



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Nina Hollars	Project Number J0709
Project Title Mind over Motion: The Motion-After Effect	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this project was to determine if a person's age affected the amount of time they experienced the Motion-After Effect. The hypothesis is that the oldest age group would experience the Motion-After Effect for longer periods of time than the other age groups.</p> <p>Methods A total of 22 volunteers, which consisted of a variety of ages, were tested and placed into three age groups; Youth, Middle Age, and Older Adults. To establish testing, the subjects were to stare at the center of a moving spiral for 30 seconds. The picture then changed to a stationary checkerboard. Immediately after the moving spiral switched pictures to the stationary object, a timer would start, and the subjects would state when they no longer noticed the checkerboard moving.</p> <p>Results In the Youth Age group, (6 subjects) 50% had an experience time of under five seconds, 50% had an experience time of over five seconds, and 0% showed signs of no effect. For the Middle Age group, (8 subjects) 62.5% had an experience time of under five seconds, 37.5% had an experience time of over five seconds, and 33% showed signs of no effect. As for the Older Age group, (8 subjects) 25% had an experience time of under five seconds, 75% had an experience time of over five seconds, and 14% showed signs of no effect.</p> <p>Conclusions The Motion-After Effect is one of the strongest, most effective illusions that has puzzled scientists since it was first discovered by Jan Purkyne in 1820. The results of this study indicate that the Older Age group experienced longer times of over five seconds than that of the other two age groups. This data supports my hypothesis. There are many external factors that might influence these results. As the So What factor, the scientific study of the Motion-After Effect may be able to detect vision deficiencies that are unable to be detected through normal tests. This analysis may also help scientists to determine other factors influencing the conditions of motion sickness and/or vertigo.</p>	
Summary Statement I tested a variety of age groups to determine if age affects someone's experience of the Motion-After Effect and what factors can influence the results.	
Help Received I received help from the many volunteers willing to assist me with my tests. I also received guidance from Stephania L. Hayes who helped me with understanding my statistical data.	