

Modifying the Lane Change Task – How does increased unpredictability of lane changes affect performance?

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The Lane Change Task (LCT) is an established method to assess the distraction caused by various secondary tasks. Thoroughly researched, it has even become an ISO sanctioned procedure. However, despite the fact that the task can claim some face validity as it closely resembles various aspects of driving, it might be argued that in terms of safety relevance, the LCT is not designed perfectly. The initiation of a lane change as a response to the respective sign is supposed to be a form of event detection task. But the signs that command the change of lanes are visible throughout the drive (blank they are, though, until 40m ahead of the sign's position), which makes the "event" (the popping up of information on the sign) rather predictable. While this regular and predictable nature of the LCT might apply to the majority of driving situations, it might not be representative of a situation in which distraction is actually dangerous. As Sheridan (2008) emphasised, the safety relevance of a particular secondary task depends (among other factors), "on unexpected events that occur when attention is not on driving" (p. 593). To investigate how the distraction assessment of secondary tasks might change if lane change events were unexpected (or, at least, less predictable), we implemented the LCT with our driving simulation software, to then manipulate the predictability of the lane change signs. In this experiment, we compared the "classical" LCT to an "unpredictable" version in which signs were not visible permanently, but only popped up 40m ahead of their actual position (just like the information they were presenting). Easy and difficult versions of the SuRT and a counting task were used as visual and cognitive secondary tasks. Results will be presented.