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Full STEAM Ahead

Adding the arts to STEM helps students think creatively

IT'S BEEN A HEADY COUPLE OF years for The STEM Academy at Bartlett Middle School in Savannah, Georgia. In 2015, the academy became the first middle grades school to receive STEM-wide certification from the state. The following year, the program was named the top middle grades STEM school in the country by the Future of Education Technology Conference.

In addition to the magnet school's approach to the teaching of science, technology, engineering, and math, one reason The STEM Academy has received such accolades is because of how it has embraced the arts. You could say the academy, with its acclaimed film and broadcasting program (@filmatstem), is picking up STEAM.

Although educators are quick to cite the need for creativity and artistic expression in the STEM fields, schools like Bartlett are taking it one step further by consciously integrating arts-based courses into their programs. It's one thing to teach students the steps to make videos or games; it's another to think about the art behind the craft.

BETTER TOGETHER

The term "STEM" is relatively new in the education lexicon, having taken hold about a decade ago as policymakers started talking about the need for a renewed commitment to science, technology, education, and math in schools. Newer still is STEAM, a phrase coined and championed by John Maeda, former president of the Rhode Island School of Design.

Maeda's belief, shared by a growing number of educators, is that art and science "are better together than apart." Through imagination and innovation that an integrated arts curriculum provides, by adding an "A" into STEM, you have a much better chance of providing children with a well-rounded education.

"There are districts that are almost a decade into a real systemic understanding of how STEM becoming STEAM can transform their system," says Ann Powers, co-author of the 2015 book, *The STEM Shift*. "Others are just beginning to add a STEM class or teacher, or an extra science course. They are just putting their toe in the water of what this can mean for the work they're doing with children."

Ann Flynn, who has led NSBA's education technology program for two decades, says the STEAM movement is advancing steadily but slowly. NSBA's "20 to Watch" program, which has honored technology educators who are on the cutting edge for two decades, named its first three honorees with STEAM in their job titles earlier this year.

One of those honorees, Matthew Henderson, is a STEAM Design

Teacher at Boyce Middle School in Pennsylvania's Upper St. Clair School District. Henderson's expressive arts class, which was created for fifth- and sixth-graders using grant funds, takes the place of industrial arts while still giving students a chance to create, collaborate, and design projects in a hands-on way.

"Creativity is the only thing that really problem solves, but we don't typically give students the chance to practice creativity," Henderson says. "For five years, our students have been used to a teacher holding up an example and saying, 'This is what we're going to make today.' This class is the complete opposite."

UNLOCK CONNECTIVITY

On the surface, Powers and her co-author, Jill Berkowitz, would not be the most likely candidates to write a book about the STEM movement and its arts-incorporating offspring. But *The STEM Shift* evolved from a desire to help schools become intentional about how and what they teach.

"We haven't lived in this field, but we see the potential that the integration of these courses offers for all students," says Powers, who was a history teacher before becoming a superintendent, district consultant, and university professor.

Integration is the key word here, Powers says, because the beauty of STEM/STEAM is that it breaks down traditional silos we see and hear about all too often in education. But, Powers and Berkowitz caution, simply adding technology, engineering, and arts courses to the daily dose of science and math that students receive is not the right approach.

"We have really taken a stand that the four subject areas of STEM are of value, but the real potential value of what they offer is a shift in teaching and learning K-12," Powers says. "When you add the arts to that, then you begin to unlock the creative potential and connectivity between those four subjects within the arts."

Berkowitz, a former director of curriculum and instruction who later trained teachers to become administrators at the university level, says the biggest challenge schools face is in breaking the silos.

"Part of it has to be how we train the people who teach the subjects," she says. "Students have been taught in silos for so long — 40 minutes of math, 40 minutes of science, 40 minutes of social studies, and so on — that teachers don't speak to each other and students don't get the connection between the subjects. The shift that we provide is in helping schools understand that these subjects are in service of each other."

THE SHIFT

My exposure to this cross-curricular approach dates to my childhood, when my artist father — who died 10 years ago — taught U.S. and Texas history at the middle school level. Even though he did not teach art, the first day or two of each school year was devoted to his students redesigning the U.S. and Texas flags.

Dad's approach was simple, but smart. The students did not have to be good artists, and they had to follow only a few simple rules: same colors, same number of stars and stripes. More important, they had to be able to explain why they did what they did. A simple shrug of the shoulders would not suffice. That lesson gave him insight into how they worked, how they approached problem solving, and their willingness to show their creativity.

"As educators, we have children come to us without a sense of separateness in how they learn," Powers says. "They don't know that when they're learning math, science, or how to read. What you see when you have a fully integrated STEM/STEAM initiative is that it allows you to reunite things that were naturally connected for children anyway."

Berkowitz and Powers say the districts that are most successful at STEM and STEAM programs are those in which the board and superintendent are invested in changing teaching and learning across grade levels.

"This type of shift takes several years, and a lot of energy," Berkowitz says. "You need to think of why you're doing this and be able to articulate it to your staff, your community, and your partners so they can accept that things may be done in unfamiliar ways as you move into more project-based lessons K-12. For some school districts, they don't understand that STEM doesn't just mean adding more courses. That's a start, but it's just a start."

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