Robotics Service-Learning

Zoe Plank
zoeplank229@gmail.com
Science, Discovery, and The Universe
Biochemistry

Service Site Overview

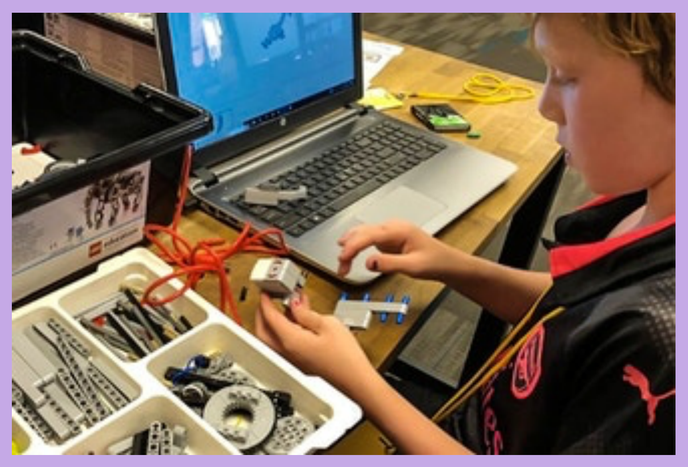
For this service project, our class was split into groups and sent to different elementary and middle schools around PG county. My group was sent to University Park Elementary School, a small elementary school less than two miles away from the UMD campus. This school has over an 80% rate of students who are chronically absent, as well as low scores on standardized testing. They also have a very high turnover rate for teachers, with about 40% being in their first year of teaching each year.

Site issue

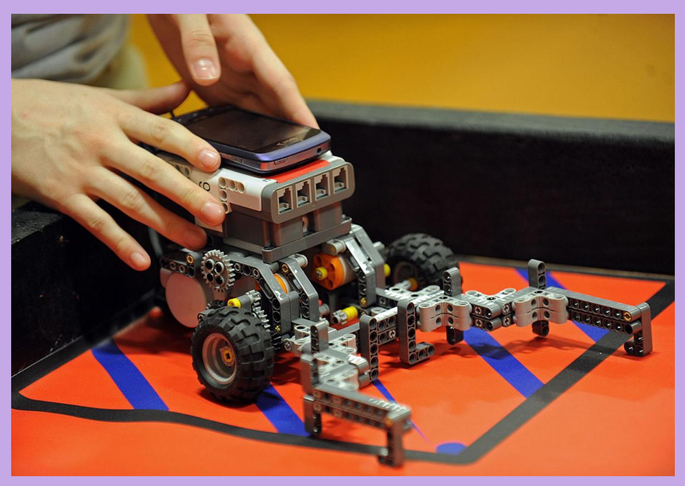
In many schools across America, a lack of funding is a serious issue. These schools suffer from a lack of technology, as well as a lack of enrichment opportunities for students, simply because they cannot afford it. University Park Elementary School is one of these schools. The children at this school, regardless of ability or interest in STEM, have access to very few opportunities to increase their knowledge and understanding of the field.

Activities

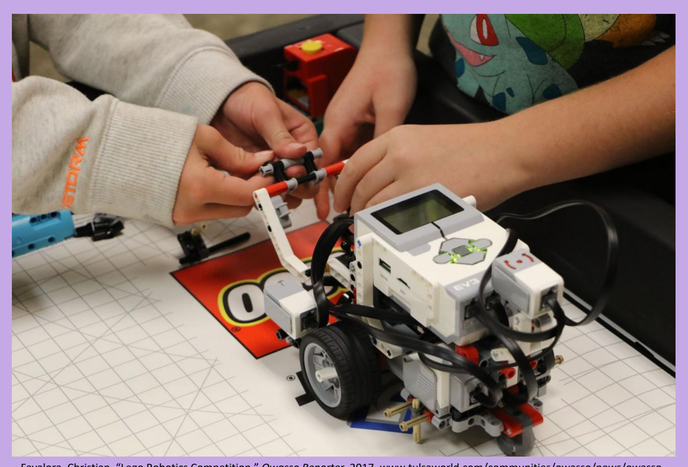
When our group of UMD students visited UPES, it was in order to guide a robotics club for the students. We split the students into teams for this club, with the end goal of each team creating a robot to compete in a grand challenge. We started off our lessons each week with an introduction and demonstration of the skills we would be teaching them. These lessons started off with building, along with explanations of each sensor available for use along with how they functioned, before moving on to programming and how to make a robot complete specific tasks. While the students were employing their new skills, we tried to stay very hands-off, only helping when asked and encouraging them to look towards each other to come up with solutions to their problems.



"Child Using Lego Robotics." *Course Horse.com*, 2019, coursehorse.imgix.net/images/course/15542/main/Silicon%20STEM%20Academy_LEGO%20Robotics%20Autonomous%20Machines.png?auto=format%2Cenhance%2Ccompress&crop=entropy&fit=crop&h=220&ixlib=php-1.2.1&q=90&w=330.



Sorenson, Justin. "Lego Robot." *NNY360*, 2015, bloximages.newyork1.vip.townnews.com/nny360.com/content/tncms/assets/v3/editorial/2/eb/2ebf4d88-75f5-5530-b431-41d2e6020143/5ce443c2406d0.image.jpg?resize=1200%2C837.



Favalora, Christian. "Lego Robotics Competition." *Owasso Reporter*, 2017, www.tulsaworld.com/communities/owasso/news/owasso-elementary-students-excel-in-lego-robotics-competitions/article_e3d4a658-706a-5030-a4fa-398467a04bcd.html.

Impact

Although our program got cut short, our impact was already becoming visible. At the beginning of our time visiting UPES, the students were very reluctant to work together, and we had to spend a lot more time providing guidance. By the end of our time, everyone was working together in a very efficient manner, and some children with no prior robotics experience were even beginning to display their new skills and take the lead on the more difficult tasks. Asking the children, they said that they enjoyed and looked forward to our time together, even though towards the end our presence was more of a formality as they relied less on us for problem solving and more on each other.

Future Work

Whenever it is safe for schools and campus to reopen, I plan on continuing my volunteering at UPES. Although it may not be directly STEM-related, I want to help these children in any way possible and help them receive the same opportunities I was fortunate enough to have during my own public school education. This experience has also made me seriously consider going on to be a teacher, as I really loved talking to these children and seeing my work have an impact on them.

Acknowledgements

I would like to acknowledge Tim Reedy, the teacher for my class as well as the program organizer. He taught us how to teach and took care of all the difficult scheduling and finding schools to participate, so this program wouldn't have been possible without him. I would also like to thank my TA, Brandon Young, who drove us back and forth each week and was always there to answer questions or help out when we needed it. Lastly, I would like to acknowledge the other UMD students in my group, who collaborated with me in order to make sure these children had a great, meaningful experience.