

Task Set Formation: Switching to a Completely Novel Task Enhances Task Switching Costs

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A hallmark of human cognition is the ability to rapidly learn new tasks from instruction. Surprisingly little is known, however, about how rapid instructed task learning (RITL) differs from general task switching. Further, it is unclear how high-level task set formation processes are distinguished from low-level task cue/rule learning processes during RITL. We hypothesized that RITL involves a unique task set formation process, and that it would be reflected in enhanced task switching costs for novel relative to practiced tasks. To test this hypothesis we used a novel paradigm in which three task components with four levels each are factorially recombined to produce 64 unique tasks. Four of the 64 tasks (counterbalanced between subjects) were practiced in a prior session, with 60 tasks remaining novel. We verified enhanced task switching costs, both in accuracy and reaction time, when switching to novel relative to practiced tasks. Further, we found that novel task performance was already at practiced task performance levels after only a single exposure. This suggests that task set formation is able to rapidly translate instructions into task sets for later retrieval from instruction cues.