# Systemic assessment of the effect of task-related stress on performance in the maritime domain

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**Abstract:**
Two studies, one completed and one in progress, will be presented as part of a systemic approach for assessment of performance in the complex environment of nautical simulators. First, a mixed-methods quasi-experimental field study (N=6) was conducted, aiming at discerning the systemic causes behind nautical students' human errors during simulator exercises and to what extent these causes can be related to the layout of a new decision supporting display. Results indicate that all errors occur under the same kind of (stressful) man-machine interaction. Based on this, design requirements were proposed. The second study aims at exploring the impact of situation-related affective arousal on system safety. Anger- and frustration-like situations will be generated and the possible impact of these affect-laden situations on the risk- and error-related performance of ship bridge crews assessed. The studies address different aspects of performance in complex environments and their modularity towards each other will be highlighted in the context of an overall systemic perspective.
**Keywords:** Systemic error analysis, resilience, Cognitive Couplings