



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Arissa Huda; Michelle Jin	Project Number J0710
Project Title The Effect of Fear on Spatial Perception	
<p style="text-align: center;">Abstract</p> <p>Objectives The purpose of our project was to determine whether fear affects spatial perception. Specifically, we tested how greatly a person's fear may affect his/her estimate of a cockroach's size under 2 different settings.</p> <p>Methods A 2-inch Madagascar hissing cockroach, a 2.3 inch small cube clear acrylic box, pulse oximeter (these are the main materials). In our project, we tested participants with katsaridaphobia under 2 settings: one showing the 2-inch cockroach first, and the other showing a clear box first. The 2.3-inch neutral box was used as a comparative object to the cockroach, as they were approximately the same size. To measure participants' values of fear, we utilized a pulse oximeter (bpm) to monitor their heart rate. During set-up, we placed 2 tri-fold folders onto a table; behind the first folder was the cockroach, and behind the second was the box. The 20 participants, who were 12-14 years old, were split arbitrarily into two different settings, one displaying the cockroach first and the other showing the box first. Giving participants 30 seconds behind each folder, we recorded their highest heart rate (bpm) per folder. Setting 1 participants gave a guess of the cockroach's size before being shown a neutral box, whereas Setting 2 participants were given the neutral box before having to provide a size perception of the cockroach. Field data was used to elicit legitimate human reactions to the cockroach, and the same male Madagascar hissing cockroach was utilized for each participant.</p> <p>Results After collecting our data, we realized that those in Setting 1 had much more inaccurate size depictions of the cockroach than participants in Setting 2. In fact, 90% of Setting 1 participants guessed the cockroach size to be inaccurate, whereas only 30% of Setting 2 participants perceived the size to be inaccurate.</p> <p>Conclusions Despite still having an increased heart rate due to fear, the neutral box acted as a proper comparative for Setting 2 participants, resulting in a more exact perception of the cockroach's size. There is no way to rid a person of his/her fear completely, but through this study, we can inform one about the distortion of size in their phobia, helping them understand its irrationality and why their fear lingers for so long. Through discovering this factor of distorted perception, we and scientists can better comprehend the factors that contribute to our persistent fears, finding a viable solution.</p>	
Summary Statement The purpose of our project was to determine whether fear affects spatial perception. Specifically, we tested how greatly katsaridaphobia may affect his/her estimate of a cockroach's size under 2 different settings.	
Help Received We received help from Tina Kim, our mentor. She owns cockroaches and that elicited the idea to use cockroaches on our experiment regarding fear/spatial perception, but we designed and conducted the experiment ourselves.	