Evaluation of Teamwork for Simulator Training Based on Heart Rate Variability: Case Study of A Cadet of Ship Navigator

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Received 2 March 2011; revised 13 July 2011, accepted 2 August 2011

Abstract
Mental workload is useful for evaluating a performance of ship navigator- a captain, a duty officer, and a pilot. The heart rate variability (R-R interval), nasal temperature and salivary amylase predict well based on pre-experiments; however, most of research tests a professional skill. The evaluation does not test a cadet yet. Moreover, the teamwork evaluation is not yet also. In this paper, we measure cadets’ R-R interval while they guide a ship from narrow channel to open sea in New York, and evaluate their teamwork based on R-R interval for simulator training. The experiment is carried out using a ship bridge simulator, not a real ship. We show R-R interval is a good index for evaluating the teamwork for simulator training in ship navigation.

Keywords
Simulator Training, Bridge Teamwork, R-R interval, Mental Workload