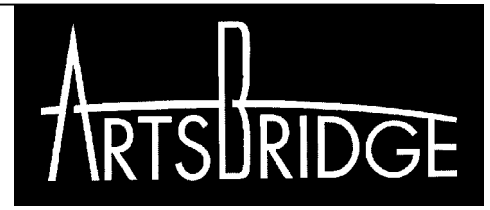


# Research Note

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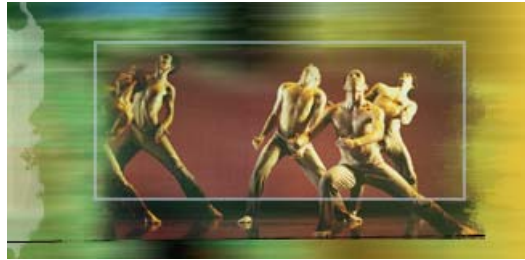


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## HIGHER ORDER THINKING, MULTIPLE INTELLIGENCES, AND THE ARTS

ACCORDING TO HARVARD UNIVERSITY'S HOWARD GARDNER, intelligence represents "...the capacity to solve problems or fashion products that are valued in one or more cultural settings." Gardner outlines eight intelligences found in humans—**Linguistic, Logical-Mathematical, Spatial, Musical, Bodily-Kinesthetic, Intrapersonal, Interpersonal, and Natural**—all used to varying degrees by each of us. An emerging body of research suggests that undertaking curricula and training in the arts has numerous positive impacts on students' cognitive processes and intelligences, primarily spatial, musical, and bodily-kinesthetic. The intelligences affected are listed by discipline below, along with related impacts and key findings. They include, but are not limited to:

**VISUAL ARTS (Spatial):** Visualizing, planning, controlling, forming, shaping, communicating, self-expression. Students' critiques of art enhance vocabulary and language skills. Strong links exist between visual arts and reading. In learning disabled children, drawing improved thinking and verbal skills.



**MUSIC (Musical, Linguistic, Spatial):** Cross-activation of higher-order brain functions, analyzing, arranging, notating, influences memory, improves spatial-proportional and spatial-temporal intelligence. Studies connected music lessons to long-term academic success and cross-curricular improvement.

**DRAMA, DANCE, PRODUCTION (Bodily-Kinesthetic, Musical, Linguistic, Spatial):** Activation of multiple brain systems, strengthening neurological structures, strengthening motor skills, coordination, depression reduction, creating opportunities for new learning, neurogenesis, positive emotional and collaborative effects.

**OTHER IMPACTS.** Consonant with research on the arts and higher order thinking (Eisner, 1998; Jensen, 2001), extensive analyses of over 2,100 pre- and post- vocabulary assessments taken by students taught by ArtsBridge scholars exhibited phenomenal and statistically significant growth (192 percent improvement at  $p < .05$ ). These findings have intriguing connotations for K-12 and postsecondary education and the empirical study of literacy development in children and young adults.

### REFERENCES

- Eisner, E., 1998. "Does experience in arts boost academic achievement?" *Art Education* 7-15.  
Jensen, E., 2001. "The Science of the Arts" *Principal Leadership* v 2 n3 November 2001.  
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*ArtsBridge Research Notes* contain brief summaries of the impact of the ArtsBridge program on participants: university students, faculty, K-12 schoolchildren, and teachers. For others in the series, or for additional information, see our website: [www.arts.uci.edu/ucartsbridge/](http://www.arts.uci.edu/ucartsbridge/)