



Global Technology Experiences for Upper Division Engineering Students: An Assessment

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Abstract

In order for students to thrive in the highly competitive global economy, it is critical for them to develop international perspectives and appreciation. As a result, in 2004, the San José State University's (SJSU) Charles W. Davidson College of Engineering established a \$1M Global Technology Initiative (GTI) program. The mission of the GTI program is to expand students' horizons about the opportunities and challenges of a global economy, to expose them to global, environmental, and energy problems in which technology plays a central role, to motivate their learning of global issues and different cultures, and to introduce them to a more comprehensive focus on global leadership. Essentially, the program provides U.S. students with a global perspective focused on technology and business leadership, while relating the high-technology industry to the Silicon Valley and Asia-Pacific region.

The program has constantly evolved, improving the GTI students' experience. Over 180 GTI participants have traveled throughout Asia to various industries within China, Taiwan, and India. The first three cohorts (2004-2006) visited Taiwan and China, the next three traveled to India (2008-2010), the next three visited Taiwan and China (2011-2013), and the last cohort (2014) visited Taiwan. Not only has the destination changed over the years, but the original scope of GTI as well. After the first year, the initiative began including environmental and energy concerns, based on growing student interest, and therefore included tours and trips to not only technology industries, but also environmental and energy enterprises. In 2009, previous students felt that there was a lack of cultural and social context when visiting these countries, leading to the development of a three-unit course taught in collaboration with SJSU's Department of History. All these changes culminated into making the program the success it is today.

Due to these innovations and constant evolution, the 2014 cohort was unlike any other. SJSU students were given first-hand experience about technology's global role, entrepreneurship, and cross-cultural collaboration when they participated in the International Innovation & Entrepreneur Leadership Experience (IIELE) at Chung Yuan Christian University (CYCU) in Jungli, Taiwan. Beginning with the 2014 cohort, we renamed the GTI program to reflect the change in focus. The new name is the Global Technology Institute (GTI*). In three weeks, students created innovative business propositions, toured industries that had a great sense of traditional values and environmental awareness, and explored Taiwan's culture through the eyes of local students. The cohort was a resounding success, with overwhelming positive student feedback. Overall, the SJSU GTI program has been very successful and has met the objectives set for it. Embedding continuous assessment and improvement into this program has allowed us to adapt to changes and provide the participants with an intensive global experience.

1. Purpose of the GTI Program

In the globally competitive 21st century, corporations have been aggressive in expanding markets and their workforces across the globe. In order for engineers to thrive in such an environment, they need to understand and prepare for this new reality and to develop skills to navigate it. To this end, we established the Global Technology Initiative (GTI) program at SJSU

in 2004. Its goal is to expand students' horizons about the opportunities and challenges of a global economy, to expose them to global environmental and energy problems in which technology plays a central role, and to motivate their learning of global issues and different cultures. Providing students a first-hand, immersive learning experience, the GTI comprises a semester-long course that culminates in a study tour to India, China, or Taiwan. These destinations are selected because of their strong relationship with Silicon Valley's information technology companies and their competitive technology industries. Moreover, India and China, each with populations over one billion, have a significant impact on global environmental and energy issues.

One distinguishing feature of the GTI study-tour is that it is almost 100% sponsored; GTI fellows are selected independent of their financial standing. For the past three years, GTI students have been asked to pay for a small portion (\$250-\$500) of the airplane ticket; however, this fee has been waived for students in financial need. It has been supported by the GTI fund as well as the College's endowment fund of over \$22 million. This is a key component of our program as most of our students come from middle-class and working-class families. Value is placed on students' leadership experience and potential as we expect the GTI fellows to share their learning and influence their peers after their study-tour. So, the impact goes beyond the 21-25 GTI fellows we select each year.

2. Evolution of GTI

Since 2004, we have sent over 180 GTI fellows to Asia through the GTI program^{1 2 3}. The first three cohorts (2004-2006) visited Taiwan and China, the next three traveled to India (2008-2010), the next three visited Taiwan and China (2011-2013), and the last cohort (2014) visited Taiwan. During this eleven-year period, we have made four programmatic shifts. First, in 2005, we extended the scope of GTI from a focus on the global economy to include environmental and energy concerns, as there had been heightened public interest, and subsequent student interest, in global warming following Al Gore's highly publicized *An Inconvenient Truth*. As a result, site visits include not only technology and business locations, but also environmental and energy enterprises. Second, beginning in 2009, we increased the scope of the preparatory course and increased the number of units from one to three. Student feedback from the one-unit class indicated that there was a lack of cultural and social context leaving them ill equipped to deal with the shock of another culture. Therefore, we developed a three-unit course, taught in collaboration with professors from the SJSU Department of History, who are specialized in the history India or China. With more advanced knowledge, the GTI fellows can better appreciate and understand what they encounter during the tour, thereby deepening their learning. The third shift was introducing learning modules on developing intercultural competency and global leadership skills so that GTI fellows can better develop their leadership potential. The last shift occurred for the 2014 GTI cohort. Instead of a two-week study-tour, students participated in a three-week international entrepreneur leadership experience. Beginning with the 2014 cohort, we renamed the GTI program to reflect the change in focus. The new name is the Global Technology Institute (GTI*).

Part of the excitement of the program is that it's continually evolving. GTI participants in previous years have completed study-tours in China, India and Taiwan. This year, 21 GTI*

participants were the first to participate in an intensive three-week workshop at CYCU in Jungli, Taiwan. The International Innovation and Entrepreneur Leadership workshop offers the opportunity for engineering students to create an innovative product and then develop a business model to market it. The SJSU students worked in teams with students from other countries. Participants created a project presentation and a report, which was presented and evaluated by a mixed team consisting of professors and business owners.

3. Description of the New Program

The new program varies from the old one significantly. In the previous years, the students travelled around, making them feel like the program was more of a tour, rather than a workshop. Through the new program, the students participate in a number of activities relating to business and finance. The 21 SJSU students will participate in the International Innovation and Entrepreneur Leadership Experience, where they will attend lectures and presentations, enriching their knowledge on the specific topics. Students will also participate in a group project. The topic of the project consists of proposing a business solution to improve unique Taiwanese cultural topics. Students will then tour four different industries and sites, learning about how each business utilizes technology to sustain their company and how they incorporate their company values with Taiwan's. The students will also go on cultural field trips. These trips will immerse the students in Taiwanese culture.

Overall, there were 70 students from the United States, Taiwan, China, and the Philippines. Students from SJSU, Beijing Institute of Technology, Harbin Institute of Technology, Mapúa Institute of Technology, Republic of China (ROC) Air Force Academy, and CYCU were mixed into ten groups which collaborated on business projects. The students were split into teams and had three weeks to come up with a business plan to present to the judges by the end of the program. Unless there was a field trip, the students had class on Monday through Friday from 8-12pm, a lunch break, and then lab from 2-5pm. Needless to say, the SJSU students spent a lot of time with the other international students.

Many of the highlights of the Taiwan trip came from the many cultural trips and company tours. The Chiang Kai-Shek Memorial honored and showed Taiwan's respect for Chiang Kai-Shek. According to one of the students, "*The large statue of Chiang Kai-Shek was very reminiscent to the statue of Abraham Lincoln in the Lincoln memorial*" [participant 6]. In addition to the memorial, the student visited the Taipei 101 tower. Standing at 101 stories tall and recognized for its green practices, the overall building itself is a testament to Taiwan's abilities and status in the world. There were field trips to three business sites: Hair O'Right International Corporation, Mushroom Village, and Namchow. Although the companies differed in terms of their products, they shared the common theme of renewability and care for the environment. The cultural trips to Sun Moon Lake, Formosan Aboriginal Culture Village, National Center for Traditional Art, and Yilan International Children's Folklore and Folkgame Festival added to the students' cultural experiences. Most of these places were towards the middle, southern part of Taiwan. Additionally, students were free to explore whenever they had free time. Students visited historical sites, such as Pingxi, and saw the Paper Panda exhibit, various restaurants as recommended by CYCU students, and also sang karaoke.

4. Pre-trip student preparation

The GTI program, for the first four years, included a one-unit pre-trip acculturation course for the participants. Between 2004 and 2008, the GTI students participated in a one-unit course prior to the trip. Assessment of the students from the GTI 2008 trip indicated that the one-unit course on India failed to prepare GTI fellows for their trip to India. Therefore, beginning with the GTI 2009 program, we increased the scope of the preparatory course from one to three units. The 3-unit course was developed and taught in collaboration with professors from the Department of History, who specialized in the history of India or China.

We designed a special section of one of the College's General Education courses, Tech 198 (Technology and Civilization), to serve as the pre-trip course. Tech 198 satisfies the requirements of SJSU Studies Area V: Culture, Civilization & Global Understanding. This special GTI Tech 198 course focused on the political, social, economic, technological, and cultural history of either China or India, depending on the current year's focus of GTI. The Spring 2014 GTI* course was developed by a SJSU faculty member, Dr. Bruce Reynolds, from the Department of History.

The Spring 2014 course began with an introduction to the geography of China, followed by a survey of Chinese history. In the latter focus, we devoted one week each to traditional China, technology in Chinese history, China in Revolution (1911-1949), the years of Mao Zedong's rule (1949-1976), and China under Deng Ziaoping's Reforms. Reading assignments included Jung Chang's book *Wild Swans: Three Daughters of China*, which tells the story of one family's experiences during the revolutionary and Peter Hessler's book *Country Driving: A Journey through China from Farm to Factory*, based on his travels around the country. We also used several films in this course including *The People's Republic of Capitalism*, *China from the Inside*, *In Search of China*, *China Prep*, *The Genius that Was China*, *China in Revolution*, and *Great Leap*. The discussions from the assignments focused on societal issues such the urban-rural divide, the role of minorities, and consequences of the "one-child" policy. The course concluded with a session on Taiwan and on China's international relations. Writing assignments were comprised of short essays based on the assigned books and two research papers. The major writing assignments are shown in Figure 1 below.

Figure 1. Major Writing Assignments in Spring 2014

<p>Research Paper One: There are two aspects to this paper of at least 1,000 words (double-spaced, approximately 4-5 pages). First, discuss the impact the reform program implemented by the Chinese Communist Party since the death of Mao Zedong in 1976 on Taiwan's relationship with the mainland. Secondly, describe how these changes in China have impacted the U.S. and the U.S. position in the world.</p> <p>Research Paper Two: Taiwan has a flourishing high tech economy and a vibrant democracy, but its future is uncertain. In a paper of at least 1,000 words (double-spaced, approximately 4-5 pages) analyze the reasons why this is the case and consider what role, if any, the United States might (or should) play in determining the outcome.</p>

Reflection Paper: This paper will be considered the final exam for the course. This paper of at least 1,000 words (double-spaced approximately 4-5 pages) will be your reflection on your experiences in Taiwan. You should comment on the trip highlights and what you learned from the experience, particularly from your inter-actions and work with students from other cultures. How did they compare in attitude and approach to American students? What do you see as the most important factors in developing successful cross-cultural collaboration?

In addition to the course, we included two other activities to prepare the students. One activity was arranged to prepare students for travel logistics. This was conducted in two phases. During the first phase, a representative from SJSU's International Studies and Affairs Office was invited to the Tech 198 class to discuss the university touring/studying abroad policies and travel guidelines. In the second phase, the GTI* program provided students with trip logistics and tour itinerary, such as which sites were to be visited and what transportation vehicles were to be used. Along with the tour itinerary, passports, visas, luggage packing, airplane, bus, train tickets, foreign currencies, and potential health/safety issues (i.e. recommended vaccinations, water and air pollution concerns, safety practice, and travel accidental insurance) were discussed prior to the departure.

5. Student Feedback

After the 2014 GTI* trip, students submitted a reflection paper based on their time spent on the trip. The reflection paper was considered the final exam for the Tech 198 class. The responses were all positive, with comments ranging from the food, the cheap costs, public transportation, and friendly people during their stay. Most notably, all of the students responded that the trip was a valuable experience. One of the students wrote, *"Through this experience, I finally have a better understanding of what it is like to collaborate with people of different cultural backgrounds and how important globalization is in our modern society. One important factor that I see in developing a successful cross-cultural collaboration is patience."* The students earned valuable knowledge of working in a team, as well as being patient with others while collaborating on the team project.

A number of programmatic themes emerged from the analysis of the student reflection papers. They have been categorized as: culture shock, friendliness and generosity of the Taiwanese people, cross-cultural communication with project team members, differences in communication and learning styles, and the importance of manufacturing to the country of Taiwan.

Theme 1: culture shock

Each of the 21 students discussed some aspect of culture shock in the reflection paper. The key issues were differences in Taiwanese society and differences among students from different countries. Below are some excerpts from the reflection papers relating to culture shock.

From my observations, I was generally impressed by how highly developed Taiwan is as a country. On our nighttime ride from the airport to CYCU, I noticed that the text on almost each street sign not only had a perfect English translation but was also lit with individual

LEDs, outlining the lettering on the signs. The country's infrastructure as a whole was also just as impressive, from the countless, raised expressways (designed to weather the annual typhoons), to the seemingly endless tunnels cutting through complete mountain ranges. It really made me question the quality of our own infrastructure back home [participant 11].

Night markets were impressive in they are very open public spaces. Citizens of the United States like their privacy and strict private property rules. In the US loitering outside a store is a discouraged. In the night market you can clearly see couples and friends stopped outside a store chatting and taking in the sights. The vendors do not seem to mind this practice as it draws people to their stalls. Unlike shopping at an American warehouse store, shopping in the night market is actually fun as the vendors have tried to make shopping a form of entertainment [participant 14].

The streets were kept clean due to a lack of trash cans available to the public. It's taught at a young age to Taiwanese citizens to always carry one's own trash until reaching home. This avoids the cost of the country needing to hire employees to pick up trash. In addition, a garbage truck playing the song 'Für Elise' on a loud speaker drives through the streets on a daily basis. When citizens hear the song, they rush to it to throw away all their trash. This prevents a buildup of garbage and keeps the streets and households clean [participant 17].

The lack of police presence was also a really noticeable thing while I was there. While there were police stations every four or five blocks, there were barely any patrolling the streets. Even though the lack of police presence was noticeable, I still felt very safe walking down the streets at night and did not witness a single crime on the streets or on the news (although there was one scooter accident that I witnessed and the police responded within a minute). The presence of security cameras is what also created this safe atmosphere [participant 20].

We all went to eat at a local breakfast restaurant and it was one of the first trip highlights. The menu was all in Chinese and none of us knew what to order. Before heading there, we were given breakfast vouchers, a list of participating restaurants, and a translation sheet for the main words for food such as chicken, beef, cheese, and burger. All 21 of us had spent about 20 minutes trying to decode the menu before actually knowing what to order. This was my first encounter with culture shock. To not know how to read, speak, or understand anything was a challenge [participant 21].

The material and history we learned in TECH 198 had prepared us well for coming to Taiwan but it wasn't until I was told that students from Mainland China were not allowed to visit the Chiang Kai-Shek memorial that all our studies came to life [participant 4].

Theme 2: friendliness and generosity of the Taiwanese people

The friendliness and generosity of the Taiwanese people was a recurring theme throughout all of the reflection papers. This welcoming attitude was a surprise to most of the students in the GTI* trip. We have included a few of the comments from the students related to this theme below.

This Taiwan trip has showed me how friendly and selfless the Taiwanese are. All of the Taiwanese people I have met exemplified that they choose to be kind, humble, passionate, and helpful to everyone they meet and not only their fellow peers. Unlike some people in America, being kind for the Taiwanese is not a mannerism. It is not something that should or needs to be portrayed in order to be socially accepted. For them it is something that comes naturally [participant 1].

Lastly, through the kindness and hospitality of the Taiwanese, I learned to be a little less jaded. People that are too nice don't always have to have a motive, they could be just that – nice [participant 15].

Before I went to Taiwan, I petitioned to extend my stay so I could travel around by myself. As the last participant of GTI out of Taiwan, I spent an extra 5 days traveling the island. Initially I didn't know what I was going to do and was prepared to duke it out on my own in Taipei. However as the trip progressed I made friends along the way who were willing to house me for the remainder of my trip. Because of their kindness, I was able to traverse the entirety of the island of Taiwan and get a true Taiwanese experience. With the friends I made, I traveled to the south of the island where I experienced southern hospitality in addition to its tropical beaches [participant 7].*

Another unexpected event I had was with a local breakfast bar near campus called 奶Bar伙食 (Nai Bar), where many students went to get their breakfast. This breakfast bar was run by a couple whom we called Nai-Ma and Nai-PaI, they were really generous and kind by welcoming us into their restaurant and invited us into their home. They had a beautiful home where their children and grandchildren lived right down the street from the restaurant. We were invited into their home because they love students, and we were accompanied by a regular customer named JR Chiu (Flo), who became our English-to-Mandarin translator in order to communicate. We were grateful for their hospitality as they welcomed us into their home, fed us, and talked with us for hours. During the talk, Nai-Ma decided to give us gifts for our travel back home to America by sharing with us a special collection of Taiwanese currency celebrating Taiwan's 100 year anniversary as the Republic of China [participant 8].

However, our experience with Taiwanese kindness and hospitality does not simply end here with the students we met, it extends out even more. In fact, it extends to people who we didn't know at all, people who helped us and welcomed us out of the kindness of their own hearts and not just because we were all in some program together. I'm talking about the kindness of strangers. There were often strangers who would overhear us speaking in English and would help us order food in Mandarin [participant 15].

Along with the incredible amount of developed infrastructure, the culture of the Taiwanese was shockingly different. I have noticed that, generally, Taiwanese people are much more open and helpful than Americans, who tend to be more reserved in nature. For example, I will never forget the incident where I accidentally dropped my nametag while I was exiting a train station in Taipei. I saw person come running after me, handing me my dropped

nametag. I was genuinely surprised at their random act of kindness and how they went out of their way to get my dropped item back to me [participant 11].

Theme 3: cross-cultural communication with project team members

The most difficult part of the GTI* experience for most US students was communication issues with project team members from other countries. Although all of the participants in the CYCU program had expertise in English, the level of speaking in English varied widely. All of the SJSU participants commented on this issue in the reflection papers.

...the language barrier is quite a large one. In college all classes are taught in Chinese with English textbooks. Because of this, all Taiwanese students have excellent reading and writing capabilities. However as they've never had to speak English, their ability to think of words to say is quite limited. The students from mainland China had English that was slightly better than their Taiwanese counterparts [participant 7].

In my group I had one classmate, three students from Taiwan, and two students from China. The students from Taiwan were extremely funny and easy-going. The two students from China seemed really shy. I talked individually to one of the Chinese students about two weeks after we started and she said she missed her homeland. They are also scared to speak in English because they think we might make fun of them or they might say something wrong. I told them we would not and encouraged them to be a part of the team. In the end, we finally worked it out and presented our project the best we could [participant 2].

Our main problem was the language barrier. Some students' English were more developed and advanced than others, and at times, it was difficult to convey ideas and thoughts to each other. This did not stop any of us from working hard and diligently to create a thorough and professional business proposal and presentation. Everyone contributed to the project and learned along the way [participant 16].

One of the weak points is the lack of communication between the group members: students in my group used to talk most of the time in Chinese and then one of them translates their discussion to me in English. At first, I did not like the fact that my group members talk in Chinese all time because they think they have poor English so they don't want to get embarrassed [participant 9].

I can conclude three important factors in successful cross-cultural collaboration. First, it's important to initially create settings for development of interpersonal relationships. Just like going out to lunch with coworkers creates friendlier office culture, we did it on the global scale by hanging out in Taiwan with international students in the three week camp. Second, grouping members of different cultures based on similarities is more likely to foster understanding. We were college students with majors that encourage entrepreneurship. Third, a positive attitude and patience must be used when first experiencing a new culture [participant 3].

Working with students of different cultural background is similar to trying to become friends with people of different cultural backgrounds. It starts out slow because both parties are unfamiliar with each other, then the walls are broken down and the friendship is developed. Americans are curious, bold, and outspoken, while Taiwanese students are quiet and lightly opinionated [participant 5].

Eventually, we all warmed up to each other and were able to communicate more freely. I learned to speak slower, simplify my language and slang, and also often found myself looking back and forth and even nodding during conversations spoken in Mandarin as if I really understood what was going on. Although I didn't learn much conversational Mandarin, I was able to pick up a few words and phrases along the way which was enough to illicit laughter from my group at each opportunity that I had to use them. In time, I found that the best way to collaborate with the other students was to really be adaptable and open to other ideas [participant 15].

During some of our group collaborations, I decided to use one of my Taiwanese group members to be the primary group translator to help translate some of my ideas in Mandarin since they were a bit more confident in their English. When all else failed, Google Translate became the greatest tool to use to communicate with my group members, and people in general during my experience in Taiwan. I became grateful to Google Translate because we would be able to take photos of Chinese writing and translate it to English, and it also became a great learning tool to use to learn how to say certain phrases or words [participant 8].

What I found as the most enriching part of our trip was the cross-cultural collaboration with the Taiwanese and international students. It was through this collaboration that we broke cultural boundaries and language barriers, which led to the formation of tight and lasting friendships. It was extremely heartwarming to see how friendly and welcoming the international students were to us, especially those from CYCU. I get extremely emotional, just thinking about their hospitality, selflessness, generosity, and the amount of energy that they devoted into ensuring that we were safe and content before even considering themselves [participant 11].

I got to experience all the favorite places of my Taiwanese friends, and that made the trip extra special. I have learned many valuable lessons from my friends on effective communication with people from a foreign land. The best way that I have found to be essential to establishing cross-cultural collaboration is to have strong communication. Even though English was a second language to my Taiwanese friends, we did not treat it as a barrier for effective communication. We were patient with each other and made sure that when we spoke to each other that we got our point across [participant 18].

Encouragement is external, and it happens when both parties support the growth of the other. To illustrate, I was hesitant to practice my Mandarin. Saying a "thank you" in Mandarin after ordering milk tea was a difficult exercise at the market. But my group mate encouraged me on. His logic was that Taiwanese do not mind when people practice their language. In the same way, he says, I was being patient and listening to him practice

English. It is encouragement that allows people to overcome their reluctance and grow [participant 12].

Theme 4: Differences in communication and learning styles

In addition to the communication issues among the international team members, the reflection papers highlighted differences in classroom and group behavior among the students. Of the 21 students, 19 discussed these differences in their reflection papers.

Communication has improved dramatically between all students in the IIELE program when we all got the feeling that we are not just group members but we are more than brothers and sisters. At this moment, I concluded that our diversity is our strength. I was surprised by the fact of how our group diversity helped us a lot in developing creative and practical ideas in our business entrepreneurship project especially in the marketing and business plan. I found out that one of the best ways to brainstorm great ideas on a specific project is to get people from different cultures work on this project because everyone's point of view is going to have its own and unique perspective [participant 9].

The biggest difference I noticed when I was working with the Taiwanese students is that they like to get started on the individual parts, without seeing the whole picture, whereas Americans like to see the entire picture before working on individual parts. The Taiwan educational system is also different from the American system. In Taiwan, the students sit in class and listen to the professor talk for hours and hours. In America, the students listen to the teach lecture for a short period of time then break into groups and work together. It's not that the Taiwanese students can't work in groups, but they aren't used to it like we are [participant 5].

Another thing that surprised me was their shyness and timid behaviors. We learned from the opening ceremony that Taiwanese students were taught to listen and to never really question the authority of a teacher, whereas we were taught to listen and then taught to ask questions later on in our school life. We also learned that the Taiwanese students also did not like asking questions in with the rest of the class being able to hear; hence a long line will form after class just to ask the professor questions. This behavior was confirmed when we had our first lecture and the professor tried starting discussions and asking questions, only to be met with silence in which the professor expected it. The professor was actually pleasant surprised when we began asking questions and start discussions within the classroom [participant 20].

The Taiwanese students were just typical college students similar to American college students, but they do have some key differences to American college students. I discovered that the Taiwanese students are primarily raised to listen and follow what the teachers would tell them throughout grade school until they head to college, but because of this system, many of students do not speak up to question or challenge their professors with through own opinions to criticize the professors thought process whereas in America, we typically question and challenge our professors because we have our own opinions. Though there are times where students do not actively participate in discussions in class in America, Taiwanese students are typically sleeping, and constantly using their phones instead of

actively participating. This was something I notice when we had group discussions when the professor would ask the entire class to be actively engaged, but during these discussions, students other than SJSU would not be actively engage until the second week of the program because they are not confident of their English [participant 8].

In my opinion, Taiwanese students and American students are different in terms of academic approach and attitude. In other words, Taiwanese students prefer to brainstorm their own ideas and when the idea is completed they can present it to their group while American students tend to think loud and brainstorm ideas in a more dynamic way. [participant 9].

Theme 5: the importance of manufacturing to the country of Taiwan.

One unexpected theme emerged from the analysis of the reflection papers: the importance of manufacturing to Taiwan. Ten of the 21 students included detailed reflections on manufacturing in Taiwan in the papers. Below are some excerpts from these reflection papers.

Although we all agreed making money was good, we differed in the way by which we do so. In America, the most frugal and efficient way to make money is the favorable option, however in Taiwan cheap and quick cannot be applied to everything. The other students countered our ideas because sometimes it did not help the working class, it was not based on traditional methods, or did not aid the continuation of existing Taiwanese traditions. The industry tour gave a real life example of this ideal they wanted to portray. In the tour, one of the most interesting parts to me was that the processing and packaging line was purposely not fully automated. The tour guide emphasized that the full automation of the factory would be easy but that would make many people jobless and hurt the Taiwan economy. Therefore, he continues to have manual labor on the line and believes that it should not change [participant 13].

The factories were very focused on staying eco-friendly by using biodegradable materials and decreasing the amount of energy used to create each product. Their biggest priority was making profit by decreasing the costs of production. Whereas, American companies increase the price to make up for the high costs of production. I was intrigued by how efficiently many of the companies could decrease their costs and I greatly respect their ability to do so [participant 17].

The field trip that I thought was the most interesting was going to the Hair O'Right International Corporation. They are a green eco-friendly hair care brand and were first established in 2002. The "O" symbolizes our beautiful earth which imitates the sound of "all" and "Right" means all things are right and appropriate. Their slogan is "Everything is all right." I thought this field trip was the most interesting because their engineering of the facility was state of the art. I was looking forward to seeing an old run down building with workers do hard labor in an unsafe environment. It was totally opposite. Their building seemed nicer than some of the nicest buildings we have in the Silicon Valley [participant 2].

The company tours also gave valuable insight on Taiwan's major principles and practices. We had the opportunity to visit a variety of different companies such as Hair O' Right

International Corporation and Namchow Chemical Industrial Ltd. Although both companies differ greatly in terms of their products, they both shared the common theme of renewability and care for the environment. The main principle of many companies in Taiwan is to be green and to be practically self-sustaining [participant 6].

On the business related trips, we learned about the key parts of having and maintaining a successful business. My favorite business field trip was to the Namchow Chemical Industrial Facilities. It was very interesting to learn about a company that started out with making soap, and ended up making a variety of products such as instant noodles and beer. Through all of these tours, it was clear that the people of Taiwan were very proud of their country [participant 16].

6. Implications and Next Steps

GTI* demonstrates a resolve to gather lessons from each year for the purpose of programmatic growth and improvement. As evidenced in this report, the program gathers a substantial degree of post-tour research. Guided by this sort of data, program leaders observe two specific challenges that must be addressed over the next three-year cycle: an obligation to collect more longitudinal data about student outcomes and a need to more effectively inculcate the goals of global leadership and intercultural competence among program stakeholders.

Collecting supplementary longitudinal information means extending data collection beyond the period directly before, during, and after the tour. Since the number of program participants has exceeded 180 students since 2004, research should expand to include the post-graduation perspectives of these alumni. Two primary questions are: (1) To what degree does the program produce meaningful changes in beliefs, attitudes, values, and/or behaviors? (2) What lessons can be gleaned for future study tours from graduates whose perspectives differ from those held by program coordinators? Doubtlessly, this research will prove to be instrumental as GTI* strives to achieve its global vision. Overall, the SJSU GTI* program has been very successful and has met the objectives set for it. Embedding continuous assessment and improvement into this program has allowed us to adapt to changes and provide the participants with an intensive global experience.

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- 3 Wei, B. W. Y., Backer, P. R., Chung, W. R., & Wood, A. F., "Global Technology Initiative (GTI) Study Program: Results of Seven Years of an International Experience for Students," *Proceedings of the 2012 American Society for Engineering Education Annual Conference & Exposition*, June 2012, Atlanta, Georgia.

課程注意事項

2014 The International Innovation & Entrepreneur Leadership Experience Program		Schedule				
SUN	MON	TUE	WED	THUR	FRI	SAT
July 6	7 10:00-10:30 Reception 10:30-12:00 Opening Ceremony (Tsung Cho-Chang Memorial Hall) 12:00-14:20 Welcome Lunch 14:30-17:00 Lecture: Introduction to Taiwan Prof. Dylan Sung	8 09:00-12:00 Lecture: Business Model Operation 商業模式 Prof. Ho, Jonathan Chien-Te Associate Professor of Discipline of Technology Management 14:00-17:00 Projects	9 08:00-12:00(gather) Field Trip(Group A): Hair O'right International Corporation 歐萊德國際(股)公司 Field Trip(Group B): Nanchow chemical industrial ltd. 南僑桃園觀光體驗工廠 14:00-17:00 Projects	10 09:00-12:00 Lecture: Internet Marketing-SEO 網路行銷-SEO Bobhan Lian CEO on behalf of Business and Talent Inc. 14:00-17:00 Projects	11 09:00-12:00 Field Trip(Group A): Nanchow chemical industrial ltd. 南僑桃園觀光體驗工廠 Field Trip(Group B): Hair O'right International Corporation 歐萊德國際(股)公司 14:00-17:00 Projects Progress report	12
13	14 09:00-12:00 Lecture: Commercial Opportunity Of Cultural and Creative 文創市場商機 Alex Chung General Director on behalf of Fantasy Story Inc. 14:00-17:00 Projects	15 08:00-17:00(gather) Field Trip: Magical Mushrooms Tribe 魔菇部落生態休閒農場	16 09:00-12:00 Lecture: How to Write a Business Proposal? 企畫書撰寫 Shu Hua Li 14:00-17:00 Projects	17 09:00-12:00 Lecture: Product design 14:00-17:00 Lecture: Process design Dr. Richard Chung	18 09:00-12:00 Projects 14:00-17:00 Projects Progress report	19
20	21 09:00-12:00 Lecture: How to raise fund? 募集資金 Tim Cheng CEO on behalf of Flying v 14:00-17:00 Projects	22 09:00-12:00 Lecture: Presentation Skills 簡報技巧 14:00-17:00 Projects	23 08:00-17:00(gather) Field Trip: Vigor Kobo+Songshan Cultural and Creative Park 維格餅舖+松山文創園區	24 09:00-17:00 Projects	25 10:00-12:00/13:00-17:00 Competition Award Ceremony (B1 Performance hall) 18:30-21:00 Closing Ceremony Farewell Dinner	26