This class is designed to get students engaged and see the value of the class and the lives they could be saving by being able to communicate important safety information to workers who speak little to no English. PowerPoints four through thirteen follow Uniformat and breaks up the major group elements into individual lectures, Preconstruction General Requirements, Substructure, Shell, Interiors, Services, Equipment and Furnishings, Special Construction and Demolition, Sitework, and Post Construction. Please refer to figure 3 to view an example of one of the PowerPoints to be used during lecture. Each of these lectures begins by introducing the presentation number and the topic of the lecture to aid with student organization when students go back to review PowerPoints before quizzes and the exam. The following slides in the PowerPoint goes over the common vocabulary used within the given phase of construction and translates these words from English to Spanish for the students to take note of for use in their toolbox talks, quizzes and exam. The final slide of the lecture before introducing the activity asks the students for vocabulary words that they think would be seen within the given phase of construction. This slide is made to engage students and began a conversation in Spanish about the topics discussed in class.

Presentación 9

Servicios

Vocabulario

- Sistemas de transporte=conveying systems
- Plomería, fontanería, y gasfitería=plumbing
- Calefacción, Ventilación y aire acondicionado=Heating Ventilation and Air Conditioning
- Protección contra incendios=Fire protection
- Electrico=Electrical
- Ascensor o elevador=elevator
- Escalera mecánica=Escalator

Más Vocabulatio

- Accesorios de fontanería=plumbing fixtures
- Distribución de agua domestica=Domestic wáter distribution
- Residuos sanitarios=Sanitary waste
- Drenaje pluvial o drenaje de agua de lluvia=rainwater drainage
- Mandos=controls
- Pruebas y equilibrado del sistema=system testing and balancing
- Rociador=Sprinklers
- Fuentes=Standpipes
- Cableado de rama=Branch Wiring

Vocabulario

- ¿Que palabras se les ocurren todos que son común cuando estas hablando de servicios y vamos a traducirlos como una clase?

Figure 3 – Lecture 9 Services PowerPoint

Activities

After most lectures an activity will be assigned to the class as seen in Figure 4 that will be turned in the following day that the class meets. The activity following lecture one is for students to write down and share what they hope to learn throughout the class. The activity following the second lecture on tools is for students to discuss and write down the different tools used by different trades. The activity following lecture three on safety is for students to translate meeting minutes from English to Spanish so that the meeting minutes can be distributed in both languages on a jobsite to help increase safety. The activity for lecture four on preconstruction is to write down in order the tasks performed during preconstruction with a partner and then to share their list with the class. The activity for lecture five on general conditions is to translate a segment taken from the general conditions of a contract (preferably one related to project safety in some way). The activity for lectures six through eleven covering Substructure, Shell, Interiors, Services, Equipment and Furnishings, Special Construction and Demolition, and Sitework is to prepare a toolbox talk related to the given phase of construction to be turned in the following class. Then three students will be chosen at random to present their toolbox talk to the class, all students will have to present at least one toolbox talk throughout the duration of the class. This is meant to ensure that students put in effort to all their toolbox talks as if it were being done on a real jobsite. The final activity following lecture thirteen on Post Construction is for students to translate the portion of contract documents describing what is required to obtain final completion and the certificate of occupancy.

Actividad

- Ahora vas a preparar un “tool box talk” sobre los servicios
- El próximo clase voy a escoger 3 personas para presentar su “tool box talk” y todos van a entregarlo

Figure 4 – Activity Example following Sitework Lecture

Quizzes

There is a total of thirteen quizzes that align with the thirteen lectures and activities. The first quiz is for students to write down what they think is important for them to learn in the class, this is designed to help the professor meet the student’s goals. The second quiz requires students to write down ten tools in English that are used on jobsites and translate them to Spanish. The third quiz requires students to write a paragraph discussing the importance and relationship between the Spanish Language and construction in regard to safety. The fourth through thirteenth quiz requires students to translate five words learned in lecture from English to Spanish and then write them in a sentence that makes sense, an example of one of these quizzes can be seen in figure 4.

Prueba 7

Instrucciones: Traduce las siguientes palabras y escribe una oración usando la palabra.

1. Superstructure
2. Exterior enclosure
3. Floor construcción
4. Exterior walls Windows and doors
5. Roofing

Figure 5 – Quiz on Superstructure

Final Exam

The final exam consists of three parts as seen in figure 5, the first part if for students to write the importance and relationship between Spanish and the construction industry with the hope that they make a relation with safety. The second part of the exam requires students to translate 30 words from English to Spanish then use them in a sentence, all these words were either used on past quizzes or discussed in lecture. The third and final part of the exam is to prepare an outline for a toolbox talk on any of the topics presented in class.

Examen Final

- 1) Escriba un párrafo sobre la importancia y relación entre español y la industria de Construcción.
- 2) Traduce las siguientes palabras y escribe una oración usando la palabra.
 1. Schematic Design
 2. Design Development
 3. Bidding
 4. Specifications
 5. Subcontractor
 6. Foundation
 7. Slab on Grade
 8. Superstructure
 9. Roofing
 10. Stairs
 11. Partitions
 12. Fittings
 13. Conveying Systems
 14. Plumbing
 15. Heating Ventilation and Air Conditioning
 16. Fire Protection
 17. Elevator
 18. Escalator
 19. Equipment
 20. Furnishings
 21. Special Building Demolition
 22. Integrated Construction
 23. Hazardous components abatement
 24. Site Preparation
 25. Contract Closeout
 26. Substantial Completion
 27. Final Completion
 28. Punch List
 29. Certificate of Occupancy
 30. Any tool of your choice and its use within Construction
- 3) Ahora Prepara un esquema sobre cualquiera de los temas presentados en clase. (Puede ser el que presentaste si quieres).

Figure 6 – Final Exam

Conclusion

As a senior project at California Polytechnic State University (Cal Poly) a Construction Management Spanish Language elective course was developed for the students of the Construction Management Department and associated majors. The purpose of this class is to provide students with the knowledge of the Spanish language in relation to construction to increase safety on the jobsite by being able to discuss ongoing and emergent safety topics in Spanish directly to Spanish speaking employees that speak little to no English. The final deliverables of this project include a syllabus, course schedule, thirteen PowerPoints for use as lecture material, thirteen activities for students to apply what they have learned, and thirteen quizzes and an exam to ensure students are retaining the

information they are being taught. Overall this project should be implemented as a class at Cal Poly in order to teach students how to speak Spanish in a professional construction setting, which will increase jobsite safety.

Lessons Learned

Throughout the project it became increasingly apparent that students taking this course would need to have some prior Spanish knowledge. Therefore some prerequisites were set for the class. Students must have completed Spanish at Cal Poly up through SPAN 207/233 or have 3 years of high school Spanish or get approval from the professor. It also became clear that the class needs to be very student involved with a small amount of lecture time and more focused on students working through the activities designed to teach the students the necessary information. Another difficulty was finding resources the students could use to help them with their activities. Some recommended texts are provided that can help somewhat but a class like this is unprecedented therefore there are no textbooks that align directly with the curriculum. The recommended texts can only be used as references by the students and it will probably be more beneficial for the students to communicate with one another and the professor.

Recommendations for Future Projects

After this class is taught for a few quarters there are surely improvements and modifications that will be made to better teach the students. In the future a senior project could be done in which a student works with the professor who has been teaching the class to improve the class as the professor sees fit. More will likely need to be added to the lectures as the professor realizes what the students don't know in terms of vocabulary related to construction. An additional future project could also be simply implementing this class for a quarter and teaching it, there are currently no professors within the department who are fluent in Spanish that could properly teach this class, but there are fluent students. This class could be student taught and student run similarly to the BIM class where the class is student taught with the help of a professor for the administrative work and ensuring the learning objectives are being met.

References

Changras. (2018). Spanish Language Topic Course with an Emphasis on Construction Safety. Digital Commons Construction Management Senior Projects.

Al-Bayati. (2017). Managing Workforce Diversity in Construction to Improve Communication and Reduce Fatalities (Hispanic Workforce Focus). Western Michigan University.