

New Skills: 4 Benefits Of STEAM Education

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The need for STEM (science, technology, engineering, and mathematics) education is critical, especially because there will be more than 3 million job openings in STEM-related fields by 2018.

But administrators and policymakers now recognize the benefits of integrating arts education into STEM subjects. The Every Student Succeeds Act, which replaced No Child Left Behind in 2015, encourages the incorporation of arts and design into the curriculum by citing states' obligation to support arts education programs in public schools. And U.S. Secretary of Education John B. King Jr. touted the benefits of a 'well-rounded education' in a speech at the Las Vegas Academy of the Arts in April 2016.

Now, instead of focusing solely on STEM, education experts are finding ways to innovate in the classroom with STEAM (science, technology, engineering, arts, and mathematics). This approach teaches K-12 students to think creatively and engage in other subject areas using skills learned in the arts.

About STEAM

STEAM utilizes the arts along with traditional STEM subjects as “access points for guiding student inquiry, dialogue, and critical thinking,” according to EducationCloset, a digital learning hub for educators. “The end results are students who take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process,” EducationCloset continues. STEAM works by leveraging the benefits associated with STEM with the accessibility of visual art, poetry, music, and drama. Students can make connections and learn in a variety of ways, reaping the benefits that a STEAM education can provide.

Educators support the use of STEAM in the classroom, according to *Voices from the field: Teachers' views on the relevance of arts integration*, a 2012 study from Lesley University. This two-year study featured data from 204 teachers in 19 states. According to its findings, “teachers report that arts integration stimulates deep learning, creates increased student engagement, and cultivates students' investment in learning.”

In addition, STEAM approaches can help students learn skills relevant to the 21st-century, including innovation and cultural sensitivity. The study reports that a well-rounded approach to education also better enables teachers to use differentiated instruction to meet the needs of diverse learners. These findings are significant because they highlight the perspectives of teachers who are practicing STEAM in the classroom and seeing the benefits firsthand.

STEAM's Impact in the Classroom

As a result of the adoption of STEAM in classrooms across the country, new teaching methods have emerged. These approaches combine subjects and disciplines that have been siloed from one another traditionally, says Maureen Creegan-Quinquis, associate professor within Lesley University's Graduate School

of Education. And according to *The Washington Post*, STEAM promotes “skills seen as important in academic and life success.”

Here are some of the skills the *Post* says students stand to gain from STEAM.

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Creativity

Teaching students to think ‘outside of the box’ causes them to approach tasks differently. They learn to be creative by utilizing a wide variety of thought processes and skills throughout a classroom day.

Confidence

Approaches grounded in visual art, drama, and creative writing give students hands-on training in delivering a message and doing so with confidence. When combined with science, mathematics and technology-based topics, students learn to tackle tough subjects with self-assurance.

Problem-Solving

Learning new skills, whether technical or artistic, teaches students to approach new, potentially challenging situations with a positive attitude. Using STEAM, teachers can help students solve problems creatively using a variety of methods.

Collaboration

STEAM classrooms are highly collaborative, with students working together to grasp new information using multiple access points. They learn to share responsibility and compromise by working on group projects that incorporate multiple disciplines.

For Creegan-Quinquis, the effectiveness of STEAM is no surprise: “Science, technology, engineering, mathematics, and the arts all have very similar intellectual ancestors: some of the same philosophical underpinnings, some of the same inquiry questions. There’s always been connection between the arts and these other domains ... the difference is that now you will see deliberate as

opposed to accidental cross-pollination between the subjects and a lot of it is about making learning accessible.”

She points out that one of STEAM’s central benefits is that it provides multiple access points, giving students with different learning styles and backgrounds ample opportunities to learn in the way that is best for them.

Applying STEAM Principles for Success

Creegan-Quinquis provides several useful examples of how teachers can successfully integrate the five STEAM subjects into the classroom day. The first involves utilizing digital tools: “Classroom teachers use a lot of interactive books online, the kind that are very artistic and creative, and actually have animations and movement ... with the focus on being able to use it to teach new vocabulary [for example].”

Giving students multiple options for presenting what they learn is another useful feature of STEAM. “You may have a student who is quiet ... and they are not always the first one jumping up and raising their hand. If you know that student likes rap and you ask her to make a rap song about a mathematic equation, watch what happens when she starts rapping. You often will be inspired and excited by how much she knows,” she says.

Taking a multidimensional approach to assignments is another way to successfully integrate STEAM. Creegan-Quinquis uses the example of teaching Shakespeare’s *Macbeth*: “Ask them to do a little creative writing, then act out part of the play based on their own [re]writing of the script. You may have them playing William Shakespeare being interviewed about why he wrote the characters that he did. You may have students create collages of the characters. Approaches like these can all enhance their understanding of the book they read.”

She suggests using technology to teach subjects like social studies and science. “I might use technology to have students research three different multimedia experiences of an important event in history,” she explains. “In science the students will use lots of graphics to give visible form to their experiment. They will create their own documentary. They will use animation apps [and] iMovie.” All of these strategies enable teachers to implement STEAM in their classrooms.

Innovation and the 21st-Century Classroom

The STEAM movement is an important trend in K-12 education because of the rapid pace of innovation and the changing nature of the job market. "Education is under pressure to respond to a changing world. As repetitive tasks are eroded by technology and outsourcing, the ability to solve novel problems has become increasingly vital," according to Jeevan Vasagar at the *Financial Times*. This puts STEAM at the forefront of education, and teachers who can successfully incorporate these approaches into their curriculum can help students prepare for the challenges and innovations of the modern world.