

Art as Research: The Unique Value of the Artistic Lens

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Artists and arts educators have long been advancing arguments about the value of the arts for learning and discovery in diverse contexts. Still we face considerable challenges in convincing colleagues and educators that the arts are, themselves, a robust form of inquiry. As an example, several years ago I asked a colleague at Vanderbilt in the Physics Department if he would be willing to give up one class period to bring in a dancer who could offer students a novel approach, using techniques of dance, to explore a class-related theory or empirical puzzle. His negative reaction was revealing. He said that he would not work with an artist because his challenge was to get his students to master a body of knowledge in a short amount of time. He remarked, “We need to focus on rigor, not on artistic flourishes.” This underscores former NEA chair Bill Ivey’s prescient observation that the arts are often seen as “grace notes” — decoration — rather than “bass notes” — essential elements (Ivey 2008).

If the arts are to make lasting inroads into the curriculum, they need to draw upon the growing body of research in the learning sciences suggesting that arts integration (e.g., deploying arts-based inquiry across the curriculum) can catalyze learning and accelerate higher-order thinking. Scholars have provided definitive evidence that the arts produce educational benefits for students, especially for younger children. But much of this work is grounded on the theory of “engaged learning.” In short, the arts add fun, play, and sizzle. When subjects like math, science, and history are infused with the arts, students stay more engaged in the material and are more likely to persist, stay focused, and learn. But this type of “bait and switch” approach to arts integration — get students hooked with the arts and then deliver the important information — does a disservice to the arts and ignores mounting research that suggests the arts do much more than engage students with bells and whistles. What do the learning sciences say about arts-based inquiry and arts integration?

Research suggests that the arts spur deep, reflective, creative, and critical learning in several important ways:

1. **“Connections in all directions.”** In 1983, Howard Gardner advanced a new theory that challenged the prevailing idea that there is a single general intelligence. Instead, he argued that there are multiple forms of intelligence and that different students learn using different mental muscles. These forms of intelligence include logical-mathematical, spatial, linguistic, bodily-

kinesthetic, musical, interpersonal, intrapersonal, naturalistic, and existential. But rather than thinking of students as endowed with different capacities, Gardner's theory also helps us consider the possibility that deep and critical learning requires all students to draw on multiple forms of knowledge, often simultaneously. The arts, as it turns out, often draw on multiple forms of learning, forcing students to make connections in all directions and thereby enhance higher-order thinking skills. A comprehensive review of arts integration finds: "In essence, our data suggest a picture of thinking in the arts wherein a set of cognitive competencies such as elaborative and creative thinking, fluency, originality, focused perception, and imagination demand the ability to take multiple perspectives, layer relationships and construct and express meaning in unified forms of representation" (Burton, Horowitz, and Abeles 2000, 252). Arts-based inquiry engages students in such tasks as seeing and noticing; making and crafting; expressing and persuading; collecting and connecting; organizing and collaborating; and critiquing and revising. These diverse modes of discovery are staples of the type of "inquiry based" learning that rigorous arts integration provides. From philosopher John Dewey to arts education specialist Elliot Eisner, the past fifty years of research have demonstrated that learning is strengthened by such diverse and layered experiences and modes of inquiry.

2. **"I can't learn it if I don't feel it: affective learning and the power of emotions."** In *Phaedrus*, Plato argued that emotions stood in the way of the pursuit of knowledge and truth (Jaggar 1989). Since then, educators have largely ignored emotions and focused on "reason and rationality" as the primary way students learn about the world. More recently, however, advances in neuroscience, psychology and cognitive science have found that "emotion and affect" are critical dimensions of learning, not only because they are sources of motivation but also because they guide rational thinking, memory retrieval, decision making, creativity, and reasoning. As Rosalind Picard has written, "When basic mechanisms of emotion are missing in the brain, then intelligent functioning is hindered" (Picard et al. 2004, 1).

It cannot be denied that the arts have a distinct capacity to produce powerful emotions, an asset that other disciplines can effectively draw upon. Emotion is often triggered by empathetic imagination (putting oneself in another's shoes), by vivid and aesthetically strong images, by compelling narratives that reveal human struggles, and by placing students in "flow"-like situations where they are focused, motivated and personally engaged in a challenge (Csikszentmihalyi 1996).

3. **Epistemic curiosity.** Educators often overlook the importance of curiosity in the learning process. If students are not curious about a topic or subject, it is nearly impossible for them to get beyond mere information transfer to deep and reflective knowledge (e.g., moving from knowing to understanding). In the learning sciences, psychologists refer to the desire for new information that motivates students to explore and seek answers and new meanings as "epistemic curiosity" (Berlyne 1954). Scholars have found that epistemic curiosity is associated with the positive

feelings associated with the *anticipation* of learning something new and is aroused by “novel questions, complex ideas, ambiguous statements, and unsolved problems, all of which may point to a ‘gap’ in one’s knowledge, and reveal a discrepancy between that which one knows and desires to know” (Litman, Hutchins, and Russon 2005, 559). John Dewey’s *Art as Experience* reminds us that the essence of the aesthetic experience is this sense of “undergoing” and exploration — suspense and uncertainty.

Cognitive scientists, examining images of the brain, have confirmed that the power of artistic response comes about in part because the brain is in an “anticipatory state” — seeking some harmonious resolution, asking itself such questions as “What will happen next?” “Will I be surprised?” “How will this be resolved?” (Grafton and Cross 2008). Creativity scholar Barry Kudrowitz has found that engaging in theater exercises, like improvisation, can lead people to come up with more creative ideas (Kudrowitz and Wallace 2010). We can safely conclude that epistemic curiosity and exploratory activity are spurred by art and humor (Berlyne 1954). The arts routinely engaged students in anticipatory learning — working through a puzzle where the final solution is unknown and where students are continuously surprised and motivated to keep exploring. Curiosity is not the exclusive domain of the arts, but artists often offer compelling insights that stoke curiosity about a topic, theme, or creative process — keeping students engaged and “wanting to know more” or “what’s next.”

4. **Doing *is* learning.** Education has suffered from the false division, popularized by Descartes in the seventeenth century, that the mind is distinct and independent from the body. This Cartesian dualism (mind vs. body) provides the justification for our belief that knowledge is best gained when students sit quietly and motionlessly at their desks for hours on end. Learning is about thinking, not doing. Of course, an alternative exists. Less than two hundred years after Descartes, Immanuel Kant remarked, “The hand is the window on the mind.” Richard Sennett’s recent book *The Craftsman* explores this link and shows that we possess an “intelligent” hand — by working with materials we activate our brains and we embed knowledge (Sennett 2008). Learning is deepened when we have to demonstrate something, build something, and struggle to bring an idea into alignment with the physical world. Sennett argues that epistemic curiosity (see above) is motivated by our interest in changing things. As opposed to passive classroom learning, when we learn with and through the arts, we have the opportunity to “change something” — to use our bodies, along with our minds, to transform an object or a space. Creativity scholars Robert and Michele Root-Bernstein (1999) call this type of kinetic intelligence “body thinking.” They write, “We humans tend to over intellectualize, forgetting that our bodies ‘know’ how to do things that we understand only after we have done them” (161). The Root-Bernsteins then go on to profile artists, scientists, engineers, and mathematicians whose physical engagement with materials helped them make creative and imaginative leaps by honing their intuition, critical thinking, and ability to detect patterns while responding and adjusting to

continuous feedback through the use of their bodies. In fact, sometimes just observing physical activity (for example, watching dancers) can activate the same areas of the brain that are activated when we creatively solve problems. Scott Grafton, a scientist who has worked with the Dana Foundation, believes neuroscience is increasingly demonstrating that creativity, motivation, and social intelligence can be bolstered by physical learning in the classroom and that the arts can be a key player in this regard.

In sum, there is considerable evidence from the learning sciences that arts-based inquiry can foster deep, reflective learning and engagement. The arts encourage students to solve intellectual problems through diverse modes of discovery; they promote “affective learning” by stirring passions and evoking emotional responses; they foster “epistemic curiosity” by helping students work through puzzles where the final solution is unknown; and, they embrace “doing” and help students learn through active participation and experience.

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