



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Sydney Hecht	Project Number J0406
Project Title Testing the Impact of Gender on a Variation of the Prisoner's Dilemma	
<p style="text-align: center;">Abstract</p> <p>Objectives The purpose of this project was to determine whether male or female individual students are more cooperative and if gender pairing made a difference. Using the Prisoner's Dilemma as the foundation for my experiment, I created a game with a reward to try to discover which gender is superior in terms of cooperation. I hypothesized that females would ultimately be more cooperative than males when paired with the same gender. When paired with the opposite gender, I believed that males would become more cooperative.</p> <p>Methods I surveyed a total of 121 students in grades fifth through eighth. I distributed two surveys to each participant, for a total of 242 responses. Each survey explained a game modeled after the classic Prisoner's Dilemma. I explained that they were wagering points to win a mechanical pencil. The participants could choose to either take from or share points with someone unknown at random of the same gender. The second scenario asked them to make the same decision while paired with an individual of the opposite gender.</p> <p>Results There was an average of 30 students in each grade, for a total of 121 participants in grades fifth through eighth. The results I obtained from the subjects showed that females cooperated 10% more often than males when faced with the decision to share or take from each other. However, when asked to make the same decision when paired with an individual of the opposite gender, males shared 10% more frequently than females. In both situations, 64% of all participants chose to "take" the points, and 36% of subjects chose to share the points. At each grade level, I found that my hypothesis was supported by the statistical differences of each gender's decisions. Although my hypothesis was consistently supported, I was surprised by the large percentage of participants who chose to take the points.</p> <p>Conclusions Overall, my hypothesis that females would be more cooperative with each other and that males would be more cooperative when paired with females by my findings. The Prisoner's Dilemma and its variations can be utilized in any situation where cooperation is necessary, such as in education and in the workplace. By realizing the key to collaboration is trust, knowing the level of cooperativeness one's peers are likely to possess can lead to proactiveness, and eventually, success.</p>	
Summary Statement Using the Prisoner's Dilemma as the foundation for my experiment, I created a game with a reward to try to discover which gender is more cooperative.	
Help Received I created the surveys, performed the experiment, and analyzed the results myself. My science teacher allowed me to test during class and guided me throughout the project.	