CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
Nora B. Butler

Project Number
J0705

Project Title
The Art of Seeing Without Eyes

Abstract

Objectives/Goals
The quantitative objective for this project is attempting to determine whether non-blind individuals with no previous training on echolocation can echolocate successfully, and whether age affects the success rate. The qualitative (and main) objective for this project is making the process of echolocation within the human range socially acceptable on a casual, everyday basis.

Methods/Materials
The experimentation process required a population sample of around forty people (who all consented to be used as participants in this study), organized in one of these three categories: seven to ten years of age, eleven to fifteen years, or sixteen years and older. They were each individually told to stand at arms length from a wall (seven meters in width by three meters in height), blindfolded and in possession of a Petco one and a half inch by one and a half inch dog clicker (for a consistently sharp and defined sound). They were then spun around, stopping each round in one of three locations: right parallel to the wall, facing away from the wall, and left parallel to the wall. In each round, they would click the dog clicker. They would move around in the location, and, based off of the barely distinguishable levels of echoes, determine where the wall was in relation to them. Each test required a nearly silent environment and took about five to ten minutes.

Results
To be considered successful and become a percentage of the outcome, the person would have had to have guessed correctly where the wall was in all the three locations. The subjects in the sixteen years and older category were twenty percent correct. The subjects in the eleven to fifteen years of age category were forty-seven percent correct. The seven to ten years of age category were seventy-five percent correct. One can only guess if this project was successful in elevating awareness and, in the process, helping echolocation among humans more acceptable.

Conclusions/Discussion
The number of younger participants that succeeded in the experiment far outweighed the number of older participants that succeeded. I think that the reason for that proven statistic is the fact that younger humans brains are still developing and open to new, somewhat-unnecessary-to-the-average-person ideas, while older peoples brains have either undergone or are undergoing the pruning process.

Summary Statement
This project is about bringing to light the concept of Human Echolocation (in the hopes of helping to make echolocating socially acceptable), and instructing others on the process, perks, and disadvantages of echolocation for the blind.

Help Received
Professional Contact: Mobility Specialist Rena W. Wyant answered questions and gave rudimentary understanding of training techniques; parents purchased supplies, edited, confidence; grandparents educated me in Excel format; Science teacher Mr. Hofsteen provided instructions on the board, binder,