

Eye blink rate as a measure of mental workload in a driving task: Convergent or divergent with other measures?

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Abstrak

Measuring mental workload requires both subjective and objective measurement. However, as existing objective measures lack applicability due to technical reasons and cost considerations, this study evaluates an easy to use and cost effective method of measuring the sensitivity of the eye blink rate as a potential objective measure of mental workload. Eight participants were instructed to operate a driving simulator in a lab setting and complete a series of driving tasks set at three different levels of difficulty. The completion time and penalty scores were recorded as the performance measures. The eye blink rate data were analyzed as an objective measure, and the NASA Task Load Index (NASA-TLX) was used to assess the participants' mental workload at the end of each task as the subjective measure. Although the completion time, penalties, and NASA-TLX increased as the difficulty level of the tasks increased, the eye blink rate decreased. The implications of these results are discussed.