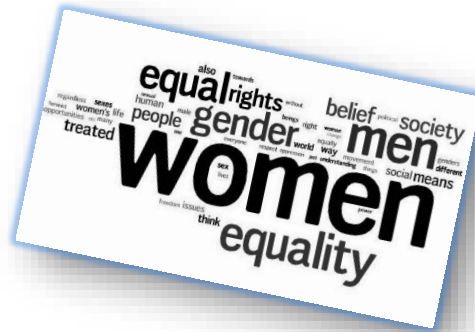
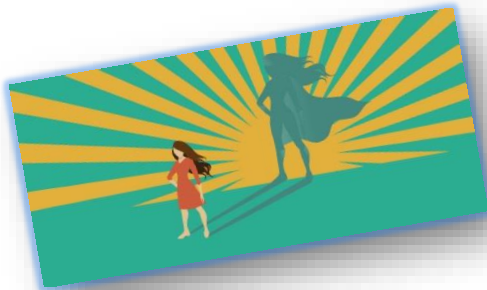


Girls Empowerment Effect on Coquitrón Robotic Team

The role of the woman in the society has changed through the decades. Women are always being related with domestic activities and less important roles in the society. However, there has been a lot of progress on women empowerment and leadership on our society. On 1969 women were around **33%** of USA workforce, now on this decade that number has changed to **50%** which represents a big progress. Despite of the advancement of women empowerment, there is a lot of more work pending to do. Women in the United States are paid only **77 cents** for every dollar a man makes ⁽¹⁾. Based on these facts, the inclusion of women is necessary to keep growing on different roles such as; Science, Technology, Engineering and Mathematics (STEM).



There are companies around the world with a special commitment to provide experiences and tools to emergent population on STEM topics. Johnson and Johnson is one of those companies that is committed to provide help and support to the communities near their manufacturing plants as part of their CREDO. One of those opportunities is Coquitrón, a robotic initiative that pursues the integration of Middle and High school students. Sons, daughters, nephews and nieces of employees from Ethicon, Puerto Rico can be participants of this initiative. My name is Alany C. Santiago Vázquez and last year, my big brother was part of this initiative for the first time. During that period, I was supporting him on every competition and that experience helped me to develop a special interest to participate on a Robotics Team.

Being a girl interested in robotics is not common. However, we live in a world that is constantly empowering the women to go for more, that's why I was not afraid to share my interest with my brother. When I hear "girl powered" I think in inclusion, opportunities, growth, no boundaries and on think out of the box; tools that are necessary on any team. My

team members are; Joshua Rodriguez and Glorianne Pedro. We have the perfect balance since we complement each other. This can be seen on how we made our plan for the design, build and programming of the robot. Each member has an important role and we encourage each other to have the experiences building and programming the robot. At the competitions, we are well balanced and we discuss our plan prior any match. Glorianne is in charge of making any changes to the programming, Joshua is our driver and I'm in charge of making sure that the strategy is being followed, also, I'm the time keeper during the match.

Inclusion strategies from Coquitrón were very important to make the team as strong as it is. I can summarize the strategy with the word **DIVERSITY**, since we are Middle and High School students from different schools and towns. In addition, for the first time in around 4 years, the Lead Mentor is a girl too. Her role is to coach and guide us with an extended group of mentors. Part of the strategy from our Lead Mentor is to make us part of every development phase of the robot. As an example, all members have experience on programming, design and construction of the robots. This diversity has been very helpful for all the members since we are constantly giving feedback to each other to improve our performance on each competition. Those feedbacks are can be also reflected on the final design and programming of our robot. For example; Glorianne has a more "visionary" approach so she is proposing changes every time while Joshua has a more "practical" approach. Therefore, the result was a robot that was constructed combining both approaches in effective ways since Joshua's helped Glorianne to get a quick and final design. If the design was led by Glorianne only, maybe we were not able to have one robot for our first competition since she is always doing changes. That was one example of the magic and balance when we have diversity.



TEAM WORK
Joshua + Glorianne



My interest in robotics wasn't only developed by watching my brother participate, it is also being developed by seeing people such as role models on STEM field. There are a lot of women doing great things on STEAM, however, my inspiration is Eng. Debbie Sterling. She is an engineer and an inventor. I'm feeling very inspired by her, since due to lack of women while she was pursuing her Engineer career, she decided to develop applications and toys to help girls to think out of the box and solve problems. That is the kind of things I would like to make in my future by inspiring others to chase their dreams on fields were women are minority.

STEM Role Model



This is not only a theoretical application of concepts and knowledge, it is a "lead by example" journey. On December, we participated on Puerto Rico Institute of Robotics (PRIOR) Tournament. Only the first 8 robots with the highest score will be able to choose an alliance to continue. Our robot (2284A) ended on sixth position while our partners of robot 2284B were at position 14th. We had the opportunity to choose other robots as alliance, however, knowing our team members and the capacity of each robots we decided to go with 2284B as alliance. We built a strategic plan on the day of the final match and we defined roles to each one of the members of both robots. The result was amazing, we won the first place defeating strong teams.



Being part of this robotic initiative has been an extensive journey of learning. We have been practicing and building the robot during our free time since this is not part of our regular classes and curriculum. It has been a great opportunity to share experiences and suggestions with the other team members. We have been learning that the only way to be effective is by having a good communication and respecting the ideas and thoughts of other members. We have learned that inclusion is the key to change the world and have progress. We are embracing and capitalizing each one of the opportunities that Coquitrón is giving us and we are so looking forward to pursue STEAM careers in the future.

Credits & References

Author: Alany C. Santiago

VRC Robot Number: 2284A

Team Members: Joshua Rodriguez, Glorianne Pedro, Alany C. Santiago

(1) <https://www.americanprogress.org/issues/women/reports/2013/09/25/74836/the-state-of-women-in-america>