Improving Observational Skills to Enhance the Clinical Examination

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At first blush, the foothills of France seem an unlikely place to trace the origin of the arranged marriage between art and medicine. Situated in a river gorge 7 hours south of Paris, the Pont d’Arc rises above the Ardèche River, a limestone land bridge guarding the entrance to the valley like a cross-armed centurion. The natural structure is a haven for modern tourists, attracting kayakers and canoers, as well as any number of outdoor adventurers seeking stories along the brush-studded banks of the Ardèche. In December 1994, it also attracted the attention of French explorer Jean-Marie Chauvet. As a 42-year-old spelunker, Chauvet recalled, “it was always the unknown that [led] us” into the nearby caves. On that wintery Sunday evening, drawn by warm updrafts from the unexplored depths, Chauvet and his team wriggled 30-feet down to a soft cave floor, then realized, “this was the summit.” A French authority on prehistoric art later said, “they hit the jackpot.” That day, Chauvet’s team discovered scores of prehistoric paintings, entombed for millennia in a network of caves that spanned 5

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- Visual thinking strategies
- Art in medicine
- Art of observation
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- Birmingham Museum of Art

KEY POINTS
- Data support that medical student and resident observational skills can be improved using a museum-based curriculum.
- Visual thinking strategies are validated teaching techniques that stimulate learning and encourage evidenced-based decision making in medicine.
- Art in medicine courses are tools to teach core skills, but have limits to their intended teaching targets.
- Understanding the history of art in medicine courses helps to understand their role in modern medical education.
football fields. Almost immediately, the cave took the name of its discoverer. The governmental caretaker became internationally recognized as the founder of the Chauvet Cave. As word spread, French Culture Ministry officials descended on the site, preserving the relics for scientific study. Within 6 months, the United Nation’s cultural agency granted the caves World Heritage Status. The former stonemason who had left formal education behind at age 14, recalled thinking upon seeing the discovery, *We’re dreaming*. To the trained artistic eye of a French authority on prehistoric art, the impact was equally astounding. “I realized I was in the presence of the work of a great artist,” Jean Clottes, the scientific advisor later said of the discovery. “It was like finding the work of an unknown Leonardo Da Vinci.”

DaVinci produced his artistic works of genius during the Italian Renaissance, trading tempura for oil paint 6 centuries ago. The prehistoric paintings of Chauvet-Pont-d’Arc Cave used a palette of charcoal and ochre to capture life of the Upper Paleolithic period, some 35,000 years ago. Similar to paintings discovered in Spain’s Altamira region and France’s Lascaux Caves, which also depict Stone Age animals, the murals of Chauvet Cave completed a trio of subterranean treasures that offered a glimpse into the life of our human ancestors. Upon seeing one set of cave art animals shortly after their discovery, Pablo Picasso told his secretary in 1954, “Primitive sculpture has never been surpassed. Have you noticed the precision of the lines engraved in the caverns?” The precision of the Mediterranean menagerie preserved in the underground galleries depicts bears and bison, oxen and owls. In the Chauvet Cave, a stack of 4 horse heads drawn in charcoal is shaded with natural pigment, as each horse seems to ripple in bas relief along the rocks. Highlighted in red hematite along one wall, reaching across 1500 generations, waves the outline of a human hand.

The discovery of art on the walls of the Chauvet-Pont-d’Arc Cave “may well change our perception, our thinking about the purpose and the use of cave art,” the expert, Mr. Clottes, reflected at the time. So important to France were these cave paintings that the Ministry of Culture, Jacques Toubon, made the announcement of the find himself—in Paris. “The discovery is of exceptional value,” he said, surrounded by leading archaeologists of the late twentieth century. “It will help us to understand how human symbolism evolved.”

Three years later, in 1997, even as the importance of Chauvet-Pont-d’Arc Cave continued to reveal long-held secrets, human symbolism was very much on the mind of Irwin M. Braverman, MD, professor of dermatology at the Yale School of Medicine in New Haven, Connecticut. “It was the week before Thanksgiving—I remember it exactly—and I was running a Grand Rounds at Yale,” he told me from his office in New Haven, recalling the story 20 years after the fact (Irwin M. Braverman, MD, 2017, personal phone interview). In this weekly educational conference for residents training in dermatology, “We would have patients brought in, and they were diagnostic cases we had never seen before. The only person who had seen them was the person bringing them in,” he said, describing a common case-based learning technique in medical education. During typical Grand Rounds sessions, though, “we can’t ask questions, we can only look. After we’ve had a chance to examine the patients, we all go to the amphitheater and a resident describes the physical findings. I was running this [teaching session] one day,” Braverman said, “and the resident was not describing the case well.”

The scenario Professor Braverman described unspooled in a format familiar to anyone who has trained under an apprentice–master relationship. Whether in the field of pottery or painting, mechanics or medicine, one learns the principles of a profession by theory but the application of that profession by practice. One such master in the field of medicine was Canadian physician, Sir William Osler, who taught medical
students at the turn of the 20th century and wrote about his experiences at The Johns Hopkins Hospital in Baltimore, Maryland. On this topic of experiential learning in medicine, physicians fondly quote Osler’s saying, “To study the phenomenon of disease without books is to sail an unchartered sea, while to study books without patients is to not go to sea at all.” More succinctly stating those sentiments about the same time, American humorist Mark Twain wrote, “Good judgment is the result of experience and experience the results of bad judgment.”

When it came to gaining medical experience—and the good judgment that sprung from that exposure—the dermatology resident in question that late November day in 1997 seemed not only to be ill-prepared to sail that unchartered sea; the resident seemed, in the teacher’s eyes, to be unable to trim the sail. “I was frustrated,” Braverman told me, “because here I was teaching this, and I thought the residents were not doing the job that they should be doing. Shouldn’t there be a way to get them to focus on what is important and not important? To prioritize new information?”

That’s when the epiphany struck him.

I bet if I asked them to describe an object that was unfamiliar, they would not know what was important or not important. So, I took them to a museum. If the idea seemed unexpected to his trainees—“they had no idea why I was taking them there”—the seeds of artistic influence had germinated inside Professor Braverman for decades.

“I’ve always liked to draw—mostly airplanes—and I’ve probably wasted more paper than anybody else in the world,” Braverman told me as a smile seeped into his voice. “And I don’t know why, but I just liked to look at things.” He also had a knack for looking at opportunities, then translating those observations into action. When as a Massachusetts teenager he realized that his high school did not offer art classes, he helped to influence a group of students to receive instruction in water color painting at the Museum of Fine Arts in Boston. When he attended Harvard, he found himself creating pen-and-ink drawings in science class from what he observed under the microscope, “for accuracy, not for aesthetics.” Soon, his interests spilled over into education.

“I took a course by Kline on logic and statistics” while an undergraduate at Harvard, he recalled. “You were assigned a seat alphabetically, and I thought, I wonder if where you sit could improve your score? So we looked.” As would be the case time and again in his well-regarded academic career, he used statistics to support his academic hunch. After applying a statistical model to analyze the final grades of his classmates in Professor Kline’s class that semester, he determined, “If you sat in the first five rows, or the first two rows of the balcony, your grades were substantially higher than everyone else’s. We went to the professor and said, ‘That should change.’” Kline heard him out, but the alphabetical seating arrangements remained.

That same smile crept through Dr Braverman’s voice as he delivered the punchline. “Thirty years later, those experiments were repeated . . . and found the same thing. I felt vindicated!”

His career took him from a student at the Yale School of Medicine to a Captain in the US Army Medical Corp, where his interest in “visual things” drove increasingly more dermatology cases his way. “Before long, I was seeing more skin cases than anyone else. I suddenly realized that ‘visual things’ were what I really liked.” The accolades that followed that native interest would come. “At the time [the 1950s], I had no idea what the hell was going on” with these new dermatology cases, “and my compatriots did not either. But they cared less.” Caring about patients with skin problems, and what conditions those abnormalities represented, led him to write a first-of-its-kind textbook of dermatology based on his own observations and photographs of patients he had personally examined. Two more editions of that groundbreaking book
succeeded it, along with 5 dozen research reports, 79 papers or chapters, and the immeasurable goodwill of students and colleagues. By the time his frustrations flourished over a resident’s flaccid dermatology descriptions that late November day in 1997, he had earned the right to take his grievances to the museum.

At the time, Linda Friedlaender worked as the Curator for Education at the Yale Center for British Art. “Using original works of art that no one was familiar with leveled the playing field for all,” she told me as she recalled the genesis of Yale Center for British Art project collaborating with the doctor–patient encounter course at the medical school (Linda Friedlaender, 2017, personal email correspondence). But at the time, Dr. Braverman did not know he would be working on this project with his friend. “When I decided to bring [the residents] to the museum, I called ahead. I asked if it was okay to have a discussion in the gallery. They said, ‘Bring them over.’ By happenstance, Linda Friedlaender—whom I already knew—was walking by. She saw me and said, ‘I’ve been thinking about doing something like that.’” Friedlaender, whose husband was an orthopedic surgeon at the medical school, said, “It had occurred to me that teaching visual literacy and slowing down the learning process, which is what we do with all our [museum] audiences, made good sense to do with medical students as well.” She soon joined Braverman in his endeavor, selecting paintings with a narrative focus for the residents to observe, paintings that were “full of details to ‘read’ and describe,” and “could be used to offer an interactive learning experience.” Braverman remembered the earliest days of his course, saying, “What she added was the description of paintings. She was able to add a few more details that were quickly overlooked.” Always with the original intent of this pilot course in mind, he recalled, “based on the nature of dermatology, we could not overlook the minor details.”

For those original residents, the course met Braverman’s objectives. After they spent time at the museum, “things started to get better at Grand Rounds.” But tapping into Friedlaender’s independent interest, the 2 educators wondered if they could improve the observation skills of medical students even before they set foot onto a medical ward. Even before they trained their eyes on patients.

By the spring of 1998, Braverman approached the dean of the Yale School of Medicine with his idea to take less experienced medical students to the museum for instruction on observation. “I’m behind it,” the dean told the dermatologist, “although I don’t think you can do it.” Not because they were not allowed to, but because the dean doubted the course’s effectiveness. Still, the dean provided “something like five hundred dollars to fund the study” and Braverman was on his way. The new course he designed provided repeated exposure to the museum over the course of the academic year. After several months, members of the media learned about this unique collaboration between medicine and museums. A camera crew came into the gallery to catch the course in action. Braverman recalled the producer of the television show asking, “‘How do you know this works?’ I said, ‘I don’t know, but we’re going to test this.’ The producer said, ‘How?’ and I said, ‘I don’t know. But we’ll figure it out.’”

Like his high school days without art classes, his assigned seats at Harvard in Professor Kline’s class of logic, and the deluge of dermatology cases in the army when no one seemed to know the answer, Irwin Braverman had a history of asking questions that no one else was asking. When the answer eluded those who might know or simply was not there, he had a way of figuring it out. To get the answers this time, he enlisted the help of a children’s book illustrator.

Fresh from illustrating and publishing a children’s book, first-year Yale medical student Jacqueline Dolev had both experience and interest to bring to Braverman’s
budding study. “Visual art was an important creative outlet for me growing up. I was an oil painter,” she described to me as she recalled her early exposure to Yale’s course (Jacqueline Dolev, 2017, personal email correspondence). “I was also very dedicated to science and especially how it related to human processes. When I heard, as a first-year medical student, that Dr. Braverman was taking students to an art gallery to study observational skills, I knew it was important work and that I wanted to be a part of it.”

With a team now assembled, Braverman began looking at ways to prove what his medical students did in the museum actually worked to improve their observations. “I designed a randomized, controlled study over 2 years to compare our method with traditional lecture and hands-on clinical workshops,” Dolev said. “Applying the scientific method was a very important step to legitimize our technique and validate the theory that observational skills could indeed be taught.” Friedlaender added, “Gallery exercises were followed by a classroom program of continued observation and reflection.” With the incoming class of Yale medical students organized into intervention groups and control groups, the students began learning how to look.

Still, skeptics remained. “When I casually talked to other students, they loved it,” Dolev remembered. “They thought it was fun and different to go into an art gallery and be outside of the classroom. But they didn’t think it would make a difference in their medical observational skills. They didn’t think it would work.”

After 2 years and 176 students, the research trio had enough data to analyze. “We showed the students improved their scores,” Braverman said. “And the control group did not change at all.” By the scientifically accepted standards of clinical research, the results reached statistical significance. The paper Dolev, Friedlaender, and Braverman wrote explained it this way: “Students in the YCBA [Yale Center for British Art] group achieved higher test scores in each of the photographs used in the examination.”

Telling the story 20 years later, Professor Braverman’s voice remained gleeful. He did not have to wait for others to replicate the data before taking action. He did not have to wait 30 years to be vindicated. This time, a watching world noticed. Dolev authored the report for the team and published the results in the prestigious Journal of the American Medical Association, more commonly referred to as JAMA. An article in The New York Times declared, “Yale’s Life-or-Death Course in Art Criticism” allowed students to consider that “in this class, art often imitates death.” If the reaction in the medical and popular press was positive, the supporting statistics, and the students’ reaction, confirmed Braverman’s decision to continue the course. “As soon as we published it in 2001,” he said, “[the course] became a requirement,” at Yale School of Medicine.

Friedlaender had reservations about continuing the course at first. “Indeed, I was concerned initially about the sustainability of the program. Having data helped a lot,” she reflected on what the course has become. “Getting the study published helped even more, but the individual experiences and self-reflections helped us understand how much the program was doing.” Dolev agreed that statistics helped to validate the team’s intuitive sense that observational skills could be taught. “Randomizing the students and having a placebo group and having the statistics speak to that,” she said, “slowly converted people over that time period. But also gave [the project] longevity.”

Even with all of the positive publicity Braverman’s course had received, the impact this course would have was not on his mind when the article was published. “We didn’t know what it would become at the time. Our only aim was to improve observational skills.”

My own exposure to museum and medicine courses would come 10 years later as I returned to my Alabama roots. I had left the comfortable corridors of the University of
Cincinnati—first trained as a “Med–Peds” resident then nurtured as junior faculty—to take an academic appointment in clinical medicine at the University of Alabama, Birmingham (UAB). I hoped to fulfill my training by practicing and teaching internal medicine and pediatrics. In that capacity, while working on a lecture for the residents, I began my own journey to the museum.

Where Dr Braverman had discovered a group of dermatology residents lacking a language of description, I ran into issues of a more personal nature. At UAB, the patron saint of the medical school, and most all things relating to internal medicine, is Dr Tinsley Harrison, a giant of a physician with stooped shoulders and thick-rimmed glasses. Although a native Alabamian, he had taught in Texas and Tennessee, and trained in Boston and Baltimore. Indeed, when Tinsley Harrison was just 4 years old, Sir William Osler told his father (whom Osler mentored and described as “his Alabama student”) that he needed to train “his boy to be a teacher of medicine.”

And train him he did. By the time of Tinsley Harrison’s death 8 decades later, he had transformed the structure of medicine at UAB, bringing a culture of teaching at the bedside in the presence of patients that persists to this day. He transformed the teaching of internal medicine, too, writing *Harrison’s Principles of Internal Medicine*, which categorized diseases by first discussing the approach to the patient. And he had transformed my family, introducing his secretary to his young cardiology fellow, who did not have time to buy a ring before he asked her to marry him. Decades later, their youngest son, newly home from Cincinnati, working as an attending on the eponymous “Tinsley Harrison Wards,” had a curious resident ask, “So tell me about the Dr. Tinsley and Dr. Harrison for whom this teaching ward is named.” In my mind, it was akin to asking, “Tell me about the President George and President Washington for whom the George Washington Bridge is named.”

To respond to the crumbling institutional memory among the residents, I prepared a lecture for the trainees, which I eventually entitled, “The Art of Medicine.” I equated Harrison’s mastery of medicine with the mastery of observation handed down across the centuries by Renaissance artists. My own undergraduate understanding of art history exposed me to a palette of painters from which to choose. Not surprisingly, I soon encountered Team Braverman’s *JAMA* article. As I dug deeper, I found both the foundation and the fruits of Braverman’s work.

*JAMA* published Yale’s groundbreaking work 1 week before the Twin Towers fell. Earlier that summer, the journal *Medical Education* had accepted for publication a description of a similar course taking place at the Weill Medical College of Cornell. Using paintings from The Frick Collection in New York, Dr Charles Bardes led 8 students to the museum for 3 sessions of “meticulous observation and description of visual information.” As he described in his article introduction, when it comes to diagnosis, physicians “observe, describe, and interpret visual information,” but medical education does not “emphasize the actual skill of careful looking; looking is often assumed.” Whereas the Yale experience (which his paper referenced from news releases) focused on narrative oil paintings in which the story of the subject was known, the Cornell experience focused on “the study of the human face” as “the face provides the preeminent expression not only of health and disease but of emotion and character.” The Cornell and Frick collaborative of science and art emphasized “a broader conception of humanness, one that incorporates both objective and subjective domains,” even if the program did not set out to provide scientific rigor to its methods.

By the spring of 2011, as I prepared my lecture on Tinsley Harrison, educational researchers had toiled in the field of art in medicine, providing a harvest of scientific rigor to support the benefits of the Braverman model. Some of the first fruits came at the hands of Dr Nancy C. Elder, now a Professor in the Department of Family Medicine...
at the University of Cincinnati College of Medicine. “I believe that we must always be evaluating what we do to make sure there is value in the services we provide,” she said recently when asked about her early involvement in evaluating the effectiveness of art and medicine courses, “whether it is the care we give our patients or the education we give our learners” (Nancy Elder, 2017, personal email correspondence). I had joined a long list of residents rotating through her family medicine clinic during my own training, back when her educational responsibilities took her from the clinics to the classroom, and ultimately to the museum. Like most educators, enjoying the love of learning—and teaching—proceeded the search for statistics. “We really started our course out of self-interest,” she said. “We believed then, and I still believe now, that observation and description have become lost arts.” Like Braverman and Friedlaender before her, “our goal was to slow back down” the process of observation, and in so doing, “to develop skills in cognitive decision making and to practice using it when it didn’t matter, so they could hopefully call on that skill when they did.”

The resulting collaboration with the Cincinnati Art Museum provided not just a glimpse of statistical significance, but a sense that courses of this nature had staying power. As her team wrote in the introduction to the publication of their work, “the primary goal of the course is to improve communication and observation skills used in the patient-doctor relationship by guided instruction in observation . . . of the visual arts.” Using an online evaluation asking graduates of their “Art of Observation” course to reflect on their experience, her study evaluated the course’s influence on careers. The survey among 19 students showed that the course “positively influenced clinical skills . . . and led to a sense of personal development as a physician.”

Larger statistical fruits followed.

Dr Joel Katz, of Harvard Medical School, published the results of training medical students in a similar course in Boston, entitled, “Training the Eye: Improving the Art of Physical Diagnosis.” When his team compared the 24 participating students with 34 classmates not trained to observe in a museum, the results helped to established a pattern, supported by statistics, with courses of this type. Harvard’s students not only increased their observation abilities, but also demonstrated “a doses response . . . for those who attended eight or more sessions compared to participants who attended seven or fewer sessions.” Once learners crossed the threshold of the museum galleries, teaching them a structure to describe an unknown improved their observational skills. Asking them to reflect on their experience had lasting impact. And repeating that process had more benefit than isolated exposures.

With the tailwind of a successful lecture behind me, and buoyed by the Birmingham Museum of Art looking to collaborate with the medical school on a similar project, I secured a spot from the dean in the medical school’s fall lineup of “Special Topics Courses” entitled, “Art in Medicine: Learning to Think by Looking at Art.” It had been 10 years since the Yale group sowed the seeds of art in medicine by publishing the September 2001 JAMA article, and a decade of medical students had reaped the benefits. Now, it was UAB’s turn. In the excessive hubris that often follows in the wake of a junior faculty appointment, I emailed Dr Braverman to share the good news. In the accessible humility that sets apart senior faculty of great respect, he responded within 2 hours. “Dear Dr. Russell, I am pleased to help” (Irwin M. Braverman, 2011, personal email correspondence).

And help he did.

He emailed the original pretest and posttest images, along with the rubric used to grade the students. He offered insights into what had worked well at Yale over the years . . . and what had not. When a member of the UAB team from the Birmingham Museum of Art met him at a conference, he shared with her his view that training
students early in their education—as first-year students and not Thanksgiving-era residents—could have more of an impact before bad observational habits set in.

Combining what we considered the best of the published articles in the medicine curricula, and with the expressed objective “To improve the observational skills of medical students by studying visual arts,” we offered a variety of visual experiences to teach the lessons. Like other courses before us, students learned to look in lectures and then applied their skills in the galleries. Because most of our students had completed 2 years of basic science training and had had a taste of clinical medicine, we made explicit the connection of medicine and art. On Day One, we stepped back 6 centuries, decades before DaVinci’s birth, to make a diagnosis from an altarpiece.

In the history of Western art, few Flemish painters could recreate the world they saw like Jan van Eyck. With his emphasis on accurate observations from the natural world, van Eyck pivoted the art world from idealism and iconography to the dawn of realism in the Renaissance. Patrons did not shy away from his forthright, if at times unflattering, representations. In his 15th century altarpiece *The Virgin and Child with Canon van der Paele* (Fig. 1), van Eyck paints his aged patron amid the saints in what would come to be the last years of the clergyman’s life. As the UAB students study images of the painting, they are asked to simply write down what physical examination abnormalities they observe, quickly noting the prominent temporal arteries, lateral eyebrow thinning, and soft tissue swelling that van Eyck so precisely painted. Contemporary church records report the infirm Canon van der Paele being unable to perform his morning duties. As our collective list of physical examination abnormalities grew, we referenced Hutchinson’s 19th century original case report of temporal arteritis, in which “an old man named Rumbold . . . tall, fine looking, rather thin and quite bald” was “upwards of eighty” and had “red ‘streaks on his head’ which were painful and prevented his wearing his hat.”

Two questions are then posed to the students: First, based on what is observed, do you think that Canon van der Paele had the same condition that Hutchinson described 500 years later? Second, what evidence, based on your observation, supports that conclusion? At this stage of their training, many of the clinically experienced medical students asked for more. What would the laboratory results have been? The

radiographs? The response to therapy? Of course, the conversation is counterfactual. Preparing them for the gallery, they are reminded that if a man with a paint brush and a gift for observation can stimulate such questions across the centuries, how much more can their own eyes learn from patients simply by taking time to observe.

In learning to look, our next stop is in front of a portrait.

If Flemish painter Jan van Eyck embodied the birth of a new movement in realism, then few portrait artists captured the American spirit at the dawn of the 20th century like John Singer Sargent. Born in Rome to a Philadelphia physician, Sargent discovered his artistic skill as a boy in Florence, and then perfected painting as a young man in Paris. Even though only in his 20s, “word spread that he made sitting for portrait highly pleasurable and affluent women in increasing numbers wish to do so,” leading to stunning, if at times scandalous, renderings of his subjects. One of those portraits, painted when he was in his mid-40s, is now on display at the Birmingham Museum of Art (Fig. 2). UAB’s “Art in Medicine” students gather before the full-length painting to discuss what they see. Standing against a balcony draped with thick fabric, the subject (whose name is initially hidden from the students) stares dispassionately from the portrait. Comments that begin about the subject’s garments and postures soon veer into speculation about her social status. The docents facilitating the session steer the conversation with simple prompts, asking students to support their conclusions with

what they see in the painting before them. Although many students correctly conclude that Sargent’s subject was a wealthy woman of privilege when he painted her in Venice in 1904, they tend to be surprised to learn that Lady Helen Vincent, the Viscountess D’Abernon, went on to serve as a nurse anesthetist in the first World War, reportedly treating thousands of patients during her tenure. Concluding the session, the docents and faculty remind the students that although observation is a critical component of the physical examination, it can often be an incomplete measure of social history.

A third example used to teach UAB’s “Art in Medicine” observation uses narrative art from the American Revolution. In 1772, during a time of growing tensions between the 13 colonies and the British Crown, American painter Benjamin West enjoyed the good graces of King George III. Living in London, the Philadelphian had already established his reputation on both sides of the Atlantic, painting portraits of Benjamin Franklin as well as the royal family. In the same year, King George appointed him historical painter to the court, Benjamin West completed a $4 \times 6$-foot oil-on-canvas painting entitled *Erasistratus the Physician Discovers the Love of Antiochus for Stratonice* (Fig. 3). Recounting the legend of the eminent Greek physician who diagnosed unrequited love in the Prince of Syria, West’s painting occupies a place of prominence in the American Gallery at the Birmingham Museum of Art. Without knowing the title, the students use the same techniques of visual observation to recreate a narrative. Using supporting visual evidence, they collectively summarize the painting, typically with a high degree of accuracy. They then learn the title and the backstory of both painting and painter. Making a final effort to connect the galleries to the clinic, students are asked, “Is such a scenario medically possible?” In most cases, the conversation turns to Takotsubo cardiomyopathy, the stress-induced “broken heart syndrome.”

Each of the exercises in UAB’s “Art in Medicine” course builds on the foundations established by Dr Braverman and his colleagues at Yale, using an educational technique known as Visual Thinking Strategies (VTS). Developed by Harvard psychologist Abigail Housen’s decades of research into how viewers consider art, VTS helps

Fig. 3. Erasistratus the physician Discovers the love of Antiochus for Stratonice by Benjamin West. (Available via Wikipedia: https://commons.wikimedia.org/wiki/File:Erasistratus_the_Photographer_Discovers_the_Love_of_Antiochus_for_Stratonice_-_Benjamin_West_-_Google_Cultural_Institute.jpg. Accessed August 1, 2017.)
students to learn how to look. By “building from what they [students] already know” in
an “active process of trying things out and discovering new ways to construct and
build meaning,” VTS also propose a structure to aid that learning. The best learning
of this type is first-hand experience; students work in groups to consider the works of
art. Although teachers want to direct the students’ attention, the questions are open
ended. And although the museum docents aim to corral the conversation, they
want to restate observations from the learners, not interpret those comments. Indeed,
teachers trained to facilitate a VTS curriculum ask 3 basic, if somewhat circular, ques-
tions about the work being considered: What is going on? What do you see that sup-
ports that conclusion? What else is seen? The UAB experience in front of West’s
Erasistratus the Physician echoes the VTS of courses that came before ours: paintings are chosen for the known history they pro-
vide, and students are led down a path of mutual discovery toward a definite conclu-
sion, encouraged to support their theories along the way. Although we cannot know
the results of Antiochus’ echocardiogram—and the look in many students’ eyes tell
me they still pine for that information—we can know West’s original intent from
1772. Teaching the students the value of informed observation, even if it leads to addi-
tional investigation, furthers the goal of the curriculum of VTS.

At the end of the day, when the clinics have closed and the gallery lights dim, the
educational question remains: do “Art in Medicine” courses reach their objective to
improve observational skills? A dispassionate view of the data offers a mixed assess-
ment, depending on the question that is asked. If one asks, “Can medical students
improve their observational skills by using a museum-based curriculum based on vi-
sual thinking strategies?” the answer is yes. Dolev emphasized the Yale course, and
those that followed, is simply “using art as a tool to teach a core skill.” Trying to read
more into courses of this type can sometimes be problematic.

“I think educational research is still far behind clinical research,” Dr Nancy Elder
from the University of Cincinnati reflected. “All education exists to change our learners
in some way, either short term or long term.” Her own 2006 study saw a qualitative
impact on the long-term benefit of having taken a course on the “Art of Observation.”
(She parenthetically told me that the University of Cincinnati was “politely but legally
asked to stop using that name for our course” owing to the course title “Art of Obser-
vation” being copyrighted by another university.) Braverman wryly commented, “I also
feel that Jackie [Dolev] and I are job creators. I know of two people who are actually
probably making some money with this technique.” His humor came through as he
said, “I think that we should be given credit by the federal government. We have
improved the economy.”

Seven years after Dr Elder published her data, investigators at Chicago’s Rush Uni-
versity trained a statistical eye in evaluating a visual arts-based curriculum with their
medical students, documenting qualitative improvement of written responses without
being able to demonstrate specific improvement on observational test scores. Even
among seasoned Art in Medicine educators, surprising trends emerged. Students
seemed to be learning more than just observational skills; they seemed to be learning
how to think like doctors.

Dr Braverman had run the course at Yale for well over a decade when his team
decided to change the questions on the end-of-course survey. The students were
asked 2 additional questions: What did you learn about yourself as an observer?
And what principles of observation did you learn from this course? “We suddenly real-
ized we were teaching them how to make medical decisions,” Braverman told me.
“That just blew our minds.” Overwhelmingly, students reported that, before the
course, they tended to jump to conclusions when faced with a new problem, such
as a narrative painting. To counteract that tendency, they learned they had to review information multiple times to get enough information to draw appropriate conclusions. "We had no idea that the real benefit was that they were understanding how to make medical decisions."

That fateful day in December 1994, when Jean-Marie Chauvet and his team unearthed the earliest known record of human art, almost did not happen. In truth, he wanted to turned back. "It was already dark, the air was even colder than in the early afternoon, and we did not feel strong enough," he wrote in his memoir.19 "So we decided to go home."

But he hesitated.

Motivated by fascination but moored by fatigue, one emotion split the difference: fear.

"The fear of someone else having the ‘première’ before us" led him onward. He knew he was on the brink of discovery, and he wanted to find out—before someone else did. "We arrived at the edge of the shaft, unrolled our ladder and, one after the other, climbed down into the profound darkness of the cave." It would not be an easy decent. "We moved in single file through the darkness . . . darkness dominated all around us . . . advancing slowly, we redoubled our precautions."

Then, in the light of the headlamp of Chauvet’s fellow explorer, “We immediately spotted the drawing of a little red mammoth on a rocky spur hanging down from the ceiling. We were overwhelmed. . . . Prehistoric people had been here before us.” The emotions of the moment—from fatigue to fear and now fascination—made them “incapable of uttering a single word. Alone in the vastness, lit by the feeble beam of our lamps, we were seized by a strange feeling. Everything was so beautiful, so fresh, almost too much.”

For a medical student examining a patient for the first time in a clinical setting, or a dermatology resident describing unknown skin findings in Grand Rounds, being overwhelmed can seem like familiar territory. Like a late evening spelunker, those trainees can find themselves moored by uncertainty, cultural differences, or simply fatigue. Courses pairing museums and medical students can provide a way forward, a dictionary to describe what is unfamiliar to make it more accessible. If those courses are successful in the service of improving observation, they may even provide more meaning to a budding career.

"Deeply impressed,” Jean-Marie Chauvet wrote of that first day of discovery in caves of southern France, “we were weighed down by the feeling that we were not alone.” For students learning the Art of Observation—and those who teach them—highlighting that sense of connectedness is perhaps the most valuable lesson of all.

REFERENCES


8. Dolev JC, Friedlaender LK, Braverman IM. Use of fine arts to enhance visual diagnostic skills. JAMA 2001;286(9):1020–1.


