

## Art for our sake

### School arts classes matter more than ever - but not for the reasons you think

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Why do we teach the arts in schools?

In an educational system strapped for money and increasingly ruled by standardized tests, arts courses can seem almost a needless extravagance, and the arts are being cut back at schools across the country.

One justification for keeping the arts has now become almost a mantra for parents, arts teachers, and even politicians: arts make you smarter. The notion that arts classes improve children's scores on the SAT, the MCAS, and other tests is practically gospel among arts-advocacy groups. A Gallup poll last year found that 80 percent of Americans believed that learning a musical instrument would improve math and science skills.

But that claim turns out to be unfounded. It's true that students involved in the arts do better in school and on their SATs than those who are not involved. However, correlation isn't causation, and an analysis we did several years ago showed no evidence that arts training actually causes scores to rise.

There is, however, a very good reason to teach arts in schools, and it's not the one that arts supporters tend to fall back on. In a recent study of several art classes in Boston-area schools, we found that arts programs teach a specific set of thinking skills rarely addressed elsewhere in the curriculum - and that far from being irrelevant in a test-driven education system, arts education is becoming even more important as standardized tests like the MCAS exert a narrowing influence over what schools teach.

The implications are broad, not just for schools but for society. As schools cut time for the arts, they may be losing their ability to produce not just the artistic creators of the future, but innovative leaders who improve the world they inherit. And by continuing to focus on the arts' dubious links to improved test scores, arts advocates are losing their most powerful weapon: a real grasp of what arts bring to education.

It is well established that intelligence and thinking ability are far more complex than what we choose to measure on standardized tests. The high-stakes exams we use in our schools, almost exclusively focused on verbal and quantitative skills, reward children who have a knack for language and math and who can absorb and regurgitate information. They reveal little about a student's intellectual depth or desire to learn, and are poor predictors of eventual success and satisfaction in life.

As schools increasingly shape their classes to produce high test scores, many life skills not measured by tests just don't get taught. It seems plausible to imagine that art classes might help fill the gap by encouraging different kinds of thinking, but there has been remarkably little careful study of what skills and modes of thinking the arts actually teach.

To determine what happens inside arts classes, we spent an academic year studying five visual-arts classrooms in two local Boston-area schools, videotaping and photographing classes, analyzing what we saw, and interviewing teachers and their students.

What we found in our analysis should worry parents and teachers facing cutbacks in school arts programs. While students in art classes learn techniques specific to art, such as how to draw, how to mix paint, or how to center a pot, they're also taught a remarkable array of mental habits not emphasized elsewhere in school.

Such skills include visual-spatial abilities, reflection, self-criticism, and the willingness to experiment and learn from mistakes. All are important to numerous careers, but are widely ignored by today's standardized tests.

In our study, funded by the J. Paul Getty Trust, we worked with classes at the Boston Arts Academy, a public school in the Fenway, and the private Walnut Hill School for the arts in Natick. Students at each school concentrate on visual arts, music, drama, or dance, and spend at least three hours a day working on their art. Their teachers are practicing artists. We restricted ourselves to a small sample of high-quality programs to evaluate what the visual arts could achieve given adequate time and resources.

Although the approach is necessarily subjective, we tried to set the study up to be as evidence-based as possible. We videotaped classes and watched student-teacher interactions repeatedly, identifying specific habits and skills, and

coding the segments to count the times each was taught. We compared our provisional analysis with those the teachers gave when we showed them clips of their classes. We also interviewed students and analyzed samples of their work.

In our analysis, we identified eight "studio habits of mind" that arts classes taught, including the development of artistic craft. Each of these stood out from testable skills taught elsewhere in school.

One of these habits was persistence: Students worked on projects over sustained periods of time and were expected to find meaningful problems and persevere through frustration. Another was expression: Students were urged to move beyond technical skill to create works rich in emotion, atmosphere, and their own personal voice or vision. A third was making clear connections between schoolwork and the world outside the classroom: Students were taught to see their projects as part of the larger art world, past and present. In one drawing class at Walnut Hill, the teacher showed students how Edward Hopper captured the drama of light; at the Boston Arts Academy, students studied invitations to contemporary art exhibitions before designing their own. In this way students could see the parallels between their art and professional work.

Each of these habits clearly has a role in life and learning, but we were particularly struck by the potentially broad value of four other kinds of thinking being taught in the art classes we documented: observing, envisioning, innovating through exploration, and reflective self-evaluation. Though far more difficult to quantify on a test than reading comprehension or math computation, each has a high value as a learning tool, both in school and elsewhere in life.

The first thing we noticed was that visual arts students are trained to look, a task far more complex than one might think. Seeing is framed by expectation, and expectation often gets in the way of perceiving the world accurately. To take a simple example: When asked to draw a human face, most people will set the eyes near the top of the head. But this isn't how a face is really proportioned, as students learn: our eyes divide the head nearly at the center line. If asked to draw a whole person, people tend to draw the hands much smaller than the face - again an inaccurate perception. The power of our expectations explains why beginners draw eyes too high and hands too small. Observational drawing requires breaking away from stereotypes and seeing accurately and directly.

We saw students pushed to notice what they might not have seen before. For instance, in Mickey Telemaque's first design class of the term at the Boston Arts Academy, ninth-graders practice looking with one eye through a cardboard frame called a viewfinder. "Forget that you're looking at somebody's arm or a table," Telemaque tells his students. "Just think about the shapes, the colors, the lines, and the textures." Over and over we listened to teachers telling their students to look more closely at the model and see it in terms of its essential geometry.

Seeing clearly by looking past one's preconceptions is central to a variety of professions, from medicine to law. Naturalists must be able to tell one species from another; climatologists need to see atmospheric patterns in data as well as in clouds. Writers need keen observational skills too, as do doctors.

Another pattern of thought we saw being cultivated in art classes is envisioning - forming mental images internally and using them to guide actions and solve problems. "How much white space will you be leaving in your self-portrait?" asked Kathleen Marsh at the Boston Arts Academy. "How many other kinds of orange can you imagine?" asked Beth Balliro, also at the Boston Arts Academy, as she nudged her student to move beyond one shade. We noticed art teachers giving students a great deal of practice in this area: What would that look like if you got rid of this form, changed that line, or altered the background? All were questions we heard repeatedly, prompting students to imagine what was not there.

Like observing, envisioning is a skill with payoffs far beyond the art world. Einstein said that he thought in images. The historian has to imagine events and motivations from the past, the novelist an entire setting. Chemists need to envision molecular structures and rotate them. The inventor - the envisioner par excellence - must dream up ideas to be turned into real solutions. Envisioning is important in everyday life as well, whether for remembering faces as they change over time, or for finding our way around a new city, or for assembling children's toys. Visualization is recognized as important in other school subjects: The National Council of Teachers of Mathematics and the National Science Education Standards both see it as essential to problem-solving, but art classes are where this skill is most directly and intensively taught.

We also found innovation to be a central skill in art classes. Art classes place a high value on breaking the mold. Teachers encourage students to innovate through exploration - to experiment, take risks, and just muck around and see what can be learned. In ceramics, for example, capitalizing on error is a major consideration, says Balliro at the Boston Arts Academy. To a student struggling to stick clay together, she says, "There are specific ways to do it, but I want you guys to play around in this first project. Just go with that and see what happens and maybe you'll learn a new technique." Teachers in our study told students not to worry about mistakes, but instead to let mistakes lead to unexpected discoveries.

Finally, many people don't think of art class as a place where reflection is central, but instead as a place where students take a break from thinking. But art-making is nonverbal thinking, and verbal thinking (often public and spoken) is a focal activity of arts classes. We repeatedly saw art teachers push their students to engage in reflective self-evaluation. They were asked to step back, analyze, judge, and sometimes reconceive their projects entirely.

During class critiques, and one-to-one as students worked, teachers asked students to reflect: Is that working? Is this what I intended to do? Can I make this better? What's next? At Walnut Hill School, Jason Green questioned individual students almost relentlessly as they began a new clay sculpture: "What about this form? Do you want to make the whole thing? Which part of it?" In group critiques, students also learned to evaluate the work of their peers. Making such judgments "in the absence of rule" is a highly sophisticated mental endeavor, says Elliot Eisner, a noted art-education specialist at Stanford University.

Though we both have a long history in arts education, we were startled to find such systematic emphasis on thinking and perception in the art classes we studied. In contrast to the reputation of the arts as mainly about expressive craft, we found that teachers talked about decisions, choices, and understanding far more than they talked about feelings.

By unveiling a powerful thinking culture in the art room, our study suggests ways that we can move beyond the debate over the value of arts, and start using the arts to restore balance and depth to an education system increasingly skewed toward readily testable skills and information.

While arts teachers rightly resist making their classes like "academic" classes, teachers of academic subjects might well benefit from making their classes more like arts classes. Math students, for instance, could post their in-process solutions regularly and discuss them together. If students worked on long-term projects using primary sources in history class, they would learn to work like real historians and their teachers could offer personalized and "just in time" guidance.

Despite the pressures to prepare students for high-stakes tests, some teachers and schools continue to use methods similar to those in the art studio. Ron Berger, a fifth-grade classroom teacher in a public school in Shutesbury, Mass., provides an inspiring example. He adopted an arts-like approach to all subjects, including math, language arts, science, and social studies. His students engage in long-term investigations rather than one-shot assignments or memorization. Their work is continually assessed publicly in critiques so students develop the ability to reflect and improve. Projects are "real work," not "school work" - work that is original and makes a contribution to knowledge.

For example, students investigated the purity of drinking water in their town wells, working in collaboration with a local college and learning how to analyze the water in a college lab. No one in the town knew whether the well waters were safe, and the students discovered and reported that they were. Deborah Meier, a leading American school reformer and founding principal of the Mission Hill School in Boston, praises Berger's teaching. She worries that "Top-down mandates may actually hinder this kind of culture of high standards."

We don't need the arts in our schools to raise mathematical and verbal skills - we already target these in math and language arts. We need the arts because in addition to introducing students to aesthetic appreciation, they teach other modes of thinking we value.

For students living in a rapidly changing world, the arts teach vital modes of seeing, imagining, inventing, and thinking. If our primary demand of students is that they recall established facts, the children we educate today will find themselves ill-equipped to deal with problems like global warming, terrorism, and pandemics.

Those who have learned the lessons of the arts, however - how to see new patterns, how to learn from mistakes, and how to envision solutions - are the ones likely to come up with the novel answers needed most for the future.

*Ellen Winner is a professor of psychology at Boston College. Lois Hetland is an associate professor of art education at the Massachusetts College of Art. Both are also researchers at Project Zero at the Harvard Graduate School of Education and co-authors, with Shirley Veenema and Kimberly Sheridan, of "Studio Thinking: The Real Benefits of Visual Arts Education," published this month by Teachers College Press. ■*