Kari Sanford

Dr. James Middleton

FSE 100: Intro to Engineering

11 December 2014

<center>End of the Semester Reflection</center>

Being a girl in engineering has taught me two things: (1) you have to be bold and (2) you have to be smart. It's one thing to assert yourself into a conversation and make your voice heard amongst the others, but another to be respected as a valuable team member. Being the only girl in the group sometimes subjects to documentation and aesthetic input, but it's not always intentional.

My male counterparts were simply doing what felt natural to them: putting their hands on the project. There's nothing wrong with acting upon a desire to work, but I felt that they were completely missing the a huge piece of the design process- the design component. I had to constantly remind my teammates to step back and begin with the end in mind. I brought them to the drawing board, and encouraged them to think with the end in mind. What was our product going to achieve? What constraints were we confined to? How are we going to be unique from other teams? Together, we developed a strategy, evaluated options, and sketched a solution before building.

Often, during brainstorming sessions, my teammates would cluster and converse without including me. I had to physically get up from my stool and insert myself into their huddle to participate. This was particularly annoying, because then no one would be documenting the conversation; we were all speaking and no one was listening. After a couple of weeks of this occurrence, both in class and during out-of-class group meetings, I realized that we were not making any design progress and falling behind schedule quickly. At the beginning of our next meeting, I suggested we all sit near one of the four corners of the table, and take turns speaking. Our turns went in clockwise order. Whomever had the marker had the authority to speak; listeners took notes in their notebooks. These notes were then compared and entered into the group's electronic engineering journal at a later date. Initially, some group members detested this idea; they liked being close to each other to fuel their bromance. I've held firm to the belief that relationships are not about proximity, they are about connecting and understanding. My personal values are evident in the new communication method in that it increased synergy and helped members convey ideas better. It engaged everyone, both as a speaker and as an active listener. My group certainly recognized the benefits of this method.

Now that I had the opportunity to speak, I made sure it wasn't wasted. I'm very well aware that my "cute" ideas may seem "dumb". Even the brightest of designs are susceptible to criticism from my male peers, simply because I'm a girl.The only way I could defend myself is with knowledge- textbook, personal experience, professors/TA, Google. By presenting the facts first, and then the idea, I was able to capture my teammates' attention to detail and convince them to grow my idea. It's a little unfair that as soon as one of my male counterparts says, "Hey,

I have an idea," he has everyone's undivided attention and respect. Everyone jumps onto his bandwagon without question, while I have to provide rationale every time.

In addition to making changes to involve everyone (including myself) in the communication and design processes, I also had to push and shove to attain a role in the build. I had to tell a group member, "We're switching today. You're secretary, and I'm build. Go." Even then, sometimes I would just stand there with the hot glue gun in hand, waiting for something to do. To seek active involvement, I asked my group to set goals for the day. After these had been identified, each member held themselves accountable to one. Roles would be distributed based on the goals/objectives. I made sure that we each rotated roles and shared equal contributions. Changing the roles each time made the meetings unique, and everyone entered with, "I wonder what I'm going to be today."

This course reinforced some of the group dynamic skills I've learned from participating on a high school robotics team (and being one of two girls there). Effective communication is key to group success. Setting goals and holding members accountable to them will ease the workload off of a single person, which prevents burn-out and emotional stress. Going into future engineering courses and the workplace, I intend to maintain my communication skills and assertive attitude to ensure that I have a valuable contribution to the team.