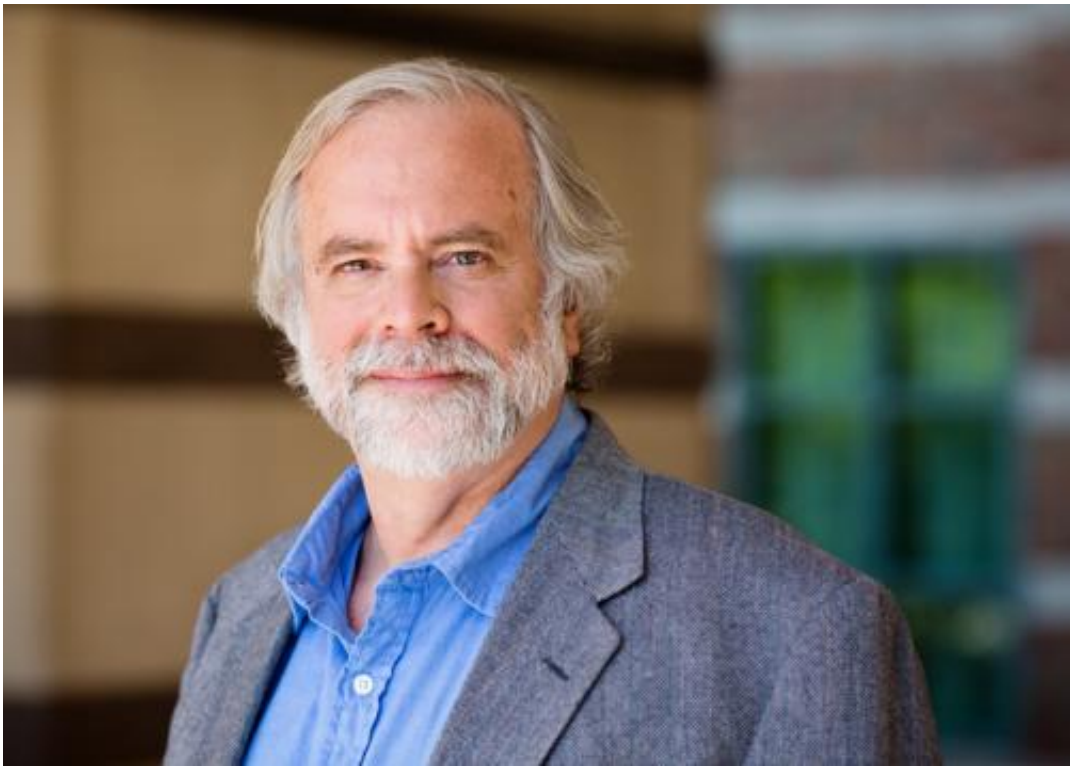
Talking while driving safest with someone who can see what you see, study finds

October 8 2014



University of Illinois Beckman Institute director Arthur Kramer and his colleagues found that drivers have fewer collisions when speaking on a cell phone to a remote partner who can see the road ahead than when speaking on a cell phone to someone who has no awareness of conditions inside or outside the car. Credit: L. Brian Stauffer

A new study offers fresh insights into how talking on a cell phone or to a passenger while driving affects one's performance behind the wheel. The

study used a driving simulator and videophone to assess how a driver's conversation partner influences safety on the road.

"We've done years of study on driver distraction, and previous studies suggest that passengers often aren't distracting. In fact, passengers can be helpful, especially if they're adults who have had experience and also are active drivers themselves," said University of Illinois psychology professor and Beckman Institute director Arthur Kramer, who led the research with postdoctoral fellow Kyle Mathewson and graduate student John Gaspar. Mathewson is now a professor of psychology at the University of Alberta.

The researchers hoped to discover which aspects of talking to a passenger most affect a driver's performance – rather than talking to someone on a cell phone, which is often dangerous. To do this, they set up four driving scenarios: a driver alone in the simulator, a driver speaking to a passenger in the simulator, a driver speaking on a hands-free cell phone to someone in a remote location, and a driver speaking on a hands-free cell phone to someone in a remote location who could see the driver and observe the driving scene out the front windshield via videophone.

The drivers (all participants were college-age students) confronted a fairly challenging highway scene that involved merging and navigating around unpredictable drivers in other cars. The researchers kept track of the study drivers' lateral moves, distance from other cars, speed, collisions, and ability to find and take a designated exit.

"We also recorded their speech as they talked to their partner in three out of the four conditions, and we looked at where they looked – we had an eye tracker built into the simulator," Kramer said. "So it was a pretty rich data set."

Driving alone was the safest option, the researchers found, in line with previous research. There were significantly fewer collisions when drivers were alone in the simulated car than when they spoke to a passenger in the car with them. Passengers helped drivers find their exits and improved their memory of road signs, but they detracted from overall safety (avoidance of collisions), Kramer said.

As expected, speaking to someone on a cell phone while driving was the most dangerous of the conditions. Talking to someone who had no awareness of what was going on inside or outside the car more than tripled the likelihood of a collision, the researchers found.

The most interesting results, however, involved the fourth driving scenario – when a driver spoke to someone who was not in the car but who could observe the driver's face and the view out the front windshield on a videophone.

"Drivers were less likely to be involved in a collision when their remote partner could see what they were seeing," Gaspar said. "And this benefit seems to be driven by changes in the way partners talked to the driver."

Seeing the driver and watching what was going on in traffic during the conversation allowed the non-driving partner to stop speaking, for example, when something unexpected occurred on the road, or to point out a situation that might be dangerous, Gaspar said.

"Conversations with a partner on the videophone were very similar to conversations with a passenger," he said.

The findings demonstrate that a passenger or conversation partner can contribute significantly to the safety of the driving experience, Kramer said. If that person knows what's going on in the car, he or she can stop talking or draw the driver's attention to specific road conditions. While

this is not safer for the driver than driving alone or in silence, it is safer than when the driver is speaking on a cell phone to someone who doesn't know what's going on in and around the car, he said.

"There is no condition in which having the videophone information is worse than speaking on a cell phone; the collisions are reduced 40 or 50 percent – that's pretty big," Kramer said. "I'm not suggesting people speak on cell phones while driving, but if the driver is speaking to someone who is not in the car, it would be helpful for the conversation partner to have information about what the driver is seeing and doing."

More information: "Providing Views of the Driving Scene to Drivers' Conversation Partners Mitigates Cell-Phone-Related Distraction," pro.sagepub.com/content/57/1/1209.abstract

Provided by University of Illinois at Urbana-Champaign