

Primary Presenter

Name: Devin Stack

Email: devin.stack@purchase.edu

Phone: 914-564-6058

College: Purchase College, SUNY

Academic Field: Psychology

Faculty Mentor

Name: Stephen J. Flusberg

Email: stephen.flusberg@purchase.edu

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Musical Commitment Predicts Sequence-learning Abilities both with and without Sound

Research suggests that learning and practicing music from a young age is positively correlated with everything from verbal intelligence to executive functioning. One key feature of musical training that may lead to cognitive transfer is the ability to learn complex structured sequences of sounds and motor movements. Recent work has found that musicians outperform non-musicians when it comes to learning novel visual sequences, but only when they are accompanied by simultaneously presented sounds. However, this research has been limited in part by between-subjects designs that include only a small sample of elite musicians. In the present study, we sampled a larger number of participants with varying degrees of musical experience, as indexed by a set of continuous self-report measures and the Brief Music Experience Questionnaire (Brief MEQ). Participants completed a computerized version of the memory game Simon, which involves observing, remembering, and repeating a growing sequence of colored panels that light up one at a time. Participants completed two blocks of trials: one with sound (a unique note for each panel) and one without sound. A series of regression models revealed that the MEQ subscale “commitment to music”, which tracks “the centrality of pursuit of musical experiences in the person's life”, was a significant predictor of mean performance in both the sound and no-sound trials, even when controlling for the other MEQ subscale scores and a variety of demographics. Additional regression models found that the only other predictor of performance was a self-rated measure of technical proficiency. These findings suggest that aspects of musical experience may lead to enhanced visuospatial sequence learning abilities.

Key Words: sequence learning, memory, music cognition, cognitive transfer