A study of driver visual behaviour while talking with passengers, and on mobile phones

Rachel. K. Smith[1], Toni Luke[1], Andrew M. Parkes[1],
Peter C. Burns[2], & Terry C. Lansdown[3]
[1]TRL Limited
[2]Transport Canada,
[3]Heriot Watt University
UK

Abstract

This paper presents the findings of a driving simulator study that assessed the impact of talking with a front seat passenger, or over a hands-free mobile phone, on driver visual behaviour. The visual behaviour was also compared to that observed during a series of typical in-vehicle tasks, such as adjusting the climate control or entertainment systems, and to a baseline control where no additional tasks were conducted. Structured conversations, both with the passenger, and over the mobile phone, resulted in significantly fewer glances away from the road ahead, towards either dashboard displays or surrounding traffic. It also appears that although the drivers look more at the forward road scene, they do not actively process it, in the way they would, if they were not engaged in conversation at the same time. One of the driving measures included reaction times, where participants were required to respond to a specific road sign in the dynamic driving scene. Reaction time was slowest for the hands-free mobile phone condition, and showed reliable difference to talking to a front seat passenger, conducting other in-vehicle tasks, or driving with no other tasks.

Introduction

Background

The Independent Expert Group on Mobile Phones report (Stewart, 2000) for the UK concluded that drivers should be dissuaded from using phones while driving. This is because an increased risk of motor vehicle collision has been associated with mobile phone use while driving as shown by real world collision data (Redelmeier & Tibshirani, 1997). This has also been supported by experimental research showing mobile phone conversations to impair driving performance both in driving simulators and in real road trials (Fairclough, Ross, Ashby & Parkes, 1991; Parkes, 1991ab; Parkes, Fairclough & Ashby, 1993; Burns, Parkes, Burton, Smith, & Burch, 2002). The IEGMP report stated a need to compare the distraction by hands-free phone conversations with other current driver distractions.

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