

Faculty Exploration of a Short Term, Service Learning, Study Abroad Opportunity in Quesimpuco, Bolivia

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This paper describes how the authors used a 2008 short term international service project in Quesimpuco, Bolivia, which was developed by non-profit organizations outside of Auburn University, to create classroom exercises within the Building Science safety and scheduling classes. In addition, by exposing the 3rd-year and 4th-year students to an existing real-world project, the authors wanted to gauge the students' interest in creating future (2010 and beyond) short term international service projects that would be conducted through the College and led by Building Science faculty. Student feedback, from survey results, on the planning and safety exercises, along with comments about future short term study abroad opportunities will be discussed. Traditional study abroad classes have often focused on spending a semester, or an entire year, away from the student's home university. This traditional study abroad class model does not meet the needs of all students due to issues such as financial feasibility, incompatible academic calendars, and travel requirements. Other options are available to give students an international experience. Based on the lessons learned from this exploration, the authors are developing a short term, international service project for Building Science students in 2010.

Keywords: Study Abroad, Service Learning, International Education, Construction Education

Introduction

The College of Architecture, Design, and Construction (CADC) at Auburn University is committed to providing international learning opportunities for its students through study abroad classes, exchange programs, and special field trips. This commitment began over 30 years ago in the School of Architecture with professors leading students across Europe to view, sketch, and be exposed to the great works of Western Architecture. This concept of exposing students to learning environments and cultures outside of the United States has also been embraced by the Industrial Design and Building Science departments in the past 10 years. As of 2008, CADC students have participated in faculty-led study abroad classes in Taiwan, Ireland, Italy, Canada, Costa Rica, Cuba, Turkey, and several classes that traveled throughout Europe (Carsen, 2008). The latest study abroad class will take students to China in the summer of 2009.

As part of the university's new strategic plan, the Auburn University President has challenged the faculty and administrators to provide *all students* (within 5 years) with an *international experience* (Auburn University, 2008). While this is an impressive and worthy pedagogical goal, there are many barriers to students participating in the normal year-long and semester-long study abroad classes or university sponsored exchange programs. In fact, only 1% - 2% of American college students study abroad (NASFA, 2008). This low percentage can be attributed to several perceived or real barriers such as: program cost, transfer of financial aid, threat of violence, academic fit to curriculum, lack of encouragement, lack of information, social constraints, and no sense of the benefits of study abroad (Borg and Zitomer, 2008; Lewis and Niesenbaum, 2005a; NASFA, 2008).

The CADC faculty-led classes are typically 5 – 10 weeks in length and encompass a summer “mini”semester. McMurtrie (2007) presents some interesting data, in her *Chronicle of Higher Education* article, that in 2005:

Western Europe remained the most popular destination for students enrolled in American colleges. The top four choices were Britain, Italy, Spain, and France, drawing 95,670 of the 223,534 students who spent time abroad. Those numbers grew modestly from a year earlier, however, while the number of students going to China rose by 38% and to Argentina by 42%. Trips of 8 weeks or less also continued to rise in popularity, taken by 9.5% of students who studied abroad,

up from 8% a year earlier. Only 5.3% of students spent an entire academic year away from their campuses. 37% chose a summer term abroad, and nearly 37% left for a semester (p.36).

Short term study abroad program components, destinations, marketing, academic requirements, pedagogical content, administration requirements, and outcomes assessment have been studied and put forth as a viable alternative to traditional semester-long study abroad classes (Borg and Zitomer, 2008; Festervand and Tillery, 2001; Gray, Murdock and Stebbins, 2002; Lewis and Niesenbaum, 2005a). However, the trend towards even shorter term international opportunities for students and faculty can be seen in the course offerings at many U.S. universities. These ultra short-term classes (10 – 14 days) have become popular with students and are typically offered during spring break, Maymester, or during the break between fall and spring semesters.

Lewis and Niesenbaum (2005b) teach a semester long class entitled, *Environmental and Cultural Conservation in Latin America* and then take their students on an additional two-week study abroad component to Costa Rica. They surveyed their students who had taken their course during the past six years and found four main conclusions:

- When their students returned to campus, they took courses outside their major.
- Almost half of their students traveled again or took another study abroad class.
- Most of the students demonstrated an increased interest in interdisciplinary studies.
- All the students indicated that their participation in the study abroad class had influenced their perception of the costs and benefits of globalization.

Other faculties have found success with incorporating service learning pedagogy with short term study abroad classes (Branan, 2008; Talbert, Farnkhopf, Jones and Houghaten, 2003). In this scenario students undertake a service project such as building a pedestrian bridge (Zitomer, Gabor and Johnson, 2003), urban renewal planning (Ruwanpura and Brown, 2006), or building a water pumping station (Borg and Zitomer, 2008). Typically, but not always, these projects take place in developing countries that lack technical and monetary resources. In addition, non-profit organizations such as Engineers without Borders (Engineers, 2008), Bridges to Prosperity (Bridges, 2008), Servants in Faith and Technology (SIFAT, 2008), and Engineering Ministries International (EMI, 2008) have ongoing community service projects for students, construction professionals, and lay people. These organizations enable students to become involved with service projects that sometimes are associated with a university course for credit, but often the students become involved with these projects for altruistic reasons.

This paper describes how the authors used a 2008 short term international service project in Quesimpuco, Bolivia, which was developed by non-profit organizations outside of Auburn University, to create classroom exercises within the Building Science safety and scheduling classes. The project in Quesimpuco, involved the procurement of materials and the installation work for a pedestrian suspension bridge over a river gorge in the Andes Mountains. This project was implemented and staffed by SIFAT, Bridges to Prosperity, and a local church. The authors had planned to help construct the bridge, along with other individuals on the project team; however, due to travel restrictions imposed by the U.S. Government, actual travel to Bolivia did not occur in October, 2008 as planned. The next team is scheduled to visit Quesimpuco in May, 2009.

In addition, by exposing the 3rd-year and 4th-year students to an existing real-world project, the authors wanted to gauge the students' interest in creating future (2010 and beyond) short term international service projects that would be conducted through the CADC and led by Building Science faculty. Student feedback on the planning and safety exercises, along with comments about future short term study abroad opportunities, will be discussed.

Background of the Quesimpuco, Bridge Project

The Quesimpuco bridge project was a joint effort of three organizations: Auburn United Methodist Church, SIFAT, and Bridges to Prosperity. These groups partnered with community leaders in the remote Bolivian village to construct a suspension bridge over a major river. These agencies focused on a central approach that their work was to supplement the work of the local villagers on the project and not build the bridge for them. Such an approach was deemed less intrusive for the local villagers and allowed them to retain ownership of the project. Bridges to Prosperity has used such an approach to construct more than 2,000 footbridges (Bridges, 2008). In addition, SIFAT has completed multiple service projects in the Quesimpuco area such as the construction of a school and a medical clinic in the village. Many of these projects had been staffed by Auburn Methodist Church volunteers. Bridges to

Prosperity provided the experience and design for the project. They also identified a full-time site superintendent for the project. Without the collaborative efforts of all three groups, it is unlikely that the project would have occurred.

In a valley approximately 3,000 vertical feet below and three miles from the village of Quesimpuco (elevation 13,000'), the community leaders identified the need for a walking bridge. Smaller villages nearby needed access to the Quesimpuco area because schools were not accessible to students, and trading was limited between villages. The project consisted of constructing a walking bridge approximately 300 feet in length and seventy-five feet above the valley (Figure 1 and Appendix B).



Figure 1: View of River Gorge with Bridge Tower on the right.

Prior to the project, there were only two ways to cross the river. First, one could wade through the river in the dry season. This season lasted for approximately seven months (March-October). Second, there was a single cable gondola that hung on two pulleys. The gondola held only one person, and brute strength was used to pull the gondola across. Villagers reported that the gondola crossing was dangerous and that several individuals had died after falling from the crude mechanism.

SIFAT, Bridges to Prosperity, and Auburn Methodist Church staffed the project with a full time Field Superintendent. This individual had previously constructed a similar bridge project and spoke the local dialect. He was in regular contact with the agencies via satellite phone. Such an individual was essential to providing constant direction and guidance for the construction. He served as the conduit for coordinating workers, volunteers, and material supplies.

The travel team was composed of approximately twelve to fifteen individuals. Approximately one-third of the team had a significant background in construction. Individual roles were assigned to team members including Superintendents, Laborers, Medical Director, Photographer, and Travel Coordinator. The authors were designated as Superintendents given their construction background. The team anticipated that they would be assisted at the site by approximately twenty local workers. Locals would serve as laborers on the project. The U.S. team planned to meet approximately six times prior to the trip. Meetings of the team focused on logistics, packing, and fitness preparation. The team participated on several hikes in the local area to prepare for the physical challenges of the event.

Several issues complicated the work in Quesimpuco. First, the project was at high altitude. The village is located in the Andes Mountains at an altitude of 13,000 feet near south central Bolivia. Many of the team members had never traveled to such elevation and only a couple had done construction work near that altitude. Altitude sickness was a potential issue, and local doctors advised us to carry medication for such occurrence. Second, travel to the site was difficult. It required a flight of approximately eighteen hours (including layovers) and a fifteen hour ride in a 4x4 jeep to reach the village of Quesimpuco. Once in Quesimpuco, all workers would then hike the approximately three miles to the site of the bridge. Approximately one-half the team members had visited the Quesimpuco area on other related service projects. All identified the perils of the long jeep ride. Third, lodging and meals at the site would be crude. Team members would sleep in two-man tents and would eat "meals ready to eat" for the full eight days at the site. All tools and supplies would either be at the site in advance or would be carried in by the team members. With

restrictions on weight for both flights and hiking, this required careful planning to make sure all necessary items would be at the job site upon our arrival. Finally, a series of medical immunizations are required for those traveling from the U.S. to such a remote location. For most individuals, this consisted of at least three separate inoculations costing approximately \$300.

The overall cost of the program was \$935 per person including airfare, jeep transportation, and meals ready to eat for the trip. A one night stay in La Paz in a hotel was also included on the return trip. It was estimated that approximately \$260 additional dollars would be spent on miscellaneous expenses such as food during the trip to and from Quesimpuco. Thus, the total cost for the trip totaled \$1495.

Our proposed trip was to be the fourth of the year by a service team from the United States. Previous teams had dug and placed the foundations, installed the masonry piers, and draped the cables across the river (Figures 2 and 3). The goals of our trip were to tension the cables and install the decking and fall protection netting for the bridge structure.



Figure 2: Pedestrian Bridge Towers and Span.



Figure 3: Close-up of Pedestrian Bridge Towers.

Significant effort was made by the team leaders and supporting agencies to ensure that the material required for our trip would be in place once we arrived. The cables for the bridge were shipped to La Paz, transported by jeep to Quesimpuco, and hand-carried by the villagers to the bridge site. The villagers had identified an old growth area of eucalyptus trees and planned on harvesting those for the bridge decking just prior to our visit. Netting for the bridge was also shipped in advance of our trip. All masonry work was completed by local craftsmen (Figure 4). All recognized that failure to coordinate supplies and activities could result in a lack of progress during our trip.



Figure 4: Local Villagers Helping Build Tower

Safety and Scheduling Class Interaction

Classroom exercises, involving the Quesimpuco bridge project, were conducted in two Building Science classes during the fall semester of 2008. The safety class consisted of second semester juniors, and the scheduling class consisted of first semester seniors. As an introduction for both classes, the team leader of the project, Greg Ryland, conducted a thirty minute presentation on the bridge location, bridge design, manpower requirements, etc. A question and answer session followed Greg's presentation and the students asked questions concerning: fall protection, language barriers, medical concerns, worker productivity, material procurement, required tools, etc.

The safety class was divided into groups of two individuals and asked to prepare a safety plan for the team. Students were allowed to ask questions to the class instructor, the team leader, and either of the two authors that planned on making the trip to Bolivia. Students were given two weeks to complete the exercise. The scheduling class was asked to schedule the proposed work in groups of three individuals. Because time would be critical to the volunteers at the project and only eight days were available at the job site, the students prepared an hourly schedule for the work to be completed. Students were told to assume that all work including stressing of the cables, placement of decking, and placement of fall protection netting would be finished prior to the team's return to the U.S. Students were given two weeks to complete the exercise.

Once students completed their work, the assignment was reviewed by the instructor. Of the groups completing the assignment, the instructor selected the best two safety plans and two schedules. The groups of individuals that had prepared this work were then asked to meet and collate a final safety plan and schedule for the work. By combining groups from each class, coordination of both the safety plan and the schedule was possible. The students were then asked to prepare to present the final safety plan and schedule to the remainder of the class and the team leader of the project. Due to scheduling issues, this final step of presenting to the team leader and class did not occur.

Survey

When the students finished their assignments for the project, they were presented with a survey. The purposes of the survey were as follows: 1) Determine if the exercises created contributed to their learning in the classroom, 2) Establish their interest in a short term study abroad option, and 3) Determine when an appropriate time may be for a short term study abroad plan. A hard copy was given to each of the students during the first few minutes of a class period. A copy of the survey given to students is shown in Appendix A.

Twenty-one scheduling and nineteen safety students completed the survey. Students were asked to rate the overall value of the exercise presented to the class. The students used a scale of one to five with a "five" indicating that the exercise "greatly increased one's understanding of the subject matter" and a "one" indicating that the exercise "contributed nothing to my understanding of the subject matter. The safety class reported an average rating of 3.8 while the scheduling class reported an average rating of 3.4. Both of these ratings indicate that the students obtained "value" from the exercise; however, the exercise did not meet the student's highest expectation levels.

Students were asked whether they thought the project would be beneficial to team members traveling to Bolivia to work on the bridge. Again, students were asked to rate the perceived benefits of their work on a scale of one to five. A "one" indicated that the work done would not be beneficial to team members; a "five" indicated that the work done would greatly enhance the performance of the team while in Bolivia. The safety class reported an average rating of 3.6 while the scheduling class reported an average rating of 3.4. Both of these ratings indicate that the students perceive benefit for team member; however, the students did not perceive a great benefit for the team.

Students were questioned as to whether or not they planned to participate in a study abroad program while at Auburn University. Fifty percent of students currently plan on doing some type of study abroad program. Forty-five percent of students do not plan on doing any study abroad. Five percent of the students are undecided on whether or not to participate in a study abroad program. When asked whether they would be interested in a "short term" study abroad option such as the bridge project studied, students were overwhelmingly in favor of such an option. Seventy-four percent stated that they would be interested in such an option. Only seven percent stated that they would not be interested in a "short term" option. Nineteen percent were unsure. Of the nineteen people that responded that they did not plan on participating in a study abroad program while at Auburn University, approximately eighty-four percent of those individuals indicated that they would be interested if a short-term option were available.

Students were queried concerning the appropriate time of year for the short term study abroad project. The responses from students indicated the following preferred times: Immediately after the spring semester(47%), Immediately prior to fall semester(20%), End of Christmas break prior to spring break(20%), and Spring break(13%).

When asked what would have enhanced the classroom exercise, specific student responses included the following:

- A little better understanding of the project
- If I had a better understanding of the kind of specifics you were looking for, I would have been more specific. My plan was too broad.
- More interaction with the people going on the trip and more interaction with other groups in the class.
- For the team to come back in and clarify our plans we made for them. Also a post-project recap. Things that worked, things that did not work.
- Needed a better understanding of tools and resources that were available.
- A better understanding of the construction process..., and more interaction with the parties involved.

Analysis and Conclusion

The authors observed that students appeared excited to engage in safety and scheduling assignments that would actually be applied on a real world project in a service oriented environment. They especially enjoyed the interaction with the project team leader and the opportunity to learn about proposed construction methods. Students appear to embrace the concept of a short term, service oriented study abroad project. The exercise appeared to be a stretch for some students outside their normal bounds of readily available labor and supplies, OSHA safety rules, and a professional work force.

The exercises presented to students did not appear to significantly enhance the student's academic experience. One major contributing factor was that the trip was canceled due to political issues. Had the trip occurred, the team members would have been more significantly involved in the exercise immediately prior to their trip. The team members could also have provided detailed feedback after the trip to enhance the student's understanding of the issue. Students desired this feedback, and several commented that it should be provided in future exercises. It also would have helped if the students preparing the information were participating in the trip. This would have provided additional motivation to plan appropriately for a trip in which they were to participate. Finally, no format was provided for the students to present their results to the team traveling to Bolivia. Adding this presentation aspect would have further connected the students with the project enhancing the probability of overall success.

A short term, service oriented, study abroad project would add to the Building Science programs's current portfolio of study abroad opportunities. A "hands on", established and funded construction project through agencies like SIFAT and Bridges to Prosperity appears to be readily available. Students who had no plans to participate in study abroad embraced the concept of a short term option. The authors believe that this type of project would work well with a semester long class. The first part of the class could be spent developing items like travel logistics, safety plans, material suppliers, and work schedule. The trip to work on the project could then be made by the students. Once the students return from the trip, they could prepare a list of lessons learned and propose an improved version of the trip for students that follow in their footsteps. Plans are under way to develop such a class.

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Appendix A

Student Survey

In which Building Science project were you engaged (circle one)?

Scheduling of Bridge

Safety Plan for Bridge Construction

Based on the work you completed on the project, please rate the overall value of this exercise to the class in which you participated (circle one).

1-Contributed nothing to my understanding of subject matter

2

3-Contributed in a minor way to my understanding of the subject matter

4

5-Greatly increased my understanding of the subject matter

Based on the information presented, do you believe the work you completed will be beneficial to the team members traveling to do the work on the Bridge project (circle one)?

1-Will not be beneficial to team members

2-

3-Will be marginally beneficial to team members

4-

5-Will greatly enhance performance of team while in Bolivia

What would have enhanced the exercise you were asked to complete as a part of your class work?

During my undergraduate education at Auburn University, do you plan on participating in a study abroad program (circle one)?

Yes No Maybe

If the opportunity presented itself, would you be interested in a short-term study abroad project during spring break, winter break, or the first part of the summer term to travel abroad and work on a project such as this bridge?

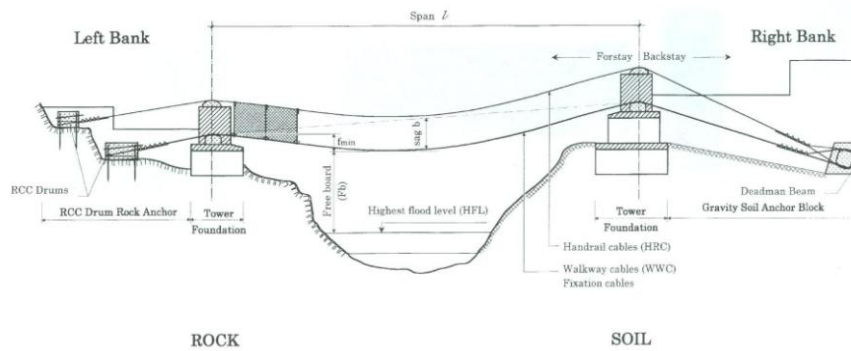
Yes No Maybe

If you responded "yes" or "maybe" to the last question, what time of year would you prefer a short term study abroad construction trip (circle one)?

Immediately prior to fall semester
 End of Christmas break prior to spring semester
 Spring break
 Immediate after spring semester

Appendix B Elevation and Plan of Bridge

PEDESTRAIN SUSPENDED BRIDGE
 Typical Profile



PEDESTRAIN SUSPENDED BRIDGE
 Typical Plan

