

Art in Medicine

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INTRODUCTION

Background: Visual literacy is defined as “the ability to find meaning in imagery, which in medical parlance translates into the ability to reason physiology and pathophysiology from visual clues”. (Yenawine, 1997) There is growing concern that the current generation of health science students are deficient and lack confidence in their visual literacy skills. The teaching and training of visual literacy skills has become more challenging in today’s technologically advanced society where the next generation of healthcare providers have grown up utilizing technology to solve problems, access information, and communicate in real time. (Athmer K, 2016). Research has shown that observational skills could be successfully acquired and improved upon through works of art and medical imagery (Naghshineh S, 2008). Multiple medical education institutes and law enforcement agencies have utilized the visual arts to improve visual literacy through the Boston Museum of Fine Arts Humanistic Curriculum. Research involving health science students has been limited to medical students/residents nursing students and has not included students from other healthcare disciplines.

Purpose: To investigate the relationship between perceived ability and confidence in visual literacy skills before and after participating in a guided and structured training of unbiased observation through, Art of Medicine.

Hypothesis: Perceived ability and confidence in visual literacy skills amongst a cohort of clinical science students will increase after participation in a guided and structured training of unbiased observation through, Art in Medicine.

METHODS

Clinical health science students (physician assistant, occupational therapy and nursing) were recruited to participate in this study. Students who gave consent to participate agreed to complete 3 sessions of guided and structured training of unbiased observation of artwork and one additional session to complete the post survey.

Each sessions consisted of:

Session I - subjects completed a pre-survey followed by viewing and discussing a piece of art promoting open communication of their individual observations

Session II - subjects took part in a team building drawing exercise utilizing purchased sculptures followed by a discussion promoting communication

Session III - subjects viewed and analyzed their observations of two separate works of art addressing emotional awareness and empathy

Session IV - subjects completed a post survey

Each student survey was anonymously tagged to the pre-survey in order to follow the subjects longitudinally. To secure blind collection of data, surveys were administered and collected by an assigned proctor, separate from the research and intervention team.

Data Analysis: Descriptive statistics were used to analyze the data. The change between pre and post survey question responses were categorized as “improved”, “no change” or “decreased.” The percentage of responses that “improved” between the pre and post surveys was reported for each question. The McNemar test was used to identify significance between response frequencies in the pre and post surveys.

RESULTS

A total of 26 subjects gave consent and agreed to participate in this study. Twenty five subjects completed the study and were included in data analysis. The pre and post survey responses revealed improvement in self-perceived ability and confidence of visual literacy skills after subjects completed Art in Medicine training. Subjects reported improvement in visual literacy skills in each of the five survey questions. The percentage of subjects who reported improvement for the two questions relating to ability in visual literacy skills was 52% and 48% respectively. The percentage of subjects who reported improvement for the three questions relating to confidence in visual literacy skills was 56%, 60% and 68% respectively.

The frequency of “strongly agree” responses increased significantly for the two questions relating to perceived ability in visual literacy skills as shown in Table 1. The frequency of “extremely confident” increased for the three questions relating to confidence in visual literacy skills as shown in Table 2.



Image 1



Image 2



Image 3

TABLE 1 - Survey Questions Relating to Perceived Ability in Visual Literacy Skills	Total subjects (N)	Number of subjects who answered “Strongly Agree” before training	Number of subjects who answered “Strongly Agree” after training	Significance (P value)
The guided study of selected works of art can improve my ability to distinguish normal from abnormal physical exam findings.	25	3	12	P = 0.004*
The guided study of selected works of art can improve my ability to correctly interpret patients’ non-verbal (i.e. visual) cues.	25	6	13	P = 0.039*

* p values identified as significant (p < 0.05)

TABLE 2 - Survey Questions Relating to Perceived Confidence in Visual Literacy Skills	Total Responses (N)	Number of subjects who answered “Extremely Confident” before training	Number of subjects who answered “Extremely Confident” after training	Significance (P value ¹)
My level of confidence in my ability to distinguish normal from abnormal physical exam findings is:	25	1	6	P = 0.125
My level of confidence in my ability to determine a patient’s mental attitude from their physical appearance is:	25	0	3	P = 0.250
My level of confidence in my ability to correctly interpret a patient’s non-verbal cues is:	25	0	9	P = 0.004*

* p values identified as significant (p < 0.05)

DISCUSSION

The trends observed in this study support the hypothesis. Participation in a guided and structured training of unbiased observation through, Art in Medicine, will improve perceived ability and confidence in visual literacy skills among a cohort of clinical health science students.

The teaching and training of clinical health science students in today’s technologically controlled communication era requires educators to utilize multiple teaching strategies to encompass relevant and innovative clinical experiences as well as integrate the humanities as it applies to clinical scenarios. The development of observational skills, pattern recognition, emotional awareness, and empathy are skills needed in all areas of healthcare. The Boston Museum of Fine Arts offers a Humanistic Curriculum session that offers a very unique way to engage, teach, and build on visual literacy skills that are crucial for healthcare providers. Grant research and a subsequent study was published in the Journal of General Internal Medicine 2008, “Formal Art Observation Training Improves Medical Students’ Visual Diagnostic Skills,” and the research result proved a 38% improvement in visual observation skills among participants.

The adapted visual literacy training used in this pilot research study demonstrates that this can be successfully utilized in diverse healthcare training programs as a way to improve students visual literacy abilities and confidence in these abilities when applied to future patient encounters in clinical practice.

Two Core competencies of Interprofessional Education (IPE): Interprofessional Communication and Values/Ethics can be adapted to this work. Session II highlights transitions where communication is a vital piece. Session III finds empathy in the art and sharing it in a climate of mutual respect.

CONCLUSION

Participation in Art in Medicine training improved health science students perceived ability and confidence in visual literacy skills.

Future work could address the Inter-Professional Education (IPE) competencies of communication and ethics involved in this visual literacy approach.

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- Image 1: *Saint Roch Comforted by an Angel* by Carlo Saraceni
- Image 2: *Portrait of a Family, Probably That of Richard Streatfeild, C. 1645* by William Dobson

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