Becoming a Gamer: Cognitive Effects of Real-Time Strategy Gaming

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Abstract: Video games are rich, dynamic, and fast-paced virtual environments that tap a number of cognitive processes. Prior work reveals that experienced video game players (and novices who become experienced) demonstrate enhanced cognitive and perceptual performance in a range of tasks. It is not clear why video gaming leads to these enhancements. To address this, we use real-time strategy games which require dynamic attention and multitasking skills. We employ a variety of novel methods to capture which game features are associated with various cognitive enhancements. Specifically, we use model-based analysis of empirical feature selection priorities, tests of generation via multiple game maps, and a map manipulation of centered versus bimodal attentional load. Novice participants engaged in 40 hours of game-training, with cognitive testing occurring before, during, and after training. We consider the plasticity of cognitive abilities over training in light of these well controlled factors.