



# Kansas RTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Rural Transit Providers

## Distracted Driving Can Cause “Inattention Blindness”

By Anne Lowder

Imagine an experienced pilot attempting to land an airplane on a busy runway. He pays close attention to his display console and carefully watches the airspeed indicator on his windshield to make sure he does not stall, yet he does not see that another airplane is blocking his runway!

You'd think an attentive pilot would notice the airplane. However, in a study by Haines (1991), a few experienced pilots training with in-flight simulators proceeded with their landing when a clearly-visible airplane was blocking the runway and it was too late to avoid a collision. Makes you glad for air traffic controllers!

This is an example of what psychologists call “inattention blindness” or IB for short. (Mack & Rock, 1998). IB is the failure to see a highly-visible object in your direct line of sight when your attention is elsewhere. IB may account for many vehicle crashes.

Here's another example of IB, this time with real-life consequences involving a transit vehicle. In 2012 a DART van slammed into the back of a sedan, leading to a five-vehicle wreck on the Dallas North Tollway. Investigators are still looking into the crash, but a preliminary report from DART reveals the van's driver, a paratransit operator for 11 years, failed to control his speed and wasn't paying attention. Watch at [http://www.youtube.com/watch?v=xpwF\\_gN7zZU](http://www.youtube.com/watch?v=xpwF_gN7zZU).

This is why it is a bad idea to talk on a cell phone (or listen to your passengers talk on their cell phones), text, or even thinking about your grocery list while driving. Most people assume the human eye functions like a



What “other” things do you do while driving? Text? Adjust your radio? Talk with passengers? Talk with your dispatcher? Use GPS technology? These types of distractions can cause inattention blindness. Give your full attention to the task of driving.

<http://www.istockphoto.com>

camera and you see whatever is in front of you by merely opening your eyes and looking. Perhaps this is why events like the van and the airplane crash scenarios seem so astonishing. However, minor instances of IB occur every day, such as when you pass by a friend without seeing her, or can't find your car keys when they are right in front of you.

### The problem

**United States.** In 2011, 3,331 people were killed in crashes involving a distracted driver, up from 3,267 in 2010. In addition, 387,000 people were injured in motor vehicle crashes involving a distracted driver, down from 416,000 injured in 2010. Eighteen percent of injury crashes in 2010 were reported as distraction-affected crashes. (NHTSA, 2012).

**Kansas.** In Kansas, 431 people were killed in 2010 and over 21,000 injuries resulted from car crashes (all causes), and almost 20 percent of those were due to inattention. This percentage is comparable to the national average. A Kansas Department of Transportation report, 2010 *Accident Stats*, shows that most crashes occurred in good weather, on dry road surfaces and where the road is straight and level.

Further, Kansas statistics from 2008 to 2009 show a 25 percent increase in the number of crashes with distracted driving as the reason. This may be an underestimation of the real problem in Kansas. However, even if the statistics are conservative, the trend is troubling.

### What's going on?

What “other” things do you do while driving? Text? Adjust your radio? Talk with passengers? Talk with the dispatcher? Use GPS technology? These distractions can lead to inattention blindness. Any mental task, such as just thinking about what to make for dinner, can also reduce available attention.

Our inability to multi-task was illustrated by a study in which observers watched a video of a group of people in white and black shirts passing basketballs to each other. The observers were instructed to count how many times the white team passed the ball. After 30 seconds of observation and while the balls are still in play, a gorilla walks across the screen for approximately four seconds. The results indicated that only 21 percent of the observers actually noticed the gorilla, or in other words 75 percent of the observers had inattention blindness. (Daniel Simmons, Trends in Cognitive

Sciences, Vol. 4, No. 4, April 2000). Most of the observers' attention was devoted to one task, and they did not see what was right in front of them. See the video at [http://www.youtube.com/watch?v=IGQmdoK\\_ZfY](http://www.youtube.com/watch?v=IGQmdoK_ZfY).

Multitasking is valued in today's culture, and our desire for increased productivity makes it tempting to do other tasks (such as your passenger list or agency paperwork) besides driving while behind the wheel. However, multitasking is a myth. Human brains do not perform two tasks at the same time. Instead, the brain handles tasks sequentially, switching between one task and another. Brains can juggle tasks very rapidly, which leads us to believe we are doing two tasks at the same time. In reality, the brain is switching attention between tasks, performing only one task at a time.

Multitasking can bring risks when unexpected driving hazards arise. Under most driving conditions, drivers are performing well-practiced, automatic driving tasks. For example, without thinking about it much, drivers slow down when they see yellow or red lights, and activate turn signals when intending to make a turn or lane change. These are automatic tasks for experienced drivers. Staying within a lane, noting the speed limit and navigation signs, and checking rear- and side-view mirrors also are automatic tasks for most experienced drivers. During the vast majority of road trips, nothing bad happens. But that also can lead a driver to feel a false sense of security when driving.

A driver's response to a sudden hazard, such as another driver's erratic behavior, a disruptive passenger, or animals or objects in the roadway, is often the critical factor between a crash and a near-crash. When a driver is multi-tasking, the ability to process the information slows, and he or she is

much less likely to respond to an unexpected hazard in time to avoid a crash.

### **We know it's dangerous, but we do it anyway!**

Why do we do things that distract us while we are driving? One reason is that we do not think our own behavior (cell phone use, texting or checking the manifest) poses a safety risk. AAA surveyed drivers and found that 83 percent of the respondents thought using cell phones is a "serious" or "extremely serious" problem, but over half of the respondents did not believe that *their* cell phone use was a problem.

The other reason is the "pleasure center" theory of researchers James Olds and Peter Milner in 1954. More recently, in 2010, neurologist Michael Seyffert showed that multi-tasking (texting and cell phone use) stimulates the "pleasure center" in our brains by releasing the chemical dopamine. Dopamine delivers a sense of pleasure to an individual so that he or she is motivated to repeat the behavior. Read more at an article titled "Cell Phone Addiction" posted at <http://www.accenthealth.com/Patients/Feature-Detail/240/>.

### **So what can be done?**

The first thing you can do is get into the habit of putting your phone on silent while driving.

Second, download a mobile app that will send an automatic reply to someone calling you, such as: "I can't respond. I am driving."

AT&T DriveMode is one example of a free app available to Android and Blackberry users. This app automatically sends a customized reply to incoming texts. It also disables all incoming and outgoing calls and Web browsing. Users manually enable the app before driving.

DriveSafe.ly is another app available for \$3.99 per month. Instead of shutting down communications entirely, this app reads text messages and emails out loud in real time, including shortcuts like LOL, and sends an auto response. You can even choose whether to have texts read to you with a male or female voice, based on the gender of the text sender. However, be cautious about using this type of app, because it can be a distraction in itself.

There are also apps that detect motion such as "The Drive First" app from Sprint that sends calls to voicemail and silences email and text alerts when a vehicle reaches 10 mph.

Finally, enforcement of laws and education about the dangers of distracted driving need to be ongoing to change behaviors. It is well known fact that when it comes to things like impaired driving, speeding, and not using safety belts, even when people are aware of the risks, they may not readily change behaviors to reduce the risks.

### **Summary**

Most drivers are not aware that their minds cannot really multi-task. At any given time, a person's working memory is limited in the amount of information it can hold and the number of operations it can perform. The risky behaviors of pushing that capacity to its limit by texting, talking on a cell phone, eating,—or *doing anything but driving* while driving—need to stop. Understanding what's happening on the road only 35 percent of the time is not what anyone can call responsible driving.

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### **Sources**

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