Art in Science: Enhancing Observational Skills

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For more than 12 years, Linda has offered a museum-based program to enhance observational skills. The program, Enhancing Observational Skills, is now a required course for every first-year Yale medical student. The premise is that if you cannot see something, nor comprehend what you have seen, then you cannot use it to care for your patients.

Linda's epiphany came while visiting a friend at the hospital. The care team entered the patient's room and asked how she was feeling. Linda's friend answered with the reflexive "fine," and the care team left before the door could even close again. In their wake, Linda saw a nervous, disheveled and agitated patient with much on her mind, but

her providers failed to observe any of those important clues.

Gary's story is similar. An innocent observation by his father's barber — not from any number of his physician colleagues — prompted the question that led to the diagnosis of his pancreatic cancer. "Why are your eyes yellow?"

Visual literacy is the process of deriving meaning from a visual object. It is achieved by finding a variety of meanings in an observation by being open to the unfamiliar [1].

Observational skills are the basic tools of a physician, and they can be improved through practice. The Enhancing Observational Skills program uses representational narrative paintings at the Yale Center for British Art to tell a story using rich visual detail. Indeed, these works are presumed to be unfamiliar to the students and, thereby, full of details for which they have formed no previous bias or specific understanding. This provides the opportunity to focus more clearly on the process of looking, methodically and objectively, and on using that process to deepen observers' abilities to understand what they see.

Once a painting is visually inventoried in as much detail as possible by the student, an analytical approach is introduced, using visual cues to draw conclusions and interpretations about the painting's content. This is analogous to a physician collecting signs and symptoms to draw conclusions about a patient's diagnosis or formulate a list of differential diagnoses. In both cases, the quality of the exercise (and its conclusion) depends upon keen and thorough observation of fact, in an open-minded and unbiased manner, until the inventory is complete and the process changes from one of assemblage to interpretation (diagnosis).

In this way, the program gives practical expression to integrating art and science in education, using fine art as a

Note from the Editor-in-Chief:

I am pleased to introduce this column, team-written by Gary and Linda Friedlaender, called "Art in Science." Linda Friedlaender is the Curator of Education at the Yale Center for British Art; Gary is the Chair of the Department of Orthopaedics and Rehabilitation at Yale School of Medicine. Together, they will share observations from a fascinating vantage point: the interface of art and medicine.

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medium and a formal training tool for teaching clinical medicine. One intended consequence of this pedagogy is to enhance communication skills. This is accomplished by having the students verbalize their observations, learning to use descriptive but unbiased language, as they must in a clinical setting.

Standing in front of a painting, each participant in the exercise describes the object in as much detail as possible without any interpretations, conclusions or opinions. When students begin a presentation with either, “I think,” or “It appears,” they are asked to use, “I see” instead. If they begin to interpret, or use value judgments, they are asked instead to use descriptive words and to list the paintings’ visual details. Only when students feel they have thoroughly inventoried the painting may they offer explanations regarding what they think is happening in the picture. Even then they are asked to base their comments only on what they see, not what they may know — or think they know.

To illustrate a painting reflecting the kind of ambiguity that often appears in the clinical setting, we refer to *Mrs. James Guthrie* (1864–65) by Lord Frederic Leighton (Yale Center for British Art, New Haven, CT, USA) [Fig. 1]. Is she about to place the flower in the vase or is she extracting it? How can you tell, and does it make a difference?

Fig. 1 Lord Frederic Leighton’s *Mrs. James Guthrie* (1864–65) poses the question, “Is she about to place the flower in the vase or is she extracting it?” (Courtesy of the Yale Center for British Art, New Haven, CT, USA).

Consider the following: if you think she may be removing the flower, the physical details to support this conclusion include a brown stem (rather than green) and brown petals curling down around the edges. If the flower has been removed from the tall frosted glass vase, and her right hand is posed over this floral arrangement, the stem is not long enough to reach the water supply. We have factual support based upon visual clues that this flower wilted for lack of water and is being pruned from the bouquet. Parenthetically, there is no documentation as to the artist’s intent in this regard, and perhaps you can find visual clues to support an alternate “diagnosis.”

In Henry Wallis’ painting of Chatterton, the room is filled with objective visual clues that in their totality relate an unambiguous story [Fig. 2]. We will withhold the title for a moment. Inventory the visual facts, which are dominated by the figure of a person on a bed. One may conclude that this individual is sleeping, comatose or dead.

The figure’s face is ashen with a bluish tint, an overturned vial is prominent on the floor in the foreground, and the area around an opened box is littered with shredded paper, some of which are balled up in the figure’s hand. There is substantial factual support for concluding this scene represents a death. Indeed, the title of this painting is *The Death of Chatterton* (circa 1865) (Yale Center for British Art, New Haven, CT, USA) and it depicts a young poet prodigy who took his own life after being accused of plagiarism. As is true in clinical practice, we may need to look beyond the surface of our patient (or painting) in search of additional support for meaning and drawing conclusions. In the case of Chatterton, there are a number of frequently used 19th century Victorian symbols in this painting that further underscore the death theme, such as the recently extinguished candle and the smoke (soul) escaping through the open window.

In a randomized controlled study, data were collected on the efficacy of this program during 2 years, (1998–1999). Ninety participants from the Yale School of Medicine were randomly assigned to one of three groups: a single 2.5 hour museum intervention, a lecture on reading x-rays or their regularly scheduled tutorial sessions taught by physician preceptors on the subject of patient evaluation. A pretest was administered to all students assessing their ability to describe the visual features necessary for diagnosis in a series of color photographs of dermatologic conditions. A similar posttest demonstrated that in both years, students in the museum intervention group achieved significantly higher (better) scores (63% versus 29%) than the two control groups [2].

Numerous medical schools have adopted this program with comparable results to this study. Nursing, physician assistant, and business schools, as well as college biology departments have also adopted this program. The

Fig. 2 The room is filled with objective visual clues that in their totality relate an unambiguous story in Henry Wallis' *The Death of Chatterton* (ca 1865). (Courtesy of the Yale Center for British Art, New Haven, CT, USA).

experience of visually analyzing a narrative painting, and articulating what one first sees without interpretation, can be an important tool in enhancing the observational skills of healthcare professionals. Most importantly, the program highlights the difference between seeing and interpreting. The development of these skills can contribute to our ability to diagnose more accurately.

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