



CALIFORNIA STATE SCIENCE FAIR 2017 PROJECT SUMMARY

Name(s) Catherine J. Ikeda	Project Number J0709
Project Title 2D or Not to See	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is to discover if video games affect depth perception in humans. This experiment compared subjects' depth perception after playing with three-dimensional Lego building blocks versus playing a video game, Minecraft, which has a three-dimensional visual depiction on a two-dimensional screen.</p> <p>Methods/Materials I had my subjects align two points in the apparatus that I built using the Howard-Dolman model. First, prior to playing with the Legos or the Minecraft video game, I had my subjects take a baseline test on my apparatus. Then I tested my subjects after they played with Legos, and again after they played with the video game. I asked my subjects to alternate between starting with Legos or the Minecraft video game. I compared the results between each of the three times I tested the subjects. Each subject took a total of three tests on my apparatus: baseline test; Lego test; and, Minecraft test.</p> <p>Results Thirty-three (33) subjects in total were tested. Using the Howard-Dolman model, depth perception was measured by the distance between two points. The greater the distance between the two points indicated a negative effect on depth perception. The baseline test result on average was 0.201 cm. After playing with the Legos, the average was 0.159 cm, and after playing with the Minecraft video game, the average was 0.392 cm. I also thought that the subjects would get better each time that they took the depth perception test. The data show that the subjects did slightly worse. The average distance for the first test, the baseline test, was 0.201 cm, the second time the subjects took the test the average was 0.239 cm, and the third time the average was 0.250 cm.</p> <p>Conclusions/Discussion I found that video games negatively affect depth perception. Additionally, my results showed that after playing video games, the depth perception in my female subjects was affected less than the depth perception in my male subjects. I would like to further research gender differences in depth perception. This experiment raises safety concerns. For example, since depth perception is negatively affected by video games, driving may be impaired.</p>	
Summary Statement I found that video games negatively affect depth perception in humans.	
Help Received I built the testing apparatus at home with the help of my parents, and tested my subjects by myself. Mrs. Linda Miller and Mrs Lynne Dowdy proofread my written work.	