

A Review of Physiological Measures for Cognitive Workload Assessment of Aircrew

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Abstract : Cognitive workload is a significant factor affecting user performance, and it has been broadly investigated for its application in ergonomics as well as in designing and optimizing effective human-machine interactions. It is mentally challenging to maneuver an aircraft, and pilots must control the aircraft and adequately communicate to the verbal-auditory stimuli. Several physiological measures have long been researched and used to demonstrate the cognitive workload. In our current study, we have summarized recent findings of the effectiveness, accuracy, and applicability of commonly used physiological measures in evaluating cognitive workload. We have also highlighted on the advancements in physiological measures. The strength and limitations of physiological measures have also been discussed to assess the cognitive workload of people, especially the aircrews in laboratory settings and real-time situations. We have presented the research findings of the physiological measures to base suggestions on the proper applications of the measures and settings demanding the use of single measure or their combinations.

Keywords : aircrew, cognitive workload, subjective measure, physiological measure, performance measure

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