CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
J0606

Project Title
Cell Phones and Driving Reaction Time

Abstract

Objectives/Goals
The objective of this project is to determine if a cell-phone conversation while driving will affect reaction time. I believe that talking on a cell-phone while driving will affect reaction time because of a lowered concentration rate and diminished mental awareness of the situation.

Methods/Materials
One 'Stationary Reaction Timer Driving Simulator' was assembled and used to test three groups of subjects. The subject groups were divided into three categories: Youth; ages 16-20, Adult; ages 25-45, and Senior; ages 65 and older. Each test subject was first allowed two test-drives on the simulator to become familiar with how the device worked. I then performed a primary test of the subject on the simulator five times without the distraction of a cell-phone conversation, and a secondary test five times while engaged in a detailed standard cell-phone conversation. The results of each group where recorded and averaged.

Results
Engaging in a cell-phone conversation showed a primary to secondary difference in reaction time by an overall average of +.03 seconds. Each age group though, had distinctively different results. The Youth group had quicker overall reactions in both tests, and a difference of only +.01 seconds. The Adult group had similar primary reaction times as the Youth, but a much greater difference in the secondary test, +.13 seconds. The Senior group exhibited much slower overall reaction times, but the difference, +.06 weconds, was not as notable as the Adult group.

Conclusions/Discussion
I came to the conclusion, through my experiment of 620 simulated driving tests, that talking on a cell-phone while driving does affect reaction times, proving that my hypothesis is correct. It was interesting to observe the differences in each age group, proving that age affects reaction times also. Through my research I learned that a cell-phone conversation lowers your concentration rate on the road as well as your mental awareness and perception time of drving situations. While driving at 60 miles per hour, a .45 second delayed reaction would cause you to travel an extra 39.6 feet. My hope is that people will be made aware of this and will consider not using their cell-phones while driving. Further research could be done to determine why certain indviduals and/or age groups have better reaction times as shown in my experiment test data.

Summary Statement
Through my project I determined that cell-phones are a significant distraction while driving, which cause delayed reaction times.

Help Received
My father helped with set-up of the 'Stationary Reaction Timer Driving Simulator'; Mother helped with display.