CultureCase

Music training helps develop fluid intelligence

This research was conducted by **Jim Meyer, Pinar Gupse Oguz** and **Katherine Sledge Moore** at **Elmhurst College** and **Arcadia University, USA**

Summary

Previous studies have shown that extended and intensive music training can develop all sorts of capabilities in people. This study looked at how music training relates to ‘fluid intelligence’ (the ability to think abstractly and solve problems). After testing 72 students at Elmhurst College in the US, the authors conclude that ‘musicians with extensive experience scored significantly higher in fluid cognition than did non-musicians and less-trained musicians. These results add support to the mounting evidence of the positive relationship between music training and cognitive function’.

There are many ways in which musical performance is built upon strong fluid intelligence

It relies on ‘a combination of fast perceptual processing (e.g. listening), maintaining a large quantity of information in working memory at one time (e.g. repeating a musical phrase), quickly comprehending a complex symbolic system (e.g. reading music), multitasking (e.g. reading while playing, while watching a conductor), and reasoning (e.g. predicting a chord progression)’. Each of these components of fluid intelligence were tested among 72 ‘undergraduate students with a range of musical expertise’.

The research subjects were assigned to one of three groups: ‘music experts’, ‘music amateurs’, and ‘non-musicians’

In addition to the finding that musicians outperformed non-musicians on the overall measure of fluid intelligence, some other differences were discovered. Music experts scored much higher in tests for ‘attention’ (which might be used to read a line of music embedded in a score, or focus on one’s own part amid an orchestra or group). They also scored higher for ‘working memory’ (short-term and long-term memory is deployed when learning a piece of music). Musicians also scored more highly for ‘executive function’, which is necessary to multi-task (for example, when moving different parts of one’s body independently). They also achieved higher scores for ‘processing speed’ (which allows for the quick movement and spontaneous decision-making that is demanded of a skilled performer).

Keywords

USA **cognition** **experiment** **music**

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