Glance Strategies for Using an In-Vehicle Touch-Screen Monitor

In this study, subjects in a driving simulator followed a lead vehicle that continuously changed speed while they also performed a secondary task on a touch-screen monitor that could be located at various positions within the simulator. Subjects were instructed to give priority to the following task. Driving performance in the following task was affected by whether or not the secondary task was required, but was not affected by the location of the monitor. However, consistent with the instructions about priority of tasks, time to complete the secondary task was strongly influenced by monitor position. Farther locations required more time, especially for shorter subjects. Analysis of the number and timing of glances away from the road suggested that subjects coped with the more difficult monitor positions primarily by making more glances to the monitor, while the average duration of individual glances was not much affected. These results suggest that the subjects’ partial success in coping with the secondary task was possible because the secondary task could be broken down into partially independent subtasks. This study was part of a modeling effort designed to better understand the combined visual and motor demands of secondary tasks, and how they are affected by the design of controls and displays. Various ways in which this study should be extended to support that modeling effort are reviewed.

Driver distraction, in-vehicle task, glance behavior