Pupil and Physiological Responses in Decision Making
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My project was based in psychology and neuroeconomics. With my project we studied people's decision making in regards to money. The money was offered either with changes in delay or probability.

ITC, intertemporal choice, was the delay condition. This involved choosing between the default option of $20 today or a different larger amount in the future. With this, we analyzed how much each individual would discount money over time. One person might believe that $30 in 40 days is better than $20 today, and another person might think the opposite.

Risk was the probability condition. This involved choosing between the default option of $20 with 100% chance or a different larger amount with a smaller chance. With this, we analyzed how much an individual was willing to risk. Participants were paid randomly at the end of the experiment from one of the trials to ensure that the choices they made were in fact their true beliefs.

During the experiment, we also kept track of the subjects' pupil and physiological responses. We wanted to collect data that back up the findings of a previous study the lab had done called the Cognitive Training Experiment. In this experiment, the same questions about money were asked, but the lab kept track of brain activity. They found that activity in the Locus Coeruleus, a part of the brain that has been linked to decision making, increased during unexpected patient choice and decreased during impatient choice. Because the Locus Coeruleus is a tiny part of the brain, it is very difficult to study. As a result, some scientists have used pupillometry as a way to indirectly study Locus Coeruleus activity as they both are linked. My project would serve as

confirmation that the results found in the Cognitive Training Experiment are correct. Unfortunately, there was not enough time to finish my project, but the beginnings of it seem very promising as we saw larger changes in pupil diameter with harder choices (more patient choices), similar to what happened in the Locus Coeruleus.

This was a great learning experience for me not only in learning research methods and practices, but also in learning to ask for help. As I was very new to all of this, I had to learn many new programs and skills. Because everyone else seemed to know everything so easily, it seemed intimidating at first to ask for help. However, I learned with this research that asking is the best way to succeed and move forward. We should never be scared to ask for help in order to learn.