

Using an iPod while Driving: Drexel Professor Studies Impact on Driver Performance



iPods have a significant effect on driver performance, according to Drexel University professor of computer science Dario Salvucci, who recently conducted a preliminary study to determine the effects of iPod use while driving. The study, a first in this area, found the effects of using an iPod while driving comparable to those previously reported for dialing a cell phone while on the road.

“These findings serve as a first step toward understanding the potential effects of portable music-player interaction on driver behavior and performance,” said Salvucci. “Surprisingly, despite the plethora of research on driver distraction, there have been no studies to date of how interaction with a portable music player may affect driver performance.”

A 2006 General Motors Acceptance Corporation (GMAC) Insurance National Drivers Test study polled 5,288 licensed drivers from all 50 states and found that 20 percent of drivers between the ages of 18 to 24 had selected songs on an iPod while driving.

The Drexel study was conducted on a group of 12 people who reported experience using an iPod. An iPod with both audio and video capability was used for the iPod tasks. While driving, participants selected and played three types of iPod media: music, informational podcasts or videos. They were later tested to see how much attention they paid to a song or video. About 84 percent of the participants paid attention to and understood the media content.

The experiment was conducted in a fixed-base driving simulator with the help of Drexel students Daniel Markley, Mark Zuber and postdoctoral researcher Duncan P. Brumby.

The simulator included a front half of a Nissan 240sx with standard steering and pedal controls. These controls were connected via hardware interface to a computer that runs the simulations and data collection software. An eight-foot wide screen directly in front of the vehicle projected a simulated highway. Drivers navigated the middle of three lanes of highway. Construction cones discouraged the driver from moving toward or entering the outer two lanes. Salvucci’s previous research showed that construction cones help keep drivers more diligent in maintaining a central position in the lane. A vehicle in front of the driver held a steady speed of 55 miles per hour. Drivers were asked to maintain a reasonable distance behind the lead vehicle while another automated vehicle followed the driver at a reasonably short distance and was visible through the rear-view-mirror providing a realistic reason not to fall far behind the front vehicle.

The study found:

- Selecting a song or video on an iPod while driving significantly affected driver performance as measured

by vehicle deviation from a lane's center veering left or right.

- Selecting media also affected the driver's speed. Drivers reduced speed while searching for tunes on their iPod.
- Watching videos significantly affected car-following speed.

Salvucci will present on the study and its findings at the 2007 Computer/Human Interaction Conference held in San Jose Calif. from April 28 to May 3.

Source: Drexel University

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