

The Professional Eye: A Preliminary Study of the Role of Aesthetic Training in Medical Education

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A. Study Purpose and Rationale

Meticulous visual observation, in the form of keen discrimination and judgment between qualities, is assumed to be a fundamental capability for work in many domains of clinical medicine. Normally, a general capacity to perceive and observe visual elements is assumed; the development of specific visual skills and their connection to effective description, communication, and diagnosis are left to develop during the experience of medical training. Although certainly aesthetic skills are a crucial tool for competent clinicians to possess, up to this point there has been little rigorous effort to integrate visual training into medical education.

Recently, there has been a push in medical education circles to use humanities-based models to enhance traditional medical training. In addition to literature-based classes, many institutions have initiated programs using the visual arts to develop observational skills, enhance creativity, and introduce various cultural models of illness and healing, among other things. However, there is little solid evidence that any of these goals are met with the current instructional models in use, which generally integrate medically-based instruction using art in museums. Dolev et al demonstrate significantly improved visual diagnostic skills of photographs of clinical conditions after one afternoon of observation of realistic art in a museum.¹ Similarly, Bardes et al describe a program at Cornell Medical School using observation of faces in art at the Frick Museum with qualitative improvement in observation of detail in faces in painting and photographs.² At Harvard Medical School and the Museum of Fine Arts, Boston, an elective incorporates an art observation methodology developed by a psychologist proven to improve observation and communication skills in elementary school students with correlative medical didactic lectures in an effort to link visual skills with medical diagnosis.^{3,4} The same art observation methodology has been utilized in the family medicine residency program at White Memorial Medical Center in Los Angeles, with subjective improvement in team building, listening skills, and analytic thinking.⁵ As part of the Humanities and Medicine program at the Columbia College of Physicians and Surgeons, courses regarding life drawing and drawing from classical Greek sculpture have been offered in past years.⁶

In 2005, *The Professional Eye*, a course focused on visual observation of art, using various methods including open-ended observation, visual memory exercises, sketching, and writing, was given for the first time. The foundation for this course is the idea that in order to teach aesthetic skills, i.e. to teach medical students "how to see," it would be fruitful to use the methodology of that discipline (history of art) in which visual skills, encompassing observation, perception, description, and communication, are the central defining instrument of knowledge and research. As described below, this course uses fine art and art historical approaches in an effort to improve the aesthetic and perceptual skills of medical students with the hopes of translating into improved visual and diagnostic skills. The current proposal aims to create a prospective, interventional, randomized trial to preliminarily evaluate the course; that is, to study whether students who take the course have improved visual memory, visual perception, and visual diagnostic skills compared to students who do not. Further investigation will be necessary to evaluate whether those skills are related to improved clinical skills.

B. Study Design and Statistical Analysis

Second year students at the Columbia College of Physicians and Surgeons are required to take one of between ten and twelve *Humanities and Medicine* seminars offered annually. Seminars consist of six weekly sessions, each two to three hours long, and are assigned based on student preferences. All

students who select *The Professional Eye* as their first choice will be randomized to this seminar versus any of the others on their selection list and will be considered study subjects after giving informed consent; cases will be enrolled in The Professional Eye and controls will be in any other Humanities and Medicine seminar. Randomization will be performed in computer-generated random blocks of six with a one: two ratio. Seminars are limited to twelve students.

Pre- and post-intervention testing will utilize neuropsychological testing and clinical observation testing using photographs. Scoring of all tests will be coded by subject and blinded both to whether the test was given pre- or post- intervention and whether the subject is part of the intervention group. Testing will include the Hooper Visual Organization Test (examines ability to visually integrate information into whole perceptions), Rey Complex Figure Test (a test of visual memory and visual organization) [mean 85, sd 9.3],⁷ and the Yale model of clinical visual observation [mean 14.5 out of 30, sd 2.5].⁸

Conducting the study over two years, allowing for 24 students in *The Professional Eye* to be compared to 48 students in other seminars, differences of 6.6 on the Rey Test and 1.8 using the Yale model can be detected using an unpaired t-test with a power of 80%, $p=0.05$.

C. Study Procedure

The Professional Eye takes place at the Metropolitan Museum of Art, utilizing observation and description of art as a means of enhancing visual diagnostic and communication skills.

1. A. Course sessions are based around four events: an open-ended discussion of preselected artworks, which is the foundation of artworks

Students discuss their observations of pre-selected artworks. Descriptions are based on objective visual evidence and are driven by student observations. The instructors guide students with questions to carefully and objectively describe different aspects of each work. Students are encouraged to discuss the artwork in the context of covered artistic concepts and to utilize formal vocabulary. To close the discussion, the instructors spend a brief amount of time placing the artwork in its relevant cultural and historical context. As students' visual and descriptive skills developed, they are challenged with new material: representational and abstract artwork as well as a variety of artistic media including as painting and sculpture.

2. Presentation and discussion of formal elements

Before conducting the open-ended discussion, the instructors provide students with definitions and explanations of basic formal elements. This provides students with a basis on which to comprehend formal art concepts and a basic vocabulary with which to discuss them.

3. The visual diary

Students are asked to keep a visual diary for the duration of the course. They are to record in sketch and/or in writing their visual observations made during the week in between course sessions. At the beginning of each session, students discuss their sketches and observations. The instructors provide feedback and guidance to further assist students in developing their capacity to observe.

4. Observational exercises

Observational exercises are designed to enrich the students' exploration of the various aspects of their visual perception.

Exercises include:

a) Sketching from the artwork:

Students are asked to sketch from selected artworks. Sketching is understood throughout the course as a tool to focus looking without any concern for artistic production. It enhances visual and perceptual attention skills.

b) Writing:

Students are asked to write about the selected artwork. The exercise serves to develop focused looking and descriptive skills. Similar to sketching, writing helps to improve visual attention.

c) Visual memorization:

Students are asked to look at a work for one to two minutes. The work is then discussed from memory. This exercise stimulates visual memory, encourages focused looking, and enhances perceptual attention.

d) Blindfold description (two variations):

(1) One student is blindfolded. The remaining students describe the artwork to the blindfolded student, who guides the description by asking questions.

(2) All students except one are blindfolded. Initially the seeing student describes the artwork to the remaining students; then an additional student's blindfold is removed, and he adds his observations to the previous student's. This is continued until all students have their blindfolds removed. The exercise reinforces precise observation and description.

B. Specifics of course sessions: course sessions are arranged based on theme, as outlined below.

Session One: Introduction

1. Introduction to the course: introduction to formal art concepts and the visual diary

2. Discussion of selected artworks and exercises:

- Johannes Vermeer, *Woman with a Water Jug*, ca. 1662
- Jacques-Louis David, *The Death of Socrates*, 1787 *exercise: visual memorization
- Vincent Van Gogh, *Wheat Field with Cypress Trees*, 1889 *exercise: sketching
- Pablo Picasso, *Woman at a Table*, ca. 1930
*exercise: blindfold

Session Two: Space and Landscape

1. Discussion of students' visual diaries

2. Presentation of formal element: space

3. Open-ended discussion of selected artworks and exercises;

discussion focuses on space, subject matter of selected works is landscape.

- Giorgio de Chirico, *Ariadne*, 1912
*exercise: sketching
- Pieter Bruegel, *The Harvesters*, 1595
*exercise: writing
- Giovanni Antonio Canal, called Canaletto, *Piazza San Marco*, ca. 1730
- Paul Cezanne, *Mont Sainte-Victoire and the Viaduct of the Arc River Valley*, ca. 1882
*exercise: sketching

Session Three: Form and Portrait

1. Discussion of students' visual diaries

2. Presentation of formal element: space

3. Open-ended discussion of selected artworks and exercises; discussion focuses on form, subject matter of selected works is portrait.

- Jean-Auguste-Dominique Ingres, *The Princess de Broglie*, 1853
- Rembrandt Harmensz van Rijn, *Self-Portrait*, 1660
- Paul Cezanne, *Mme Cezanne in a Red Dress*, ca. 1890 *exercise: visual memorization
- Andy Warhol, *Last Self-Portrait*, 1986
*exercise: sketching

Session Four: Color

I. Discussion of students' visual diaries

2. Presentation of formal element: color

3. Open-ended discussion of selected artworks and exercises. discussion focuses on color, subject matter is figure, portrait, and object

- Eugene Delacroix, *The Abduction of Rebecca*, 1846
*exercise: visual memorization
- Georges Seurat, *Circus Sideshow*, 1887-1888
- Vincent van Gogh, *Portrait of Mme Roulin*, 1889
- Jasper Johns, *White Flag*, 1955 *exercise: sketching
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Session Five: Composition and Figure

Discussion of students' visual diaries

1. Presentation of formal element: composition

2. Open-ended discussion of selected artworks and exercises;

discussion focuses on composition, subject matter of selected works is figure. This session also introduces sculpture.

- Alberto Giacometti, *Three Men Walking II*, 1949
*exercise: writing
- *Kouros*, Attic, end of 7th century BC
- Michelangelo Merisi, called Caravaggio, *The Holy Family*, 1602-1604 *exercise: sketching
- Hilaire-Germain-Edgar Degas, *The Dance Class*, 1874

Session Six: Student Presentations

1. Discussion of students' visual diaries

2. Students are divided into groups (of three or four) and assigned an artwork to observe and present to the class. Students are given a series of questions of assist them in their looking. They have fifteen minutes to examine the work in small groups and then present their observations to the class.

Selected works:

- Tiziano Vecellio, called Titian, *Venus and Adonis*, ca. 1560
- Jan van Eyck, *Crucifixion and the Last Judgment*, 1425-1430
- Edouard Manet, *Mademoiselle V. in the Costume of an Espada*, 1866

D. Study Drugs

There will be no drugs associated with this study.

E. Medical Device

There will be no medical devices associated with this study.

F. Study Questionnaires

There will be no questionnaires associated with this study.

G. Study Subjects

Second year students at the Columbia College of Physicians and Surgeons will participate, in conjunction with their required *Humanities and Medicine* Seminars.

H. Recruitment of Subjects

Subjects will be recruited concurrent with their enrollment in *Humanities and Medicine* seminars. Informed consent from all study subjects will be obtained prior to the commencement of the seminars.

I. Confidentiality of Study Data

Pre- and post-test data will be collected and analyzed in a confidential manner with each study subject receiving a unique identifier code.

J. Potential Conflict of Interest

There is no potential conflict of interest in this study.

K. Location of the Study

The study will take place at the Columbia College of Physicians and Surgeons and the Metropolitan Museum of Art, New York.

L. Potential Risks

There are no potential risks.

M. Potential Benefits

Potential benefits include improvement in visual perceptual ability and enhancement of diagnostic acumen in the study subjects.

N. Alternative Therapies

There are no alternative therapies applicable.

O. Compensation to Subjects

There will be no compensation to subjects in this study.

P. Costs to Subjects

There will be no costs to subjects in this study.

Q. Minors as Research Subjects

There will be no minors as research subjects in this study.

R. Radiation or Radioactive Substances

There will be no radiation or radioactive substances used in this study.

S. References

- ¹ Dolev JC, Friedlaender LK, Braverman IM. Use of fine art to enhance visual diagnostic skills. *JAMA* 2001 Sep 5;286(9):1020-1.
- ² Bardes CL, Gillers D, Herman AE. Learning to look: developing clinical observation skills at an art museum. *Med Educ* 2001 Dec;35(12):1157-61.
- ³ Visual Thinking Strategies, see www.vue.org for further information.
- ⁴ Personal Communication with J. Katz MD, Harvard Medical School.
- ⁵ Reilly JM, Ring J, Duke L. Visual Thinking Strategies: A new role for art in medical education. *Fam Med* 2005; 37(4): 250-252.
- ⁶ Narrative Medicine program at Columbia College of Physicians and Surgeons, see www.narrativemedicine.org.
- ⁷ Salthouse TA. Memory aging from 18 to 80. *Alzheimer Dis Assoc Disord* 2003; 17(3): 162-167.
- ⁸ Dolev JC, Friedlaender LK, Braverman IM. Use of fine art to enhance visual diagnostic skills. *AMA* 2001 Sep 5;286(9):10204. <http://info.med.yale.edu/dermatologvidept/description.html>