



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Georgia G. Johnsen	Project Number 34201
Project Title Fatal Distraction	
Objectives/Goals My objective was to determine which was more distracting to drivers, talking on a cell phone held to one's ear, or talking on a hands-free cell phone device. My goal was to determine which was more distracting by creating an experiment utilizing a sorting exercise. Abstract Methods/Materials My experiment included three steps. Step 1. Subjects were asked to sort 200 colored candies without any distractions. Step 2. Subjects holding a cell phone to their ear, while asked to sort 200 colored candies as they answered mental math questions. Step 3. Subjects using the speaker phone feature on a cell phone (hands-free), while being asked to sort 200 colored candies as they answered a different set of mental math questions. During all three stages, or steps, I timed the participants, recorded how many questions they answered, and took note of their level of frustration as well as their strategies employed to deal with their frustration. Results The results showed that although participant's times decreased slightly with each task, their ability to answer questions dropped significantly when they used a hands-free device (average: 9 questions) compared to using a cell phone held to one's ear (average: 12 questions). Interestingly, the level of frustration for participants increased significantly when using a hands-free device, and the subjects used a greater number of strategies to try and slow the questioner down, in order to allow the subjects to hear and focus on the questions being asked. Conclusions/Discussion My hypothesis was correct, it is more distracting to talk on a hands-free cell phone than it is to talk while holding a cell phone to one's ear. Therefore, it would be more distracting to drivers to drive a vehicle utilizing hands-free devices rather than holding a cell phone traditionally. This experiment opens an interesting dialog because California has created law that drivers must be hands-free, and federal law requires all new cars and trucks to come equipped with hands-free device support. If it is more distracting to drive hands-free than not, these laws should be rethought. I am concerned about this particular subject because both my brother and sister drive, and in a few years I will be driving too. I would like us all to be as safe as possible.	
Summary Statement My project determined that using a hands-free cell phone device was more distracting while driving when compared to holding a cell phone to one's ear.	
Help Received Both my mom and dad helped me with this project by asking math problems to my subjects. They were in another room on a phone asking the questions while I observed the subjects as they sorted the colored candies.	