

Literature and the Arts in Medical Education

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Editor's Note: In this column, teachers who are currently using literary and artistic materials as part of their curricula will briefly summarize specific works, delineate their purposes and goals in using these media, describe their audience and teaching strategies, discuss their methods of evaluation, and speculate about the impact of these teaching tools on learners (and teachers).

Submissions should be three to five double-spaced pages with a minimum of references. Send your submissions to me at University of California, Irvine, Department of Family Medicine, 101 City Drive South, Building 200, Room 512, Route 81, Orange, CA 92868-3298. 949-824-3748. Fax: 714-456-7984. jfshapir@uci.edu.

Is It Impressionism or Is It Medicine?

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Each year, about 70% of the first-year medical students at one of our institutions acknowledge their involvement in various aspects of the arts prior to medical school. Some have exchanged professional careers in the arts for a stethoscope and the world of science, a world that is very different from the world of art. Or is it?

In a physical diagnosis course, a medical student stood at the front of the lecture hall before 140 of his peers and spoke briefly about

how he used his artistic skills to transform the head-and-neck image of one of his older friends into the 30-by-20-inch oil painting on the canvas displayed on an easel before the class. After finishing his introductory comments, the medical student stood quietly while a physician, who knew nothing about the person depicted except for the brush strokes on the canvas, described the individual's chronic heart and lung problems, his dysthymia and loneliness, and his tenuous financial situation from pursuing his lifelong love of music. The medical student, formerly a professional artist in New York City for 5 years, was familiar with the health and personal history of his friend and could not help but express his astonishment at the accuracy of the clinician's report. How can this be? How can a physician know so much about someone

without conducting an interview or doing a physical exam?

The student and his classmates were about to find out. Over the following week, the students went on their own time to the university art museum to complete a homework assignment modeled on the lecture hall presentation. In the museum's education classroom, seven portrait paintings of varying sizes and styles were displayed on a wall next to a space suitable for viewing by small groups of students. Some of the paintings were realistic, almost photographic in their detail. Others were more abstract.

Each student took 1 to 2 hours to take notes and discuss one of the portraits with their classmates and with the museum's education curator who was also available for consultation. Following a structured format, the students did a write-up describing their selected

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individual's physical health (commenting on three separate organ systems of their choosing), the individual's mental health (commenting on level of consciousness, affect, and judgment), and the individual's social characteristics (commenting on age, gender, education, occupation, ethnic group, economic status/yearly income, family, house, health beliefs). For each of these descriptors (15 in all), the students were expected to make three objective observations to support each subjective hypothesis, similar to the conscious (and sometimes unconscious) process that the experienced clinician instinctively uses at the bedside.

The student, for instance, may make the following three objective observations about the individual's respiratory system—breathing comfortably through the nose, no increase in size of accessory respiratory muscles, pink skin—and come to the subjective hypothesis that the individual's respiratory system is healthy and free of disease. Similarly, the student might note the following three objective observations about the individual's affect—wonder, astonishment, high degree of attentiveness—and make the subjective hypothesis that the individual does not suffer from a mood disorder. In regard to age, the students might record that the individual has early balding at the temples, adult adipose distribution, and a maturing face without wrinkles and conclude that the individual is most likely in his early 30s.

All of these observations and hypotheses are subject to independent verification, of course. But that is precisely the point, isn't it? How else is medicine practiced other than through the careful collection of data, the thoughtful interpretation of the data, the recognition of the relationship between seemingly disparate bits of data, and the drawing of conclusions that are based on

the quality of the data and the rigor of the analysis?

After completing the homework assignment, the students' write-ups were graded by their small-group leader. Since there were no previously established diagnoses available to use as gold standards, the grading was based on the quality of the observations, the rigor of the clinical reasoning, and the likelihood of the subsequent hypotheses. In addition to its emphasis on careful observation, many faculty involved in teaching the physical diagnosis course liked this particular exercise because it enabled students to focus systematically on each of the intermediate steps comprising the clinical analysis rather than jumping to unsupported conclusions by taking cognitive shortcuts.

Although this homework exercise occurred only once in the semester, given the usual limitations on curricular time, the students later had the option of earning bonus points on a 15-minute written analysis of an unknown portrait at a clinical skills station on their midterm examination. While this testing station was optional, 100% of students participated since, it appeared, the opportunity to obtain extra points without the risk of penalty could not be bypassed. Despite a rigorous grading protocol, based on the logic that bonus test points should be honestly earned, students received a mean of 83% of the possible points. This seemed to indicate that students could successfully apply their nascent observational skills using a structured approach. Further, it is possible that improvement in student performance in a subsequent clinically based course, with a decrease in student failure on an end-of-course exam to 2% from 13% the previous year, related in part to the clinical skills that were augmented through the art exercise.

So what are the benefits of such an exercise? (1) Students learn that talking and touching patients during the interview and physical exam, while important, can be supplemented through the simple act of looking. (2) The quantity and quality of data that is available through observation typically far exceed the students' expectations. (3) Scientific analysis is not limited to scientists, nor is integrative thinking limited to artists. (4) Precision in clinical conclusions can occur with realistic paintings as well as through the less-concrete data found in more-abstract drawings. (5) A systematic approach to using a single clinical skill such as observation can be highly productive. (6) Medical skills are not restricted to the bedside but can be used equally in other settings, including a university art museum.

Future developments include consideration of variations on the principles taught through this exercise. One of the authors, for instance, is a skilled photographer who also happens to take medical students and residents on scheduled home visits as part of her clinical responsibilities. She has taken a number of high-quality photographs of the interiors of her patients' homes, many without the patient in the scene. One approach may be to show a photograph to the learner as an unknown, to ask the learner to describe the health of the patient based on the appearance of the patient's home, to review the patient's actual medical history after the learner has developed appropriate hypotheses, and then—and only then—to meet the patient.

The evolving role of art in medical education can no longer be considered as merely supplemental. Rather, the integration of the two worlds is creating a new synergy. The whole is not just greater than the sum of the parts; the whole informs our understanding of the parts. While many physicians are

also artists,^{1,2} and art has been used as a means to a scientific end (eg, to teach anatomy),³ only more recently have visual thinking strategies been recognized as a legitimate cognitive tool.⁴⁻⁶

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