

Isabel Corpus-Vidales
Electrical Engineering

I used to pride myself on my ability to empathize with the rest of the world. Going to Guatemala shook my identity as an American citizen. I realized how much inequality there was in comparison to my country and how lucky I am to live in a country where I could gain a higher education, let alone in such a high profile career like engineering. My experience gained in the technical sense of engineering was marginal in comparison to the experience I gained in the social sense of engineering. Yes, I learned about equalizing the flux rate of water, but I also learned that my career choice could equalize the rate of girls going to school, just because they saw me working with them. I also learned how to survey and level a soccer field, but I also learned how to survey the people's needs to level out the amount of work they had to do, decreasing time away from home to get water and increase time with their families or studying. Yes, engineering is a technical profession with calculus and physics but it is also a social profession with empathy and responsibility to human beings. Since I am more of an empathizer than a technical theorist, I began to doubt my ability to complete all the technical courses required for this profession. I was starting to give up. If I had not gone to Guatemala, I would not understand the societal impact engineering has on people's lives. I say my life's mission is to create things that make people happy and I sometimes did not see how engineering tied into that mission. Our project this year didn't just give the community water it provided them time, the greatest gift of all. Time that they could spend happily with their families. Now I see how engineering ties into my life's mission, they create time-saving solutions so that people can spend time with the things that make them happy. Going to Guatemala gave me something far more precious than technical experience in the field, it gave me a superior motivation to finish my career in engineering.

Christopher Sweeney
Aerospace Engineering

I have to admit, I was excited about the Engineering Abroad program from the moment I heard about it. I was even more excited when I found I had been selected as a delegate. I've been to a few different places around the world before, but I hadn't checked Central America off my list yet. We prepared for the trip throughout the semester leading up to it, but still, it was one of those things that doesn't really sink in until after you get off the plane and you find yourself realizing, "Yeah, so I guess this is happening." And happen it did. We got to the job site and got more done than most of us thought we could. There were projects that, during our planning sessions, had us scratching our heads and wondering if we'd even be able to start work on it, much less complete it. But sure enough, we had a good long look at the projects, put our heads together, and did what needed to be done, and then some. Plus I got to have fun with a 12-pound sledgehammer, which was wonderful and cathartic and, I think, a cause of great merriment for all. There was more to the experience than just work, though. We got to meet some truly wonderful people, experience rich cultural heritage, climb onto millennium-old ruins, eat all manner of deliciousness, and see things we never would at home. Our hosts were some of the warmest people I've ever met and they made us feel like part of the family. The people of Vuelta Grande, living and loving and thriving where most of us would likely throw our hands up in despair, motivated us to keep working through any hardship. Hey, if a ten year old girl can carry a full jug of water half as big as herself two miles up a mountain and still be smiling, I think we can finish digging this little ditch, right? Oh, yeah, and we got to see a volcano erupt. A FRICKING VOLCANO, how cool is that? As for me, I got to experience how to turn ideas into reality in less-than-ideal situations, made a bunch of new friends, and got some stories to tell the proverbial grandkids. What's not to love?

Daniel DeLeon

Mechanical/Electrical Engineering

After about two years of preparing and waiting (one year an alternate and the next year a delegate), the time had finally come to travel to Guatemala. During those two years I had plenty of time to imagine how the trip might turn out.

Without the sleep on the plane, I still dreamed about the opportunities and challenges that I might've had to face during the project. What tools and strategies, that I might have pulled from my physics and engineering classes, could I have used to solve any inevitable problems. I also wondered how I might hold up mentally in another country after not visiting family in Mexico for over eight years. How different could Guatemalan culture be from Mexican culture?

Walking out of the Guatemala City Airport, the building walls were covered with the newest LED seventy something inch television banner ads – made me think of Best Buy. As we were heading to the van, however, a seven-year-old girl approached me and asked me if I had any spare change. I froze as my state of mind abruptly shifted away from materialism and American culture.

From the first to the last day in Guatemala, the children we met had a very heavy influence on my changing view of the world – changing more quickly than I would have ever imagined. It was the opportunity to step away from the engulfment of consumerism and the gripping cycle of the endless rat race that allowed me to open my eyes and ears as if I had just recovered a couple sensory receptors. The kids in the village of Vuelta Grande unintentionally taught me about happiness, gratefulness and humility while we were working on the water tank installations. Their happiness did not depend on an iPhone, television or video game. With a little worn plastic ball that was still round enough to roll and our attention and participation, they were some of the happiest kids I had ever seen.

Installing the tanks made me realize how much of a necessity water is for any community. Even with the drought in California we can still turn on the faucet and clean water will come out. Vuelta Grande could have floods in the village during the winter because of such heavy rainfall and still be completely out of water towards the end of summer. By adding capacity to their water system, we increased the amount of water that can be stored for use later on when the seasonal spring has dried up.

The culture and the Spanish language are very different from Mexico. There seemed to be less street vendors and less diversity of food. Fried bananas with eggs and beans was my favorite dish. Unlike Mexico, all the tortillas that I had the pleasure of eating were thick and hand made. I was amazed by how much of the indigenous Mayan culture was still present. Most all of the women outside of the big cities like Antigua and Guatemala City wore the traditional Mayan dresses and utilized their blankets to carry their food, infants and flowers. Walking on the way to the work site we passed by an older lady supporting a huge bundle of Calla Lilies on her head with one arm while holding a large bowl full of masa in her other arm while a baby slept in her blanket bundle that was tied around her back. I immediately stopped complaining about the shovel and tool bag I was carrying.

Regardless of how much time I had to prepare for the trip, I would have never been ready. I never would have expected this trip to influence my perspective of the world the way it did. I was happy to come back to Santa Cruz to see my family, but I knew I was coming back to the lifestyle that I was so used to before I left to Guatemala. It wasn't a bad lifestyle, but I think I just saw life differently after those three weeks. I'm more grateful to have the opportunity to study, eat when I'm hungry, drink clean water when I'm thirsty, shower with warm water.... the list can go on. I learned more than just the hands-on applications and water system design. I learned about myself and the dynamic environment that will surround my life wherever I decide to take it.

Christopher Reinoldson
Civil Engineering

The Engineering Abroad Program was an experience that words could never do justice on this reflection. This has opened my eyes in a whole new aspect of how the world truly is. The Culture in Vuelta Grande really put that into perspective for me. If I were to describe what I had anticipated for the Engineering Abroad Program in retrospect I would have said we will be doing engineering applied projects for a school in Guatemala. In hindsight that was far from what the Abroad Program really was. As a human being not only do I grow as an Engineer, but I grew as an Engineer with an appreciation mentally of the state of the world and what we can do for its betterment.

I never had expected to be culturally shocked as I have been. Arriving in Vuelta Grande we were immediately exposed to the way of living for a third world country. The people in this village had next to nothing but everyone had a smile on their face and were so receptive to us coming to help out in any way we could. Literally these children would wear the same clothes every day. They didn't have any of the possessions that we of California are accustomed to. Cell Phones, Computers, fancy cars, and the newest what have yous they didn't possess. Which leads me to the fact that I have never seen children so happy. There was no need for these things for them, they were happier than ever with just interaction. By fully submerging ourselves into a new culture I was able to really appreciate what I have and not take for granted the opportunities in front of me. With three projects to start off with I chose to do the construction of a small classroom. The other two construction projects being the Surveying of a soccer field to divert water flow to avoid erosion and adding three water tanks to the community for the dry season when the well is dried up. The Guatemalan way of building I found to be quite different than the standard Californian construction I am so accustomed too. What really impressed me is how resourceful they are with the materials that they had. Nothing was ever wasted, even them cement bags themselves had a place as mini retaining walls for the concrete inside the cinder blocks for the walls of the classroom. This project turned out to be very labor intensive with duties ranging from digging and breaking up concrete, to helping build the walls for the classroom.

My favorite part was the fourth project added to the program. This was the addition of two more water tanks above the school added to three pre-existing tanks. The reason this was my favorite project was that I asked Dr. Ewald if I could take lead on this project and he said yes. I was able to really teach some of the fellow delegates' methods of construction and how the added water system would work tapping into the pre-existing system. Everyone was very receptive of learning new things and proud to add a total 3300 gallons to the village of Vuelta Grande.

In closure, I would have never been exposed to this kind of experience if it wasn't for the Engineering Abroad Program.

Jose Olvera

Mechanical Engineering

I have known about the Engineering Abroad program for about two years; however, I became interested in joining the program last year. I was in class with a couple of the delegates of that year and that was all that they talked about. Listening to their conversations and noticing the bond that they had with each other caused me to want to sign up. I ended up asking them some questions about the program and what they thought, they all encouraged me to sign up. At first, I missed the deadline to turn in the application; however, Jo-Ann Panzardi saw the interest that I had to go and she extended the deadline for me. I nervously went in to my interview and walked out hoping that I would get accepted. A week later, I received an email with a message stating, "Congratulations to the following students who were selected to the Engineering Abroad Trip..." I look down the list of students and see my name among the 13 other students. I jumped with joy and called my parents right after to give them the exciting news. I informed all of my friends, including the delegates from the trip before. I also thanked Jo-Ann for the opportunity of a lifetime.

Well the next semester came along, and boy I was not ready. I did not realize that so much preparation went into this trip. Many hours had to be put in to raise money for the trip. We had a number of assignments to do that taught us about the life and culture in Guatemala. Although I wasn't expecting the amount of time put into the trip, I was fully committed for the group and did whatever I could to prepare myself.

December 28th finally came. I walked into Cabrillo with my luggage and carry on ready to check in with Kelli and Karl. As soon as everyone checked in with Kelli and Karl, time to load the cars and head to San Francisco. When I got my boarding pass, I noticed that I was actually put in first class. No big deal (actually I was excited about that), except when I asked around, only Liam and I were riding first class. I don't know what hoops we had to hop to do that, but we somehow did. Everyone was amazed and gave us glares as they walked when we boarded.

After about 8 hours of flying, we reached Guatemala. Finally, 3 months of preparation came down to this. We were met by Alam who showed up the previous day and Mauricio the owner of the transportation company who was going to take us to Antigua. We started out our trip by visiting a nearby museum as we had to wait for Ben's flight to show up. After he showed up, it was off to Antigua. We got situated in our home stays and had dinner. I actually had to stay at my own homestay across the street because there was no more room at the main homestay. We then took a walk to the central park and walked to the ATM's to get money. As soon as we got back, I took a shower and passed out.

The following day we loaded the buses and drove to Vuelta Grande, which is where our work sites are located. We observed the work sites to see what needs to be done and what needs to be bought. We had three main projects to work on: install three more water tanks, fix a soccer field, and help a contractor build a classroom. We were broken up in three teams; I was put with the classroom crew. The following day, we went straight to work. Boy was that some intense stuff. We were all passed out on the bus ride back to Antigua. Some of us did not recover from our sore muscles. I took a couple of days to recover, but I did not let that stop me from

contributing. Sore muscles and bruises and all, I was still out there moving material around and helping mix concrete. Unfortunately we were unable to finish the classroom because the contractor who was working on the classroom was doing it because he was on vacation and wanted to help the school that his kids attended. As soon as his vacation was done, he went back to his job and left the classroom unfinished. Since we had no contractor, the project was put on hold and the crew was spread out in other projects.

I think the highlight of the entire trip was when Karl, Nick and I were just finished working on the water tanks that the year before installed. We were walking down to put the tools away when one of the Dream Volunteer leaders approached Karl and told him the urinals did not have any water. Well we walked around the school where the water ran to the urinals and sure enough we found the problem: apparently someone cut the pipe that lead to the urinals so that they can add a pipe for a valve outside the bathrooms and forgot to reconnect them. As soon as we look at the pipe, Brian Buntz wanted Karl to give an explanation of the water tanks to the Dream Volunteers, so he left Nick and I to find out how to fix it. Well Nick, Teralyn (she came by a little after), and I got right to work. I placed my hand on one of the pipes to find out where to make our cuts and the glue crack, causing a leak. Well crap! I thought that I broke the entire system. We quickly shut off the water to make sure we didn't cause any more leaks. To make matters worse, the pipes were connected by a T-joint and we didn't have any extra joints. The one that we had was going to be used to connect the pipe that lead to the urinals. Luckily the bottom portion of the T-joint was capped off so it was almost as if it wasn't there. We ended up replacing the T-joint with a right angled elbow and made sure they were glued properly. As soon as we got that fixed, we connected the urinal pipe with the pipes that we just fixed and let the water run. Not only did we fix the leak but we also got the water back into the urinals! Hooray!

I know that something like fixing pipes may not seem like a big deal or a complicated job, but this was the first time in my entire life that I felt like an engineer. There is a process that all engineers go through when presented a problem: they come up with many designs that could solve the problem, they then apply the best design, if another problem comes up, they go over their plans again and make necessary changes. Doing this pipe work, we had to come up of a way to connect the pipes so that we can get water to both the urinals and the water valve. After the joint broke, we had to take a step back and think about how to fix it. After we were able to fix that, we went back to fixing the urinal now making sure that we didn't put too much stress on any of the pipes with our design. When we were able to accomplish this, it brought me great excitement that we did this without given much direction. We came up with the plans and design ourselves. This made me realize that engineering was definitely the career I want to pursue.

Jaben Melville

Manufacturing Engineering

Mobilizing with 15 people, traveling thousands of miles away to a foreign country to accomplish engineering work for those in need was something I never expected to do when I began studying at Cabrillo Community College. Not only did the experience and its outcomes exceed my expectations but I was amazed at the courage, patience, kindness and ability I found in my traveling group of peers, mentors and leaders as well as the people who welcomed us in Guatemala. The trip continues to teach me in so many ways how to work with a group to achieve amazing outcomes and it felt very human to be part of this group effecting positive change in another part of the world.

By the time we arrived on the work site in Vuelta Grande for the first day of work it was the last day of 2015. Our first job truly bonded the team as we worked together in a bucket brigade along with the local students of the community to move two tons of aggregate in order to supply material for the construction of the new addition to their school. With a common goal, the task at hand of transporting gravel and sand from where it was dumped along a road to the work site set the tone of our large group. Working together towards these types of common goals made the hard work fun and our big projects seem possible. We were all together for almost the entire trip and from the beginning to end it felt like we were a symbiotic force of engineering power and grace. Most of our living, working, eating resting and playing was done together and although the group was large being together developed us into a cohesive team. Having a common purpose to our work unified the diversity of talent, experience, insight and personalities of the individuals and strengthened our team. In a sense we were a big family which taught me about the give and take necessary to function effectively within this entity.

We learned much from the Guatemalans as we were taken in and trusted to make changes in their homeland. Our work in their community would have to respectfully address their harmonious balance that keeps this rural mountain village vibrant and beautiful. The communication of the ideas was eloquently translated from our engineering minds through the bilingual students in the group with the community conscious leaders. These articulations identified root problems, enabling dynamic solutions that were most beneficial by designing with the input of local knowledge. The soccer field erosion was repaired and water diverted with respect to surrounding land owner rights and concerns. For the more technical water storage tanks solution, being repairable with locally available parts was important, also the operation of the system was clearly communicated and neighboring land ownership was respected. When we assisted the local construction crew building the walls of a new classroom at their school the workers showed us the local construction technique using cinder blocks secured with an internal grid of tied rebar.

With the intention of helping this community as much as possible during our stay we listened and learned from the Guatemalans as much as they did from us and I believe we all got exactly what we needed out of the experience which allowed us to accomplish all we set out to do and more. I found the entire experience and the resulting personal growth to be even more spectacular than I could have imagined. I hope to encourage students to do the same in the future as we share the knowledge gained with involvement in the Engineering Abroad program.

Alam Figueroa
Computer Engineering

I try to think about the exact time when Engineering Abroad started for me; I think it's a few days before the deadline to apply. I honestly wasn't expecting to be accepted, other than Spanish as my first language, I thought I hadn't much to offer a project of such magnitude. Nonetheless, I was selected and am grateful for the opportunity.

Once in Guatemala the entire group visited Vuelta Grande, the small village where we were to work the following weeks. I was expecting a community of a few families with their respective houses close to each other, what we encountered however, was a lot more humbling. Houses made out of bricks and others out of clay, their roofs were cardboard sheets, were scattered around the mountain with the only places of communion were the school, and a soccer field. The humbling experience though, came from the people themselves, they

were happy despite the conditions they lived in. Realizing this made me think about my life, there are some luxuries we take for granted, and others we don't even consider like a floor.

On a happier note, the entire journey was incredible. Starting with the homestay. Don Elder, the owner of the homestay, his wife, his son Mauricio, and his daughter in law Betzy, made me feel at home. It was as if they were an extension of my family that I came to find all the way in Guatemala. Then the group was absolutely amazing, everyone got along well and had a lot of fun together.

Regarding engineering "work," the group split into three teams. The first team was in charge of installing more water tanks, the second group was to build a classroom for the school, and the third team, where I participated, was to rebuild a soccer pitch that had been damaged during the rainy season. I used quotation marks for work because although it was challenging, and a bit tiring, I enjoyed every part of it. I learned about civil engineering, I interacted with a couple of leaders of the community, whom with their vision of progress inspired me, I got to play soccer, and I interacted with the local children, which I consider to be the most valuable thing I did. I think the best voluntary service, that not only this year's group, but every group that goes to Guatemala each year provide, is to show the children that there is more, that they too can pursue their goals, and to play with them because they are still children after all.

Jaqueline Mendoza

Biomedical Engineering

Even when my name showed up on the delegates list for the 2015-2016 Engineering Abroad Program at Cabrillo College I hadn't the slightest clue as to how to prepare. Growing up I had gone to Mexico to visit my parent's hometowns for a couple weeks a year, but never had I gone out of the country without my family or as part of a program at school; nor have I ever been to Guatemala. Combined with a natural inclination to be rather paranoid left me perplexed as to how to prepare *inwardly*.

Before choosing this major I had not given it too much thought to having the chance to impact a community using engineering concepts for a rural yet rich pueblo this early into my course work. And I definitely did not plan to be the recipient of such gratitude and utter thankfulness by the mayor of Vuelta Grande for the work and time put in to the projects.

I mainly worked on erosion issues: one side task was reinforcing and adding to a small hillside by a group of existing water tanks to support additional tanks and the other (greater) task in finding a solution to the erosion at their soccer field. With biomedical engineering being my specific major, and as much as the fields may differ, I was actually able to understand a peer's explanation of erosion relative to the soil/water mixture and foundation to erosion seen in bone marrow-and why it clearly is not a good thing.

Aside from drawing further connections between different fields of engineering, I was adding to my skill set in numerous other areas. I built my communication skills by engaging with the active/leading members of the community throughout the project in a wide-range of discussion from socio-economic, educational and cultural plans for the village to project details such as elevations and plans to redirect water, and I got the chance to also just talk about life back in the states. My language skills were put to the test as the opportunities for translation from Spanish lay at every moment we interacted with the locals, which frankly would not have grown without the immersion factor.

Upon my return, the first steps I took into my home were enchanting as I marveled at the solid aesthetic structure of the floors and walls, and mainly of the food/snacks laid out with a buena vista of my bed awaiting me. After taking my perfectly-temperated shower, I couldn't help but recall information of Vuelta Grande- that they now have water to last them 10 months out of the year; but that if and when that water in the tanks were to empty, the women of the village would have to walk around a mountain to bring water to their families. Then at work came the sobering reality of the common first world plights like developments in eating disorders. And I dazed at this reality while I reminisced over all of the smiling and joyous kids around us at the work sites back in the Vuelta Grande where they are assumed to have "nothing", yet appear to be most abundant in vigor.

With reflecting over the trip abroad I can say it was a truly rewarding experience to be able to positively impact a country such as Guatemala with all that they have had to endure throughout history and still receive us so graciously.

Mike Lara

Mechanical Engineering

I remember two years ago when the first Engineering abroad group was getting ready to take off. I thought to myself that it would be a great experience but I never thought I'd get to go. I decided to just go for it and apply and I'm glad I did. 3 other students along with myself and our advisor Brandon installed a 1,980 gallon spring fed water storage. I learned a lot about how the village's water system worked, the spring where the water was being drawn out of was at a higher altitude than where we installed the tanks. This meant that gravity would work to our advantage and keep new water constantly as it is being drawn through the water spigot as long as the spring hasn't gone dry. The children from the village of Vuelta Grande are really sweet, I will miss showing up to the job site with a crowd of kids waiting for us. I experienced first hand that having material things isn't the only way to be genuinely happy. These children were happy to just spend time with us and ask questions about our project. The feeling of completing our projects and seeing the villages' gratitude towards our work was highly satisfying. Not only was this a learning experience but it was also a cool traveling experience. We went and actually explored the ancient Mayan city of Tikal. Getting up and 5 in the morning and running through the ancient city in order to catch the sunrise was kind of difficult but very rewarding. Another I really enjoyed was visiting the Mayan women in their home and seeing how they go about their weaving work, I bought a lot of gifts for family here and everyone enjoyed their gifts. Our brief trip to Lake Atitlan was nice and relaxing, we also saw how pottery and clay figures were made and painted. We also witnessed a Sunday market day in Chichi which was a great experience because I like to bargain. Overall this was a life changing experience that I will never forget.

Teralyn Crill

Materials Engineering

Before I became a part of the engineering abroad program, I had only ever travelled out-of-state once, and I had never been out of the country. Most of my time was consumed by school assignments and working to earn tuition, so even though I had been aware of the program for about a year, and had met several past delegates and instructors that recommended it to me, I was intimidated by the prospect of leaving my home and other commitments behind for two weeks to travel to a country I've never been to with people I don't know to do

some unspecified engineering project that I have no experience with. I decided to let the eager, prepared students go without me.

Then, when I was in the midst of my beginning Spanish course, I received an assignment to research some cultural fixtures of a Latin-American country and present my findings to the class. Out of 21 possibilities, I was selected for Guatemala. There were only a few days left before applications for the trip closed, so I began my application that night and turned it in on the very last day. I thought “It’s such a rushed job, there’s no way I will be considered,” but the program coordinators interviewed me a couple weeks later, and before I knew it, I was one of 14 college students set to fly overseas next Spring.

It wasn’t until I met the other delegates and alternates that I realized my situation was not unique. Most of the other students had quite a bit of traveling under their belt, and a decent grasp of Spanish, but we were not prepared to travel to Guatemala to do the project. The Fall semester was spent learning about Guatemala and about each other, and slowly I became more comfortable about the prospect of going on the trip. This was an opportunity to experience the world in a new way and gain some perspective on the importance of engineers. I learned a great deal on the trip, both about how to use engineering to solve real world problems and about differences in culture. We spent a lot of time planning and implementing designs that the people of the village would have to maintain once we were gone, so they got involved too. It was amazing to see people from two very different culture working together to make something wonderful and putting engineering skills to good use, and even though I didn’t understand much Spanish, even I could see the effects of collaboration between our team and the village throughout the whole process.

We suffered a few setbacks as well, but each hitch in our progress was an opportunity to start something new with more experience. I was especially impacted by how mistakes were treated: no setback is a complete disaster, everything can change and it’s okay if you don’t find the “best” solution to every problem, just as long as you learn from it.

Ivan Ayala
Mechanical Engineering

Having the opportunity to experience the Engineering Abroad Program made a huge impact on my life. I became a better person and was motivated even more to become an engineer because I learned that I can help people through the work I do. After hearing other students talk about how they have had joined the Engineering Abroad program and helped out a Guatemalan Community, I became very interested. I was approached by Kelli and encouraged to join the team. After my interview with Kelli, Karl and Jo-Ann, I was became aware of an even bigger purpose of why I wanted to become an engineer. The program sounded perfect because we would be able to help people in need with our technical skillset. I am thankful and fortunate for being one of fourteen who were able to make a change in the community of Vuelta Grande Y La Colorada.

When arriving to Guatemala I did not know what to expect, I just kept thinking “this is really happening”! After getting myself together, I was excited to see what we were going to work on after spending a semester planning for our projects. We were split up into three teams: one making a classroom for the local school, a second fixing an eroding soccer field and finally our team who was building a water tank system to provide water for the community. Having a good team was a good thing we were able to communicate and execute our plans and ideas as soon as we got there.

We had some technical problems along the way as we placed three 660-gallon tanks on the hill we were working on. We had trouble finding the main water source pipe that were to connect to the water tanks to.

However, with time and patience, we were able to come up with a solution. I'm glad I was able to provide the community with water, a resource they had previously lacked most of the year. I feel fortunate to have met the kids of Vuelta Grande as they impacted my life in the same way I impacted there's.

The Engineering Abroad Program was a true learning experience that I will never forget. I am grateful for having the opportunity to work with my professors, colleagues and also the locals in Guatemala. I recommend this to any engineering degree major. We wouldn't be able to experience this with out the staff of Cabrillo College and the National Science Foundation. Thank You!

Amanda McDonald
Civil Engineering

If there is an experience with the full package, it would be the Engineering Abroad Guatemala. This was an opportunity the could not be had any other way. From working with the children in Vuelta Grande, teaching them about what we were doing, to actually building things ourselves; we were constantly busy. Involving the community was probably the most important goal for me. This ensured the caringness and upkeep of the things we were fixing or building.

Arriving into our homestay, all of us together, was something that could only be described as an automatic team and automatic friendship. The entire group was one from the start and it really showed while in Vuelta Grande. In my eyes the experience amongst the group is one of the top reasons why the trip was so exponentially great. Being in another Country and getting immediately integrated into a new culture was overwhelming. However, everyone seemed to have this happen as well which made it seem more comfortable.

The cultural immersion was fully expected. Once there, it seemed as if I was not ready for it. Something almost undescrivable is seeing open markets of meat and butcher shops in Chichi, to seeing the Mayan way of life that has been a way of life for many centuries. All of this shocked me. The Most incredible immersion was the food. Sometimes less flavorful or salty, but also so different than what is eaten in my household. The homestay preparing All 3 course meals for us dially was very nice. Living in the homestay in Antigua was a great view of daily life for the average Guatemalan. Nothing was fancy, and sometimes the showers were cold, but we gained appreciation for the little things at home that seem to be "necessities" that actually are not. I gained so much appreciation for the Quality of Life here in the United States that taking cold showers and sharing a room with four other girls is not even an issue anymore. the Mindset of the united States is more of "take and see how much we can take" instead of "get and give" like Guatemala was. This gave me and I am sure everyone else a huge understanding about possible "flaws" in our capitalistic society. I am grateful to be aware of this so that I can be less needy for non-necessary items in such an ungrateful manner.

Looking towards the engineering aspect, the on field work gave me more insight than ever imagined. Learning about new tools, the way systems work, to surveying, there was more knowledge had in two weeks in Vuelta Grande than anywhere else I have been. This was quite different than a classroom lesson and definitely will help us all be better developers, planners, and team workers in everyday life. The large spectrum of knowledge and understanding taken in in those two weeks has been forever life changing, and I wish that more people and get to devour such a mindful experience like this. Signing up for this program is something I will never regret.

Benjamin Lagace
Mechanical Engineering

I first heard of the program from the previous year's presentation for the donors. I remember being reluctant to apply. I had never been to Guatemala, except for a short trip to the border town of Melchor de Mencos to shop for a dirt bike tire. The idea of traveling to an unknown place, with a group of 14 students and 3 professors, most of whom I barely knew, wasn't very appealing. But I started to get more excited about the trip as the weeks went by and we got to know each other during the 15 weeks of preparatory meetings.

Once we arrived in Antigua, Guatemala, and got settled into our homestay, we had a group dinner. We were all tired from traveling, needing to get cleaned up and rest, but excited to get up to the worksite early the next day. My group ended up working on the erosion control for a newly constructed soccer field. The field was carved into a hillside, simple cut-and-fill, and the fill was washing away from one corner. Part of the problem, as we found out from the village mayor, was the large amount of water coming down the hillside above and flowing directly towards that corner. Another issue we found, by surveying to find the relative elevations of the field, was that the corner was also the lowest point on the field, meaning that all the water from the field itself was also directed to that eroding corner.

Our job was to fill the eroded corner and figure out a way to prevent it from eroding again in the next rain. We ended up crafting a plan to redirect all the water to the opposite end of the field, where we created a natural spillway and sloped the field away from the problem corner altogether. The mayor, with help from the locals, wanted to also direct the water from the hillside above the field down to another spillway and creek. We decided that would be a great idea, since it would take care of a large portion of the water that was causing the erosion, and offered to help in any way possible. We took spot elevations along the path and let them know where they should cut to allow the water to flow down the path. The mayor was excited about keeping the water off the soccer field, but the neighbors and landowners had other ideas. They were not about to let anyone dig a path on their property, and that was that, we had no choice but to leave the path alone.

The experience was certainly an eye opener. Between the beauty of Guatemala, and the kids that could be happy with next to no material things, the 2016 engineering abroad experience has reminded me to appreciate the smaller things in life. In Vuelta Grande we saw kids as young as 3 years old, helping their families with daily chores, such as fetching water from the faucets placed strategically thorough out the village or hauling groceries on their heads. They never complained about anything, and had what seemed to be a very bright outlook on life, much more than my recently spoiled self.

Liam Dougherty
Electrical Engineering

I will never forget the wonderful time I had in Guatemala. The experience was so enriching and exiting, that trying to recapture it in words is difficult. Each day felt like a weeklong vacation because of the sheer density of interesting sights, sounds and culture shock.

The climate of Antigua is wonderful with many days reminding me of the hot yet temperate California summer. The food was unique, delicious and contained just the right amount of spice for my tastes. Our homestay felt like home because we were treated like family. Many a morning, I would go running and receive warm greetings from all of the townspeople I saw. I've never met such welcoming people as I did in Guatemala. I never expected to form such a strong bond to the children of Vuelta Grande. My Spanish was kindergarten level at best but I was able to interact with the local kids in different ways that didn't involve a common language. Every day, the children would visit us as we tirelessly installed piping and valves to the communities'

water system. The young ones would show me the local flowers, fruits and the artwork they made. Despite living in an area of great poverty, the children glowed with a natural happiness I have yet to witness here in the states. I believe that by interacting with the children of Vuelta Grande, we greatly strengthened our partnership with the community for future generations to come.

My team and I worked on a water tank system used to supply water to Vuelta Grande during dry months. I learned more in the two weeks on the job site than I had all year in a classroom. Our instructors were very helpful and willing to explain every detail about the systems we built. The work wasn't physically easy but it paid off. Not only had we each learned valuable skills that can be applied in our future careers but we had also provided water to a community that desperately needed it. When the last pipe was installed in the water tank system we had worked on, we turned on the faucet below us. The sight of clean water pouring out of the spigot and members of the community looking on joyously was an unforgettable moment.

On our last day of the trip, Don Miguel, the mayor of Vuelta Grande gave us a heartfelt speech showing his gratitude for the work we had done for his community. At that moment, I realized the true value of engineering as a helping profession. We had applied our technical skills and succeeded in changing the lives of individuals that do not have the same fortunes as we do. Overall, our trip to Guatemala was a timeless and beautiful experience that I will cherish for the rest of my days.