

Music Training Enhances Children's Verbal Intelligence

Canadian researchers report the verbal intelligence of 4- to 6-year-olds rises after only one month of musical training.



The verbal intelligence of 4- to 6-year-olds rises after only one month of musical training. (Digital Vision)

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A [just-published study](#) from Canada suggests early music education stimulates a child's brain, leading to improved performance in an entirely different arena – verbal intelligence.

“These results are dramatic not only because they clearly connect cognitive improvement to musical training, but also because the improvements in language and attention are found in completely different domains than the one used for training,” said York University psychologist [Ellen Bialystok](#), one of the paper's co-authors. “This has enormous implications for development and education.”

The study, published in the journal *Psychological Science*, was conducted at York University by psychologist [Sylvain Moreno](#), who is now with Baycrest's Rotman

Research Institute. It focused on 48 children between the ages of 4 and 6, who took part in one of two computerized training programs Moreno designed.

Half participated in a music program, which “included training in rhythm, pitch, melody, voice and basic musical concepts,” the researchers write. The other 24 took part in a visual-arts program, which “emphasized the development of visuo-spatial skills relating to concepts such as shape, color, line, dimension, and perspective.”

All received their respective training one hour per day, five days per week for four weeks. The programs were projected onto a classroom wall and conducted in groups led by a teacher.

Before and after their four weeks of training, the children took a vocabulary test designed to measure verbal ability and a “block design” test to measure spatial intelligence. (In the latter, they were shown abstract designs and then asked to recreate them using colored blocks.) In addition, their level of brain activity was measured using an electroencephalograph.

The results showed, in Moreno’s words, “a rapid transfer of cognitive benefits” for the music students. Specifically, those who received music training raised their scores the visual-intelligence test.

This increase in verbal intelligence was large and virtually across the board, with 90 percent of the 24 children showing improvement. What’s more, using [ERP analysis](#), the researchers measured changes in the kids’ brain activity. This suggests the music training had a “transfer effect,” enhancing their ability to understand words and explain their meaning.

The children who received the visual-art training did not fare as well: They showed no significant increase in either verbal or spatial skills.

“Preschool children are auditory experts with well-developed language abilities, but visuo-motor skills are less developed at this stage of life,” the researchers note. “A longer or more intensive training period in visual art might significantly influence spatial intelligence.”

Nevertheless, “Our findings represent the first demonstration of broad transfer of an educationally vital skill,” the researchers write. “Training in music-listening skills transfers to verbal ability.”

This finding echoes the results of a recent [study of second-graders](#), which found the reading skills of those who received structured musical training were superior to those of their peers. Such research suggests cutting music education to concentrate on “the basics” is based on a misunderstanding of the way young minds work.

“Our findings demonstrate a causal relationship between music training and improvements in language and executive function,” the researchers conclude, “supporting the possibility of a broad transfer between high-level cognitive abilities.”

The famous [Mozart effect](#) was certainly overhyped and oversimplified, but it now appears that learning to appreciate complex music really can boost overall intelligence. Piping sonatas into your womb is unlikely to make a difference, but enrolling your kid in an early music-education class sounds like a very good idea.