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**Peter Cocron, Franziska Bühler, Thomas Franke, Isabel Neumann, Benno Dielmann & Josef F. Krems. *Energy recapture through deceleration – regenerative braking in electric vehicles from a user perspective.* Pages 1203-1215.**

We report results from a 1-year field study ($N = 80$) on user interactions with regenerative braking in electric vehicles. Designed to recapture energy in vehicles with electric powertrains, regenerative braking has an important influence on both the task of driving and energy consumption. Results from user assessments and data from onboard data loggers indicate that most drivers quickly learned to interact with the system, which was triggered via accelerator. Further, conventional braking manoeuvres decreased significantly as the majority of deceleration episodes could only be executed through regenerative braking. Still, some drivers reported difficulties when adapting to the system. These difficulties could be addressed by offering different levels of regeneration so that the intensity of the deceleration could be individually modified. In general, the system is trusted and regarded as a valuable tool for prolonging range.

**Practitioner Summary:** Regenerative braking in electric vehicles has direct implications for the driving task. We found that drivers quickly learn to use and accept a system, which is triggered via accelerator. For those reporting difficulties in the interaction, it appears reasonable to integrate options to customise or switch off the system.

- **Keywords:** electric vehicles, regenerative braking, skill acquisition, trust, acceptance

**Kirsten Nabe-Nielsen, Henrik Lund, Jeppe Z. Ajslev, Åse Marie Hansen, Karen Albertsen, Helge Hvid & Anne Helene Garde. *How do employees prioritise when they schedule their own shifts?* Pages 1216-1224.**

We investigated how employees prioritised when they scheduled their own shifts and whether priorities depended on age, gender, educational level, cohabitation and health status. We used cross-sectional questionnaire data from the follow-up survey of an intervention study investigating the effect of self-scheduling ($n = 317$). Intervention group participants were asked about their priorities when scheduling their own shifts

succeeded by 17 items covering family/private life, economy, job content, health and sleep. At least half of the participants reported that they were giving high priority to their family life, having consecutive time off, leisure-time activities, rest between shifts, sleep, regularity of their everyday life, health and that the work schedule balanced. Thus, employees consider both their own and the workplace's needs when they have the opportunity to schedule their own shifts. Age, gender, cohabitation and health status were all significantly associated with at least one of these priorities.

**Practitioner Summary:** Intervention studies report limited health effects of self-scheduling. Therefore, we investigated to what extent employees prioritise their health and recuperation when scheduling their own shifts. We found that employees not only consider both their health and family but also the workplace's needs when they schedule their own shifts.


- **Keywords:** intervention study, preferences, self-rostering, shift work, work–time control


**Cheng-Ming Jiang, Rui Zheng, Yuan Zhou, Zhu-Yuan Liang, Li-Lin Rao, Yan Sun, Cheng Tan, Xiao-Ping Chen, Zhi-Qiang Tian, Yan-Qiang Bai, Shan-Guang Chen & Shu Li. *Effect of 45-day simulated microgravity on the evaluation of orally reported emergencies.* Pages 1225-1231.**

Accurate evaluation of emergencies is a critical concern in long-duration space flights. Accordingly, we studied the effect of 45 days of − 6° head-down bed rest – a model that simulates the conditions in microgravity environments – on the evaluation of orally reported emergencies. Sixteen male participants listened to corresponding emergency scenarios and assessed the severity of these situations eight times before, during and after bed rest. The results revealed a ‘ recency effect’: compared with emergency descriptions in the order of serious to mild, those framed in the reverse order were judged to be more serious. However, the severity ratings did not vary with time spent in the simulated microgravity environment. These findings are similar to those observed in a regular environment on Earth, indicating that the design principles of information presentation for situations on Earth may also be extended to designs intended for outer space.

**Practitioner Summary:** A recency effect was found in the evaluation of orally reported emergencies under simulated microgravity conditions. The design principles of information presentation for situations on Earth may also be extended to designs intended for outer space.


- **Keywords:** bed rest, evaluation, emergency, primacy effect, recency effect


**Katherine L. Plant & Neville A. Stanton. *What is on your mind? Using the perceptual cycle model and critical decision method to understand the decision-making process in the cockpit.* Pages 1232-1250.**

Aeronautical decision-making is complex as there is not always a clear coupling between the decision made and decision outcome. As such, there is a call for process-orientated decision research in order to understand *why* a decision made sense at the time it was made. Schema theory explains how we interact with the world using stored mental representations and forms an integral part of the perceptual cycle model (PCM); proposed here as a way to understand the decision-making process. This paper qualitatively analyses data from the critical decision method (CDM) based on the principles of the PCM. It is demonstrated that the approach can be used to understand a decision-making process and highlights how influential schemata can be at informing

decision-making. The reliability of this approach is established, the general applicability is discussed and directions for future work are considered.

**Practitioner Summary:** This paper introduces the PCM, and the associated schema theory, as a framework to structure and explain data collected from the CDM. The reliability of both the method and coding scheme is addressed.


- **Keywords:** critical decision method, perceptual cycle model, schema theory, aeronautical decision-making


**Tyler H. Shaw, Kelly Satterfield, Raul Ramirez & Victor Finomore. *Using cerebral hemovelocity to measure workload during a spatialised auditory vigilance task in novice and experienced observers.* Pages 1251-1263.**


This experiment was designed to assess cognitive load using transcranial Doppler sonography during the performance of a 40-min communication vigilance task in which messages were presented in different spatial locations or across a single monaural radio channel. In addition, some observers received 14 hours of practice to determine whether the neurophysiological measure was sensitive to a potential attenuation of workload. Critical messages were detected more frequently in the spatialised audio presentation mode condition, but there were no performance differences between experienced and novice observers. Neurophysiological data show that activation was greater in the novice condition than in the experienced condition, suggesting that novice observers expended greater effort. Furthermore, the neurophysiological measure showed more activation in the monaural radio condition than in the spatialised audio condition. The results support a resource account of vigilance and suggest that cerebral blood flow velocity can be used to diagnose the degree of attentional resource utilisation during vigilance tasks.


**Practitioner Summary:** Due to high workload experienced during vigilance tasks, displays and methods are sought which enhance performance. This study shows that spatialising auditory communications in a monitoring task enhances performance and attenuates mental workload. Also, experience mitigates excessive workload, and cerebral hemovelocity can be used to diagnose attentional resource utilisation.


- **Keywords:** vigilance, mental workload, spatialised auditory displays, training, transcranial Doppler, cerebral blood flow velocity