CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
Katherine R. Tuttle

Project Number
J0340

Project Title
Optical Illusions Left and Right

Abstract

Objectives/Goals
The goal was to determine if people perceive unstable optical illusions differently based on hand-dominance, eye-dominance, age and gender. The hypothesis was that hand dominance would reveal a pattern of perception distinct from eye dominance.

Methods/Materials
Each of 20 subjects was queried and tested to determine hand dominance, short-distance eye dominance, and long-distance eye dominance. Then the subject was shown a series of unstable optical illusions and asked, without any prompting, to describe what s/he saw. The final illusion required asking the question, "Which face looks happier?" The experiment used five printed unstable optical illusions, measuring sticks for the eye dominance tests, and specially constructed data sheets for recording responses.

Results
Only one significant pattern emerged. With the "half faces" illusion, 80% of the left-handed subjects chose the left face as happier, while all the right-handed subjects chose the right face. No other significant patterns were detected with any of the illusions.

Conclusions/Discussion
The hypothesis was mostly disproved. As for the "half faces" illusion, I believe that it might demonstrate that left-handed people process faces differently (by looking at one side of the face instead of the other) than right-handed people. Further studies could reveal more on this topic.

Summary Statement
This experiment tests neural/optical differences between left- and right-handed people, in comparison to other variables such as eye-dominance, age, and gender.

Help Received
My teacher, Mrs. Nickols, guided me through the milestones of this project. My optometrist, Hai Tong O.D., provided vauable information. My father helped with data entry, creation of bar charts using Microsoft Excel, and writing the abstract.