



# PROMOTING STEAM: ADVOCACY & APPLICATION

ANDREW LESSER  
BURLINGTON CITY PUBLIC SCHOOLS  
ANDREW.LESSER@YAHOO.COM

Since 2009, President Obama's "Educate to Innovate" campaign has led to an increase of awareness in STEM (Science, Technology, Engineering and Math), resulting in a heavy influx of STEM subjects throughout American public schools<sup>1</sup>. As such, the ensuing debate of the reliance of standardized testing, which emphasize STEM materials, have contributed in the continued marginalization of the fine and performing arts. While STEM does indeed have an important place in preparing students for the shifting job market, it does not in itself provide a comprehensive education that promotes creativity, individual expression and emotional development, all of which are essential to positive growth.

As a result of the imbalance that has arisen from STEM's prioritization, a program championed by the Rhode Island School of Design was created to "transform research policy to place Art and Design at the center of STEM" and "encourage integration of Art and Design in K-20 education".<sup>2</sup> STEAM, as it is now known, attempts to inject the arts as a critical factor into the core curriculum, providing the subjective skills students need to develop creative thought and personal meaning through artistic expression.

Speaking to music educators, it is not necessary to describe ways that the arts can improve and enhance the classroom environment, as we are already "preaching to the choir;" but for many educators who teach subjects outside the arts, it can be difficult to justify the potential benefits of incorporating the arts into a non-arts field of study. Considering that we as music educators are encouraged, and many times required, to incorporate common core curriculum into our classrooms, specifically the tested subjects of language arts and math, many music teachers would feel that those outside

the arts should reciprocate and attempt arts integration in their own classrooms.

## *Where Did The Arts Go?*

The arts were a major force of study from the early days of the Greek city-states (approximately 800 B.C.E - 500 A.D.) and were referred to as an influential source of human development and character. The Greek philosopher Plato exclaimed in *The Republic* that music and poetry have a direct effect on the human psyche and without the proper balance of music combined with academics and physical education, one will not achieve "perfection in the soul".<sup>3</sup> Plato's student Aristotle also considered music as an indispensable aspect of education; in *Politics*, he mentions that "music has a power of forming the character, and should therefore be introduced into the education of the young".<sup>4</sup>

These sentiments continued in the Middle Ages, where music was included in the higher division of the quadrivium, along with arithmetic, astronomy and geometry. Schools such as the *scholae cantorum* contained curriculum where instruction in music was paramount to compliment the Christian mass. This eventually included musical subjects such as singing, playing instruments and composition.<sup>5</sup> Conservatories of music were created during the Renaissance, and the American colonies soon followed suit with the establishment of the first music school in Boston in 1717. Expansions in public school education over the following two hundred years also allowed music programs to grow and flourish around the country.

During World War II, the arts began to decline in educational prioritization as recruiting soldiers became more important than cultural pursuits. This continued into the next decade, where the Soviet launch of

Sputnik resulted in governmental support of more science-based programs and less humanities. International competition persisted to downplay the arts as a viable source of education throughout the next several decades, though wind bands increased in popularity due to its ability to support military activities and sporting events.<sup>6</sup>

President George W. Bush's "No Child Left Behind Act" (NCLB), ratified in 2001, remains to this day as a source of contention and debate, especially where the arts are concerned. NCLB relies heavily on standardized testing, which does not include the fine and performing arts, even though under the law they are considered a "core curriculum subject".<sup>7</sup> Now that many teachers' annual evaluations are based partly on their students' test scores, arts education to this day is not given equal standing based on the increasing pressures of standardized test achievement. As a result, many music programs throughout the country have been cut due to budgetary restrictions that have instead been allocated to programs rooted in standardized test preparation.

## *The STEM To STEAM Survey*

In an effort to discover more information regarding teachers' perceptions of arts-based education, I conducted a survey in February of 2015 in my own district, the City of Burlington Public Schools. Over sixty educators representing preschool through high school participated in the survey, including teachers of mathematics, language arts, social studies, science, physical education and health, and the fine and performing arts. Administrators and support services staff were also included in the survey, which accounted for 15% of the total participation.

67% of the educators who took the survey actively used arts-based education in

their classrooms, giving examples such as singing songs or acting to introduce new units or to remember concepts, using visual art to represent ideas, theater techniques for reading comprehension, and even art as therapy for emotionally troubled students. There was a wealth of variety in each educator's application of the arts, regardless of discipline or grade level. Some specific examples included the following:

- Trench Art from WWII in history class
- Illustrating vocabulary words during reading
- Designing company names and logos for business class
- Visual art using Microsoft Word in technology
- Music and acting to connect to literature and poetry
- Using Zumba (rhythmically-based dance) in physical education
- Incorporating songs in math, language arts, science, and social studies
- Visual art and fashion design concepts in domestic sciences
- Rhythm exercises to pronounce new words
- "Flocabulary" Hip-Hop videos in writing
- Comparing fractions in music, art in geometry and numbers in graphic design

As evidenced by the feedback, an overwhelming 93% of those who completed the survey believe that arts-based education in core curriculum classes is beneficial to students, and agree that more professional development opportunities based on incorporating STEAM concepts should be offered both within and outside the district level.

There were three primary reasons why educators did not use arts-based instruction in the classroom. Most felt as they were not specialists, that they did not have the necessary skills to properly incorporate the arts. The issue of time management was also mentioned as a large concern, particularly in the limited planning time some teachers felt they had to accomplish in developing their curriculum and basing their instruction on student growth objectives (SGO's) and test preparation. Some additional comments on the survey included:

- "No artistic ability"; "I'm not an arts specialist"
- "Materials are not always available/related"
- "Not appropriate based on the curriculum"
- "Time is tight with regards to planning"
- "I would like to incorporate more arts into the classroom, I just need time to plan it out!"
- "Limited planning time, too busy ensuring that my SGO is met, leaves no time for valuable, real-learning experiences"
- "I would if there were primary source documents of the time period I teach available"

Finally, the perceived lack of source materials demonstrated an inability for teachers to include the arts as they felt it "did not apply" to their subject area. This was lamented in many teachers' comments, as they reflected that they would like to include more arts in their teaching, but the effort required to plan for standardized tests, as mentioned above, "leaves no time for valuable, real-learning experiences".

#### *Where Do We Go From Here?*

Though it seems that there are many challenges to promoting STEAM outside the arts classroom environment, it is encouraging that so many teachers are willing and enthusiastic about learning

how to incorporate STEAM in their teaching practices. As music educators, we must offer our assistance and be willing to venture outside what sometimes seems to be our own small universe in the grand scheme of primary education. With tools such as online materials, teacher networking, and professional development workshops, we can help teachers discover new methods that promote creativity, passion and relevance to create students that are motivated and willing to express themselves.

Below are a few online links that center on STEAM learning for both arts and general education teachers:

STEAM Portal: [www.educationcloset.com/steam](http://www.educationcloset.com/steam)

21st Century Tech: <https://21centuryedtech.wordpress.com/2014/02/17/stem-education-over-25-steam-links-filled-with-resources-and-information/>

Lesson Plans Page: <http://lessonplanspage.com/scientific-poetry-cross-curricular-lesson-plans/>

Teachers Pay Teachers: <https://www.teacherspayteachers.com/Store/Andrew-Lesser>

These are only a few of the myriad resources on the Internet. Many other great ideas can be found on educational community web pages such as Pinterest, Edutopia and Educational Leadership. Also, simply using Google to search for a specific topic will usually result in one or a series of solutions. Another excellent resource is David Sousa and Tom Pilecki's text "From STEM to STEAM: Using Brain Compatible Strategies to Integrate the Arts" (Corwin, 2013). In our efforts to develop 21st century learners, helping our fellow educators in putting the "A" in STEAM has the power to help all students develop a passion for learning that will continue long after they leave the walls of the classroom.

*Andrew Lesser is the Music Director of Wilbur Watts Intermediate School, where he teaches general music, choir and instrumental methods. He also serves as Adjunct Professor at Rowan College at Burlington County, and is currently the Concertmaster of the Philadelphia Wind Symphony. For more information, please visit [www.andrewlessermusic.com](http://www.andrewlessermusic.com).*

#### *Endnotes*

1. Hom, E. (2014). What is STEM Education? Retrieved November 19, 2014, from <http://www.livescience.com/43296-what-is-stem-education.html>
2. STEM to STEAM. (2015). Retrieved from <http://stemtosteam.org/>
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4. Aristotle, *Politics* (Mineola, NY: Dover Publications, 2000), 310
5. Abeles, H., Hoffer, C., & Klortman, R. (1994). *Foundations of Music Education* (2nd ed.). New York, New York: Schirmer Books.
6. Ibid.
7. Pogrebin, R. (2007). Book Tackles Old Debate: Role of Art in Schools. Retrieved November 7, 2011, from [http://www.nytimes.com/2007/08/04/arts/design/04stud.html?\\_r=0](http://www.nytimes.com/2007/08/04/arts/design/04stud.html?_r=0)

