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PAVLOVIAN-INSTRUMENTAL TRANSFER STUDY WITH MONETARY AND LIQUID INCENTIVES

Aaditya Manirajan

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Previous studies suggest a relationship between motivation and cognitive control, yet questions still remain regarding the motivational mechanisms of action. A recent study by Yee et al. developed a novel liquid paradigm to examine motivated cognitive control. With this paradigm, it was found that performance on a cognitive control task was modulated not only by increasing levels of monetary rewards, but also by the valence of delivered liquid feedback (positive = juice, neutral = tasteless, negative = saltwater). It is possible that different motivational mechanisms underlie the respective influences of liquid and money. In particular, learning research has demonstrated that two different processes, Pavlovian and instrumental, are principally involved in motivation. Although the interaction between Pavlovian and instrumental processes has previously been tested in both the human and animal literature, these interactions have never before been demonstrated in the context of a cognitive control task. In this project, a new variant of the liquid reward paradigm is explored that enables explicit examination of whether liquid rewards might influence cognitive control in humans via Pavlovian mechanisms. Specifically, liquid feedback is explicitly conditioned to aversive and appetitive Pavlovian cues, while monetary rewards are provided as instrumental incentives for cognitive control task performance during separate learning phases. The results yield new information regarding the degree to which liquid and money cues modulate cognitive control in this new paradigm, and provide a direct test of the hypothesis of distinct motivational mechanisms.