

# Learning, Arts, and the Brain

## The Dana Consortium Report on Arts and Cognition Released March 2008

### The Study

In 2004, the Dana Arts and Cognition Consortium brought together cognitive neuroscientists from seven universities across the United States to grapple with the question of why arts training has been associated with higher academic performance. The following are conclusions from this ground breaking research that further solidify the correlation between arts study and improved cognition.

### Significant Conclusions

- An interest in a performing art leads to a high state of motivation that produces the sustained attention necessary to improve performance and the training of attention that leads to improvement in other domains of cognition.
- Specific links exist between high levels of music training and the ability to manipulate information in both working and long-term memory; these links extend beyond the domain of music training.
- In children, there appear to be specific links between the practice of music and skills in geometrical representation, though not in other forms of numerical representation.
- Training in acting appears to lead to memory improvement through the learning of general skills for manipulating semantic information.

All information reported here is from the Dana Consortium Report, "Learning, Arts, and the Brain," released in March 2008. The full report is available in the Data and Study Results section of the Resource Center on [www.tmea.org](http://www.tmea.org).



*Children with early training in the visual arts had a higher degree of phonological awareness (auditory skill correlated with reading ability) than children with no such training.*



*Participants who had formal musical training showed significantly stronger neural enhancement and suppression effects, indicating better cognitive control . . . results suggest that formal musical training may generalize by having an impact on other brain systems that are different than those affected by training.*

*Musicians scored better compared to the non-musicians on a test of long-term verbal memory, but this advantage disappeared when we prevented the musicians from rehearsing the material. We also found evidence that the musicians had a greater span of verbal working memory compared to the non-musicians. We attribute both of these effects to the enhanced use of rehearsal skills in musicians, rather than to a "hard-wired" difference in verbal memory capacity.*



*Intensive music training is associated with improved performance in the core mathematical system for representing abstract geometry.*

