Illinois Association of Defense Trial Counsel
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IDC Quarterly | Volume 23, Number 4 (23.4.56)

Feature Article

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What You Need to Know About the Distracted Driver

Distracted driving is a term being cited with increasing frequency in the news and in government organizations as a growing epidemic causing vehicle accidents. See Bianca Bosker, *To Fix Distracted Driving, Experts Say Target the People, Not the Tech*, The Huffington Post (Aug. 27, 2013), http://www.huffingtonpost.com/2013/08/27/distracted-driving-tech-experts_n_3823322.html (last visited Oct. 30, 2013).[1] In 2011, crashes involving distracted driving led to the death of over 3,000 people. U.S. Dep't of Transp., *What Is Distracted Driving?*, D!STRACTION.GOV: Official US Government Website for Distracted Driving, http://www.distraction.gov/content/get-the-facts/facts-and-statistics.html.

Decades of scientific research has been dedicated to the study of driver distraction. Ivan D. Brown et al., *Interference between Concurrent Tasks of Driving and Telephoning*, 53 J. of Applied Psychol. 419-24 (1969); A.J. McKnight & A.S. McKnight, *The Effect of Cellular Phone Use upon Driver Attention*, 25 Accident Analysis & Prevention 259-65 (1993); Vicki L. Neale et al., Va. Tech Transp. Inst., *An Overview of the 100-Car Naturalistic Study and Findings (Paper No. 05-0400)*, (U.S. Dep't of Transp., Nat'l Highway Traffic Safety Admin. 2005), *available at* http://www.nhtsa.gov/ Research/Human+Factors/ci. Naturalistic+driving+studies: (last visited Oct. 30, 2103); and David L Strayer et al., AAA Foundation for Traffic Safety, *Measuring Cognitive Distraction in Automobiles* (June 2013), https://www.aaafoundation.org/ sites/default/files/Measuring Cognitive Distractions.pdf. Many state legislatures have appealed to such research to ban handheld cell phone use and texting, and, in some states, to ban all cell phone use for younger drivers.

Though much work has been done, the need for research and understanding of the effects of distraction on driving has never been greater. With a population ever hungry for connectivity and with more technology being integrated into vehicles, the potential for drivers to become distracted is rising quickly. Despite the current legislation and potentially deadly consequences, certain drivers routinely drive distracted—with a phone in hand, with eyes off the road, or while engrossed in other activities—exposing themselves and other motorists around them to greater accident risks.

This article is aimed at helping to explain the types and common effects of driver distraction. The information presented here will equip readers with the information necessary to aid clients in

achieving a better understanding of the implications of driver distraction on their businesses and litigation efforts.

Distraction Comes in All Shapes and Sizes

Generally, there are three different modalities from which distraction can arise: visual, manual, and cognitive. Visual distraction occurs when activities unrelated to the primary task of driving result in a driver's gaze shifting away from the roadway. The effects of visual distractions can range from simply missing landmarks or signs, to drivers not seeing a vehicle stopped directly in front of them. David Strayer et al., *Cell Phone-Induced Failures of Visual Attention During Simulated Driving*, 9 J. of Experimental Psychol.: Applied 23-32 (2003). Something as routine as changing the temperature in a car can be a visual distraction if a driver glances down at the dial or display. Most visual distractions in a vehicle are short-lived. Previous research has shown that the average glance duration off the roadway to most in-vehicle comfort and infotainment systems is less than a second or two. Paul L. Olson et al., Forensic Aspects of Driver Perception and Response (Lawyers & Judges Publ'g Co., Inc., 3d ed. 2010). Other routine activities, such as monitoring children in the back seat of a vehicle, can lead to highly variable and sometimes lengthy visual distractions. Jane D. Stutts, Ph.D. et al., AAA Foundation for Traffic Safety, *The Role of Driver Distraction in Traffic Crashes* (May 2001), http://www.safedriver.gr/data/84/distraction_aaa.pdf (last visited Oct. 30, 2013).

More recently, activities requiring longer and more frequent glances off the roadway, such as text messaging, have become more prevalent in the vehicle. For example, when changing the temperature in a vehicle, a driver can usually perform this action in about three short glances away from the roadway. Thomas Dingus, Va. Polytechnic Inst. & St. Univ., *Human Factors Tests and Evaluation of an Automobile Moving-Map Navigation System. Part I. Attentional Demand Requirements* (1986). Using display oriented technologies such as GPS navigation systems or smartphones for tasks such as emailing, web-browsing, and text messaging might require many more glances away from the roadway than a typical in-vehicle task (for example, changing the radio, adjusting the temperature, etc.). Even though each single glance while composing a text message may be on the order of a second or less, the cumulative effects of many glances means that the driver's eyes are off the roadway for a longer total time as compared to the more mundane tasks requiring only a glance or two. Robert E. Dewar & Paul L. Olson, *Human Factors in Traffic Safety* (Lawyers & Judges Publ'g Co., Inc. 2002), http://www.lawyersandjudges.com/client/client_docs/5473_traffic_errata.pdf.

Manual distraction results from completing any in-vehicle action that requires removing one's hand or hands from the steering wheel in support of a non-driving related task. As with visual distractions, manual distractions include tasks that drivers might view as commonplace or even as part of their normal driving experience. Manually distracting tasks may include changing the radio or climate control, eating and drinking, smoking, or operating an infotainment device, such as a cell phone or GPS. Often, manual distractions are in concert with visual distractions. For example, when changing the radio station, drivers tend to look at the radio while moving their hands there as well. As with visual distractions, the greater the frequency and the greater the duration of the distraction, the more likely it will be deleterious to the task of driving.

Understanding how visual and manual interactions with non-driving-related in-vehicle tasks can be distracting is often relatively straightforward—eyes off the road and hands off the controls, respectively. Although research on the third mode, cognitive distraction, has been increasing recently, this form of distraction is sometimes overlooked or misunderstood during incident investigation. McKnight & McKnight, *supra*; Strayer et al., *Measuring Cognitive Distraction*, *supra*; David Cades et al., *Driver Distraction Is More than Just Taking Eyes Off the Road*, 81 ITE J. 26-33 (2011); and Miguel Recarte & Luis Nunes, *Effects of Verbal and Spatial-Imagery Tasks on Eye Fixations while Driving*, 6 Journal of Experimental Psychology: Applied 31-43 (2000). Unlike visual and manual

modes of distraction, which are objectively observable, cognitive distractions can affect driving performance while the driver's hands are on the wheel and eyes are on the road.

Any time that even a portion of a driver's cognitive resources are focused on something other than the driving task, that driver is experiencing some level of cognitive distraction. Cognitive distraction captures anything from thinking about what you need to do when you get home to having an emotionally charged conversation on a cell phone. As with visual and manual modes of distraction, both the frequency and duration of cognitive distraction affect the likelihood of it having negative effects on the driving task. For instance, a drawn out, attentionally demanding phone conversation can result in distraction-related driving impairments for a longer period of time than leaving a simple voicemail.

Cognitive distraction is not only due to cellphone conversations. Research has shown that in-vehicle conversations, day dreaming, and simply talking or singing alone in a car may increase the risk of an incident while driving. Neale et al., *supra*. In this sense, attention to and distraction from the driving task exists along a continuum. Understanding the types and magnitude of distraction is required in order to assess the presence of distraction, its relevance to the immediate driving performance, and its contribution to an accident.

What Are the Effects of Distraction on the Typical Driver?

When approaching any case in which driver behavior may be called into question, exploring and understanding the potential sources of driver distraction may be critical. As with describing the modes of distraction, some of the effects of driver distraction are more straightforward than others. For example, if a driver is looking at the radio when a bicyclist crosses in front of his vehicle, that driver is unlikely to see the bicyclist. In such a case, the distraction of looking at the radio led to the driver's eyes being off the road and to the driver not seeing a potential hazard. Similarly, with a manual distraction, if an unexpected hazard requires the driver to enter a steering input, shift the gear, or pull the emergency brake and his hands are off the wheel adjusting the climate control or reaching for a drink in the cup holder, then the required physical response will be delayed or might not occur at all. Dingus, *supra*. These types of distractions can have a clear deleterious effect on driving performance if a driver's eyes are off the road, or hands are off the wheel at a time when that driver would need eyes on the road and hands on the wheel.

Assessing the effects of cognitive distraction, and possible case-relevant arguments that can be made as a result thereof, is a slightly more nuanced and intricate endeavor. Simply because a driver has his hands on the wheel and eyes on the road does not mean that he is not susceptible to driving impairments due to distraction. Research has shown that cognitively distracted drivers might not be able to perceive information presented to them visually even if they are looking right at it. Strayer et al., *Cell Phone-Induced Failures, supra*. These types of distraction can also lead to slower responses to hazards in the roadway, higher non-response rates to critical events or hazards in the roadway, decreased ability to safely negotiate gaps in traffic to drive through, and decreased scanning behavior, just to name a few. Strayer et al., *Measuring Cognitive Distraction, supra*; McKnight & McKnight, *supra*; Brown et al., *supra*; Peter J. Cooper & Yvonne Zheng, *Turning Gap Acceptance Decision-Making: The Impact of Driver Distraction*, 33 J. of Safety Res. 321, 321-35 (Oct. 2002); and Recarte & Nunes, *supra*.

As the proliferation of in-vehicle devices and tasks continue to inundate drivers with potential sources of distraction—visual, manual, and cognitive —investigators and litigators alike must be sure to assess the human factors associated with these sources of distraction in order to get a complete picture of what might have occurred.

What Can We Do?

Sights, sounds, tasks, and goals compete for our attention and cognitive resources on a regular basis. When this occurs during a complex, dynamic, and demanding task such as driving, momentary lapses and distractions can have profound effects on safety. Not all shifts of attention are the same, however, nor would one expect them to have similar consequences. Decades of research in human factors and cognitive engineering have helped categorize the types and frequency of such distraction. More recently, scientific investigations have begun to quantify the variety of effects these distractions may have on driver behavior.

A technical understanding of distraction, rooted in scientific investigations of human perception, cognition, and behavior, allows one to make sound assessments of the role a driver's actions may have played in the causation of an accident and strategic decisions as to handling one's case. Additionally, such an understanding can aid companies in training their drivers on both the hazards and safe uses of the rapidly proliferating technology. While no employer can ever ensure a driver will not violate company policy while unsupervised on the job, providing the proper training and guidelines for use of in-vehicle technology can reduce risks and thereby increase driver, and company, safety overall.

Finally, the choices of organizations to adopt new administrative policies for in-vehicle devices, hardware, or software that locks out cellphones while moving, or employee training with a goal of educating employees on the risks of distracted driving should be studied thoroughly by experienced and qualified human factors specialists and assessed on a case by case basis before assuming they will have an overall reduction of risk on the road. Policies and practices that are perceived as too restrictive may entice some employees to search for ways to work around the restrictions. Implementation of hardware, training, and enforcement of policies may have unintended secondary consequences.

About the Authors

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