AC 2012-4143: AN UNUSUAL PARTNERSHIP: TRANSPORTATION ENGINEERING OUTREACH AND SPANISH TRANSLATION PROGRAM

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Since 2007, Shashi Nambisan has been the Director, Institute for Transportation (InTrans) and a professor of civil engineering at Iowa State University (ISU) in Ames, Iowa. He previously served on the faculty at the University of Nevada, Las Vegas, for more than 17 years. He is a registered Professional Engineer in the state of Nevada. One of Nambisan’s passions is the development of the future transportation workforce. He enjoys working with students. His advisees have developed successful professional careers at universities or in the private and public sectors. Many of them serve in leadership positions in professional societies. He has taught 18 different undergraduate and graduate courses related to transportation as well as undergraduate capstone design courses. Nambisan also has been very active in leadership roles of several professional societies and organizations such as the American Society of Civil Engineers (ASCE), the American Society for Engineering Education (ASEE), the Council of University Transportation Centers (CUTC), the Institute of Transportation Engineers (ITE), and the Transportation Research Board (TRB). His current appointments include those as a member of the Educational Activities Committee, which reports to ASCE’s Board of Direction; Chair of the ASEE Civil Engineering Division; member of the Executive Committee of CUTC, and member of the AASHTO Research Advisory Committee-CUTC Liaison Group. For his contributions as an educator, researcher, and leader, Nambisan has received several awards and honors. Among the awards and honors he has received are the following: a proclamation by the Governor of Nevada designating Jan. 31, 2007 as the "Professor Shashi Nambisan Day," in recognition of his leadership role in and contributions to enhancing transportation safety, and the Harry Reid Silver State Research award in 2005.

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An Unusual Partnership: Transportation Engineering Outreach and Spanish Translation Program

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Abstract

There is a critical need to identify ways to reach future transportation professional early and increase minority representation in the transportation workforce. This paper discusses ¡Vamos!, a free Spanish e-zine designed to increase awareness among Hispanic teens and Spanish speaking youths about careers and educational opportunities in transportation. ¡Vamos! is published by a transportation research institute at a large Midwestern university. The paper discusses the motivations and beginnings of ¡Vamos!, summarizes efforts to develop the e-zine, and the outcomes of these efforts. These strategies have the potential to address current financial challenges faced by US academic programs, especially in the areas of outreach and workforce development.

In 2009 ¡Vamos! was established as the Spanish version of Go!, which is a successful online magazine in English on educational and career opportunities in transportation. Since August 2010 ¡Vamos! has involved two unlikely partners: the Institute for Transportation (InTrans) and the Spanish program at Iowa State University (ISU). The partnership began as a class experiment in a Spanish translation course. This has evolved into a promising internship program involving students, faculty, and community members. This unusual network of support has sustained ¡Vamos!, injected it with new perspectives and energy. Further, this initiative has helped raise the awareness among non-transportation student interns about transportation as a field of study and for career opportunities.

1. Introduction

The transportation community is presently facing a perfect storm from a workforce development perspective. It is estimated that 40-50% percent of those currently employed in transportation are slated to retire in the next 10 years. As the baby boomer generation retires, a smaller hiring pool due to slumping birth rates in the 1980s is left to fill the void. Moreover, the labor force growth rate for the decade from 2015 to 2025 is projected to be only 0.2% (U.S. Bureau of Labor Statistics). The situation is further exacerbated by the need for a workforce well trained in new knowledge, skills, and abilities for jobs of the future. The demand for transportation has increased dramatically since 1990. A Georgia Tech report noted the importance of motivating students to support the increasingly important role that transportation plays for the welfare and well being of societies.

There is a need to identify ways to reach future transportation professional early, and increase female and minority representation. According to the 2010 census information, Hispanics constitute 16.3 percent of the US population – in some states, like in New Mexico, they account for over 45 percent of the population. “Approximately 1.1 million Latinos are officially employed in the transportation sector [and] hundreds of thousands of Latinos work in industries
that support the transportation sector, putting them in a position to contribute substantially to new job growth.\textsuperscript{9}.

However, there is also an overrepresentation of Hispanics in low-wage transportation jobs, like packagers and vehicle cleaners. In order to promote career mobility among the Hispanic workers presently in transportation and to open up the field in the future, it is critical to educate and excite Hispanic youth about the myriad career opportunities in transportation.

The transportation community recognizes the workforce development need and has initiated steps to develop a focused effort to attract middle and high school students to transportation careers. One of these efforts involves two web-based sister publications: Go! and ¡Vamos! in English and Spanish, respectively, for teens and young adults on the educational and career opportunities in transportation. This paper discusses the efforts and outcomes of ¡Vamos!. However, a discussion on ¡Vamos! is not complete without a discussion about its sister publication Go! that preceded it.

2. ¡Vamos! history

2.1 Go!: The Origin of ¡Vamos!

¡Vamos! originated from Go!, a free online magazine published to educate and excite young minds about the educational and career possibilities in transportation. With volunteer efforts and nominal start-up funding, Go! was created in 2007 as a static web site and used standard web technology. Static sites are typically used to display and disseminate information to a general audience. Go! disseminated information on transportation topics and careers. It published articles on various aspects of transportation in a fun and easy to read manner. The topics were selected by the faculty and staff, and developed and written by graduate and undergraduate students with interface design, communication, and writing skills. These students were typically enrolled in non-transportation programs, such as communications, creative writing, journalism, and graphic design.

A typical Go! issue included feature articles on people in transportation, information on transportation careers, interactive quizzes, writing contests, and games. These were presented in a non-technical manner geared for younger readers. Go! soon gained an impressive subscriber base (~900 subscribers). Since then, it has caught the attention of various transportation agencies and educational institutions as a workforce development tool with significant potential. These organizations have been providing support and guidance to tap into this potential and to enhance the impacts of Go!. The growing visibility and impact of Go! and ¡Vamos! are highlighted in a news brief published in the May-June 2011 issue of TR News\textsuperscript{10}.

2.2. ¡Vamos! Beginning

In 2009, with seed money from the Iowa Math and Science Education Partnership (IMSEP), the developers expanded Go!’s scope to reach out to the growing Hispanic population in Iowa and in the US. ¡Vamos! started as a translated Spanish version of Go! and included articles translated into Spanish from Go!. The translation work was done by a professional translator and the
translated article(s) was subsequently formatted and uploaded to the web by a Go! student staff member.

The IMSEP funds also helped support the development of *Curriculum Connections*, a new feature that consisted of short articles that expanded on STEM concepts found in *Go!* articles. *Curriculum Connections* thus linked information on people and careers in transportation to STEM (Science, Technology, Engineering, and Mathematics) material taught in the classrooms.

3. Evolution of ¡Vamos!

¡Vamos! was designed as part of the larger *Go!* web site and occupied a sub-directory. Thus, it shared a common domain name with *Go!*. This created technical, functional, and fiscal challenges for the design team. Technical challenges related to hardware and software issues; functional challenges included user experience with the web site, such as usability of the web site; and fiscal challenges concerned with funding ¡Vamos!.

3.1 Technical Challenges

Since ¡Vamos! was designed as a static web site (Figure 1), it called for specific skills for content creation, formatting, and site maintenance. These skills were difficult to find in students from non-technical disciplines. It also became challenging to maintain the site. This task usually included updating links and manually synchronizing (one-way syncing from *Go!* to ¡Vamos!) content between the *Go!* and ¡Vamos! sites.

3.2 Functional Challenges

Due to ¡Vamos!’s static nature, user engagement was minimal. For example, users could post comments on articles, but could not search through the site or interact with the site in any other way. In addition, evaluation of ¡Vamos! became problematic, since without a unique domain name, it became difficult to track ¡Vamos!’s performance independently using current web-based tools.

3.3 Fiscal Challenges

In spite of the constraints, ¡Vamos! had caught the attention and imagination of *Go!* supporters. It became apparent to its developers that ¡Vamos! needed its own identity. However, with seed funding running out, the chances of sustaining ¡Vamos! looked grim. The developers faced the reality of choosing between *Go!* and ¡Vamos!. They were forced to reallocate their limited resources to *Go!*, which had a larger buy-in from subscribers and readers who were largely English-speaking.
Figure 1: Screenshot of the original ¡Vamos! homepage

4. A Solution to Sustain ¡Vamos!

The developers sought answers to the aforementioned challenges in a constrained fiscal environment. They realized that the minimum requirement to sustain ¡Vamos! included: (1) a new dynamic and teen friendly ¡Vamos! site, and (2) access to Spanish language expertise. The following section describes strategies pursued by the ¡Vamos! developers to meet these
requirements and advance ¡Vamos!’s impact as a tool to develop and support a diverse transportation workforce.

4.1 A New Dynamic and Teen-friendly ¡Vamos! Web Site

The developers recognized the need to redesign ¡Vamos! in the image of its parent site Go!. Go! had undergone a major redesign in December 2010 as a response to the change in technology use by today’s tech-savvy and networked youth. The redesign consisted of creating a dynamic web site using a content management system (CMS), a new visual interface with efficient navigation, and increased functionality that supported greater user engagement. Leveraging the skills, knowledge, and technology gained through the Go! redesign, the developers transformed ¡Vamos! from a static to a dynamic site in June 2011 (Figure 2).

As the first step, ¡Vamos! acquired its own domain name (at a nominal cost). In addition to creating an identity independent of Go!, this also allowed developers to assess the effectiveness of ¡Vamos! by itself. Next, the software templates used to create Go! site were repurposed for ¡Vamos! at minimal cost. This was achieved by utilizing the skills of Go!’s software system designer. The new software afforded functionalities not possible in the old site, like multi-user inputs, a searchable database, and efficient maintenance. The newly designed ¡Vamos! site includes the following functional capabilities:

- Keyword search feature which makes it quick and easy for users to search through the repository of articles built over a period of two years.
- Ability for users to subscribe to the site with a single click.
- Even more significant are the quick and creative ways of gathering information about ¡Vamos! readers and its usage independent of Go!. Limited demographic information is collected when a user subscribes. Subsequent user and usage data are gathered through Google Analytics and short surveys that accompany selected articles.

The visual transformation of ¡Vamos! is also notable. The traditional grid has been replaced by white boxes that seem to float over a background of vibrant colors and graphics. Menus have become more visible, enhancing the ease of navigation. The web site houses a large repository of video clips on varied transportation topics.

The new ¡Vamos! web site went live in the second week of June 2011. Go! subscribers were notified via its regular e-mail newsletter. No additional targeted marketing has been undertaken yet, however the site has recorded 306 visitors to date and 66 percent of who have come from search engines. Varied strategies for promoting and diffusing ¡Vamos! in the Hispanic population are being considered. Future marketing plans are being discussed and can be found under “Future Steps” section of this manuscript.

4.2 Access to Spanish Language Expertise

A greater challenge facing the developers was to acquire Spanish language expertise for translating articles from Go!. The developers realized such expertise existed within the university community through Latino student clubs and the Spanish language academic program. On further exploration and discussions with faculty members, a tentative partnership was struck with
a faculty member from the Spanish program, who is one of the authors of this paper. The following section describes the nature of this partnership, its benefits and challenges, and outcomes of these efforts.

Figure 2: Screenshot of the new ¡Vamos! user interface

5. A Unique Partnership between Two Unlikely Partners

The Spanish program is the largest foreign language program at ISU. It is housed under the department of World Languages and Cultures (WLC) and offers courses in introductory, intermediate, and advanced Spanish with concentrations ranging from Spanish literature to professional and business communication, including courses on translation.

The collaboration with InTrans is an excellent fit for WLC. The department aims to collaborate across the university and integrate its offerings with those of other disciplines, programs, departments, and colleges as well as establish professional relationships with individuals, institutions, and organizations in the state and beyond.
The Spanish program has approximately 900 students enrolled in courses during a typical semester. Further, about 100 students enroll in their summer program in Valencia, Spain. The department also has approximately 200 students majoring in the Spanish concentration.

5.1 ¡Vamos!: Class Project in Spanish 351 Introduction to Spanish-English Translation

The collaboration between InTrans and the Spanish program began in Fall 2010 as an experimental project in a translation course, Spanish 351: Introduction to Spanish-English Translation. This course is part of the Languages and Cultures for the Professions (LCP) program and is required for students who take Spanish as a second major. In Spanish 351, students learn:

- basic translation theory and how it affects written translations from Spanish to English and English to Spanish
- how culture influences translations, and
- factors involved in translation as well as oral interpretation in a variety of settings (literary, legal, medical, business, advertisement, other)

At the end of the course students are expected to know the basic theory of translation and ways in which it can direct them in their translation work. They are also expected to get hands-on experience translating documents that are typically selected and assigned to them by their instructor.

Spanish 351 in Fall 2010 had 27 students. Several of them had taken Spanish as their second major and were enrolled in the College of Business or the College of Engineering. The class project consisted of translating from English into Spanish articles published on Go!. The purpose of this activity was to enhance student learning by completing a real-life project that gives students a chance to explore and experiment while gaining professional experience in a career-related position. This project would thus engage students in an authentic (real-world) translation experience with real audience and real deadlines, to enhance their understanding of translation and of Spanish.

The project was a semester long activity that required various sessions of editing work. Students worked in small groups under the supervision of the professor and turned in a rough draft of their translation. These drafts were discussed and corrected during workshops held over two class sessions. The editing was a collaborative exercise where student groups critiqued and corrected individual student translations (minimum of two translations) using a rubric covering three aspects of language learning (Vocabulary, Syntax, and Spelling/Punctuation). Students had to identify the problem and offer feedback in the form of correcting the language or a suggestion for improvement. The purpose of this collaborative exercise was to allow students to apply basic translation theory they learned in class, learn from others during the peer review process, and improve grammar and comprehension skills in the target language (Spanish).

The project was deemed successful based on student and instructor feedback. Section 6 “Findings and Discussions” provides reflections of Spanish 351 students and faculty member, who participated in the translation project.
5.2 Challenges: Fall 2010 Spanish 351 ¡Vamos! Translation Project

Although the above-mentioned translation project was successful, it also lay bare inherent challenges of such collaborations. For example, synchronizing schedules between the two projects (class project and developing content for Go!) was problematic. The developers ran out of time to finalize the articles before sending them for translation. As a result, the class translated draft versions of the articles, which had to be further edited once the English articles were finalized. This delayed publishing the translations on the ¡Vamos! website.

5.3 Evolution of the Partnership: From Class Project to Internship

Given the aforementioned challenges, the collaborative team decided to transition the class project into an internship in order to act quickly and efficiently to translation demands as and when they arose. This required continuous translation support, which could be potentially addressed through an internship. By the beginning of Spring 2011, the translation project in Spanish 351 was restructured as an internship.

The new design of ¡Vamos! website in June 2011 and the fact that ¡Vamos! had its own unique domain name facilitated transitioning the collaboration from a class project to an internship, because the interns could update ¡Vamos! site independently and without needing the assistance of the Go! tech support staff. It was also now possible to publish original content on ¡Vamos!. This feature transformed ¡Vamos! from a “child” to a “sister” publication of Go! and called for sustained translation support instead of intermittent translation service.

The evolution of ¡Vamos! from a class project to an internship was also facilitated by the fact that both courses were taught by the same faculty member, who by now, had become a strong advocate of ¡Vamos! within her department.

5.3.1 Spanish 499 ¡Vamos! Internship

The internship (Spanish 499) course traditionally requires students to gain work experience using Spanish language skills in the public or private sector, combined with academic work under faculty supervision. Typically, students fulfilled the internship requirement through a study-abroad experience. In fact, the course title reads Spanish 499: Internship in Spain. However ¡Vamos! opened up a new avenue for students to gain real-life translation work experience without incurring additional expenses for students that usually accompany a study-abroad program. It was a mutually beneficial situation for all concerned: the students, the Spanish program, and the Go!/¡Vamos! developers.

5.3.2 Spanish 499 ¡Vamos! Internship Expectations and Operations

The internship required student to complete oral translations (voice-overs) into Spanish of English audio/video recordings, blog in Spanish on transportation issues, moderate comments on blog entries and articles, and provide feedback on the evolving look and feel of the Spanish website. They were also encouraged to create new articles for ¡Vamos! and translate them into English for Go!. In short, the job description for the student interns changed dramatically, and
assigned them greater control to shape ¡Vamos!’s identity, under the guidance of the faculty and staff producers. Such a pedagogical approach represents sound teaching practice that promotes authentic learning. These expectations remain the same to date.

The first two ¡Vamos! interns joined in Spring 2011. They were identified as suitable candidates by the faculty member due to their outstanding performance in the Spanish program and their expressed interest in the internship. The interns attended an informal orientation session where they were introduced to the magazine, the internship expectations, and the technologies involved (CMS and Google Docs). They worked remotely, communicating with the Go!/¡Vamos! developers through phone, e-mail, and Google Docs, which also served as a project management tool. The interns met with the Go!/¡Vamos! program coordinator as needed, but, at least once a month.

5.4 Challenges: ¡Vamos! Spanish 499 Internship

One of the major challenges that arose early in the partnership was the need for overseeing the quality of the translations. The Go!/¡Vamos! development team did not possess the needed expertise and the Spanish faculty member could not take on additional load of assessing the translations outside of her course load. It was necessary to seek volunteers who were bilingual and had high proficiency in both English and Spanish, and who were willing to donate their time as technical reviewers. The developers reached out to the native Spanish-speaking local community. The team found a retired professor from a 4-year college, who was willing to serve as a reviewer. The student interns were required to work independently with this reviewer to complete their translation assignments.

The collaboration was a success (see feedback from student interns and the reviewer under section 6. Findings and Discussion). A new pair of interns joined ¡Vamos! in Fall 2011 after the first pair graduated and left the university.

5.5 Internship Update: ¡Vamos! ¡A! ¡Traducir!

At the time of writing, the ¡Vamos! internship has gained in prominence and is in its third iteration. Four students have gone through the program and three new interns joined in Spring 2012. ¡Vamos! has two technical reviewers. The ¡Vamos! internship has been formally approved as a new internship opportunity called ¡Vamos! ¡A Traducir! [Let’s go translate!]. A brochure giving details of the internship has been produced, and the internship opportunity will be added on the web site under the list of available internships.

6. Findings and Discussion

This section includes findings from three sources:

1. Student (translator) and teacher reflections from Fall 2010 Spanish 351 class
2. Survey results: Pre and Post survey of readers in Fall 2011 Spanish 351 class
6.1 Fall 2010 Spanish 351 Student (translator) and Teacher Reflections from Fall 2010 Spanish 351 Class

The students enrolled in Fall 2010 Spanish 351 class participated in the experimental translation project. They indicated in their reflections that the project helped them gain a deeper understanding of translation as a real-life activity with actual deadlines. They also became aware of the value of team work and peer review for improving the quality of their work. The comment below represents the general feedback from students:

“This translation project and whole editing process has helped me a lot because I learned how to translate in a real life situation. I worked hard to make my translation faithful to the original and well written because I knew other people were going to read it. I also learned there are many different ways to translate one sentence. I also learned to translate idiomatic phrases better. I really liked the project!”

An unexpected finding however, related to the exposure students experienced to transportation information and concepts. One student reflected she now knew how to change oil as she was in the group that translated the interview with Lori Johnson, an automotive mechanic who runs her own business helping women learn about vehicle maintenance. This observation was echoed in the faculty member’s reflections. The faculty member observed:

“By translating articles on transportation, which included a series of subjects ranging from the history of transportation to more complex topics related to mechanical engineering, students acquired a high level of subject competency. Not only were they able to enrich their vocabulary on technical subjects but they were also able to apply some of the concepts they translated to their everyday lives (e.g., car maintenance). The increase in subject competency inevitably led to an increase in language competency. For example, by the end of the project students were able to explain successfully and accurately (with the right vocabulary) how to change the oil of a car in both Spanish and English. (Journal entry, July 2011)”

The faculty member found the students unusually engaged, energized, and curious. Throughout the project students continued to gain translation experience and showed an increased awareness of transportation issues.

6.2. Survey Results of ¡Vamos! Readers in Fall 2011 Spanish 351

Pre and post surveys were administered to 23 students in Spanish 351 class in Fall 2011 after the new ¡Vamos! web site went live. The main purpose of the survey was to collect baseline data evaluating the new web site’s effectiveness in increasing reader awareness of transportation. Students were surveyed on their level of awareness and knowledge of transportation before and after they browsed the ¡Vamos! web site for an hour.

The pre survey included four questions – two questions related to student’s existing perceptions of transportation by asking them to list images that come to mind when thinking of transportation
in general and the different modes of transportation. The remaining two questions required students to identify transportation careers and training options from a list that included a mix of typical and atypical transportation career and training options.

Following the survey, students were asked to spend a total of an hour, over a period of 3 days, reading and browsing through ¡Vamos!. They were free to choose the articles they wanted to read. Subsequently, they filled out another survey that included two new questions in addition to those in the pre survey. These additional questions asked students to list sections and articles they had read and to reflect on one new thing they had learned.

Twenty-one students out of 23 completed both surveys. All students indicated they browsed through ¡Vamos! for at least an hour. The findings from the pre and post surveys indicate the following:

1. **Transportation images**: In the pre survey students listed images of different modes of transportation, like cars, buses, planes, etc. The post survey included similar images, but also included mentions of people from diverse backgrounds working in transportation and transportation systems and infrastructure.

2. **Transportation professions**: Responses to questions dealing with career and training options illustrated in Figure 3, indicated a 33 percent to 38 percent increase in awareness and knowledge regarding the diversity of transportation. In addition to “easy-to-recognize” transportation-career options, like civil engineer and bus driver, students found professions such as graphic designer and computer scientist (increase of 33 percent) and statistician and information technologist (increase of 38 percent) as being relevant to the field of transportation.

3. **Transportation fields of study**: Students were asked to identify fields of study NOT applicable to careers in transportation. They were given a list of programs of study that included easy-to-identify disciplines like engineering along with a list of programs of study not easy to associate with transportation, like creative writing or music. Once again there was a significant change in perception after reading ¡Vamos!. Two fields of study, Chemistry and Creative Writing, showed a marked decrease (24 percent and 29 percent, respectively) in the number of students who found them as “Not belonging to transportation.” The results are summarized in Figure 4.

4. **Reflections on “one new thing you learned” after reading ¡Vamos!**: Students reflections noted below confirm the well documented general observation about transportation being invisible to those outside the field.

   • Student reflections indicate surprise about the obvious – that bikes are part of transportation and that bike safety is a topic of growing concern to the transportation community.

   > It’s not so much a “fact learned” as something I hadn’t really realized before, but I had never really thought of bike paths as something that could be viewed as dangerous. The intent is to separate bicyclists from cars and pedestrians, so all are kept safer. But in the ways the article spoke, the separate paths can actually cause quite a number of problems. This stood out
to me because it was something so obvious in front of me, that I hadn’t thought about before.

FIGURE 3 Difference in Fall 2011 of Spanish 351 transportation student perceptions of professions belonging to transportation

- Reflections also indicate a growing awareness of the diversity of transportation.

As with everything else in life, there is more to the transportation industry than you initially think. People with skills in marketing/publicity, business, graphic design, etc. are just as important to transportation as the engineers and mechanics that design and build the vehicles.
• In addition, students realized the important role that women play in transportation.

> I usually think of transportation, maintenance and car salesman to be men, but it is interesting to see that women have a role in a lot of these areas as well and it is increasing in percentage.

• After reading an interview with Lori Johnson, an automotive technician, a student discovered that “social interaction is just as much a part of an automotive technicians job as fixing a car, which hadn’t occurred to me before.”

• Students expressed surprise at the new technologies used in transportation. Videos on the Yike Bike, the Solar Highway and the Chinese Straddling Bus prototypes caught the attention of some of the students.

• Students were also impressed by the high salaries offered in some transportation jobs like aviation and surprised that specific academic and training programs were available for those interested in transportation. One student observed:
...there are actually majors that focus on transportation like the Science of Transport Systems (other than the standard engineering majors). I found this to be interesting/ stood out because it was about a specific student’s experience. I feel that whenever there is a personal touch to information, it really draws in the reader’s attention. It also stood out because there was a personal interview you could read that was conducted with this student.

6.3 Student Intern Reflections from June 2011-September 2011

Findings indicate various dimensions of learning and problem-solving strategies required in the future translation workforce. Implied in these dimensions is a growing awareness of transportation as a domain of study and professional practice among students who had no prior interest in the field. The following is a sampling of student observations on their experience:

• **Interdisciplinary:** Translating articles on transportation made them aware of the contextual and complex nature of language and transportation and their interconnectedness.

  I became more aware that the area of transportation in Spanish isn’t just one set of vocabulary ... So many countries and regions have their own jargon, especially when referring to cars.

  Ever since I started working for ¡Vamos! [I realized] transportation is not just the actual things that transport you from one to the other, it’s way more ≈ all the workers that are working on the highway and a whole lot more.

  I didn’t really think about it [transportation], but it was interesting even learning from the interviews that I translated that she’s [Nancy Richardson, former Iowa DOT Director] not an engineering student but how she tries to make transportation more green.

• **Authentic:** Students found the internship authentic and effective. It required them to apply theoretical knowledge about the practice of translation.

  I learned how to translate in a real life situation. I worked hard to make my translation faithful to the original and well written because I knew other people were going to read it.

  I have learned that the more background research and understanding I have in the topic I’m translating, the more confident I will be in my first and final translations.

• **Collaborative:** Students became aware of the ways and importance of working with others in a productive and professional manner.
I used to think that translation was an individual process, but working with ¡Vamos! encouraged me to see how much cooperation is necessary to achieve a clean, professional product.

I have learned that with much independent work comes both freedom and responsibility ≈ coordination with others is still so vital that I should plan that into my work schedule.

Similarly, the volunteer reviewer also found this experience rewarding and illuminating.

I found the personal stories by the women in ¡Vamos! very interesting. They were inspiring, and I can see how they could be inspirations for students who are still searching for a career.

It was surprising to see how there still can be lots of variation in the Spanish language, particularly when it comes to the colloquial use of exclamations and expressions: Mexican, Puerto Rican, Venezuelan, Castellano, all differ. I learned some new expressions, but I was not sure from which Spanish speaking region in the world they hailed. (Personal communication, July 27, 2011)

It is evident from the preceding discussions that at the beginning of the internship, students possessed a caricature image of transportation – something de-personalized, to which they related in an objectified manner. They thought of transportation as “a big city – cars and buses, a lot of automobiles” that fulfill certain tasks, but did not impact or shape their lives. However, during their brief engagement with transportation as ¡Vamos! translators, the students began to get a sense of a fundamental connection between humans and transportation. As they translated articles on people engaged in transportation careers and the science behind transportation systems, they realized transportation was “much more than that.”

A similar change in awareness is seen with the Spanish 351 students who were surveyed before and after they browsed ¡Vamos! web site. In fact the survey results were even more impressive, since the students were free to choose and read article(s) of their choice. The only requirement was that students read the magazine for at least an hour over a period of 3 days.

7. Conclusion

It is safe to presume that the increased awareness about transportation would only deepen as students continue to engage and reflect on it in multiple ways – ways that are meaningful to them. The findings of this collaboration were by circumstance and not by design. They clearly suggest that there is a need to further explore creative ways to engage groups of individuals who otherwise may not have considered educational or career opportunities in transportation.

8. Future Steps

Efforts to date and their outcomes indicate that ¡Vamos! has demonstrated its potential to be an important tool to help develop the future transportation workforce. It has significant synergies with Go!, its companion publication.
However, securing adequate resources to continue these efforts on ¡Vamos! is a challenge. The unconventional partnership described in this paper is one enterprising approach to meet this challenge. The participants and the stakeholders of this initiative believe in its potential and plan to continue their efforts to make ¡Vamos! a viable, sustainable, and effective workforce development tool. The following steps are being considered to build on this initiative:

- The Spanish faculty member is planning on making ¡Vamos! project work part of her class activity for Spanish 351.
- Plans for targeted marketing to middle and high schools with high Hispanic student populations are underway. Networking with outreach programs at various universities and private groups are being considered as one way to reach this population.
- Another way to reach the teens would be to tap into the Hispanic transportation workforce and organizations that train the workers.
- Efforts will be made to promote ¡Vamos! to organizations and groups involved in Spanish education (colleges, K-12 schools, outreach, and after-school programs), youth-based Spanish clubs, and transportation studies programs. One such effort includes participating in the Undergraduate International Studies and Foreign Language (UISFL) workshop in December 2011; ¡Vamos!’s potential to support interdisciplinary collaborations.
- Additionally, opportunities to obtain financial and in-kind resources to support further development of ¡Vamos! are being explored. These include partnerships and sponsorships as well as educational grants and fellowship opportunities for students.

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10. References