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How Music Could Make You a Rocket Scientist

Kids Trained in Arts, Crafts More Likely to Succeed in Science, Technology, Researchers Find

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There is a very strong correlation between childhood engagement in the creative arts and measurable success later in life, researchers at Michigan State University have found.

Although a number of scientists have demonstrated that exposure to music and art during early life enhances the development of the brain, it has been difficult to measure how that has affected their adult performance.

The MSU research team thinks they found one way to do that. Children exposed to a wide variety of arts and crafts were more likely to eventually invent something so unique that they earned a patent, or come up with an idea good enough to form a new company, or publish provocative papers on science and technology.

That led them to conclude that cutbacks by the educational system on creative subjects -- whether it be music, art or woodworking -- may deprive the nation of the kind of innovation it will need to remain at the top of the global heap.

"We conclude, therefore, that a very strong case can be made that arts and crafts training correlates significantly with success as a scientist or an engineer and that this success can be measured in economically valuable products such as patentable inventions and founding new companies," the researchers conclude in their study, published in the journal *Economic Development Quarterly*.

The researchers also found that the converse is equally likely to be true. Depriving a child of a chance to be creative will probably lead to a less productive life later on.

Among the participants in their study, those who held the most patents, or started the most successful companies, received up to eight times more exposure to the arts than children in the general public.

"The most interesting finding was the importance of sustained participation in those activities," Rex LaMore, lead author and director of MSU's Center for Community and Economic Development, said in releasing the study. "If you started as a young child and continued in your adult years, you're more likely to be an inventor as measured by the number of patents generated, businesses formed, or articles published. And that was something we were surprised to discover."

The study was based on access to an elite group of people who graduated from MSU's Honors College from 1990 to 1995. All of them were very smart, or they would not have been in the honors program. Most undoubtedly came from privileged homes where creativity was treasured and opportunities abounded, so these results may not apply to everybody.

But the numbers are so impressive that it would require a huge margin of error for them to be irrelevant.

Eighty-two persons participated in the study. All had majored in science, technology, engineering, or mathematics (STEM.) Music was the most common form of creative activity, and a whopping 93 percent of the participants maintained a lifelong involvement in music compared to 34 percent of the general public.

Except for the huge gap between those numbers, that may not seem all that surprising, because numerous studies over the years have documented the effect of early music lessons on the development of the human brain. Scientists at Concordia University in Montreal found earlier this year that the younger the lessons started, the greater the impact on the brain.

And scientists at Northwestern University in Evanston, Ill., found last year that even a little musical training during childhood enhances the brain's ability to respond to complex sounds.

However, the MSU researchers found a strong correlation between numerous creative fields and later success. Some 41.9 percent of those who had worked with metal, for example, were more likely to end up holding patents than those who had never studied metal work.

Others excelled because they had studied ceramics, photography, wood working, electronics, computers, architecture, dancing, acting, creative writing, and so forth.

In other words, any exposure to the arts made a huge difference.

"High achievers in general, and those individuals most likely to found companies and make inventions in particular, have acquired a set of arts and crafts skills to which the average person is never even exposed," the study notes.

Why should working with metal or clay help a person found a company later in life? The researchers suggest that arts and crafts help kids and adults think "out of the box."

A lot of working with hands amounts mostly to figuring out how to solve problems -- how do you make a piece of wood bend the way you want it to -- and that can translate into finding a way to do something that no one else has figured out.

When asked to describe the value of engaging in arts and crafts, a couple of the participants put it this way:

"Quilting is a great way to use creativity and analytical thinking to solve problems and create something that is aesthetically appealing. It helps me lower my stress level, and likely improves my creativity in my current vocation," said one.

"General creativity and ability to consider multiple possibilities when troubleshooting. Able to get out of the 'this is the way we've always done it' rut," said another.

"The skills you learn from taking things apart and putting them back together translates into how you look at a product and how it can be improved," said Eileen Roraback of MSU's Center for Integrative Studies in the Arts and Humanities, a member of the research team.

Co-authors Robert and Michele Root-Bernstein, who have studied the relationship between the creative arts and scientific success for years, have found that the avocations persons choose can play a dramatic role throughout their lives.

After studying many scientists they reached this conclusion: "The most eminent and innovative among them are significantly more likely to engage in arts and crafts avocations" than the average Joe.

The bottom line, according to the researchers, is if you want to see this country rebound from its recession and lead the world in innovation, don't just look at Wall Street. Look at the ceramics lab as well.

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