

**Upper St. Clair School District
October 7, 2015**

Why strings matter.

The economics of music are frequently misunderstood. Poorly researched and frequently misleading articles discussing those professions that make the most money (or make the least) cast arts in an incredibly negative light, but they leave out significant data, including the economic benefits that the arts have on a city, the incredibly significant changes in a child's brain that take place when they study a musical instrument (especially strings), and the influence over the development of culture that our music programs can and should have. Instead, we have relegated musical and cultural development to a very small segment of music executives who tend to look for the most sensational, controversial (read *marketable*) and salacious material there. We have become a nation that is numb to nuance and require constant overstimulation of our senses in order to feel alive and connected.

Tonight I want to tell you why music matters, and especially why strings matter.

1. Our world is filled with ugliness, with hate, with poverty, with despair and a lack of hope. The presence of music, which is the language of auditory beauty, expresses beauty in a unique way. Imagine our world without the beauty of nature and creation. Imagine our world without pictures, without paintings, without gorgeous architecture, and fashion, and art. Imagine a world that was purely functional. That's exactly what you would have without music.
2. Music-making, specifically playing stringed instruments, changes the brain in ways that incredible. Playing a string instrument requires great use more of your brain than almost any other activity. Music-making provides support for all other neural and cognitive activities. We don't make music because it helps us in math, reading, and science, because that would limit the beauty, elegance, and incredible purposes of the art form. But, we recognize that the complex nature of music is such that it provides the very structural foundations upon which all other cognitive activity is built. Music is, in its very essence, the foundation for greater learning. This is why we

consistently see that students who participate in music for longer periods of time generally do better in other academic areas. Music education in general, and string playing in particular, especially when started at an early age, promote neuralplasticity, the idea that our neural networks can continue to grow and morph over time. Children who engage in music making at an early, especially string playing, have larger, more complex, and more intricate neural networks.

I'm saying is this.

What we need is more music education, not less of it.

3. Research studies have shown us that the vast majority of individuals possess specific music aptitude—in the nature of 97% of the population. Additionally, new studies show us that students who take band, choir, and orchestra vary widely in their reasons for choosing an instrument. We have no reliable data that shows that the presence of strong string program harms other ensembles. In fact, the data show the opposite. A viable string program engages the entire community and provides a link that connects band (through the symphony orchestra) to the choir (through orchestral accompaniments).
4. Creativity is one of the most essential skills for success in the 21st century. You do not foster creativity by simply learning a narrow field of STEM-related subjects. No, you foster creativity through exploration of sound, sight, touch, and emotion. These are things best engaged by the arts.
5. Creative pursuits help children learn how to focus on difficult tasks for a long time. We all have seen the incredible distraction caused by social media, by our needs to connect with the world around us in superficial ways. But new research confirms that the more connected we are with “social media” the less connected we become with each other, the less time that we have for thoughtful reflection and consideration, and we lose the ability to create and imagine, because we are always engaged in short-term, quickly gratifying pursuits. But music, especially performance on a stringed instrument, does just the opposite.

Thomas Südhof, 2010 co-recipient of the Nobel Prize for Medicine and Physiology, explained how this works and the incredible role of an expert teacher in the process.

“My bassoon teacher, Herbert Tauscher, who taught me that the only way to do something right is to practice and listen and practice and listen, hours, and hours, and hours.”

Südhof later elaborated in an interview for The International Double Reed Society’s own quarterly magazine:

“[I learned] the value of disciplined study, or repetitive learning, for creativity. You cannot be creative on a bassoon if you don’t know it inside out, and you cannot be creative in science if you don’t have a deep knowledge of the details... I learned to value traditions as a musician, but at the same time the importance of trying to transcend tradition. The tradition is the basis that allows you to progress, the starting point, but it cannot become a limitation, because then both in music and in science creativity and progress end.”

6. Music creates the foundation for decoding symbol systems that directly relate to computer languages, foreign languages, and mathematics. When a musician first learns to read music, she develops a process of recognizing and decoding a complex system of symbols. The musician then translates those symbols into appropriate motor actions that use both hands, and confirms the accuracy of her actions through multisensory feedback (both sight and sound). In addition, musicians practice motor skills in the pursuit of metric precision, they exercise memory functions in the absence of written music, and create new combinations on the fly through improvisation.

John J. Ratey, MD and author of *A User’s Guide to the Brain*, said.

“The musician is constantly adjusting decisions on tempo, tone, style, rhythm, phrasing, and feeling – training the brain to become incredibly good at organizing and conducting numerous activities at once. Dedicated practice of this orchestration can have a great payoff for lifelong attention skills, intelligence, and an ability for self- knowledge and expression.”

7. **Arts Education in General Significantly Benefits Disadvantaged Youth.**

Upper St. Clair is not generally considered an area where there is a large population of disadvantaged youth, but I want you to consider what your children might do in their future to help those populations that are disadvantaged.

In 2012, the National Endowment for the Arts released a report titled *The Arts and Achievement in At-Risk Youth: Findings From Four Longitudinal Studies*. It made the case for arts and music education, using more than twenty years' worth of academic results.

Focusing specifically on children from lower socioeconomic status or "low-SES" backgrounds, the researchers found that the more arts education these children received, the better their life prospects seemed to get:

"According to the data, 71 percent of low-SES students with arts-rich experiences attended some sort of college after high school. Only 48 percent of the low-arts, low-SES group attended any sort of college. And more than twice as many high-arts students from the low-SES group, compared with low-arts students in that group, attended a four-year college (39 percent versus 17 percent).

This also translated to degree attainment: 24% of children from a high-arts, low-SES background were able to attain associate's degrees, versus 10% of low-arts low-SES children. 18% of high-arts low-SES children attained bachelor's degrees versus 6% of low-arts low-SES children. The NEA report also cites higher rates of volunteerism and general civic engagement in both high- and low-SES children.

Percent of Young Adults Who Attended College and Achieved College-Related Outcomes, 2003
Low arts vs. High

	Low arts	High arts
Ever attended college after high school	48%	71%
Ever attended a four year college	17%	39%
If they attended college:		
Earned highest degree		
Associate's degree	10%	24%
Bachelor's degree	6%	18%
Graduate or professional degree	0%	1%
Earned industry-related college	9%	15%

Figures from the National Endowment for The Arts study "The Arts and Achievement in At Risk Youth: Findings From Four Longitudinal Studies"

Unfortunately, these studies mostly stop following the students' progress by the time they reach their early to mid-20s, providing little information on long-term career prospects. Given the links between college education and employment/earnings however, it seems reasonable to ask if arts education in general should now be a part of the larger conversation about income equality.

- Our central decision-making processes involve both higher cognitive function but are also guided by our limbic system, which is the part of our brain that controls our basic emotions (fear, pleasure, anger) and drivers (hunger, sex, dominance, etc.). When we listen to music we may have a sense of pleasure, but when we make music, we are gaining a tool by which we can regulate mood, decrease stress, reduce blood pressure, and communicate abstract feelings and emotions that can't be put into words. The benefits for those on the Autism spectrum are absolutely stunning. The same is true for any child who struggles in the least to express how he or she feels. Music helps stave off Alzheimer's, helps treat Parkinson's disease, and provides incredible therapy for the aging and those with other

disabilities.

Music making promotes the release of dopamine, which is the hormone that gives us a sense of satisfaction and happiness. Those who make music receive huge doses of dopamine and serotonin, which is one of the reasons that people become, in the best possible sense of the word “addicted” to music.

If listening to the incredible beauty of the Pittsburgh Symphony or any of our other amazing artistic organizations wasn't sufficient, I want you to consider what your world would be like without music. [Pause]. The silence is deafening. Your soul would starve!

But to get to the level of the PSO (or anything close to that) you need to make a commitment to learn. Playing strings isn't pleasant at the beginning, the payoff is worthwhile. Playing strings is an investment in your child and in your community. It is an investment in our culture and in our future.