

The Cell Phone Paradox: How do we explain the Differences between Simulator and Naturalistic Driving Research?

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Most simulator studies have found that talking on a cell phone while driving results in significant performance decrements [see National Safety Council (2010) for a review]. However, various naturalistic studies (Hickman & Hanowski, 2012; Klauer et al., 2006; Sayer, Devonshire, & Flanagan, 2007) have found that talking on a cell phone while driving does not increase the odds of involvement in a safety-critical event (and is protective in some circumstances) Hanowski (2011) modeled the hypothesized four-fold crash risk of talking on the phone while driving using U.S. crash statistics and cell phone use subscriber rates. He found the estimated crash rates differed from the actual crash rates up to 25 percent from 2000 to 2009. Thus, the paradox of predicted cell phone risk while driving and actual crash rates. The finding that performance decrements under stress are more common under laboratory conditions than naturalistic conditions is not new. Where there are overt decrements in laboratory settings, they are usually quite small in magnitude [see National Safety Council (2010)], as is the case when talking on a cell phone while driving. However, the reason for this discrepancy between simulator and naturalistic data has not been explored. The current paper will propose a possible framework to explain the cell phone paradox, Cognitive Compensatory Control [Hockey (1997) suggested that performance may be protected under stress by recruitment of further resources or reduction of performance goals], as well as several other factors that may contribute to the variance seen in simulator and naturalistic studies, including: consider cell phone use as a task and not separate sub-tasks, hazard perception, gaze concentration, arousal, and driver choice/motivation.

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