Metacognition of Multi-Tasking

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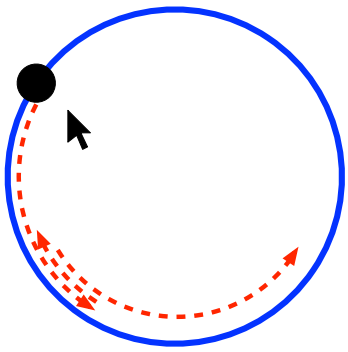
- Multi-tasking impairs performance.
- People can decide when to do it.
- But do they appreciate the costs?

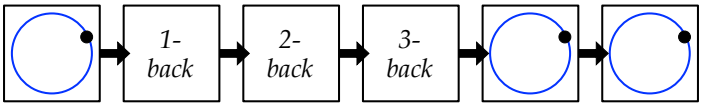
Primary task: tracking



Secondary task: auditory *n*-back

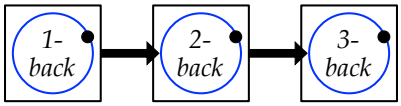
	1-back	2-back	3-back
4			
7	no		
7	yes	no	
4	no	no	yes
9	no	no	no
4	no	yes	no
4	yes	no	yes
⋮	⋮	⋮	⋮

(1) Single-task trials:

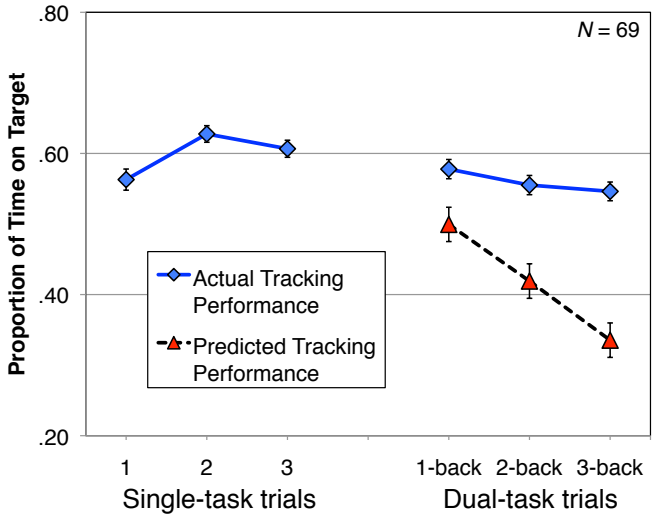


(2) Predict dual-task performance (shown single-task score)

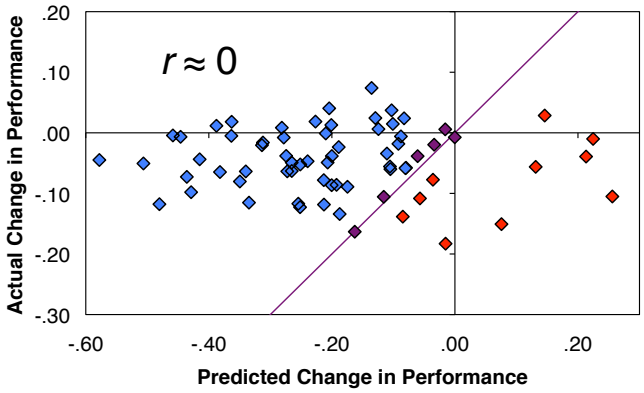
(3) Dual-task trials:



Subjects indeed predicted dual-task decrements, though overestimated.



But they showed no insight on their personal vulnerability to the costs.



Miscalibration could contribute to risky behavior for some.

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Abstract:
Risky multi-tasking, such as texting while driving, may occur because people have inaccurate metacognition about the costs of divided attention. In two experiments, participants performed a computerized visual-manual tracking task in which they attempted to keep a mouse cursor within a small target that was moving erratically around a circular track. Later, participants separately performed an auditory n-back task. After practicing both tasks separately, participants received feedback on their single-task tracking performance and then predicted their dual-task tracking performance before finally completing the two tasks simultaneously. Participants correctly predicted reductions in tracking performance under dual-task conditions, but the between-subjects correlation between predicted and actual decrement was near zero (r = -.01). This finding implies that people have no insight on the extent to which they are personally vulnerable to the costs of divided attention. Such poor metacognition may contribute to risky behavior.

Some Additional References:

Horrey, W.J., Lesch, M.F., & Garabet, A. (2009). Dissociation between driving performance and drivers' subjective estimates of performance and workload in dual-task situations. *Journal of Safety Research, 40*(1), 7-12.

Strayer, D. L., & Drews, F. A. (2007). Cell-phone-induced driver distraction. *Current Directions In Psychological Science, 16*, 128-131.

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