

Musical skill reflects working memory capacity in addition to practice time

July 8 2010

but it's not going to turn you into Liberace. A new study looks at the role that working memory capacity plays in piano players' ability to sight read a new piece of music, an important and complex skill for musicians.

Scientists have debated the role of practice in developing expertise for over a century. Genius used to be thought of as coming from inherited ability. Now many researchers think practice is the key. In 2007, researchers proposed that it takes a decade of intense practice to become an expert. Elizabeth J. Meinz of Southern Illinois University Edwardsville and David Z. Hambrick of Michigan State University wanted to look at working memory capacity, the ability to keep relevant pieces of information active in your mind. Pianists use working memory when they read [music](#). They aren't reading the notes their fingers are currently playing; they're looking ahead to read the notes that are coming next. All musicians do this, but Meinz and Hambrick study pianists partly because they're convenient; they're easy to find and have a wide variety of levels of skill and experience.

For the new study, published in [Psychological Science](#), a journal of the Association for Psychological Science, pianists were asked to sight read six pieces from a book of sight-reading tests. The book was chosen because it's rarely used in the United States. Musicians have to do this kind of test routinely in auditions. They were given pieces with various levels of difficulty. Judges graded each pianist based on technical proficiency, musicality, and overall performance. The pianists were also asked about their piano-playing history, including how many hours per

week they had practiced in each year they'd been playing, and took tasks that measured their working memory capacity.

Practice was definitely important. The amount of time a person had spent practicing explained about 45 percent of the variance in sight-reading skill. But working memory capacity was important, too; when the researchers took out the effect of practice, another seven percent of variance in sight-reading skill was explained by working [memory capacity](#). "Practice is absolutely important to performance," says Mainz. "But our study does suggest that cognitive abilities, particularly [working memory](#) capacity, might limit the ultimate level of performance that could be attained."

Provided by Association for Psychological Science

Citation: Musical skill reflects working memory capacity in addition to practice time (2010, July 8) retrieved 19 April 2024 from <https://medicalxpress.com/news/2010-07-musical-skill-memory-capacity-addition.html>

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