Wandering mice: Computer mouse-tracking as a behavioral measure of mind wandering

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Abstract

Mind wandering is a state in which an individual's attention is not fully focused on the task at hand. Mind wandering affects performance in many tasks requiring focused attention, including (online) learning. Previous studies have examined eye tracking and self-report as a method to assess whether a person is mind wandering. Because the first method requires specialized technology and the second method may be susceptible to reporting biases, we here examine whether mouse tracking can be used to predict mind wandering in tasks involving classical computer interfaces. Assuming that mouse trajectories towards a particular response on the screen are continuously updated by time-dependent and temporally-dynamic cognitive processes, as a behavioral methodology, mouse tracking could provide unique insight into a persons thoughts. In our experiment, a total of 183 students completed a mouse-based operation span task, during which their thoughts were probed and their mouse movements recorded. Mixed model analysis of the recordings indicated that initiation time and average speed can be used as predictors of task-unrelated thoughts. The results show that mouse movements may be able to provide an objective measure of mind wandering in online tasks.