Can sat navs reduce drivers' performance?

June 7 2012

(Phys.org) -- New findings from academics at Lancaster University and Royal Holloway, University of London reveal using satellite navigation systems can reduce drivers' performance behind the wheel.

The academics carried out a series of experiments where volunteers were set tasks by a computer which mimicked the instructions given by a sat nav. Their results showed that when people were following complicated sat nav instructions they tended to drive faster, with more steering variations, as well as being less likely to notice pedestrians who might be stepping out.

Dr. Pragya Agarwal from Lancaster University said: "The results from our research have implications for the way these systems can be designed to be more effective and user-friendly in the future. Our research shows how people's behavior while driving is influenced by the use of these navigational systems, which are becoming increasingly ubiquitous.

"It is, therefore, important that we gain a more complete understanding of what specific decisions people make while using these systems, and which factors influence driving safety and behaviour, and to what extent."

Dr. Polly Dalton from the Department of Psychology at Royal Holloway, adds: "What is interesting is that people were able to follow one simple instruction without any significant impact on their driving but as soon as they had to remember a compound instruction, consisting of two

sequential directions, we began to notice a difference in their driving ability.

“A lot of effort has gone into designing visually friendly sat nav devices but our research highlights the importance of the way in which the auditory instructions are given.”

Three quarters of those participating in the experiments reported that they only used the sat nav’s visual display for clarification, elaboration or reminders of the auditory instructions which researchers say confirms the central importance of the auditory instructions to the majority of users.

The academics say that whilst the spoken instructions alone are one of the safest ways to present navigational information while driving, it is important to acknowledge that the task of processing and responding to ongoing auditory information exerts cognitive demands.

Dr. Dalton explains: “Our findings show that even auditorily-presented information alone can interfere with the task of driving. Studies of in-car mobile phone use have found similar results, however people often assume that following a sat nav device is easier than having a mobile phone conversation, but this of course depends on the exact level of complexity of the auditory navigation instructions produced by the system in question.”

The research, funded by Nesta and the ESRC, is published in the journal *Accident Analysis and Prevention*.

More information: www.sciencedirect.com/science/ … ii/S0001457512001546

Provided by Lancaster University