

Distracted drivers benefit from in-car driving coach

August 11 2010

Although many states have banned using handheld cell phones at the wheel, a ban is difficult to enforce, and doesn't cover the growing number of gadgets now available.

But there's good news for drivers swerving while sending one last text message - not to mention those worried about ending up in their path. Early research shows an in-car coach had the strongest effect on drivers most prone to distraction.

A recent study by Linda Ng Boyle, a University of Washington associate professor of industrial and systems engineering, first classified young drivers as low risk, medium risk or high risk in terms of their propensity to space out at the wheel. The study then looked at the effect of an electronic coach that uses an eye tracker to monitor drivers' gaze. With just a small amount of coaching, high-risk drivers more than doubled their time until a virtual crash.

"Our research shows that these high-risk drivers might not be thrill seeking or aggressive - maybe they're just not aware of what the risks are," Boyle said. "By providing continual feedback, drivers may be more likely to learn from their mistakes and put their eyes back on the road."

The research appeared in a recent issue of the *Journal of Transportation Engineering*. Co-authors are Birsen Donmez, a former doctoral student with Boyle who is now on the faculty at the University of Toronto, and John Lee, a faculty member at the University of Wisconsin. The

research was conducted while all three authors were at the University of Iowa.

The researchers studied 53 drivers between the ages of 18 and 21. Subjects operated a driving simulator cruising a two-lane highway with oncoming traffic. The drivers were asked to simultaneously perform simple matching tasks on a screen beside the steering wheel, a distraction at about the level of scanning a playlist on an mp3 player. An eye tracker monitored the drivers' eye movements. Drivers were given a financial incentive to perform as many correct matches as possible during the drive.

The first drive sorted drivers based on how long they looked away from the road and to what degree that inattention put them at risk. Drivers were clustered in three groups. The high-risk drivers' longest glances tended to be between 2 1/2 seconds and 3 seconds, compared with less than 2 seconds for the longest glances by the moderate- and low-risk groups. High-risk drivers also had the shortest time to collision, a measure of how long until they could crash.

Next, half of the drivers in each group had a computerized eye-tracking system installed that noted their longest glances. When drivers glanced away for a long time, the system flashed a reminder on the task screen telling them to put their eyes back on the road. After the drive, a trip report summarized what the driver did right and wrong.

This in-car coach decreased the length of high-risk drivers' glances by an average of 0.4 seconds, putting them on par with the other two groups. Even more dramatically, it decreased the high-risk drivers' longest glances by 1 second compared to high-risk drivers who got no feedback. Feedback also increased the high-risk drivers' time to collision by roughly 8 seconds.

For the low- and medium-risk drivers, feedback had much less effect.

"Our research suggests that those who need this feedback the most would be most likely to benefit from it," Boyle said.

A lot of people are trying to design safer cars. Boyle, on the other hand, is trying to design safer drivers.

"I think that drivers are coachable," Boyle said. "The worst drivers can benefit the most, because we can change their behavior the most dramatically. We can also reinforce the good behavior for safer drivers."

She added: "There are going to be more and more in-vehicle devices. We can't put a law on everything."

Boyle's current research is using this type of driver-monitoring technology for commercial drivers, elderly drivers at risk of cognitive declines and [drivers](#) who have suffered traumatic brain injuries.

Provided by University of Washington

Citation: Distracted drivers benefit from in-car driving coach (2010, August 11) retrieved 19 April 2024 from <https://phys.org/news/2010-08-distracted-drivers-benefit-in-car.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--