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Driving and Speaking: Revelations by the Head-Mounted Detection Response Task

Abstract:
The cognitive workload of speech-related activity needs to be examined in an economic and simple way. This is especially important as in-vehicle technology is becoming more cognitive with, for example, the use of speech-interaction, and industry will need a way to keep pace with new technologies. One proposed way to measure cognitive workload is the detection response task (DRT) method. In this study, the DRT was used to assess different speech-related cognitive tasks. Three conversation tasks and the n-back task were performed together with a simulated driving task and a head-mounted DRT (HDRT). The aim was to evaluate the conversation and n-back tasks with the HDRT and to quantify the respective cognitive workload. Results show an increase in HDRT reaction times when additional cognitive tasks are performed relative to baseline measurements. In line with other research methods, the HDRT provided a reliable measurement of additional workload.

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