The NEUrL Project – Neuroscience Education for Urban Learners

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The NEUrL Project is an outreach endeavor by the Neuroscience of Reinforcement Learning (NeuRL) Lab at the University of Arizona. The program has two goals: to introduce cognitive neuroscience to high school seniors and to engage college undergraduates in science teaching and outreach.

To pilot this project, seven undergraduates at the University of Arizona designed a two-week, four-session class to introduce high schoolers to cognitive neuroscience through a series of hands-on activities, discussions, presentations and guided instruction. In addition to learning basic neuroanatomy (e.g. the lobes of the brain) and receiving an overview of the field, students were taught to build their own version of the Stroop Task using a simplified coding tool, Builder View in PsychoPy. The students measured their own performance on the Stroop Task and the program concluded with a discussion of how to analyze and interpret the data, and how to apply cognitive neuroscience concepts to everyday life.

The pilot was run at City High School, a small urban charter school in downtown Tucson, Arizona. Approximately 40 high school seniors participated in the program. The City High students participated in a survey before and after the program to assess their previous knowledge and perceptions about neuroscience concepts, and to gauge their interest in and thoughts about the program. Overall the responses indicated they gained more knowledge about cognitive science, neuroscience and computer programing than they previously had (average increase between 1.38 and 2.06 points on a 1-5 scale) and yielded much a great deal of useful feedback to improve future iterations of the project. In addition to the benefit seen by the high schoolers, all seven undergraduates reported enjoying the project and that the it reinforced their own knowledge of fundamental neuroscience content as well as giving them insights into communicating neuroscience material to inexpert audiences.

Future plans for the NEUrL project include expanding it into a summer session, introducing EEG and eyetracking experiments, and designing a program protocol that can be implemented in other schools.