

# FULL STEAM AHEAD

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Art education, with all the strands, are necessary skills in and of itself but also enhances all the core subjects. Today the STEM subjects are garnering a lot of attention to succeed in the 21<sup>st</sup> century but recent brain research has shown these skills are best developed with a combination of education in the arts (STEAM).

When people initially think of art, they usually conjure up thoughts of paintings and sculptures. Given a little more time, music comes to mind as well as literature, poetry, dance and other performing arts. In theme-based learning, components of all these strands unite, not only for the artist-creator-performer but as well for those responding to works of art, becoming inspired and building their own creativity vicariously.

Creativity is not only problem solving but the expression of one's impressions. Two things are needed. First children need many impressions, experiences and examples of art in which to internalize. Second, they need experiences in all the art forms as well as Math, Engineering, Technology and Science. In this article we will look closely at the effects of integrating the arts into the STEM curriculum.

## Visual Arts

Students benefit by being involved in the creative process of art in ways that teach them to develop their creative skills and imagination. Eye-hand coordination along with focus, attention to detail, and deep concentration are developed through this medium. On going involvement and participation in the visual arts develops self-confidence, self-discipline and flexibility.

## Music

According to Thomas Carlyle, "Music is well said to be the speech of angles; in fact, nothing among the utterances allowed to man is felt to be so divine. It brings us near to the infinite."

In Howard Gardner's "Frames of Mind: The Theory of Multiple Intelligences," having musical intelligence is an ability one has to perform, compose, and appreciate musical pattern. This activity involves thinking ahead. Paying attention, remembering, coordinating movement, and being able to interpret feedback that is constantly coming to the ears and fingers. This enhances what is called executive function. Executive function is responsible for thinking abstractly and the ability to ignore one thing and pay attention to something else. Music is a whole brain activity that has been shown to change the nervous system in profound ways.

### Dance and Movement

Dance and creative movement are natural with children. Even babies gyrate and sway their bodies especially along with music. Movement education, according to the Center for Movement Education and Research (CMER), improves educational, social, and cultural domains. Movement and dance promote body-mind awareness and also activate many centers in the brain. Spatial and bodily-kinesthetic intelligences are developed through movement and dance as well as with the visual arts. Often, I am amazed how today's children are unable to gallop, hop, and use their bodies in ways that children did with ease when I was a child. More than ever we need to teach movement education in schools as well as families promoting activities with their own children.

### Performing Arts

A child is in the process of creating himself. He is trying on life. With drama, the self is used as the creative medium. One's self-activity and self-expression are all that is needed to communicate and create with others. No tools are necessary.

Drama is spontaneous in children's play when they rehearse at being a parent or imagine stretching abilities like a superhero. Drama provides the fertile ground for developing many of Gardner's eight intelligences especially the intrapersonal and interpersonal skills, memory, and concentration.

A program with performing arts should have a theater production component. Opportunities for creating sets, singing, dancing, acting, speaking, and learning about the technology of lighting and sound abound.

Today's children will inherit the 21<sup>st</sup> century which will require necessary skills. The skills learned from the core subjects, such as language arts, mathematics, science, and social studies will continue to be emphasized with a stronger focus on science, technology, engineering, and math (STEM). More evidence is building that these subjects are best developed with a component of a strong education in the arts (STEAM). Abilities that also are singled out include problem solving and critical thinking. Brain research supports that art education strengthens the skills needed to be successful in school and ready for the 21<sup>st</sup> century working world.