Providing Assistance to Eleanor Roosevelt High School's VEX Robotics Program

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Class Overview
This opportunity to provide assistance to Eleanor Roosevelt High School's VEX Robotics Program was created by the class CPS240. Science, Technology, and Society Service Learning Practicum, taught by the Assistant Director of the Science, Technology, and Society Scholars Program, Matthew Aruch. The goal of this class was to provide assistance to various robotic programs in Prince George's County Public Schools ranging from elementary schools to high schools. For the first three weeks of the class we discussed the importance of STEM education for elementary, middle, and high school students, formed our groups for the various schools that we were going to provide assistance to, and created plans for the activities we were going to execute once we start visiting our school locations. For the next ten weeks, we met once a week in a class structure and then a second day of the week for going to our various school locations. During this ten week period, we dynamically change our lesson plans and adapted to the needs of the students we were providing assistance to. We also participated in online weekly discussions to see how everyone was doing at their various school locations and to become aware of the issues and accomplishments that different groups had. For the final two weeks of class, we reflected on our experiences and created a reflection paper regarding our experience and how we have improved as educators.

Assigned School
For CPS240, I was assigned to provide assistance to Eleanor Roosevelt High School's VEX Robotics Program. I was assigned to Eleanor Roosevelt with two other students and a teacher assistant, who transported us to Eleanor Roosevelt and back to campus on the days we had to provide assistance, forming a group of four. Before we started to provide assistance to Eleanor Roosevelt's VEX Robotics program, we had to learn what VEX Robotics was. VEX does not stand for anything, rather it is just a trademark registered by Innovation First International. Incorporated for their robotics. VEX Robotics is a robotics based competition primarily for high school students but also for elementary and middle schools. The goals of VEX Robotics is very students to build a robot using various materials provided by VEX Robotics themselves such as metal pieces, wheels, batteries, motors, a microcontroller, and a joystick. The robot will then be used to compete in VEX Robotics competitions in which teams will be challenged to do various tasks within a specific time limit with their robots such as conquering certain territories in a playing field, throwing objects over a barrier, and planting objectives in certain territories in a playing field. We created a plan of the various activities we would do for the first few weeks at Eleanor Roosevelt such as focusing on building the robots efficiently and narrowing down what each team at Eleanor Roosevelt wanted to do with their robots. Once we arrived for our first meeting with Eleanor Roosevelt, we learned even more about VEX Robotics from the director of the program. The VEX Robotics program at Eleanor Roosevelt was divided into five teams, where two teams were already experienced with VEX Robotics and the other three teams were not too experienced. We decided that we will focus most of our attention on the teams with the least experience so that they can become as successful as the two already experienced teams. After our first meeting, we became aware of what we had to do for the next nine meetings.

Issues Confronting Assigned School
The major issue that we had to confront with at Eleanor Roosevelt was how we were going to specifically guide the three unexperienced teams to create successful VEX robots that work properly, are programmed properly using RobotC which is a custom computer programming language specifically for VEX Robotics, and also be able to form a team chemistry where team members can rely on each other with minimum frustration and confrontation. I focused on working primarily with a team composed of three freshmen and two sophomores. They had minimum knowledge of VEX Robotics but they had a passion to build and work together which allowed them to become understanding of what type of robot they specifically wanted to build. I created lesson plans with the other people in my group who are also providing assistance to Eleanor Roosevelt's VEX Robotics Program so that we can specifically plan out things such as showcasing VEX robotics videos for idea generation, promoting the use of drawing and outlining so that each team knows what type of robot they want, and then actually getting into hands on building and programming for the robot. We then had to confront the weekly issues such as teams not having the parts they need to build their robot so they have to order them and then wait a few days and also the robots not operating properly so we had to assist with troubleshooting the RobotC programming. The issues I had to confront at Eleanor Roosevelt with my group assisted us with improving our problem solving skills and also our skills regarding educating a demographic younger than us.

Impact
The impact of us assisting Eleanor Roosevelt's High School VEX Robotics Program was that it allowed us to share our knowledge on a subject where we would be able to provide assistance and it also allowed us to improve the three unexperienced teams to a state where they can fully build efficient VEX robots by themselves. The impact of this experience on me personally was that I improved in my planning and problem solving skills and I became aware of my skills as a teacher. This experience allowed me to become aware of the importance of STEM education and why it needs to be exposed to students at a young age. The items that students learn in STEM education at a young age can significantly assist them with general life tasks such as planning, time optimization, and problem solving.

Future Work
We were only able to assist Eleanor Roosevelt's VEX Robotics Program to the halfway point of their VEX Robotics season. I hope that future College Park Scholars students that take CPS240 are able to assist Eleanor Roosevelt High School and also themselves. I personally would enjoy taking CPS240 again if I could. I plan on continuing to assist younger generations with STEM education due to its importance in today's society. You do not have to go on to major in STEM if you learn about it at a young age, but the information you learn regarding STEM can help you in disciplines such as art and business. I am thankful to be able to assist Eleanor Roosevelt's VEX Robotics program and they were thankful for us too. I know that the skills they acquired during their time with us will allow them to successfully overcome any issues or problems that they encounter in the future.

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