

Robotics Teacher at Cesar Chavez Elementary



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Introduction

From September to December 2019, I have served as a robotics coach for a group of elementary schoolers at the Cesar Chavez elementary school, as part of my class CPSS240, which seeks to not only understand the tenants of STEM education, but actively practice it in Prince George Public School System

Activities:

I was responsible for teaching the kids under my instruction the fundamentals of programming and building a robot, as well as the fundamental principals behind engineering and computer science. To do this, me and my fellow teachers utilized the Lego NXT Mindstorms kit to have the kids build the

Issues Confronting Site

The class I was part of, CPSS240, is a service-based scholars class part of the STS division (Science, Technology & Society) of College park scholars. In the class, we were tasked with teaching elementary students at different schools in Prince George's County about robotics and similar STEM concepts. We were also asked to take note of the process of STEM education, and any difficulties, be it cultural, economic, etc., that cropped up during our practical exposure to teaching. For this reason, I was assigned to Cesar Chavez Elementary School to teach robotics.





robots, as well as use the NXT programming module to program them.



Above: Example of an NXT Program the kids had to write (left), and the school where they did it (right)

In addition to hands on teaching, I was assigned in a group of other teachers (fellow students), where we would design lesson plans and topics for each session. At the end of the program, we created an account of our learning experience and reflection of both the difficulties we had teaching STEM related course material, and how we personally felt about such a task.

Site Information:

Cesar Chavez Public Elementary

6609 Riggs Rd, Hyattsville, MD 20782

Timothy Reedy

Mission Goals: To both educate students in STEM related fields and evaluate the difficulties and challenges of STEM education in American Public-School settings.



Above: Writing a program for the robot Left: Testing the robots in a "combat simulation" that the kids ended up really enjoying

Note: Due to Prince George's County policy, we were not allowed to use pictures containing students' faces. However, they did allow us to use pictures of materials the students built and designed, hence the fervent cropping of pictures

<u>Impact</u>

CPSS240 has provided K-12 school students an introduction into a STEM field outside of normal high school classes. In this way, we hope that we have engaged our students so that they would pursue either a STEM education going into college or have at least opened their eyes to new possibilities that they have not considered yet.

Discussion

Overall, I have found that this has been an incredibly interesting experience for me to practice what I have learned in class in the real world. As a CS major, a lot of the materials that I taught, such as program design, debugging, and scientific thinking, were all extensions of my own education that I received from UMD. I also received a better understanding about how education worked overall, and the difficulties that could occur in STEM education if certain benchmarks are not met by either the educators or the students. While I cannot say that I want to be a STEM-related teacher in the future, I still cherish the experience of being able to educate kids that were both respectful to our lessons and eager to learn

Acknowledgments:

I would like to thank my site supervisor, Timothy Reedy, for allowing me to partake in this fun and unique opportunity, as well as Dr. Holtz and Dr. Merck for providing an interesting and eyeopening 2 years as a College Park Scholar. Of course, I would also like to thank my fellow teammates, who were all too willing to provide help and guidance during my coaching activities.

Future Work:

While I believe that there was a lot of good progress made towards teaching kids, I believe that the program should invest much more into supplies for kids – more robotics kits, laptops, etc. One of the biggest challenges we had to tackle was not to teach kids how to build or code but getting them the tools that they needed to build or code. I hope that in the future, this program receives more funding so that they can serve even better than they did before.



