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Analyzing the Effect of External Environments on Mind Wandering during a Perceptual-Motor Task

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Abstract

To maintain performance in perceptual-motor tasks involving interactions with the external environment, appropriate regulation of the arousal level is essential. Both internal (learning and saturation) and external (stimuli) factors can be assumed to affect such arousal levels. We investigated these factors by using a line-following task, in which participants had to follow a scrolling line with a circle. Participants recruited through crowdsourcing engaged in this task for 30 minutes. They responded to periodical probes during the task to indicate their level of concentration thereon. Experiment 1 tested the effect of external stimuli designed to decrease/increase arousal levels in this task. Based on the results of this basic experiment, Experiment 2 switched the stimulus pattern from high to low arousal / low to high arousal during the task. As a result, we found differences between task conditions, suggesting the effect of adaptive stimulus presentation to maintain the arousal level.