

Smart Phones and Dumb Drivers: The Limits of Cognitive Ergonomics

Paul Altchley*

Department of Psychology, 1415 Jayhawk Blvd, University of Kansas, Lawrence, Kansas -66045 7556

As phones and cars get smarter, drivers seem to get more dumb. Drivers are making choices to engage with communication technology in vehicles more frequently, to the detriment of traffic safety. The National Safety Council estimates that 28% of crashes in the United States are a result of drivers distracted by in car technology. The personal and economic costs of these crashes are staggering, resulting in thousands of ended lives and billions of dollars in costs every year. The benefits of the ability to connect to social networks while driving is less clear. In this complex problem, what role can design and ergonomics play?

Improving design to make technology easier to use is one way to reduce the burden new technologies place on us. For example, devices that allow for hands-free use or that read to us rather than take our eyes from the road are touted as ways to allow users to interact with technology, but remain safe. However, our cognitive capacity is finite. We cannot juggle an infinite number of tasks. In fact, we can really only do one thing at once. Design can make each operation easier and thus requiring less time, but each time we switch between a task, there is a cost.

To illustrate this, think back to when you last talked to someone on the phone while they were driving in heavy traffic. What did it sound like? Could you tell they were driving from the way they spoke? You probably could because they paused, missed information and required prompting to continue the conversation in a fluid manner. What you were hearing was the brain trying to take resources from the conversation and put them back on the driving task. No amount of good design can sidestep these human limits. Eliminating the manual and visual distraction of a phone by embedding it in the vehicle still does nothing to eliminate the requirement the driver must attend to both a complex roadway and a conversation.

Improving design to make devices more simple to use can improve safety, but there are limits to what can be accomplished. Though we can change hardware and software to be more adaptable, understandable, comfortable and functional, the one part in the interaction between human and machine we cannot easily change is the human mind. Understanding the limits of the human brain is critical for good design and needs to be foremost in any consideration of safety.

*Corresponding author: Paul Altchley, Department of Psychology, 1415 Jayhawk Blvd, University of Kansas, Lawrence, Kansas -66045 7556, Tel: 785 864 9803; Fax: 785 864 5696; E-mail: patchley@ku.edu

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