

Arts and Smarts

By [Karin Evans](#)

Wen poet and national endowment for the Arts Chairman Dana Gioia gave the 2007 Commencement Address at Stanford University, he used the occasion to deliver an impassioned argument for the value of the arts and arts education. “Art is an irreplaceable way of understanding and expressing the world,” said Gioia. “There are some truths about life that can be expressed only as stories, or songs, or images. Art delights, instructs, consoles. It educates our emotions.”

For years, arts advocates like Gioia have been making similar pleas, stressing the intangible benefits of the arts at a time when many Americans are preoccupied with a market-driven culture of entertainment, and schools are consumed with meeting federal standards. Art brings joy, these advocates say, or it evokes our humanity, or, in the words of my 10-year-old daughter, “It cools kids down after all the other hard stuff they have to think about.”

Bolstering the case for the arts has become increasingly necessary in recent years, as school budget cuts and the move toward standardized testing have profoundly threatened the role of the arts in schools. Under the No Child Left Behind Act, passed in 2002, the federal government started assessing school districts by their students’ scores on reading and mathematics tests.

As a result, according to a study by the Center on Education Policy, school districts across the United States increased the time they devoted to tested subjects—reading/language arts and math—while cutting spending on non-tested subjects such as the visual arts and music. The more a school fell behind, by NCLB standards, the more time and money was devoted to those tested subjects, with less going to the arts. The National Education Association has reported that the cuts fall hardest on schools with high numbers of minority children.

And the situation is likely to worsen as state budgets get even tighter. Already, in a round of federal education cuts for 2006 and 2007, arts education nationally was slashed by \$35 million. In 2008, the New York City Department of Education’s annual study of arts education showed that only eight percent of the city’s elementary schools met the state’s relatively rigorous standards for arts education—and the city’s schools are now facing a \$185 million budget cut this year.

For 2009, the nonprofit Center for Budget and Policy Priorities forecasts budget shortfalls in 41 states. California, ranked last among the states in per capita support for the arts, is considering \$2 billion of additional cuts to K-12 education. Josef Norris, a grant-supported artist who creates murals with kids in San Francisco’s public schools, says he has worked with classes where fifth graders have never picked up a paintbrush or handled a lump of clay. Given such stiff fiscal and political challenges, some arts advocates have felt pressured to bolster their arguments. Afraid that art won’t be able to stand on its own merits, such advocates have sought whatever evidence they can find to argue that art contributes to measurable gains in learning—which, in the No Child Left Behind world, means boosting a school’s academic test scores in literacy and mathematics.

And in fact, advocates have gotten a recent lift from new research in several scientific fields. For the first time ever, for example, scientists have used sophisticated brain imaging techniques to examine how music, dance, drama, and the visual arts might positively affect cognition and intelligence. Such work, the researchers claim, is a crucial first step toward understanding whether art can actually make people smarter in ways that can be measured.

But other arts advocates say that's the wrong way to go. Skeptical of some claims of the art-boosts-smarts camp, they instead support a line of research that explores the benefits that are unique to the arts. Let art do what art can do best, they say, and let the mathematics class take care of itself. And so the debate goes on, focused on a question that has long concerned parents, educators, and policy makers alike: What are the arts good for?

The Mozart controversy

The focus on art's contribution to academics came to wide attention in the 1990s, after researchers from the University of California, Irvine, reported in the journal *Nature* that college students who listened to 10 minutes of Mozart before taking certain parts of an intelligence test improved their scores—a finding that came to be known as the “Mozart Effect.” Before long, parents who heard about the research were playing Mozart to their babies, the governor of Georgia was handing out classical music tapes to parents of newborns, and companies were springing up to package music for parents eager to bolster their children's brain power.

The Mozart Effect research had some clear limitations: It involved only college-age students, and the improved test scores held up only for 15 minutes following the musical experience. After witnessing the strong reaction to their results, the researchers themselves were compelled to write a rejoinder in 1999, pointing out that they had never claimed that “Mozart enhances intelligence.” Still, whether the hard evidence was there or not, the popular assumption took hold that there was a connection. According to a 2006 Gallup poll, 85 percent of Americans believed participation in school music was linked to better grades and higher test scores.

After the study on the Mozart Effect was published, other researchers tried to substantiate a connection between arts participation and improved cognitive and academic skills. For instance, James S. Catterall, a professor at UCLA's Graduate School of Education and Information Studies, reported in a 1999 paper that middle and high school students with strong involvement in theater or music scored an average of 16 to 18 percentage points higher on standardized tests than those with low arts involvement.

“It's true that students involved in the arts do better in school and on their SATs than those who are not involved,” write researchers Lois Hetland and Ellen Winner of the Harvard Graduate School of Education, in an article that appeared in the *Boston Globe* in 2007. However, they point out, correlation doesn't add up to causation: It's quite possible that kids involved in the arts are the ones getting good grades in the first place.

In a landmark survey called REAP—Reviewing Education and the Arts Project—Hetland and Winner examined the research supporting arts education. Their findings, released in 2000, were controversial. They revealed that in most cases there was no demonstrated causal relationship between studying one or more art forms and improved cognitive skills in areas beyond the arts. “We found inconclusive evidence that music improves mathematical learning and that dance improves spatial learning,” reported the researchers. “We found no evidence that studying visual arts, dance, or music improves reading.”

They continued,

That leaves our most controversial finding. We amassed no evidence that studying the arts, either as separate disciplines or infused into the academic curriculum, raises grades in academic subjects or improves performance on standardized verbal and mathematics tests. ... Our analysis showed that children who studied the arts did no better on achievement tests and earned no higher grades than those who did not study the arts.

Their findings, the researchers said, were greeted with anger. “One scholar told us that we should never have asked the question, but having done so, we should have buried our findings,” Hetland and Winner later wrote. “We were shaken.” Some critics claimed that their report had shortchanged the effects of art on academics. But the researchers stuck to their conclusions. Furthermore, they cautioned, justifying the arts on the basis of unreliable claims would ultimately do more harm than good.

Arts and the brain

In 2004, in an attempt to sort out the facts, the Dana Foundation, a private philanthropic organization, took on the question: Are smart people drawn to the arts or does arts training make people smarter? Under the leadership of neuroscientist Michael S. Gazzaniga, the Dana Arts and Cognition Consortium assembled neuroscientists and cognitive scientists from seven universities to study whether dance, music, theater, and visual arts might affect other areas of learning—and how.

After more than three years of research, the results of the \$2.1 million project were published in March of 2008 in a report titled “Learning, Arts, and the Brain.” Several studies in the report suggested that training in the arts might be related to improvements in math or reading skills. In one of these studies, a University of Oregon team, headed by psychologist Michael Posner, observed the brain activity of children four to seven years old while they worked on computerized exercises intended to mimic the attention-focusing qualities of engaging in art. The researchers concluded that the arts can train children’s attention, which in turn improves cognition.

In another Dana consortium study, Elizabeth Spelke, a neuropsychologist at Harvard University, looked at the effects of music training in children and adolescents and found a “clear benefit”: Children who had intensive music training did better on some geometry tasks and on map reading. Stanford University psychologist Brian Wandell and colleagues used brain-imaging techniques to study how a certain part of the brain might be influenced by musical activities. He found that students ages 7 to 12 who received more musical training in the first year of the study showed greater improvements in reading fluency over the next two years. Wandell reports that phonological awareness—or the ability to distinguish between speech sounds, which is a predictor of early literacy—was correlated with music training and could be tracked with the development of a specific brain pathway.

Overall, the Dana report didn’t go so far as to prove that arts training directly boosts cognitive and academic skills; it offered no concrete evidence that art makes kids smarter. But the project did tighten up the correlations that had been noted before, laying the groundwork for future research into causal explanations. In his introduction to “Learning, Arts, and the Brain,” Gazzaniga frames the report as an important first step. “A life-affirming dimension is opening up in neuroscience,” he writes. “To discover how the performance and appreciation of the arts enlarge cognitive capacities will be a long step forward in learning how better to learn.” Though Gazzaniga and his Dana Consortium colleagues were quite measured in their assessment, many advocates interpreted the report’s results as support for their cause. “Arts Education Linked to Better Brain Activity,” read a headline on the website of the Arizona Commission on the Arts after the report was released. A California State PTA newsletter directed parents and teachers to the report, telling them to “find out about the strong links between arts education and cognitive development.”

Around the same time in 2008, the advocacy group Americans for the Arts launched a series of public service announcements aimed at encouraging parents to “feed their children the arts” with images of bowls of “Raisin Brahms” or “Van Goghurt” for breakfast, linked to promises that the arts lead to “increased test scores, better creative thinking, patience, and determination.” Even Barack Obama’s presidential platform, which promised a

reinvestment in arts education and professed a broad belief in art's value, fell back, at least partly, on the academic benefits rationale: "Studies show that arts education raises test scores." But many arts researchers and advocates have reacted strongly against efforts—in research, among advocacy groups, or in schools—that overemphasize the link between the arts and academic proficiency.

Jessica Hoffmann Davis, a cognitive developmental psychologist and founder of the Arts in Education Program at the Harvard Graduate School of Education, has long been one of these voices. "It is not by arguing that the arts can do what other subjects already do (or do better) that a secure place can be found for the arts in education," she writes in her recent book, [Why Our Schools Need the Arts](#). "We have been so driven to measure the impact of the arts in education that we began to forget that their strength lies beyond the measurable." In an interview, she adds, "No Child Left Behind has sapped the energy and passion out of our classrooms. It's a malaise. Standardized testing is leaving everyone behind—teachers and kids—with this heavy preoccupation on what we can measure."

Another leading expert on the arts, Howard Gardner, a professor at the Harvard Graduate School of Education, went so far in an interview as to call it an "American disease" to try to justify the arts in terms of benefits for other disciplines. No one, says Gardner, argues that students should take math because it will make them perform better in music.

Education of vision

So what are the arts good for?

In 2007, Hetland and Winner published a book, [Studio Thinking: The Real Benefits of Visual Art Education](#), that is so far one of the most rigorous studies of what the arts teach. "Before we can make the case for the importance of arts education, we need to find out what the arts actually teach and what art students actually learn," they write.

Working in high school art classes, they found that arts programs teach a specific set of thinking skills rarely addressed elsewhere in the school curriculum—what they call "studio habits of mind." One key habit was "learning to engage and persist," meaning that the arts teach students how to learn from mistakes and press ahead, how to commit and follow through. "Students need to find problems of interest and work with them deeply over sustained periods of time," write Hetland and Winner. The researchers also found that the arts help students learn to "envision"—that is, how to think about that which they can't see. That's a skill that offers payoffs in other subjects, they note. The ability to envision can help a student generate a hypothesis in science, for instance, or imagine past events in history class.

Other researchers have identified additional benefits that are particular to the arts. In *Why Our Schools Need the Arts*, Davis outlines many of these benefits, including the quality of empathy. "We need the arts because they remind children that their emotions are equally worthy of respect and expression," she said in an interview. "The arts introduce children to connectivity, engagement, and allow a sense of identification with, and responsibility for, others." As a young researcher, Davis once asked adults, children of varying ages, and professional artists to draw emotions such as happiness, sadness, and anger. She found that even very young children could communicate those emotions through drawing. In fact, she observes, "The arts, like no other subject, give children the media and the opportunity to shape and communicate their feelings."

Elliot Eisner, an emeritus professor of art and education at Stanford University and a longtime leader in the field, has emphasized the subtle but important ways the arts can enhance thinking—the ability to use

metaphor, for example, or the role of imagination. “These are outcomes that are useful,” says Eisner, “not only in the arts, but in business and other activities where good thinking is employed.” At last year’s annual convention for the National Art Education Association, Eisner told the crowd, “In the arts, imagination is a primary virtue. So it should be in the teaching of mathematics, in all of the sciences, in history, and indeed, in virtually all that humans create.” “To help students treat their work as a work of art is no small achievement,” he added. “Given this conception, we can ask how much time should be devoted to the arts in school? The answer is clear: all of it.” An “education of vision” is also high on Eisner’s list of benefits. “You want to help youngsters really see a tree or urban landscape or an apple. It’s one of the things they can do the rest of their lives.”

Such elusive, immeasurable benefits of the arts may, in fact, be among the most valuable. “At this time when we are facing the threat of the reduction of learning to testable right and wrong answers,” says Davis, “we might say the most important thing about arts learning is that it features ambiguity and respect for the viability of different perspectives and judgments.” But perhaps most significantly, Davis argues that the arts can engage children who might not otherwise be reached by academics. In fact, an increasing amount of attention is being focused on the benefits of the arts for at-risk youth.

For instance, when a program called the YouthARTS Development Project, a partnership involving the National Endowment for the Arts and the U.S. Justice Department, engaged at-risk youth in art programs, it found that the participants showed an increased ability to work with others and finish tasks, and showed better attitudes toward school, fewer court referrals, and improved self-esteem. “Folks are responding to the deficits in schools by saying, ‘Bring in the arts,’” says Davis. “Ironically that’s what we’ve always done with individual kids, always turned to the arts as a kid was about to drop out of school. We have always known that arts will save the day, but now the day is so bleak that we have a national charge to do what arts do best—to provide energy and spirit and excitement and community.”

In San Francisco, artist Josef Norris has seen evidence of this claim first-hand. When he worked with children to create a mural at an inner-city school, the project was integrated into a unit on California history and immigration. Every single child in the class had a parent or grandparent who’d been born in another country, says Norris, and each child made a tile depicting some aspect of his or her family’s history. “Kids who are struggling academically can get hooked,” he says. “You live for the moments when the kids shine—when a pathologically shy girl shows up for mural making on a Saturday morning and stays all day long. Or when a child paints a tile about his family, then brings his grandmother to the unveiling of the mural and says proudly, ‘I made that.’”

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