

Creating a Summer Study Abroad Program for Construction Management Students – A Case Study

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Creating a summer study abroad program for construction programs is a challenging endeavor particularly if it is a first time occurrence. Lacking the tradition of study abroad in construction programs proves to be a deterrent for many. The factors that prohibit and encourage participation for students will be examined. Understanding of these factors can help bring about a successful program of study abroad in construction. Suggestions are provided based on the findings from survey assessments implemented before, during, and after the study abroad program experience.

Key Words: Summer Study Abroad, Construction Management, Globalization, China, Industry-University Partnership.

Introduction

The construction industry is traditionally concerned with local and regional issues and therefore possesses a relative indifference to the impact of globalization as compared to the manufacturing industry. Recently the construction industry has shown signs of increased level of globalization (Raftery, J, 1998, Kini, D. U., 2000) in respect to international collaborations in design and contracting, material prices, labor issues, safety, etc. This trend presents both opportunities and challenges for students studying construction management and professionals from the industry. Construction management programs should be proactive in taking steps in response to this trend of globalization to better prepare students for their future career.

The Department of Construction Management at the East Carolina University offered it's inaugural study abroad program in the summer of 2008. The students had an opportunity to understand construction management from a global perspective. It is part of a number of activities under the globalization initiatives currently under development within the Department of Construction Management and in consistent with the University of North Carolina Tomorrow Initiative.

China was the destination for the summer study abroad program. As one of the global construction hotspots, China has much to offer to the education and professional development of construction management students. The students and faculty visited the recently completed 2008 Olympic Facilities, the CCTV Building, ongoing construction projects, historical sites, universities with construction programs, and China offices of U.S. construction companies.

A series of coordinated activities and tools are developed to assess the impact of this trip had on students. Survey questions were designed and administrated before and after the trip to gauge the students' attitudes towards globalization, knowledge of global construction management, as well as their potential career choices.

Literature Review

International programs including study abroad and student exchange has a long history and enjoyed tremendous growth in recent years (Chin, Hey-Kyung Koh; Bhandari, R., 2009). Study abroad program has the potential to enhance student learning in dramatic ways. A survey (National Survey of Student Engagement, 2007) conducted annually by Center for Postsecondary Research, School of Education has identified study abroad as one of the "high impact activities" in college education, along with learning communities (LC), research with faculty, and Senior

Culminating Experiences. A recent legislation named after late Senator Paul Simon (NAFSA 2008) was introduced to create “a national program that will establish study abroad as the norm, not the exception, for undergraduate students.”

The most common subject areas of study abroad programs are social sciences, business & management, and humanities (Chin, Hey-Kyung Koh; Bhandari, R., 2009). Study abroad programs in construction management and engineering are not as commonly seen. Given the facts that many construction hotspots locate outside of the U.S. and the increasing level of internationalization in the U.S. construction industry and education community, an increasing number of such programs in construction management seems inevitable. Auburn University has offered a summer study abroad programs for construction management students since 2000 (Kramer, S.W. 2007) and amassed significant experience we used to organized the summer study abroad program. Their program is offered as a capstone class and allows the student to travel in Europe for five weeks during the summer. The Department of Building Construction Management in Purdue University also offers a summer study abroad program.

Development of the Program

The program preparation began two semesters before the actual visit and included four weeks of pre-visit preparations and a week-long post-trip exhibition upon returning to the U.S. A significant amount of time and effort was needed to develop the curriculum, pre and post trip activities, student recruitment, and travel arrangement. A mindmap (Buzan, T. et al. 1996) was used to coordinate these activities. Figure 1 shows the ongoing effort three-months (February) prior to the trip departure. The university provided specific guidelines for developing summer study abroad programs. Course syllabi, program budget, and a preliminary itinerary must be submitted for approval by six months (early November) prior to the summer in which the program is planned. The development of this program received encouragement from both the department and the college. The proposal for this summer study abroad program was presented to the construction advisory board. One of the advisory board member companies offered student scholarships for the program.

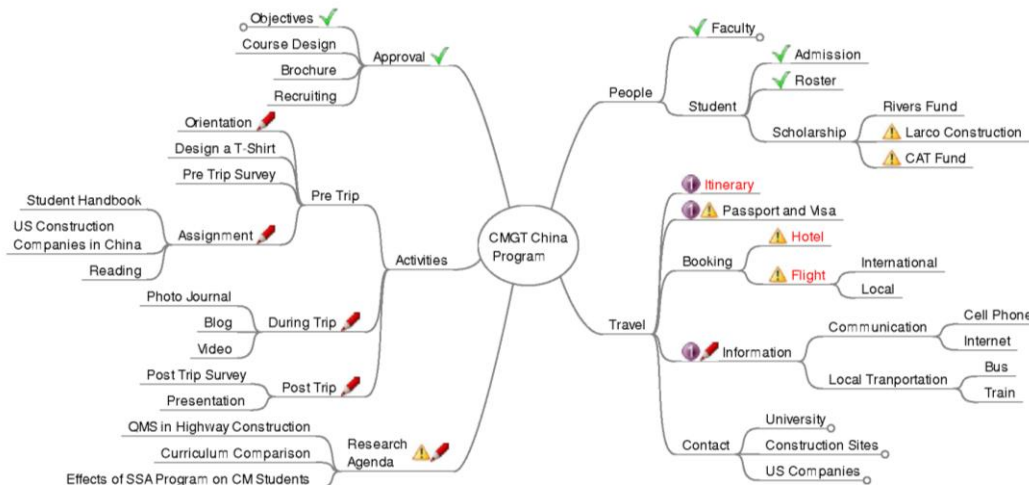


Figure 1. Major Development Efforts for the Summer Study Abroad Program

All construction management students were notified by email concerning the summer study abroad program in November of the year prior to the travel. 45-students responded initially and expressed an interest in the program. Ideally the program can accommodate a maximum of 20 students. We evaluated the students through an application process that considered; an application letter, GPA, and participation in student organizations. By February only 14 students met the initial deadline with a deposit and application package. It was unclear why many of the students did not follow through with their initial intentions. One factor may be that many students work on their internships during the summer, and may have played a role in their decisions not to go.

Four faculty members were involved in the development of the construction study abroad program. Two have professional relationships with the academic institutions in China that were visited. Two other faculty members were involved with curriculum objectives and program coordination. The organizing team offered a combination of

experience in the disciplines of architecture, engineering, and management, in addition to years of professional experience in China.

A budget was developed as part of the required application process. The university does not provide direct funding to any summer study abroad program. Therefore the program fee paid by the students covered all expenses including flight, boarding, visa applications, food, local transportation, entrance fees to various cultural and historical sites, etc. Budgeting was a daunting task without a previous summer study abroad experience. The biggest risk factor was the cost of airline tickets. The trip was scheduled to take place three months prior to the 2008 Olympics. A significant amount of contingency was figured into the original program budget for flights. For detailed expenses see “Lesson learned” section.

Cost to the students is a critical factor to consider when developing a study abroad program. A conscious effort was made to keep cost at a minimum to encourage the student participation. The construction summer study abroad program was the least expensive program at the university in 2008. Construction management programs that plan to implement a similar program should have set aside money to help students with scholarships or stipends. Our department contacted the advisory board for financial support of the students in this program. One advisory board member offered two scholarships at \$1000 each in the name of their company. Additionally the students were encouraged to apply for the general study abroad scholarship offered by the university and 4 out of 13 students were awarded the scholarship.

The summer study abroad group was scheduled to stay in China for three weeks in the month of May once the spring semester ended. The study dates were largely determined according to a preliminary itinerary and the experiences of other summer study programs. Summer study abroad programs offered in the East Carolina University generally last from two weeks to a month. The length of the program was also largely determined by the course content and the funding available.

Students typically earn 3-6 credit hours by participating in summer study abroad programs. Clear defined course objectives and method of evaluation was developed. Syllabi for two courses with three credit hours each were included in the initial program application package. One course focused on the current state of the construction industry and the construction education in China. The second course took a historical perspective and examined the building traditions of China. The students were required to participate in course related discussions and complete writing assignments during and after the trip. With proper content design these courses may substitute for certain required courses in the undergraduate curriculum. Auburn University’s summer study abroad program can substitute their capstone course (Kramer, S.W. 2007). Incentives such as these make the summer study abroad program an attractive choice.

To prepare the students for the summer study abroad trip, the students were required to attend 10-hours of orientation sessions and complete a number of assignments a month before leaving for China. One of the assignments required the students conduct research in teams in a topical area relevant to the summer study abroad program. The research compiled by each team was then used to create a study abroad educational guide. The study guide includes maps, buildings, history, terminology, itinerary, diagrams, and photographs. The guidebook served as a textbook/travel guide during the trip. The group reviewed the relevant material in the guidebook before visiting any sites of interest. Students held a competition for the best T-shirt design and selected a winner. The shirt was worn as a visual identifier when in large crowds during the trip and kept as a memento from the trip. Another pre-trip assignment required that the students investigate the presence of global contractors in China. The investigation was limited to the top 50 companies from the 2007 ENR Global Top 225 Contractors. The students found that 53% of these top contractors have offices in China.

Program orientation consisted of three sessions with distinctive themes. The first orientation session introduced to the students the basics of the program including itinerary and a brief introduction of the major sites. The second orientation session covered travel arrangement and cultural issues. Students were given an overview of cultural differences between U.S. and China, as well as the customs requirements for travel to China. A set of video clips on China were shared and then followed with discussions to get students into the mindset of the summer study abroad program. The third orientation session contains the course requirements and trip assignments. The group was given a brief introduction of the Chinese economy and the Construction Industry. They are given instructions about what to observe on the trip as well as the requirements of the assignments they need to complete during and after the trip.

‘Information Technology’ tools were used to facilitate this summer study abroad program. Most students and all faculty members in the program had created Facebook® accounts. An open group was created to provide information and updates about this program. A blog was created prior to the trip to provide real time updates and record the progress of the trip. Emails, phone calls, and Skype were the primary communication tools between the students and their friends and family.

Logistics and Itinerary

Travel organization was a major logistical issue, which includes arranging for all documents; visa, airline, hotel, transportation, and food for the trip. U.S. citizens are required to apply for visas to travel within China. Contacting a travel agent specialized in China is the most efficient way to get discounted air tickets. Local hosts and contacts assisted with hotel bookings and transportation and made the planning easier.

Sites on the itinerary were selected to the overall objectives of the program with considerations of cost, time, and feasibility. The final trip contains a balanced amount of elements in architecture, engineering, construction, education, culture, and history. As more information became available adjustments were made to the travel plan due to availability of time, fund, and local contacts. The final list visited fits in six categories of study: ongoing construction sites, recently completed major projects, construction management programs, research institutes, U.S. corporations in China, and historical and cultural sites in China. In summary the summer study abroad group visited four cities, four universities, two research centers, four construction sites, eight recently completed projects, twelve cultural and historical sites, and four U.S. corporations in China. See Table 1 for the full list.

Table 1
List of Projects/Cities/Places

Categories	Sites
Recently Completed Major projects	CCTV Office Building, Shanghai World Financial Center, Olympic Village, 2008 Olympic Stadium (the Bird’s Nest), Olympic Aquatic Center, National Center for Performing Arts, Oriental Pearl Tower, Maglev High Speed Train and Museum, Hangzhou Bay Oversee Bridge.
Ongoing Construction Sites	Brown Stone Residential Project, Zhengzhou-Shirensan Expressway, Zheng-zhou Huanghe River Rail-cum-Road Bridge Project, Shanghai Airport Authority, Hongqiao Airport Expansion Project.
Historical and Cultural Sites	Great Wall of China, Ming Tomb, Forbidden City, Water Village (Zhouzhuang), Summer Place, Tiananmen Square, Yellow River, Longmen Grottoes, Shaolin Temple, The Bund in Shanghai, Tianjin Ancient Culture Street, The Art Museum (Fengjicai) in Tianjin University.
Universities	Tsinghua University, Tianjin University, Tongji University, Zhengzhou University.
Research Institutes and Events	Building Energy Research Center at Tsinghua University, Henan Engineering Research Center for Road NDT Technology, 4th Annual National Conference on Transportation Engineering.
U.S. Corporations in China	Caterpillar Corp, Coca Cola Corp, Fluor Construction, CH2M-Hill

The summer study abroad trip began in Beijing. The group visited the 2008 Olympics facilities. The CCTV Building, which is known for its unconventional shape, is still under construction. The group also visited Caterpillar’s China Headquarters in Beijing. After six days in Beijing the group travelled to the City of Tianjin. The students had the first interactions with construction management students at the Tianjin University. The students lived on campus and attended a lecture at Tianjin University. A momentous event occurred when the students participated in a nation-wide memorial service for the victims of the severe earthquake happened on May 12 in Western China. The entire population of people in China, and our students and faculty, observed a three minute ‘moment-of -silence’ alongside the local students and professors. The group visited a cultural exhibition related to the construction of the Three Gorges Dam in the Art Museum of Tianjin University.

The next stop on the trip was Zheng Zhou, an industrial city located in the central eastern province of China known as one of the birth places of the Chinese culture, Henan. The group visited two major highway and bridge projects.

The students visited the Shaolin Temple and Longmen Grottoes. After 4 days in Zhengzhou we travelled to the final destination on the itinerary, Shanghai. The group stayed at Tongji University and visited a number of construction related and cultural sites. A culminating event was the visit to the largest bridge over saltwater, the Hangzhou Bay Bridge before returning to the U.S.

The students and faculty attended 18 discussion sessions and invited to presentations given by the host institutions. All of the presentations and discussions were related to construction management. For example, the Human Resource Department at the Caterpillar China Headquarters in Beijing gave the group a presentation on Caterpillar's operations and long term business plan in China. In Shanghai the chief planner of the Shanghai Airport Authority provided a detailed introduction of the upcoming expansion project to one of the two major airports in Shanghai before the 2010 World Expo.

The entire trip was documented through photos, video, and student writing. Over 19,000 photos and 200 video clips were taken by students and faculty. The materials were used to complete course requirements at the end of the summer study abroad program. The exhibition provided a venue that received considerable attention from the local media. The summer study abroad program was featured on the University website in October. (web link).

The students were required to write 10 essays on topics of their choice from the summer study abroad program. The students' selection of subjects is shown in Table 2. Four out of the five top sites that were selected by students were recently completed major projects. The Great Wall of China was the only historical/cultural site that made it in the top five sites of interest.

Table 2
Top Sites Identified by the Students

Sites	Number of Times Selected
National Center of Performing Art	12
New CCTV Building	11
Oriental Pearl Tower and the Bund	11
Great Wall	10
New 2008 Olympic Facility	10
Forbidden City & Tiananmen Square	7
Shaolin Temple	5
Shanghai World Financial Center	4
New Terminal Building of Beijing Airport	2
Zheng-zhou Huanghe River Rail-cum-Road Bridge Project	2
Longmen Grottoes	2
Shanghai Airport Authority, New Expansion Project	2
Zhouzhuang (Zhou's Village), Water Village	2

The Students

The program was challenged by recruitment of students early on. The budget was based on participation of 20 students. Low enrollment nearly compromised the financial feasibility of the program. Recruiting efforts were made university wide. Enrollment finally reached a total of fourteen students. Twelve were from the Department of Construction Management, one from Industrial Technology, and one from the College of Business.

The pre-trip survey contains a number of questions about the student's background. It showed 83% of the students have travelled outside of the U.S. 33% of them have travelled to more than three countries. Students also had some familiarity with buildings and construction in China. Most believed the primary construction materials for residential construction in China is concrete instead of wood. 75% of the students correctly identified the Forbidden City as a former royal palace.

The survey suggested that students get information about China from various media such as news, TV, movies, as well as internet sources and books. With this finding the native faculty tried to dispel myths, potential prejudices and or culture shock that might have developed from the preponderance information on China from the popular media.

Over 40% of the students believe “to bow” is a common form of formal greetings in China, which is incorrect. 42% of them had come up with a backup plan (American Food) for their culinary choices in the event they were unable to accustom themselves to the local food.

Outcome and Evaluation

The three primary learning objectives of the program were: (1) construction globalization, (2) comparative understanding of construction industries in the U.S. and China, and (3) career impact on the students. After the trip students were asked to participate in three reflective activities that were used to determine how students’ perceptions were changed at the end of the trip against earlier stated responses and their opinions of the program in general. These tools include a post trip survey, a student feedback form on the Blackboard, and exhibition of student posters.

The post trip survey contains several questions pertaining to the quality of the summer study abroad program. The students were asked about the length of the program. Two-thirds of the students thought the length was “about right” while one-third of them believed it was either “short” or “too short”. This response showed a general satisfaction with the trip, but there was an expressed desire to see more or the need to have more time to do other activities that were stated in the “suggested improvements” section of the feedback form.

The students were also asked about their opinions of the cost and quality of this program. Over 90% of them thought it was either “about right” or “inexpensive”. All of the students agreed or strongly agreed that the overall quality of the program has met their expectations. The overall satisfaction level of the students’ was very high.

The students were given an opportunity to express their most unexpected positive and negative findings on the trip. The results are shown in Figure 2. Many students listed friendliness of the people as their positive finding. They were amazed by the amount of construction activities as well as the new buildings and structures recently completed. Many of them appreciated their culture experiences and history of places visited. They also enjoyed very much the variety of food from the different regions in China. The most obviously issue they observed was the air pollution. Many of them mentioned language barriers as their choice of negative, but at the same time many realized language barrier is a shared responsibility and some were willing to learn Mandarin. 33% of the students bought a Mandarin Learning Software Program at the end of the trip. Interestingly enough one student was surprised to see many people spoke English and listed this both as a positive and negative finding as it makes learning Chinese more difficult by creating a disincentive to learn the language. A student commented on the behavior of some of our students and thought it was the most negative thing on the trip. The most insightful comments was a concern voiced by a student, “how will America keeps up with China in the future” ... “it hits home to see they are growing so fast”.

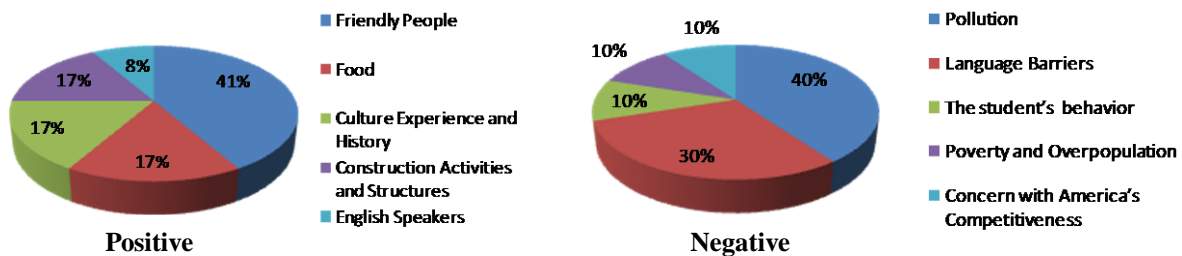


Figure 2. Students’ Most Positive and Negative Experiences

Students were required to create a 30”x40” poster for a public exhibition at the beginning of the semester following their study abroad. Two months time had transpired between their return to the U.S. and the exhibition. Students were given the freedom to show and write about the favorite aspects of their study abroad experience. A before and after abbreviated impression statement was required as part of the coursework for the study abroad.

The posters were analyzed for textual and image content. Out of 101 items documented, 34 were related to the built environment and construction such as urban images, new buildings, construction industry, 67 were related to social aspects of the trip including historical places and buildings, culture, food, people, landscape. This suggests that the greatest impact of the trip was derived from the location, i.e. the country of China. In comparison the buildings and

construction industry experiences were represented only half as much on the posters as were the social and historical aspects from the study abroad experience.

This unexpected finding in the data analysis has the organizers curious if the students will maintain interests in China in the future. It will also be of interest to know how or why those interests change over time. Since a majority of students had traveled outside of the U.S. previously we expected that the interest would have been more discipline related than the social aspects of the trip. However, the finding is not so surprising given the distance and the considerable contrast of China to the U.S. both ideologically and politically, and the lack of any substantive exposure to China on the students' part. Comparatively speaking construction matters were more similar to those found in the U.S. This finding further supports the expectation that study abroad is more about the social experience than the factual or the discipline content intended. This presumption was supported by the data found in the post trip survey where the single most mentioned positive result of the trip involved the "people" of China. However, while the findings indicated a greater interest in cultural and historical events this was contrasted with post trip informal interviews where more than 20% indicated they were intending to seek further interactions in the form of employment in the U.S. and International companies in China or other international locations.

Lessons Learned

The organizing faculty tried to cover all aspects in delivering the first summer study abroad program in the Department of Construction Management. Many of the efforts paid off as demonstrated in the learning outcomes and student evaluation. Best practices and lessons learned in this section are compiled from discussions among faculty as well as students' feedback collected through the surveys.

Developing a summer study abroad program is time intensive. It requires much pre-planning and coordination work from the faculty organizers. Faculty, especially those on tenure-track, have to weigh organizing program like this against other research and educational projects. It would be beneficial if the program fits in the overall strategic planning of the department and the institutional goals of the university.

Students benefited from the orientation sessions and pre-trip assignments. Many issues discussed during the orientation were helpful to the students in understanding the overall program objectives and a drastically different culture. The orientation sessions may need to be delivered in a more structured way, especially in regarding the cultural issues. For example, feedback from students indicated that a detailed explanation of the dining customs of China would be helpful to the group in preparing them for the dinners we had with local company executives and university officials.

Estimating and managing the cost was one of the most challenging tasks of this project. Without prior experience the organizing faculty had many difficulties in preparing the budget. Some major cost items were not included in the initial budget but covered with contingencies. Figure 3 shows the breakdown of the final program expenses. It would be helpful to the program finance if the additional efforts were made in fund raising. Set aside funds would be helpful from the departments who wish to create global awareness and internationalization of education.

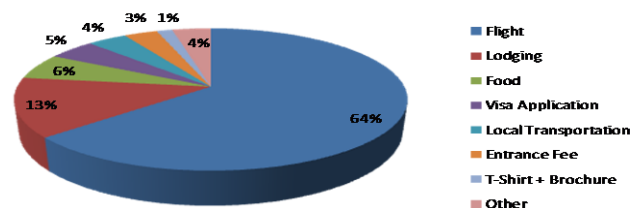


Figure 3. Breakdowns of the Program Expenses

The program had an intense travel schedule with 4 cities visited in three weeks. The itinerary contained structured activities that served program objectives. However a balance needs to be achieved so that students can have some "down-time" to allow for reflective thinking and processing new information. Students and faculty needed time to continuously evaluate the effectiveness of the program during the trip. A well intended effort by faculty to expose students to a maximum amount of activities may have had detrimental effects as the students become over saturated

with stimuli from many events. If in place assignments are part of the program then “down-time” is even more critical as this will provide time for detailed accounting of events during the trip.

Unexpected events should be anticipated with alternative activities ready in place to keep the program objectives achievable. Flexibility in the manner in which the course objectives are achieved will reduce the stress on the faculty planners and result in greater satisfaction with all parties involved. A significant adjustment had to be made one week into the trip because of the major earthquake that occurred in China. However when adjustments like this happens, it is important to get the entire study abroad group informed about the details.

Learning for faculty and students alike was exceptional, not only about the country or topic of study but also between each other in such intense and intimate conditions. There was a common misconception about how the students can earn 6-credits within three week period of time. It was perceived that students were getting so much credit for little work. In fact students’ learning time goes beyond formal education. In addition to the formally scheduled activities, there were collateral learning activities that went along with any new experience, such as watching news, observing unique behavior, contrasting cultures via comparative statements, etc. These were all learning moments that occurred but were not planned and very much made a difference in the students. During the trip the students spent time with local people talking, sharing, looking, watching, interacting, playing soccer, and going to dinner, etc. The contact hours between students and faculty members exceeded 10 hours per day. Many episodic learning moments happened during spontaneously group discussions among the students and faculty.

The students voiced their opinions about the course content and itinerary. The entire trip was almost exclusively in urban areas. Some students expressed the interests in visiting smaller cities and rural areas. The students also preferred to visit more construction sites like the bridge project on the Yellow River. We also found that more structured events were needed in order for students to interact with their Chinese student counterparts.

Most of the student assignments were writing assignment in conjunction with presentations. It is a better practice to encourage the students to use natural writing (i.e. essays) instead of academic writing. It is a good way to quickly process the experience and get the ideas documented as soon as possible. The program did not have formal student presentations during the trip. It is possible to organize small sessions of ‘show-and-tell’ after important site visits or before leaving for a new city.

A post trip exhibition is a good way to bring closure, expose others to the opportunity and foster interest in faculty and students to participate in the future. The exhibition organized after the trip was well received by the campus community and became an integral part of the students’ entire summer study abroad experience.

Conclusions

The 2008 construction management summer study abroad program was the first of its kind in the Department of Construction Management. 17 students and faculty spent three weeks in China on a custom designed itinerary for construction majors. Many students described it as a once in a life time experience. The summer study abroad program has three clearly defined learning objectives: (1) construction globalization, (2) comparative understanding of construction industries in the U.S. and China, and (3) career impact on the students. The evaluative tools implemented in the program confirmed that these objectives have been achieved. Other study abroad programs are being explored as a result of the positive comments by faculty, students and administrators. There are plans for a 5-year longitudinal study of these students to learn how this trip affects their careers. This data will be useful and more convincing as to the results that such an experience can bring about in the lives of students and faculty.

In the end a study abroad program should be an event to remember, an experience to broaden students’ horizons, a pivotal moment in their education and personal lives that may change who they are, and how they think. We are confident this program did exactly that. The change we hope for may not manifest itself in the immediate moment and we will have to wait to see if our belief is founded in fact. Until then one has to take it for what it is worth and for us, at the very least, it was a very good experience.

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