



Arts Facts . . . Impact on Cognitive Development
Neuroscientists find training in the arts improves cognition. Music, acting, and dance improve a range of life and academic skills.

ARTS EDUCATION AND COGNITIVE DEVELOPMENT

Neuroscientists from seven universities across the country used brain imaging studies and behavioral assessments to advance our understanding of the effects of music, dance, and drama education on other types of learning. The findings from their coordinated three-year study suggest that children motivated in the arts develop attention skills and strategies for memory retrieval that also apply to other academic subject areas.

- Training in music appears to improve skills in geometric representation, as well as the acquisition of reading skills and sequence learning.
- Training in acting classes appears to lead to improved memory, via learning and manipulating language skills.
- Learning to dance by effective observation relates closely to physical practice, and that training appears to improve other cognitive skills.

Scientist's research findings include the following:

1. 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.
2. 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.
3. 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.
4. Correlations exist between music training and both reading acquisition and sequence learning. One of the central predictors of early literacy, phonological awareness, is correlated with both music training and the development of a specific brain pathway.
5. Training in acting appears to lead to memory improvement through the learning of general skills for manipulating semantic information.
6. Learning to dance by effective observation is closely related to learning by physical practice, both in the level of achievement and also the neural substrates that support the organization of complex actions. Effective observational learning may transfer to other cognitive skills.

Source: *LEARNING, ARTS, AND THE BRAIN, The Dana Consortium Report on Arts and Cognition*, Dana Press (2008).