Exploring perceptual decoupling in the context of smooth pursuit eye movement

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Abstract

Recent work suggests that perceptual decoupling (i.e., eye behavior becoming less determined by the sensory environment) is responsible for eye behaviour changes between externally and internally directed cognition. In the current study we investigated perceptual decoupling effects on smooth pursuit eye movements elicited by simultaneous engagement in internal visual and arithmetic task under two workload conditions. The results of multilevel modelling showed that effects of perceptual decoupling were moderated by task type (higher for visual internal activity), workload (higher for high internal demands) and follow a characteristic time course relative to internal operations. The findings indicate that perceptual decoupling is a central mechanism underlying differences in eye behaviour between internally and externally directed cognition and shed light on relevant conditions of this effect.

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