
THE ARTS OF MEDICINE

TABLE OF CONTENTS

FOREWORD:

Little Red Ball

CHAPTER ONE:

Arts in Medical Education Literature Review

Section One:

The Physician as an Artist

Section Two:

Art as a Technical Tool in Medical Education

Section Three:

Art as an Elucidatory Tool in Medical Education

Section Four:

The Music of Medical Education

Section Five:

The Theatre of Medical Education

Section Six:

The Visual Arts of Medical Education

Section Seven:

Passive Artistic Exposure vs Active Artistic Exposure

Section Eight:

The Medical Practitioner as Performer

Section Nine:

Physician-Patient Communication

CHAPTER TWO:

Standardized Patient Ethnography

Section Ten:

Defining Success

Section Eleven:

The Duality of Art

Section Twelve:

The Duality of Standardized Patient Programs

Section Thirteen:

The Need For Standardized Patients

Section Fourteen:

Breaking Bad News

Section Fifteen:

Dynamic Feedback

Section Sixteen:

A Longitudinal Perspective – Kerry's Failures

Section Seventeen:

A Longitudinal Perspective – Kerry's Growth

Section Eighteen:

A Longitudinal Perspective – Kerry's Successes

CHAPTER THREE:	<i>Medical Arts Programming</i>
Section Nineteen:	<i>Empathy – The Action of Understanding</i>
Section Twenty:	<i>Emotional Exploration</i>
Section Twenty-One:	<i>The Importance of Passion</i>
Section Twenty-Two:	<i>Multi-dimensionality</i>
Section Twenty-Three:	<i>The Ability to Actively Observe</i>
Section Twenty-Four:	<i>The Perspective of the Other</i>
Section Twenty-Five:	<i>Creativity – Safety From Failure</i>

CHAPTER FOUR:	<i>Developmental Neuroscience and Psychology</i>
Section Twenty-Six:	<i>Neuroanatomy and Development of Empathy</i>
Section Twenty-Seven:	<i>Psychology of Empathy</i>
Section Twenty-Eight:	<i>Genetic Basis and Socioeconomic Status</i>

APPENDIX I:	Numbers – Quantitative Data
APPENDIX II:	Perry et al. Literature Review
APPENDIX III:	Methods and Sources
ACKNOWLEDGEMENTS:	On Whose Shoulders I stand
REFERENCES:	Complete Reference List

FOREWORD: LITTLE RED BALL

I can't see. My eyes are filled with blood. A practical effect has just misfired and chocolate syrup, dyed blood-red and thickened with gelatin, now covers my face. We are half-way through a matinee performance of Pedro Calderón de la Barca's *La vida es sueño* (*Life is a Dream*)—or at least half-way through an *attempted* matinee performance. But now I am blind. I hear my cue and attempt to deliver my next line. I am unable to speak. In addition to my eyes being open to the exploding chocolate syrup, my big dumb mouth was agape during the misfire. As I begin to speak, I am stopped. All that comes out of my mouth is thick, blood-red chocolate syrup. In reflex, I cough—spraying blood into the eyes of the lead actor opposite me. Now we are both blind and slated to immediately begin a sword fight. This is the tension and the terror of live theatre. But glorious invention is born against such obstructions! We wrestle instead; the director loves it. She cuts the sword fight from the play entirely and all future performances now climax in a wrestling match. There is merit to the introduction of an obstacle to any endeavor. It forces a necessary, focused response born of lateral thinking and creativity.

In this spirit, Broadway actors sometimes play a game called *The Little Red Ball*. The rules are simple:

1. If you are in possession of the ball, you may not leave the stage
2. If your inability to leave the stage compromises the integrity of the show... so be it

It goes without saying that stage managers, directors, and producers must never learn of the game's existence. Such shenanigans threaten the financial and artistic success of any production, they would cry! Actors play this forbidden game discretely; they do not want to be caught by their audience of staring eyes. The purpose of the game is two-fold. First, actors are thrill seekers—we love the rush. Second, there is truth to Necessity being called the Mother of Invention—and we are a breed that long for her inspirational embrace; sometimes artists are most inspired when working in opposition to something, trying to conquer a trial, or overcome an inequality. So potent is diversity, actors will artificially construct it to foster their own creativity. Such is the nature of *The Little Red Ball*. The natural world is full of performance enhancing drugs; to *Runner's High* and *Adrenalin Junkie* I add the phenomenon of *Artistic Obstacle*.

Art is how we have traditionally constructed virtual reality. This has allowed man to run simulations, create obstructions, and manipulate variables without adverse real-life consequence. This, in turn, has allowed man to recreate, reimagine, and repurpose his experienced reality. We have recently shifted the more technical aspects of this responsibility to the realm of computer science, but the power and applicability of art continues to be powerfully realized.

This thesis explores art as it relates to medicine and medical education, but its themes and its messages are universal.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

INTRODUCTION

For there will be the arts

and some will call them

soft data

whereas in fact they are the hard data

by which our lives are lived... ¹

When Barbara Stone was asked what benefit the arts bring to medical education, she replied that the arts train students to think metaphorically. Metaphors allow the new and unfamiliar to become more accessible, “the dazzlingly strange is cut down to size.”¹ And thus, we have our first major theme: art represents and enables, allowing us to experience “vicariously, but fully,” the human experience of others. I consider it classic virtual reality.

There is very little published, “hard” data to support Dr. Stone’s hypothesis. She has arrived at this conclusion by “soft” data—years of experience and observation, nebulous pontifications, and gut-feelings. In defense of this investigative path, Arno Kumagai has suggested that the arts bestow a different type of understanding—a type of knowing that the more traditional activities of medical education do not allow.² With this different way of knowing perhaps comes a different system of measurement.

Soft data may not provide us with the same statistical confidence that solid quantitative studies afford. I submit, however, that conclusions based on the soft qualitative measurements of data need not be considered inferior to their hard data brethren. Let’s stop the comparison with simply “different”. There is absolutely, positively, a necessity for rigorous methodology and data acquisition. Standardized empathy scores^{3,4} for instance are invaluable to our understanding of the arts and medicine. But let us not be intimidated by the scientific cleanliness of a flawlessly objective investigation. There is a place for anecdotal evidence and subjective understanding. A marvelous argument has, in fact, been made by John P.A. Ionnidis: based on the conventional confidence intervals in the scientific community, the majority of published literature must be wrong⁵. The point here is not to devalue the merit of traditional scientific inquiry, but rather to discourage the inferiority complex we’ve given soft data. It is opinion and instincts that make the brilliant scientists in our midst. It is their feelings and unique insights that make them so mighty. Let us not replace the traditional scientific method; let us instead add to its strength by incorporating powers of another kind. We must, if we are to properly capitalize on the excellent leads of our intuition supplement the quantitative with a hearty portion of the qualitative.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION ONE: THE PHYSICIAN AS AN ARTIST

Let me add a few more words on Dr. Barbara Stone, before we begin our tour de force through the literature of others. Because it is my job to grab the important bits of each author and present it to you as a sort of re-interpreted florilegium on the subject of the arts and medicine, I'd be an utter failure if I didn't present this wonderful observation of Dr. Stone's:

Dr. Stone observes that it is much easier, "much less discomfoting," for any of us to discuss art than it is to discuss our own lives. Though ironically, we do discuss (almost exclusively) our own lives under the guise of art (aha, profound!)

This lights the stage of our review. Now, onwards, with both authors and arguments!

We are interested in the arts and their ability to inform medical education. Janet S. Stuart's review of *Educating the Reflective Practitioner* by Donald A. Schon discusses education as a form of artistic training. I reference this review rather than the book itself because the Stuart articulation struck me as particularly well conceptualized. Donald A. Schon takes Dr. Stone's theory beyond the advocacy of the arts in professional education. He argues that professional education—in its entirety—should be modeled after artistic training. In a phrase, professional training should be less the training of a technician, and more the advancement of an artist.⁶ To accomplish this, situations that have ambiguity and multiple interpretations must be presented. When there is no singular correct answer, the road walked must be that of an artist. While a technician recreates previously approved solutions, an artist creates new results that are successful in light of the established professional values. Schon based his thesis on in-depth analysis of dialogue between professionals and students from a variety of fields other than medicine. I think Schon would appreciate my saying that this gives one of many satisfactory pedagogical frameworks for which we may consider the arts advantageous in medical education. A rather bold—and perhaps extreme—approach, but note-worthy nonetheless because of its exploration of not just professional curriculum including artistic training, but the reconceptualization of professional curriculum *as* artistic training.

Though Schon's framing may seem extraordinary, the concept of training the physician as an artist is not new. It is after all "the art of medicine." What is perhaps relatively new and gaining momentum is the training of physicians as artists-more-broadly-conceived. What I mean is this: instead of training physicians in the art of medicine, why not train physicians in the art and science of biomedicine *as well as* provide them with training in more traditionally defined "arts" (i.e. literature, fine arts, visual arts, etc.)

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION TWO: ART AS A TECHNICAL TOOL IN MEDICAL EDUCATION

There are very established traditions for the use of the arts in medical education to bolster technical skill. I am not so concerned with the technical applications of art and would direct readers to Appendix II for a more involved discussion.

In short, the arts have a firm evidence base in increasing learners' visually acuity. This can be accomplished by using the arts to boost observational competency,⁷ and tolerance of ambiguity.⁸ We see a boost in laparoscopic surgical performance via the introduction of a musical experience.⁹ Additionally, Boyd et al found that participants that play musical instruments performed suturing significantly faster.⁹ This is not surprising as both activities are typically dexterity dependent. What is interesting about the Boyd et al trial is that the researchers also took into account video-game experience—another activity that often relies on well-developed dexterity. They did not find video-game experience statistically significant in predicting surgical performance. The researchers also tested separately each individual component of the assessed task and did not find any statistically significant difference by sex, video game, or music experience or group. Those with musical experience did however seem to out-perform their peers in a “holistic” (my words, not necessarily theirs) way. That is, they seemed to be *generally* better at the complete suturing task, though this advantage disappeared when the task was broken into its separate components and evaluated individually.

It should be noted that musical stimulation (i.e. listening to music while performing a laparoscopic virtual reality task) has also been shown to have negative effects in this context¹⁰ by Miscovic et al. These researchers do however mention a previous study conducted by Karen Allen and Jim Blascovich that showed surgeon-selected music improved performance of a stressful nonsurgical laboratory task.¹¹ An additional study conducted by Modell et al praises the positive effects of music-listening in a medical classroom environment.¹²

Gary Christenson, championing the arts in medical education, cites a number of studies that claim music, when played to children preparing for CT scans, reduces the use of sedative medication, subsequent overnight stays, nurse time, and re-do CT scans. These benefits potentially save \$567 per procedure and \$2.25 billion per year.¹³

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION THREE: ART AS AN ELUCIDATORY TOOL IN MEDICAL EDUCATION

In 2000, Dr. Johanna Shapiro introduced a new, feature column in Family Medicine:¹⁴

“... the arts are powerful tools to elucidate difficult-to-teach clinical competencies, including empathy, compassion, tolerance of ambiguity and uncertainty, and acceptance of limitations.”

Dr. Shapiro employs a very interesting word choice when presenting the new column; she asks those presenting artistic material to:

- Summarize the artistic work they have found noteworthy
- Delineate their purposes for incorporating the art into their practices
- Discuss teaching strategies one might use to effectively duplicate the artistic incorporation
- Discuss methods of evaluation
- Speculate on the impact of the arts on students

Dr. Shapiro sagely gives a small nod to the difficulty of extracting firm evidence from such an exercise, placing emphasis on the insight and intuition of her future contributors. I’ve tracked down every article from this column and created an impressive 300+ page PDF of the collected works. I’ll be glossing over it and giving you very condensed highlights, but perhaps we can convince Dr. Shapiro to publish the compendium.

I could have approached my synthesis of her column in one of two ways, as I see two valuable resource streams here. First, I could present the artistic works discussed in this column, and discuss how they were used. Second, I could have extracted the authors’ respective feelings and insights as a sort of qualitative data acquisition. Instead of doing either completely (which would be fruitful), I have decided to do both incompletely (which will hopefully be even more fruitful). In-depth analysis of each article is not necessary for our purposes here, but I nonetheless encourage readers to explore this column more on their own.

Author	Purpose	Art	Author’s Remarks
STUART FARBER	<i>“I am often asked to fill the annual “death and dying slot” on someone’s carefully crafted lecture series for residents or annual review course for primary care physicians.”</i>	<p>“A Quote from Shakespeare”</p> <p>“A tape recording of Orson Welles, from his 1948 movie version of Macbeth, accompanies a slide of this famous soliloquy.”</p> <p>“Thorton Wilder’s play, Our Town. I describe the scene of Emily’s death, her return from the graveyard to again witness her 16th</p>	<i>“The use of art and literature has allowed me to touch audiences deeply and fully, despite all the barriers.”</i>

		<p>birthday.”</p> <p>“Most powerful are slides of several nature paintings Jody (a patient) created during the later stages of his illness.”</p> <p>“Johann Pachelbel’s ‘Canon in D’ as background.”</p>	
<p>W. CLAY JACKSON</p> <p>PAT CUNNINGHAM</p>	<p><i>“Despite previously documented deficiencies in antemortem care education... graduates at nearly half of US medical schools report that instruction in palliative care continues to be inadequate.”</i></p> <p><i>“Existing curricula may lack appropriate emphases on modeling proper physician behavior, attitudes, and interviewing skills.”</i></p>	<p>Acting Exercise</p> <p>Role Playing</p>	<p>Students comment that:</p> <p><i>“Role-playing was good for making you see different perspectives.”</i></p> <p><i>“Great short story/role-playing idea.”</i></p>
<p>CAROLINE WELLBERY</p>	<p><i>“We do not choose our topics because they relate to medicine, although the poems may touch on such themes as loss and death that are relevant to patient care. “</i></p> <p><i>“Almost every poet has something to say about death. “</i></p> <p><i>“There is a great deal of poetry on the body and bodily functions, which can link to discussions about how nonmedical perceptions of these functions differ from physicians’ attitudes. “</i></p> <p><i>“... such themes as physical abuse and sexuality ... provides remarkable and intense physical evocations of these experiences.”</i></p>	<p>Poetry Group</p> <p>“We have covered a range of writing from the Grateful Dead to T.S. Eliot.”</p>	<p><i>“Literature might be able to promote or accelerate learning by showing human emotions or circumstances that the ordinary reader might not otherwise have known.”</i></p> <p><i>“To be sure, there is no teacher as powerful as one’s own life experiences, so it is my belief that interactions with literature or art are most meaningful when the student has been primed by real life for the complexity of human interactions, real or imagined.”</i></p> <p><i>“Rather than leading to a specific goal, experience with</i></p>

			<p><i>literature and art weaves itself into the maturation process, informing it but not actually creating it."</i></p> <p><i>"Encounters with art might be like book illustrations or particularly apt metaphors that bring clarity to a situation without directly advancing or resolving it."</i></p>
<p>DELESE WEAR</p>	<p><i>"...frustration at simplistic, moralistic recipes for "fixing" families, guided my selection of literature that would critically interrogate students' conceptions of "good" or "normal" families."</i></p>	<p>"... selections from a beautifully crafted collection of essays, 'Wanting a Child.' In particular, Bob Shacochis's 'Missing Children'</p> <p>I thought Pat Conroy's novel 'The Prince of Tides' would be able to cover the most ground: poverty, illness, divorce, and violence, all embedded in family pride and fierce love spanning three generations of the Wingo family."</p>	<p>Author quotes Dorothy Alison:</p> <p><i>"Literature is the lie that tells the truth, that shows us human beings in pain and makes us love them, and does so in a spirit of honest revelation."</i></p>
<p>CAROLINE WELLBERY</p> <p>REID GOOCH</p>	<p><i>"Web-based teaching tools provide both educators and students a unique learner-centered medium through which to examine virtually any academic subject matter. The medical humanities, explored through different art forms, including visual art, literature, music, and drama, seem an especially well suited subject for using this teaching modality."</i></p> <p><i>The medical humanities</i></p>	<p>"Two theatrical scenes representing pelvic exams, one from the movie "Wit" and the other from a new play by Wendy Wasserstein, "Welcome to my Rash."</p> <p>"[Students] were also asked to choose between one of two other exercises. In the first, they viewed photographs of five sculptures and were asked to choose one as their</p>	<p><i>"The curriculum focuses on the caring aspects of medicine that are not readily reducible to scientific principles; at the same time, it promotes reflections on the relationship between science and art, objectivity and emotion, and demonstrates the importance of navigating seamlessly among these constructs."</i></p>

	<p><i>curriculum in progress is comprised of eight units, the first two of which are currently web accessible:</i></p> <p>(1) The Doctor-Patient Relationship</p> <p>(2) Versions Of The Body</p> <p>(3) The Experience Of Illness</p> <p>(4) Mental Health</p> <p>(5) Behavioral Change</p> <p>(6) Aging</p> <p>(7) Death And Dying, And</p> <p>(8) Medicine And Society</p> <p><i>"Each unit is explored through a series of curricular exercises involving the interpretation of art, literature, dance, and music, combined with reflective interviews with patients and scholarly commentators."</i></p>	<p>imagined patient and write a creative paragraph about that patient."</p> <p>"In the other, they were asked to describe how the composition of a photograph depicting physicians rounding on a hospitalized patient revealed hierarchical relationships."</p>	
<p>LAWRENCE J. SCHNEIDERMAN</p>	<p><i>"... to gain insights into the methods that actors use to understand their characters, namely how skilled professionals achieve empathy ..."</i></p>	<p>"... we read selections from Stanislavski's 'My Life in Art' and 'An Actor Prepares' and Uta Hagen's 'Respect for Acting'."</p> <p>"The final exam, so to speak, is a paper—namely, a short story the students must write from any point of view other than their own and from any point of view other than a medical one. In other words, this is a test of empathy and creative imagination.</p>	<p><i>"For the most part, the students have produced remarkable stories, which are read aloud at the end of the course.</i></p> <p><i>As for more formal outcome measures, I have none. I have no idea whether the students who take the Chekhov course actually become better doctors than the nontakers. And, even if they do, I would not know whether this course succeeds in turning students into better doctors or merely self-selects the students who</i></p>

			<i>are going to be better doctors anyway. As a physician immersed in health care research that measures patient outcomes, I am embarrassingly (sic) ignorant about how to study such a question. But, I continue teaching the course nonetheless, nourished by faith and pleasure."</i>
PABLO GONZÁLEZ BLASCO	<p><i>"There is growing concern that the human dimension of the physician is receding in the face of technological advances.</i></p> <p><i>The frequent dissatisfaction of patients points more to the human deficiencies of the medical professional than to the physician's technical shortcomings.</i></p> <p><i>The recuperation of this human dimension is therefore a significant challenge to medical education.</i></p> <p><i>Medical schools have the obligation to prepare students for the moral and ethical questions they will face in their professional lives. Since medicine is a profession dealing with people, any means to improve the understanding of the human being across all dimensions will be valuable in creating better doctors.</i></p>	<p>Modern Times</p> <p>A Man for All Seasons</p> <p>The Shawshank Redemption</p> <p>Mr. Holland's Opus</p> <p>Her Majesty, Mrs. Brown</p> <p>Dead Man Walking</p> <p>Dead Poets' Society</p> <p>The Mirror has Two Faces</p> <p>Good Will Hunting</p> <p>Secrets and Lies</p> <p>Glory</p> <p>Saving Private Ryan</p>	<p>Author Quotes William Osler:</p> <p><i>"Humanistic studies are the hormones that catalyze thinking and humanize the practice of medicine."</i></p>

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION FOUR: THE MUSIC OF MEDICAL EDUCATION

The medical arts movement has been termed “humanism” in some scholarly circles.¹⁵ Glenn C. Newell and Douglas J. Hanes have embraced the term, and published an endorsement of music’s ability to teach medical humanism. They assert that music embodies the characteristics of this humanism movement: caring, empathy, human dignity, compassion, and the fostering of relationships. The authors cite several studies that suggest the role of music in human development may make this art form very useful in teaching the aforementioned emotionally based subjects.

The authors developed a module in kind, and conducted a survey to collect participating students’ opinions. All students agreed, “Humanism training in general is an important part of internal medicine curriculum.” And the majority of students agreed with the statement “The music and medicine course will make me a more humanistic physician.”

Music, specifically string music, is also touted as an effective metaphor for the conceptualization of medical education¹⁶ as is improvisation in jazz music performance,¹⁷ but this is more pedagogically valuable than practically valuable.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION FIVE: THE THEATRE OF MEDICAL EDUCATION

Martin Kohn of the Cleveland Clinic writes:

Theatre in particular can provide irreducible experiences emanating from the realms of flow knowing and whole knowing. Flow knowing is knowing in relation to others and to our environment. It is expressed through narrative and kinesthetic—our stories and bodies in spatiotemporal communication with our fellow creatures and the world. Whole knowing comes in a flash (epiphanically) through engagement with the arts, and panoramically, through engagement with synoptic disciplines such as history, philosophy and religious studies.¹⁸

Continuing the investigation with theatre's ability to inform medical education, we look now at a 2004 Lorenz et al article that discusses the boost that the dramatic arts give to interpersonal skill development in medical education.¹⁹ The authors open their paper with a bold quoting of Stanislavski's *An Actor Prepares*:

Only our kind of art, soaked as it is in the living experiences of human beings, can artistically reproduce the impalpable shadings and depths of life. Only such art can completely absorb the spectator and make both understand and also inwardly experience the happenings on the stage, enriching his inner life, and leaving impressions which will not fade with time.

The researchers then discuss a medical education initiative in which collected responses from students reveal that theatrical performances were deemed a more useful tool than lectures, journal readings, or bedside rounds for learning how to care for a dying patient (the study focused on palliative care).

Johanna Shapiro and Lynn Hunt have further examined arts based educations focusing on theatrical performance.²⁰ In 2003 the authors reported success in using illness-related dramatic performances to enhance empathy and insight towards patients. Shapiro is particularly well educated in this field; many of her publications explore the arts in the context of medical education—this same year, she published a study on the efficacy of poetry alongside Lloyd Rucker.²¹

On-site evaluations and informal follow-ups of the Shapiro and Hunt study include a particularly insightful comment made by an anonymous student regarding the strength of theatrical presentation, "It's the patient, one step removed." Another medical student concluded that the skills used in acting would be useful for her "performance" as a physician. A program evaluation was also collected showing students felt that their empathy and insight into emotional and psychological issues had improved. In the Shapiro and Rucker poetry-centric publication, the authors indicate that systematic studies of poetry show similar increases in empathy but the data is not discussed in depth.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION SIX: THE VISUAL ARTS OF MEDICAL EDUCATION

Taimur Shoaib, himself a plastic surgeon, has advocated for the art of sculpting to be included in medical education saying:

*It is difficult to fully appreciate the complex undulating 3-dimensional contours of the head and neck without using more than just our visual senses.*²²

In 2010 Kodadek et al²³ reported on an artistic collaboration between medical students and older adults living in an independent living facility. The program paired the two groups together 1-to-1 under the stated intention of training in, and creating acrylic paintings. The project aimed to use art as a creative conduit in establishing relationships between the two groups and combat the decrease in student empathy reported in other studies. Student writings on the event demonstrated revelations and insight indicative of improved communication and empathy skills. The general conclusions of the article are bolstered by George et al's pilot study that found medical student attitudes toward older patients improved quantitatively after a similar arts-based intervention.²⁴

This use of art as a conduit or a catalyst emerges often in the reviewed literature, particularly through the medium of painting. A similar study is Karabi and Castel's *Teaching Reflective Competence In Medical Education Using Paintings*, in which they do just that. Student surveys reflect that the majority of participants thought the utilization of the painting medium "definitely helped their experiential learning of reflection."²⁵

Also of note, though perhaps outside the scope of this literature review, is Delese Wear and Joseph Zarconi's *The Treachery of Images: How Rene Magritte Informs Medical Education* for their use of a painting to build a discussion on medical education.²⁶

Rachel Hajar published a piece on the—perhaps overlooked—art of medical illustration in 2011, pointing out the enormous help such art is to students.²⁷ While I'm not so interested in medically *themed* art, Hajar's piece is homage to the power illustrations have to educate; a well-phrased and informed elaboration on the trite "a picture is worth a thousand words."

Additional benefit of the arts are suggested in Neeta Jain and Paul Aronowitz's article about the medical humanities.²⁸ It is not exclusively focused on the visual arts, though the findings it presents support the general conclusions of visual arts based research relating to medical education: their students responded with an average "4" on a five-point Likert scale addressing self-reflection, and moral and professional development advantages of the medical humanities.

In 2012, we saw the publication of articles exploring the use of film vignettes in the teaching of medical ethics²⁹ and a student course in medical digital photography.³⁰ In 2013, Oh et al³¹ published a review of teaching strategies to be used especially for the incorporation of film in medical education. The results of these interventions are not sufficiently discussed. I include them here to demonstrate the momentum that arts based medical education is beginning to pick up.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION SEVEN: PASSIVE ARTISTIC EXPOSURE VS ACTIVE ARTISTIC EXPOSURE

As we move through time from the past to the present, we see the prevalence of arts-based medical education increase. A 2004 Rodenhauser et al publication indicates the majority of U.S. medical schools involve the arts in medical education.³² Furthermore, active participation (by which the authors mean “student involvement in the creation of art”) is more popular than passive participation (by which the authors mean “removed student appreciation of art”). This trend is very important.

The difference between “active” and “passive” participation is nicely illustrated by Khaled Karkabi and Orit Cohen Castel³³ in a short blurb that discusses artistic ways to enhance the understanding of suffering and the deepening of compassion in medical students. Participants in their study were shown three paintings:

- *The Return of the Prodigal Son* by Rembrandt
- *Death in the Sickroom* by Edvard Munch
- *The Doctor* by Sir Luke Fildes

The students observed these paintings. After passively processing the art, they were asked to actively create art of their own. Students composed short stories about what they had seen, and then presented it to the group. This actively involved the students on two creative levels: artistic composition, and artistic presentation and performance. Subsequent evaluations showed that the eighteen participants indicated (a presumably positive) change in their compassion.

Literature, and the visual arts tend to be included in medical curriculum in their passive capacities; students read literature, and observe the visual arts. The performing arts are also sometimes employed in their passive capacity. As we have discussed previously, a great deal of positive benefits are culled by passively listening to musical performances. The performing arts, however, tend—perhaps unsurprisingly—to be employed more and more frequently in an active capacity.

The art of acting is particularly popular in medical education as it lends itself to active participation in a special way—the word “act” is the root of “active” after all.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION EIGHT: THE MEDICAL PRACTITIONER AS PERFORMER

Frank Davidoff believes that clinical practice is, above all else, a matter of performance, “in the best and deepest sense of the word.”³⁴ He draws inspiration from the training processes of musicians, to contemplate how we might further advance medical education. By invoking such concepts as experiential learning, artistic repertoires, and orchestral ensembles the author presents a beautiful and imaginatively organized argument for the taking of a page out of the book of the performer when it comes time to train the medical practitioner.

Here, another trend is emerging: the doctor as performer.³⁵ Case et al discuss this artistic conceptualization by recognizing the need for imagination in medicine, “The empathetic imagination is an important resource for a physician to use in knowing the patient and in considering the possibilities for the patient’s past, present, and future states of health.” The authors recommend theories and practices from performance studies in order to develop an understanding of the many roles humans play in their interactions with others. Hammer et al recommend also, movement exercises.³⁶ de la Croix et al adds that based on qualitative analysis of student generated feedback on arts-based interventions medical students self-confidence and self-awareness too can improve.³⁷

Mathura et al builds on these principles in the aptly titled publication *Fearlessly Exploring The Other: The Role Of Drama In Medical Training*.³⁸ The authors maintain that student feedback from their informal live theatre readings identify the role of the performing arts in medicine as a sociocultural tool of understanding. These informal live theatre readings are akin to the Readers’ Theater that Todd L. Savitt discusses, in which staged readings serve as a vehicle for discussion of ethical, cultural, and social issues between audience members.³⁹ Other programs also use the performing arts to help medical students explore similar issues.⁴⁰

A 1992 article written by Lynne Sears Williams⁴¹ discusses the Dramatic Actor Program at the University of Calgary Medical School. The school trains actors (not medical students) that go on to play patients for the edification of medical students. What I believe is the most important aspect of this module is not highlighted in Williams’ paper. That is that the actors, after completing their own training, in turn train the medical students to become actors. This is not a central tenant of the program (and thus not explicitly explored in Williams’ piece), but happens incidentally, as a result of the actor-medical student dynamic. To concentrate on this incidental, I would like to shift the emphasis of a sentiment expressed by the author in the publication: it is relatively easy to evaluate knowledge through written exams, but the only way to judge *action* is through the observation of how medical students *act*. They are not physicians yet, but they are told to *act* as if they were, and this allows them to be evaluated and coached on their performance. Let it be known, I’m doing a substantial bit of re-interpreting the actual message of this particular article, but Williams’ excellent narrative is so effectively written that readers cannot help but elaborate on it with thoughts of their ows.

In 2009, Boesen et al⁴² published an article addressing improvisational theater’s potential to improve medical students’ (pharmacy students specifically) professional communication skills. This article is particularly worthy of mention. The authors implemented twelve 1-hour sessions of improvisational theatre exercises in order to improve students’ listening, observation, and responding skills. The effects on student behavior were then directly measured using standardized patient examinations. Not only did student performance improve, but also the students themselves—through supplemental course evaluations and reflective journaling—attributed their success to the improvisational training they’d received.

Ünalan et al put forth a similar conclusion in their assessment of student created theatrical performances in conjunction with traditional medical education.⁴³ The authors add to our running list of skills imparted by the medical arts, “We have recognized theatre in medical education as a tool to facilitate teaching not only of communication skills and history taking, but also of common clinical problems” with 98% of participating students agreeing that role-playing made it easier to understand the topic of interest.

Richard Albardiaz, a medical educator notes “...[I] aim for my medical trainees to understand themselves as actors and how this influences their interactions with patients and colleagues in a process that is longitudinal.”⁴⁴ Csorsz et al developed a curriculum along these lines that resulted in the implementation of a ten-week course at two different medical schools, subsequently generating video-recordings of significant events and minutes of each session that were analyzed by independent psychologists.⁴⁵ The authors make many points that are insightful; their final paragraph—which I will now share—especially so:

Through talking about the characters and playing the roles, distancing is possible which enables students to speak about their own problems and act out feelings in the name of the characters. In this way, self-experience of different roles and anxiety-free identification becomes possible which can also strengthen the empathic skills of patients. The fact that own feelings are integrated in action may also have beneficial effects on the elaboration of hidden conflicts and anxieties about professional identity. It may help students to prevent early burn-out, and support a more confident and healthy way of professional socialization.

CHAPTER ONE: ARTS IN MEDICAL EDUCATION LITERATURE REVIEW

SECTION NINE: PHYSICIAN-PATIENT COMMUNICATION

Physician-patient communication is important to health care professionals and patients alike.⁴⁶ Dr. Moira A. Stewart's 1995 literature review on the subject demonstrates direct correlation between physician-patient communication and improved patient health outcomes. While the studies reviewed (such as Roter et al⁴⁷) do not explicitly bill their interventions as arts-based (i.e. "verbal skills to handle emotion") I certainly consider them artistic; they are discussing acting training, though they do not invoke that argument.

Another literature review, discussing the efficacy of formal continuing medical education states, "based on a small number of well-conducted trials, didactic [continuing medical education] sessions do not appear to be effective in changing physician performance." The authors advocate a more interactive approach to medical education, one that enhances participant activity and provides opportunity to practice their skills. Of the interventions reviewed, the most successful⁴⁸ involved practical teaching with video taped non-actor patients—an older cousin to the standardized patient (actor) based teaching technique we will discuss in Chapter Two. Physicians participating in the "video tape" physician-patient communication training also provided more comprehensible advice to their patients. Laura Hedli reports that some medical educators fear the physician-patient relationship is currently very damaged and needs active repair; the arts may play a role in that repair process.³⁶

In 2000, P. Anne Scott conceptualized the relationship between the arts and medical education as eliciting three distinct phenomena, all of which contribute to increased physician-patient communication:

1. Insight into common patterns of response (shared human experiences);
2. Insight into individual difference or uniqueness;
3. Enrichment of the language and thought of the practitioner.

A panel of medical educators and professionals succinctly hits the big beats of excellent physician-patient communication in the "Kalamazoo Consensus Statement"⁴⁹:

- Build the doctor-patient relationship;
- Open the discussion;
- Gather information;
- Understand the patient's perspective;
- Share information;
- Reach agreement on problems and plans;
- Provide closure.

Additionally, the importance of active listening, verbal and non-verbal signals, and the establishment and maintenance of inter-personal connection are highlighted. These actions do not easily lend themselves to traditional scientific quantifications. In 2003, Paul A. Lazarus & Felicity M. Rosslyn published a study that spoke of the arts' ability to manage such scientifically "awkward" variables. They had implemented a module that aimed to enhance medical students' patient communication skills (among other goals) through the understanding of experiences and emotions via the study of the arts. The module was evaluated with questionnaires and highly positive feedback was collected endorsing Likert-style statements such as "The content of the core seminars enabled me to understand more about patients and doctors" and "I think that studying the arts in medicine will make me a better doctor."

Arno et al discusses the arts ability to enhance physician-patient communication skills by developing multicultural medical education competency.⁵⁰ This study is one-step removed from the training of medical students, as it focuses on the training of medical educators—but its goals are the same. Interactive theater is used to prepare instructors facilitating small groups of medical students to defuse and re-focus negative dynamics and bring medical students through a constructive discussion of multicultural issues. A 5-point Likert scale questionnaire demonstrated improved awareness of multicultural issues and the instructors' own role in facilitating the appropriate dynamics on behalf of their students. The arts power to increase communication skills⁵¹ is one of the most powerful arguments for their inclusion into medical education.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

INTRODUCTION

Perry writes:

*“Although it is true that the nature of art itself may transcend any attempt to objectify or measure it, this does not imply that the effects of arts training on attitudes and behavior cannot be measured effectively.”*⁵²

He adds:

*“Fortunately, good unbiased evidence does not have to be quantitative, and good evaluations of arts-based approaches in medicine, therefore, should include both quantitative and qualitative methods.”*⁵²

One could interpret Chapter Two as an answer to Perry’s call to arms (though admittedly, less methodologically rigid than I think he would have liked). In Chapter One, I’ve highlighted an abundance of data on the subject of the arts and medical education. Now, in Chapter Two, I will somewhat more aggressively and directly explore the subject, casting myself as the researcher and investigating new data from the University of Michigan Medical School’s Standardized Patient Program.

A Standardized Patient Program employs actors to play the roles of patients. Medical students, in turn, play the role of physicians. Standardized Patient Programs are used to assess a wide range of clinical skills, however the bulk of the programming focuses on physician-patient interaction skills. Educators observing the scenes through two-way glass and remote cameras may evaluate medical students. More often, the actors themselves evaluate the medical students. Evaluations from actors may be given to the medical students in two ways. First, the actors may provide immediate and dynamic feedback during a scene or after. This is similar to how actors receive live feedback from a director. Second, the actors may provide feedback via an online computer checklist to be delivered to the medical students at a later time. This is similar to a graded report card.

Standardized Patient Programs include a variety of topics and events that scenes may be constructed around. Neither actor nor medical student are provided with “lines” per say. Rather, the actors are provided with patient histories that they are to embody. Medical Students are provided only with their medical education as background, and sometimes the checklist against which they will be evaluated.

This creates a theatre somewhere between improvisational performance and traditional drama.

In Chapter Two, we will first examine the foundations that medical arts programs are built on, paying particular attention to the domain of standardized patient programming. Next, we will explore the properties of the arts that enable arts based medical education interventions such as standardized patient programming to be so effective and important. Finally, we will explore actual standardized patient events and follow one medical student through her four years of standardized patient training.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION TEN: DEFINING SUCCESS

In an attempt to move away from less effective⁵⁴ didactic educational models, what I call “blunt force information presentation,” many medical schools have mounted more participatory arts-based interventions.⁵² The published data on these programs suggest positive results and favorable experiences across the board. However, the extremely varied structures and goals of each respective program make finding the key to their individual success quite difficult—in fact, their lack of commonality even confuses how we are to define “success”. The three orientations these programs use to gauge success are:

Success concept A: technical

Better practice as a result of improved technical skill

Technical based program might utilize art museums to increase physician visual acuity; the philosophy being that by training the eye to detect subtlety and nuance, physician observational skills will improve. This better prepares the medical professional to perform a physical examination, for instance.

Success concept B: health

Better practice as a result of improved practitioner health

Health oriented programs use the arts for their ability to impart personal health benefits. Multiple studies claim the mere contemplation of art improves mental and general health, leading to healthier practitioners who are better able to care for patients.

Success concept C: communication

Better practice as a result of improved communication skill

A program built with communication goals in mind would attempt to utilize the arts for their ability to develop and maintain interpersonal skills.

Technically oriented programs are useful, well documented, and well supported. Health oriented programs also have a very clear and very well substantiated body of literature that sings its praise. Where the literature is currently struggling is in its assessment of concept-communication programs. There are more differences than common features among programs that define success along communication parameters, thus making a meaningful synthesis of these programs difficult. Some programs focus on literature, some on the visual arts, others on performing arts.³² “Art”, broadly conceived, appears to be the only consistent through-line. It is this lack of commonality that has prevented a solid methodological framework from forming. Thus, the efficacies of concept communication programs are, as of this writing, still being fiercely debated by medical educators (and understandably so!) We simply do not have enough data to make any definitive conclusion. However, we

do have much (much) more data than we realize—enough to guide our intuition and set our investigative trajectory quite accurately. I've noticed a trend in the published material to conclude, “more research is needed.” I do not disagree with this sentiment, however it will not be my rally cry. Instead, I conclude “different research is needed” and we have already done much of it. It is this different research that I will be discussing. We need not rely too heavily on the quantitative data of our predecessors (although enormously important), as it may keep us from seeing the relationships and connections that can only be interpreted with a qualitative lens. It is not that I am a proponent of qualitative over quantitative research; it is just that in this specific case the power of subjective human interpretation seems under-emphasized. All this is particularly true of standardized patient programming, as we shall soon see.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION ELEVEN: THE DUALITY OF ART

Effective health care requires well-developed physician-patient communication skills.⁴⁶ Artistic exposure—of all kinds—informs the sense of self and the sense of other that are both necessary in the establishment of effective relationships. Our purpose here is to examine concept communication programs in this light, extract the common philosophy that drives the success of these programs, and establish a basic foundation on which future programs can be developed, understood, and improved.

The most important component of an arts based program is the arts' unique ability to provide experiential exposure to that which is real and unreal simultaneously. Cutting through the pretension of that sentence: art represents. The specific mechanism and medium utilized varies with each form, but it is this representative characteristic that allows the creation of an environment that is charged, yet safe. The charge comes from the compelling reality of what is being represented; the safety comes from the fact that it is just a compelling representation. Using this approach educators are able to ask students to “willfully suspend their disbelief” and communicate in a way that is less self-conscious and more exploratory. This way, students explore the situations presented in an honest, fearless manner. Subjects/topics that may be difficult or inappropriate in other settings are free to take flight and bounce around. Ludwig Wittgenstein—an Austrian-British philosopher—quipped that the key to growth and innovation were the three B's: bed, bath, bus. The magic times when we are relaxed and unburdened are very powerful. After all, Einstein saw the puzzle pieces for relativity theory while lying in bed. Archimedes understood the basics of volume displacement while in a bath. Kary Mullis was driving when he decided to add a pair of primers to a DNA sequence and replicate with DNA polymerase, effectively creating PCR as we now know it. The arts allow us to replicate this state of mind while focusing the scope of our thoughts. Leonardo da Vinci wrote:

“I cannot forbear to mention among these precepts a new device for study which, although it may seem but trivial and almost ludicrous, is nevertheless extremely useful in arousing the mind to various inventions. And this is, when you look at a wall spotted with stains, or with a mixture of stones, if you have to devise some scene, you may discover a resemblance to various landscapes, beautified with mountains, rivers, rocks, trees, plains, wide valleys and hills in varied arrangement; or again you may see battles and figures in action; or strange faces and costumes, and an endless variety of objects, which you could reduce to complete and well drawn forms. And these appear on such walls confusedly, like the sound of bells in whose jangle you may find any name or word you choose to imagine.”⁵⁵

The arts, almost without conscious effort, harness this “trivial and almost ludicrous” phenomenon and provide educators with a tool to invoke this ideal intellectual state in students while still maintaining some control over the wandering subconscious.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION TWELVE: THE DUALITY OF STANDARDIZED PATIENT PROGRAMS

Janelle S. Taylor writes of the moral implications of this duality in the context of simulated patients, “The term ‘moral aesthetic’ is proposed, to indicate a sensibility that combines ideas about what is morally right with ideas about what is aesthetically compelling.”⁵⁶

Taylor is concerned with the ‘moral aesthetics’ of standardized patient programs and makes a number of excellent observations that I feel are relevant to our considerations on the dual nature of art (real and unreal) and its importance in medical education. Though Taylor discusses this primarily from within a moral framework, her conceptualization of “the three moral aesthetics” is so well articulated and conceived, they must be more broadly applied.

These moral aesthetics are:

- Induction
- Inoculation
- Presence

That is, standardized patients induct medical students into the physician-patient dynamic; standardized patients inoculate the medical student against strong emotional reactions; and standardized patients give agency to the standardized patient, imbuing humanity into what would otherwise be a technology.

I’ve noticed in my research that the reported efficacy (whether quantitatively or qualitatively presented) of any SP program seems largely to be based on what that respective program defines as effective—somewhat circular, but we can manage this. Harkening back both to my previous remarks on the definition of success and to Taylor’s three moral aesthetics, we see programs utilize standardized patients each in a very different way, though the majority tip their hat in some way to preparing students for the standardized patient-driven clinical skills assessment portion of objective structured clinical Exams.⁵⁷

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION THIRTEEN: THE NEED FOR STANDARDIZED PATIENTS

During the inception of this project I jokingly complained to a friend about the difficulty of finding a common thread among programs, “the only thing standardized about these ‘standardized’ patient programs is the involvement of standardized patients and medical students.” This turned out to be truer than I imagined. While these programs all share in the effort (and success) of imparting excellent medical education, how they utilize their standardized patients and to what ends are quite diverse. So, it is on the subject of this singular standardized patient-medical student constant that I have based my investigation.

My junior year of college I dated a girl that served on the board of a prestigious community service organization on campus at the University of Michigan. She was upset; a close mutual-friend had interviewed for a position with the organization and would not be offered the job. My girlfriend was about to deliver this bad news to our mutual-friend, but felt ill prepared and lost.

No one is happy to be the bearer of bad news. Most of us avoid this role at all costs, but the universe is unwieldy and occasionally throws us into messengerial positions we would have otherwise liked to avoid. How should my then-girlfriend have prepared for this moment of uncomfortable deliverance? I had no answers. She’s a very strong, very intelligent person and she powered through it by sheer power of will—committing fully to the task at hand and jumping into the situation. I hesitate to recommend that course of action for physician-patient interaction scenarios, as it seems to recklessly hit or miss. My girlfriend was ultimately successful, but the stakes in her situation were low. It paled in comparison to the bad news medical professionals are often required to deliver to their patients (death, terminal conditions, disabling conditions, etc.) What is the course of preparation for these high stakes communication events? I’ve propounded the use of the arts generally in medical education, but are the arts appropriate for training such an important situation? I maintain that yes, they are—but in a very deliberately designed way. That is, a few Samuel Becket plays and an afternoon exploring watercolors may not be appropriate for this end. Instead, an applied artistic model with specific aims and specific methods may be used to craft the medical professional’s performance “in the best and deepest sense of the word.”³⁴ Applied theatre is our platform of choice. Its most successful incarnation thus far is that of simulated patient programming.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION FOURTEEN: BREAKING BAD NEWS

Lights up. Woman #1 in her 30s. Sitting. Back to camera. Dull hum of hospital machinery in the background.

Woman #1:

(Sniffles)

Silence. Voices off camera are heard: two females, light indistinguishable chatter. One sounds more authoritative than the other.

(Hears their approach. Flusters. Puts herself together.)

Woman #2:

(Ending the off-camera dialogue)

ya, bye Judy- I'm in here

Silence. Whispered conversation may be going on outside the door. We think we hear it, but we are not quite sure. Then utter silence.

(Knocks four times.)

Woman #1:

yes?

Woman #2:

(Opens door)

hiya, Ms. Jones?

Ms. Jones:

ya

Dr. Lindsey:

hi

my name's Dr. Lindsey

(Extends hand)

I'm one of the Peds residents; I had the pleasure of taking over the care for Jenna with one of the other residents

Ms. Jones:

yes

Dr. Lindsey:

I just wanted to have kinda a meeting with you, um, to discuss Jenna—Jenna's care—what's been happening with Jenna

um I guess I wanted to also to introduce myself since we haven't met before since I'm going to be taking care of her

um I guess one of the first things I wanted to do is just since this is the first time I'm meeting you kinda find out what you know about Jenna's care so far, what your understanding is of what's been happening

Ms. Jones:

uhm, well Jenna was born early at thirty weeks and um the past week's kinda been up and down

her tummy got swollen

she's having a hard time breathing so the doctors did x-rays and uhm

uuuh I think its neck, they were talking about uhm asthmatic uhm and then they took her into surgery and that's all I know so far

Some awkward back and forth conversation of little substance

Dr. Lindsey:

Asks if Ms. Jones is the type of mom that wants...

a lot of detail

or

broad picture

Dr. Lindsay doesn't wait for an answer, she proceeds to present, in a very understandable way and utilizing x-rays, Jenna's case history thus far, including Jenna presenting...

a very common complication for babies that are born early

Now something interesting happens: Dr. Lindsey mentions that Jenna's bowel isn't getting enough blood flow,

It's what we call dead bowel

We see some weight lifts from Dr. Lindsey's shoulders. She feels released—even accomplished—she has said the dreaded word. She feels that this phrase "dead bowel" elucidates the situation and the difficult part is over.

She goes on to say that because of the risk to Jenna, surgery is not an option and there's nothing further—medically—that they would do.

Ms. Jones:

okay

Dr. Lindsey:

(Compassionate nod.)

Almost too compassionate and conciliatory, as if to over compensate for her vague phraseology. She wants to call attention to, and highlight, the bad news by underlining the regretful body language. It seems more comfortable for Dr. Lindsey than being explicit with her words.

Dr. Lindsey seems unwilling to say what her tone and her body language are suggesting: Jenna is going to die soon. The audience does not necessarily know this, but this production is called "Breaking Bad News" and putting the puzzle pieces together is not difficult. However, the character of Ms. Jones unfortunately does not have this luxury. She remains blissfully in the dark (and understandably so).

Dr. Lindsey:

(Sensing that Ms. Jones is not behaving like someone who has just been told of the imminent loss of her child)

does that— um, does what I said just make— does that make sense to you

do you understand uhm what I was saying

is there anything I can explain better?

Ms. Jones:

uhm

(Also sensing there's something that she should understand)

they're not gunna do surgery?

Dr. Lindsey:

mhmm, mhmm from our stand point then there's nothing

we could continue the anti-biotics

but ultimately what Jenna would need would be surgery

so, because they cant do it

uhm

you're not gunna be able to fix what ultimately is the problem

Silence.

More dancing around the subject until it comes to a head.

ultimately

the end point

is

not gunna be a cure

does that make sense?"

Ms. Jones:

so is she like gunna have

have to live with this?

Dr. Lindsey:

(Aggressively nodding head)

she

right

for now she would live with this but ultimately this will likely be a terminal situation, Jenna will likely pass away from

from this condition

The tension and the terror melt away after this sentence. Ms. Jones asks how long Jenna has; Dr. Lindsey replies that it will be within a few days. Dr. Lindsey and Ms. Jones go on to discuss the reality more in-depth and in a very compassionat way. The remainder of the scene plays out very smoothly. Dr. Lindsey is very informed and Ms. Jones is very put-together, given the situation.

The scene ends with Dr. Lindsey promising to send in a social worker and again extending her condolences.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION FIFTEEN: DYNAMIC FEEDBACK

The exercise in Section Fourteen, in and of itself, has obvious merit: *practice* is a very necessary part of medical practice. Additionally, by playing out these scenes with actors we remove an element of harm that would otherwise spoil a failure. That is, we create a situation in which the students have nothing real to lose and can act without causing emotional harm to the patient—the patient is after all, just an actor. Thus, the medical student never truly fails—they either succeed or they learn.

There is another benefit here. Actors are trained to be able to clearly broadcast emotions. When appropriate, they want their audience to be able to read the anger, the sorrow, or the joy behind their words. The successful actor can choose to send each specific emotion to the audience for easy processing. This allows medical students to field direct and consistent scenarios as they build their tolerance for ambiguity. As their interpretative skills improve, the scenarios become more and more difficult. Physicians utilize actors to train just as effectively as baseball players utilize a batting cage. The aim is consistent, standardized pitches.

A fundamental point of difference between actors and batting cages is that batting cages don't give feedback. In a batting cage you are limited to correcting your performance based exclusively on your own assessment and self-direction. Self-evaluation is valuable, but limited. Standardized patients give feedback. This feedback is delivered in two ways: passive feedback and dynamic feedback. Standardized patients provide passive feedback by filling out questionnaires, and writing down scores and comments. Standardized patients provide dynamic feedback by communicating directly and immediately with the medical student, and eliciting conversation about the medical students performance, often even running the scene again from the top.

After a short break Dr. Lindsey re-enters the room as herself—medical student Abby Waterman. Ms. Jones greets her in kind, as herself—actor Phyllis Green. They once again begin working together as performers. This is where the real gold educational opportunities lay.

Both of them have smiles on as they, for the first time, introduce their real selves.

Phyllis:

I'm Phyllis

Abby:

I'm Abby

nice to meet you

Phyllis, says that they're going to talk about what they each felt went well and what they think needs some work or was "awkward". Phyllis guides Abby through some memory recollection:

- Have you ever had to deliver bad news before?
- What was that like? What was different?
- When you think back to a time you felt it went really well or as smoothly as it could go, was there anything that stands out in your mind, like: I felt it went well because of this or that

Phyllis praises and reinforces Abby's excellent empathy skills; she points out a moment that Abby touched Phyllis on the arm. Phyllis explains that made her feel understood and human.

They discuss Abby's unwillingness to say anything that explicitly expressed the sentiment "your baby is going to die." Abby voices her concerns that she wasn't giving Phyllis enough opportunity to speak, and Phyllis gives her feedback on this (Phyllis assured her that she did a fine job giving her that space).

Phyllis notes the importance of Abby framing the news (she calls it a warning shot) before she delivers it, in order to prepare Phyllis to listen to something bad. Phyllis demonstrates, "Unfortunately the things I have to say today are not good." A clean warning shot, Phyllis explains, lets the patient know she shouldn't be hanging onto every word waiting for something good.

They also discuss the importance of clarity. This is not a situation where things can be understood without being said; phrases like "your baby is going to die" are difficult, but very necessary. Leaving it at "dead bowel" is ambiguous and confusing.

There is an exercise popular in theatrical training called *The Mirror*. It is just what it sounds like; two actors stand facing one another and move in synchronicity, no one leading, no one following, just two energies flowing in unison. It sounds very artsy, but touches on the important concept of matching one's partner in order to foster connection. We don't want to speak to a mellow man with mad manic movements and speech—we want to match his vibe. This is true in a cosmic sense, but also in practical terms. It makes those that we are talking to feel that we are like them, and thus safe.

Phyllis reminds Abby not to use medical jargon and words that are specifically understood only by the medical community. In the scene, Phyllis described her baby's belly as "swollen" and Abby turned that into "distension." Phyllis let this slide during the performance because she made the decision that her character knew that term—Phyllis felt that "distention" was more in the realm of generally knowledge than medical knowledge, but nonetheless cautions Abby to be aware of her vocabulary. Abby promises that she will pay more attention to her vocabulary. Abby expresses this very genuinely as "I will pay more attention to my *lines*," approaching the encounter from a theatrical framework obviously resonates with her.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION SIXTEEN: A LONGITUDINAL PERSPECTIVE – KERRY’S FAILURES

Let’s do some time traveling. We’ll follow a different medical student, Kerry Green, through four years of simulated patient role-playing exercises. Kerry plays the role of Dr. Wilson. In our first scene, actor Stuart Milne plays the role of Albert.

Lights up on an old man staring into space. There’s no movement. There’s no curiosity. The environment and the man are two separated substances, neither interacting with the other, like oil sitting in water they both stubbornly exist without a sense of inclusion.

Dr. Wilson: hi

Albert: hi

Dr. Wilson: hi

It feels like an arranged marriage, an awkward, fumbling first time meeting. Albert is here at his daughter’s behest. He tells Dr. Wilson that his daughter insists he has trouble remembering things and his daughter doesn’t think he should be alone as much as he is—his daughter thinks that he needs someone to talk to. Albert doesn’t completely disagree with his daughter, but he thinks she’s blowing things out of proportion. It’s a very sweet scene, a very human character. The actor does well. The man is multi-dimensional, he is not playing the role of “crotchety old timer” he is simply another human of advanced age, walking that twilight road between independence and assisted-living. We get the sense that he understands this on some level but at the same time, he does not.

We never actually learn Albert’s name. Dr. Wilson never asks.

Dr. Wilson:

(Wastes no time, launching right into it. As if reading from a list, asks several questions)

do you ever feel depression at all?

There’s a pregnant pause. The answer I suspect is “yes”, but Albert obviously does not feel comfortable answering. Perhaps the actor planned to say “yes” but recognizes their character would not respond openly to such an abrupt, cold beginning. He speaks.

Albert:

I guess I really don't know what it is, but no, I don't feel sad or anything like that, no.

It looks like I was wrong; this character is not depressed, though there was something cryptic about his response. "Silence is not a positive confirmation," I quickly scribble in my notebook. I would later confirm this with the quality assurance paper work to see if the character told the doctor the truth. He did. The character feels something, his mental health is perhaps a bit "off," but he is not sad per say. This honesty is consistent with many of the introductory level simulated patient exercises; out-wright deception does not seem common among the characters the SPs are portraying. They tend to work towards education rather than tricky evaluation.

Dr. Wilson:

can you try something for me?

Albert:

sure

Dr. Wilson:

walk across the room

That quality assurance papers work that I mentioned above: it is a checklist of events/tasks/lines that the students are required to complete. It is basically a summary of the major points of the interaction.

Some scenes have only one point:

- E.g. would you want this person as your doctor?

This particular scene titled *Geriatric Function Assessment* has forty points, each marked on a 2-point scale

- Yes
- No

Or marked on a 3-point scale

- 1 - Done

- 2 - Needs Improvement
- 3 - Not Done

So if Dr. Wilson asks about the patient's ability to prepare meals (as Dr. Wilson is required to do for point number eight), the evaluator will mark...

Point 8: Prepare Meals **1 – DONE**

Dr. Wilson does a poor job on point number twenty-seven:

Point-27: Avoided multiple questions **3 – NOT DONE**

The evaluator will mark “3 - Not Done” and write in the comment: “She grouped eating, bathing, and transfer as one question”

The order of the points need not be addressed in a sequential order, though some items have a logical order: e.g. introductions usually do not come at the end.

Back to the scene, Dr. Wilson requests to have Albert walk across the room as part of Point-12 “Performed Timed Up and Go Test (TUG)”

Albert:

(He has problems rising, but does so with shaky jerked effort)

(He shuffles wobbly towards the door)

Requisites of this particular task are “Timing” and “Accompaniment.” Dr. Wilson completes neither and receives “2-Needs Improvement.” It is worth mentioning that the evaluator today is Stuart Milne himself, the actor playing Albert. He records the student's scores in a computer immediately after the scene is over. He adds to Point-12 a comment:

Point-27: Avoided multiple questions **2 – NEEDS IMPROVEMENT**

Comment: Did not time nor did she accompany me.

Now, what Stuart Milne (as Albert) can't see, I can. I have cameras pointed and perfect clarity. I can add to his assessment that for the entirety of Albert's walk to the door Dr. Wilson was not only failing to accompany him, but she was at all even watching the task. Dr. Wilson instead, looks at some paper work, perhaps prepping for what's next in her checklist. When she sees him stop in her peripheral vision she says, “alright” and looks up for the first time. She doesn't know what to do next, looks at her papers again as if trying to find the information, and tells the man to walk back. I watch as the man cautiously walks back, starring at his feet in wobbled concentration. Again Dr. Wilson continues reading her paper work, holding it in both her hands and starring down until the man returns to his seat. Another interesting note here is that Dr. Wilson stands on her feet for all of this, as if feeling some sort of cursory pressure to participate or perhaps subconsciously trying to telegraph that she is being attentive in order to compensate for the reality of her neglect.

Dr. Wilson

its just to see if you have any problems walking

The lack of eye contact for the next minute and a half is significant. Dr. Wilson seems to read verbatim from her papers with frequent pauses and drawn out “uuhms.” However, she scores too poorly on the technical aspects of this assessment to have actually derived any benefit from this supplementation. It seems she is using the reading of paperwork more as “stage business” than anything substantive. That is, she uses it to stall and appear busy. Though Stuart may have been focused on his accurate portrayal and not noticed her inattention previously, he seems to now. He would later write “she had a great deal of confusion as to what she was supposed to ask next and kept referring to her plastic card for guidance.” On the all-important point-40 “Based on my interactions with this resident, I would consider having them as my future health provider.” Stuart answers “No.” He adds, “Comment: This was a difficult choice but it seemed to me she was totally unprepared for this interview and, in fact, when it was over she asked if she was supposed to remain in the room with me.” Kerry, the medical student playing Dr. Wilson, clearly does not understand the value of these exercises, yet.

This scene took place a number of years ago; in fact it was Kerry’s first simulated patient scene. I have the pleasure of being able to jump through the years with Kerry and I am happy to report that at the time of this writing Kerry is in her fourth year of medical school and has become very skilled in patient communication. It was a rocky rising however. During her early days running simulated patient exercises, actor Rachel Bean marked her failure to elicit and explore the patient’s emotions during an *Informed Consent Scene*. Actor Ester Hume noted that she required improvement of her communication skills in the scene *Patient Safety Rater*, and actor Patrick Cross further echoed sentiments that “based on interaction with this resident, I would not consider having this resident as a future health care provider.” So poor were Kerry’s assessments at the beginning, she began to no-show at her scheduled simulated patient events and ultimately went on academic leave.

I feel comfortable being so direct about Kerry’s failures because ultimately Kerry will turn into a brilliant success story. Things begin to turn around for Kerry during the next stage of simulated patient training. The previously reported scenes with Kerry did not contain a face-to-face interaction with the actor as a performance coach. That is, direct acting training like we observed with Dr. Lindsey and Ms. Jones in Section Fourteen did not follow the scenes Kerry performed. This coaching element is an essential step for many medical students, as it allows them to experiment under the watchful eye and immediate feedback/correction of the actor. Indeed, this is crucial for Kerry’s development, and it is not until this element is introduced that we see real change and growth begin in her.

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION SEVENTEEN: A LONGITUDINAL PERSPECTIVE – KERRY’S GROWTH

A note written by the first actor to work with Kerry as a performance coach, Peg Dawson: “She was very pleasant and seem[ed] very capable, but she was very clinical, used a lot of medical jargon and didn't really deal with the emotional components at all.” Here we see for the first time an educator work with Stephanie directly on this.

At the end of their scene together, Peg breaks character (the first time I’d seen one of the actors do this): “boy, I can tell you’re weary about these.” In my hours and hours of watching Kerry I’ve never seen as much emotion from her as when Peg said those words. It was like Atlas shrugged, all the robotic, veneered movements melted away and Kerry laughed and smiled huge “I hate them!” Peg brought up Kerry’s previous no-shows and said she’d heard through the grapevine that she was having a tough time. Peg is an old pro and seems to have a knack for quickly establishing rapport. She’s encouraging of Kerry, and reminds her that this is an opportunity unlike any she’s previously experienced. This is unique and special. Peg promises her that they’ll make the most of the opportunity *together*. She’s a great example of how powerfully the actors can impact their students on a scope that is outside the traditional medical education. They have a nice heart-to-heart; Peg establishes trust and connection. Peg leads by example, listening very genuinely and pulls a number of very personal and intimate confessions from Kerry. Without Kerry even realizing what’s happening, the two are soon fast friends and enormously comfortable with one another. Kerry feels safe and at home. She is chitchatting with an old mentor that she’s known for years. This is no longer in an intimidating environment. Kerry opens up, “I try to be really genuine... sometimes I don’t know how to start that...”

Peg and Kerry talk about legitimizing emotions and praising positive behaviors. To my delight (I sometimes can’t help becoming emotionally responsive to positive breakthroughs) Kerry opts to try another round of role-playing right then and there. How unlike her! This is the first step in Kerry’s growth; she recognizes the value of the exercises and embraces the opportunity. Peg tells Kerry that she tends to focus on the wrong things and she can better utilize her attention. Peg says, “This particular case... doesn’t have a lot of clinical factors, it really is primarily a communication thing, where you’re really dealing with somebody that has some emotional stressors in their life.”

“We want you to really think about these people as whole people, with whole lives,” Peg tells her right before they jump back into their scene. Kerry again plays Dr. Wilson; Peg plays a character named Margaret.

Dr. Wilson:

so, tell me about what you do for a living

Margaret:

well, actually

I

uhm

I got laid off a few weeks ago

Kerry:

I'm sorry. That must be really rough.

A breakthrough! Yes, Dr. Wilson still sounds like a cigar store statue and yes, that's as generic a response as you could give, but its leagues ahead of the previous exchange, before Peg's coaching:

Dr. Wilson:

are you currently working?

Margaret:

uhm

(pause)

I'm not working right now

No...

I got laid off.

Dr. Wilson:

Okay-are-you-married?

Now that Peg has gotten Kerry relaxed and shooting from the hip, Kerry's entire approach is changing; Kerry is leaning forward and engaged, talking with her hands and actively participating. Peg hits something of great value that I think represents the heart of these exercises, she tells Kerry that the medical professional must dynamically listen and respond to what is being heard.

Kerry appears to become a different woman. I see Peg bring out the side of Kerry that her friends likely see; Kerry is personable and charming, very caring and interested. Kerry says that she feels as if she's been conditioned to bottle this behavior up and behave efficiently and clinically. Kerry is starting to realize a new way of working and it's inspiring to watch.

In the closing comments Peg writes, "There was a lot to talk... during feedback with this student; however, she was very responsive to and seemed appreciative of feedback... I think, with practice and further training, she will improve."

CHAPTER TWO: STANDARDIZED PATIENT ETHNOGRAPHY

SECTION EIGHTEEN: A LONGITUDINAL PERSPECTIVE – KERRY’S SUCCESS

Kerry does indeed improve. In her next session the actor comments that Kerry successfully expressed understanding of patient's emotions. The actor writes, “[Kerry] acknowledged stressors and how they could affect physical health” Her presentation skills also improved, another comment states that Kerry “Clearly explained her role and what she would be doing.” Kerry’s trajectory has been markedly readjusted. In fact, every actor Kerry works with later in her simulated patient course work answers affirmatively in the all-important Point-40: Yes, each actor “would consider having this student as my future health care provider.” Elaborating on Point-40, one actor wrote in his formal evaluation “I did feel like you connected with me, I really did.” Actor Mike Hornbill, during a coaching session with Kerry remarked, “I think there are a couple areas on communication that you can work on, but overall, you know, I was very impressed.” Together, Mike and Kerry worked on these areas and Kerry’s upward trajectory increased. Two sessions later another actor, Emily Maddows, scored Kerry as having “Outstanding performance for an M2 student”. With each coaching session Kerry seems to be more capable and confident. I witness a successful re-do of the dreaded wobbly-walking patient of advanced age. Kerry stands near the patient, a strong hand hovering behind the patient, ready to act. She is now invested and present. The actors continue to work and train her and she continues to improve.

Point-85: Performed examination with gentleness and respect, putting the patient at ease 1 - DONE
Comment: Was relaxed and smiled throughout.

Another actor writes, “She was excellent-the best student I have had so far; she seemed to really know what she was doing and what she was talking about, she seemed to be making real observations and seemed engaged in a real way.”

The feedback corroborates my observations. Once Kerry began working with the actors, instead of for the actors, we see improvement. This improvement in both qualitative and quantitative assessments aligns perfectly with Kerry’s increased ability to work collaboratively alongside the simulated patients. There is a very clear dose-response relationship; the more dynamic feedback she received, the more she grew.

CHAPTER THREE: MEDICAL ARTS PROGRAMMING

INTRODUCTION

In Chapter Two, I've dealt with simulated patient events as an artistic experience: two actors collaborating—one coaching the other in the craft. Now we consider the performances of those exploring the arts outside of this simulated patient experience.

- Would a medical student that frequently supplements his education with museum visits, dance performances, and literature discussions be more adept at communicating?
- Would these students be more highly scoring on medical school evaluations than their peers?

This is a difficult question to systematically tackle. For one, we have to establish a standardized way of exposing the arts to some students, while excluding others. Outside of the standardized patient experience, we turn to the Medical Arts Program (MAP) at the University of Michigan Medical School. This opt-in experimental supplementary intervention allows medical students to attend arts-based events every few weeks for the entirety of their medical education. To gauge the efficacy of such a program in impacting its participants, data is collected. MAP has collected survey data from participants since its inception in 2010. My observations in Chapter Three are informed and focused by these reports, adding a touch of empiricity to my personal assessments.

Chapter three is structured as an analysis of survey data. The individual responses themselves are each interesting and layered, to such a degree that each respective statement could easily serve as a spring-board for another stand-alone piece. For this paper I've broken the collected data into seven recurring themes, qualitatively assessed, with quantitative data in Appendix I. Although these themes are not mutually exclusive, I have tried to organize them to best reflect the survey information.

Section Nineteen: Empathy – The Action Of Understanding

Section Twenty: Emotional Exploration

Section Twenty-One: The Importance Of Passion

Section Twenty-Two: Multi-Dimensionality

Section Twenty-Three: The Ability To Actively Observe

Section Twenty-Four: The Perspective Of The Other

Section Twenty-Five: Creativity

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION NINETEEN: EMPATHY – THE ACTION OF UNDERSTANDING

Art is a particularly powerful representational force, casting to us emotional states otherwise inaccessible to our imagination; an imagination aid, if you will.

Without actually having the experiences, we may still have the experiences (with only minimal emotion lost).

“Art and the humanities help us as physicians develop emotionally and allow us to become more empathetic with our patient base. “

The role of both artist and medical professional is, on a very important level, to capture empathy and utilize it effectively. Both professions use empathy to foster understanding within the professionals themselves (what I call receptive empathy) and in the others that surround the professional (transmitted empathy).

“I [think] that as physicians we will need to learn how to read people's emotions and the first pieces of art really focused on that and what the artist/piece was trying to convey.”

“The discussions that stemmed from our viewing of these pieces resulted in an empathetic resonance that is essential in many doctor-patient relationships”

Receptive empathy is the successful understanding of another's experience, an actor playing a role must understand the character without actually being the character, so too must a physician understand the patient without becoming the patient.

Transmitted empathy is the effective presentation of an experience. An actor must present his understanding to the audience, so that they, in turn, understand him. In precisely this way must a physician effectively present his understanding of the patient to the patient.

“As discussed during the session, Shakespeare's perspective on death enhances and deepens my own. As I encounter dying patients, Richard III will potentially offer insight into their experience.”

What good is empathy if actions and behaviors are not informed? If an actor understands the character perfectly, but lacks the ability to put this understanding to use, neither his own thoughts nor the decisions he makes will improve. By allowing the arts to both strengthen and model the effective use of empathy, the benefits are two-fold. Physicians better understand, and they are better understood.

“I found the performance incredibly emotional. I was surprised by the degree that which the music and the dancers were able to convey many different emotions quite fluidly.”

Empathy is a crucial skill for the health-care professional.

“I do see how people going into medicine can have a lot of empathy, yet during the training they can get numb from dealing with it and how the system works. The discussion highlighted how thinking of the show in terms of bringing us back to our patients in a more humanistic manner can be beneficial for both our patients and our own mental health.”

Empathy begins to creep into the territory of other themes we’ll discuss, yet it is still distinct.

“This experience has enhanced my awareness of cultural sensitivities which hopefully I will be able to translate into empathy and understanding for my patients.”

“Art and the humanities help us as physicians develop emotionally and allow us to become more empathetic with our patient base.”

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY: EMOTIONAL EXPLORATION

Acknowledging the emotional ties that bind us to each other and to patients is tremendously valuable to the work of physicians. Learning to appreciate and to deal with these emotions in the form of art is tremendously valuable. When physicians come together to appreciate art it allows for them to unite as a community and to express their own relationships with disease and with life.

It is our nature. We are emotional, and community-based organisms. Ironically, this sentiment sometimes gets lost when the physician is rigorously training for their future in health-care. The arts help recapture that.

“The entire dance was a fairly new experience to me and it was very compelling and moving. To watch people move and revel in my own emotional and intellectual reaction was such a wonderful break from watching lectures.”

“I thought that the event was very reflective of very personal emotions and response to illness. Often times we're over-worked in the hospital and don't get much time to think about the actual experience of illness in addition to the pathophysiology of illness. I think the event was a nice reminder that emotional response to illness can be as important as the physiological response if not more to some patients.”

No matter how much we fight against this reality, we cannot divorce ourselves from our emotional core.

“I particularly was touched by how he, sometimes subtly and sometimes overtly, connected what was happening in clinic and to his patients to events in his past or present personal life. It's a reality we all must grapple with, but all too often we are expected to be superhumans who leave any emotional baggage at the emergency room door.”

It is necessary to embrace that which we cannot change. This connects us to the emotional states that drive us and reminds us that we are all united, across time and space, by this capacity to subjectively feel.

“What struck me most about the event was that at all times, in all kinds of places, people are pushing boundaries, being creative, challenging authority, and falling in love. We learn so much about the specifics of diseases, their clinical presentations, etc., and it is good to be reminded that each person who appears to us as a 'patient' is really so much more than that...”

“... I hope that in seeing my future patients as whole people instead of just their diseases, I can both serve them better as a physician and come to a better understanding of their diseases' roles in their lives.”

Emotions are a powerful force. We must consider them when treating and interacting with patients.

“Seeing the exhibit tonight made me appreciate the efforts that “western” people are pursuing to better understand the Chinese culture and people. It takes programs like this to overcome the merely functional status of many Asian Americans in society, and usher in a new status in which our EMOTIONS matter.”

"In studying to become an physician, understanding how one's emotions and personal experiences inform your perspectives on each patient is crucial."

A balance must be struck between logos and pathos. Artistic modes of experience are invaluable for this end.

"Art is unequivocally emotional, a quality that in a physician's work poses undue challenges as it can cloud the objective and skew the decision making. Harmonizing the logical with emotional aspect of patient care is one of the toughest challenges a physician faces, a challenge that, if not conquered, will make the most educated physician fail miserably in his quest. "

"I was able to relate very personally to the reading as a medical provider, especially with regards to the discussion of how a provider balances the emotional strains of dealing with sick patients while attempting to maintain a healthy personal life. The doctor in the reading had just lost his mother and was clearly distracted by this event while trying to maintain composure in front of his peers. I find that this is a common, yet rarely discussed aspect of our lives in the medical profession. We are often trying to keep up with the various challenges we must face and it can be difficult to address this issue without feeling weak."

The classroom proper may be supplemented with art in vivo to build an effective venue for emotional growth.

"Learning in the art room and in the more classical didactic lecture balanced my need for emotional and intellectual stimulation."

"Creating art requires a willingness to tap into human emotions and experience in away that echoes the type of connection a healthcare worker must make with a patient in order to provide the best patient care."

"Modern dance is full of emotion that is expressed in different ways. As doctors we have to find different ways to express our emotions, sometimes to show the patients we care and sometimes to hold back to remain professional."

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY-ONE: THE IMPORTANCE OF PASSION

Trials and tribulations abound in art and medicine. Success requires talent, training, and skill. But there is also something—almost beyond description—that is required for those pursuing these careers, these lives. It's the proverbial "it" that comes when capability meets passion.

"The performance was then even more meaningful as I was constantly reminding myself of the hard work and passion they put into their performance and what beauty came out of it, and how this could be applied to my career."

Participants made frequent remarks about the importance of passion and its connectivity with humanistic care.

"Experiences like this remind me of why I love learning, discussion and people. As a first year student, this activity was an oasis of humanism and culture in a desert of basic sciences. By day we nervously learned dry biochemical pathways but by night we focused all attention on art."

Passion is a necessary weapon against the difficult demands of the artistic and medical lifestyles.

"The dedication to ones field and the search for perfection (ones body vs. ones mind) was paralleled in between the medical and artistic communities."

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY-TWO: MULTI-DIMENSIONALITY

A multi-dimensional work of art is layered—not geometrically, but intellectually. In multi-dimensional art there is inconsistency and contradiction simultaneously existing alongside harmony and equilibrium. Many things are being said simultaneously and it is sometimes difficult to hear. It is a skill creating art, and it is a skill extracting the relevant bits from art as an observer. To contemplate multi-dimensional art is to contemplate what that art represents, in all the sorted, mixed-up, complicated glory that is the natural world.

“Seeing a piece of art as something that must be understood on a deeper level, and not just at first appearance, has significant implication for practice as a physician. As physicians, we can not diagnose or make assumptions based only on what we see; we must look beyond that ...”

“To try to understand future patients in more than a superficial sense, despite the time and resource constraint of the medical system.”

“I felt a connection between approaching a pt for the first time and approaching a patient. Approaching a pt you have all these layers of complexity and things may not always turn out to be as you thought they were at first glance.”

This is especially relevant for physicians. On a gross level, looking at charts and imaging, and on an emotional level, seeing (truly seeing) the patient

“Observation and reflection is a huge part of clinical medicine. I think often in medicine we bypass the observation stage and jump immediately to processing and therapeutics rather than letting the patient convey - physically or verbally - what their true ailments are. I also really enjoyed the idea of trying to engage something that you may not want to is something that you face frequently on the wards.”

This requires a distinct skill set and does not come easily to some.

“I used to approach art very objectively, which I think was a rigid way to approach works of art. This experience has showed me that in addition to the objectivity of the art piece each person has a different and unique experience. Taking a moment to learn the background of the artwork can change the way that you see and perceive the experience in front of your eyes. In medicine, I think we learn a very rigid set of rules to approach patients but with a little time to include the patients' unique qualities could make our diagnoses quite different.”

By recognizing these dimensions we can see the unique in what would otherwise appear identical.

“The entire experience with the lemon was representative of a patient experience. Each patient is an individual experience, and you can't blindly stereotype and categorize a patient without identifying their individual characteristics. Each lemon has subtle differences that make their existences unique, just like a patient.”

"I think acknowledging every medical decision as an interpretation of a particular patient and then applying historically proven treatment, realizing that nothing is ever the same. Each patient and situation is unique. Related, yes, but unique."

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY-THREE: THE ABILITY TO ACTIVELY OBSERVE

Again overlapping with the multi-dimensionality theme, we see many participants comment on the importance of seeing deeper. But here, it is more than incidentally seeing deeper, it the very conscious and deliberate act of observing holistically.

“I also think the workshop reminded us of the power of the different senses. We use much more than our ears to listen to patients, we also must observe their mannerisms, feel the sweat on their palms or the fluid just beneath their skin. We must use all our senses to assess all of theirs in order to see the whole person.”

Art encourages us to tune into frequencies that some of us do not often visit. Body language was a recurrent motif.

“Interpreting body language and what that means about inner suffering, both physical and mental, was especially helpful.”

“I was absolutely struck by the way that the dancers expressed emotions through their bodies. As someone who is obsessed with words, I rarely take the time to observe body language as a powerful communicator. As an aspiring physician, I hope to hone my ability to appreciate subtle physical expressions in order to develop diagnoses.”

“Learning to interpret all the signs patients present with, including body language, was especially helpful. We as physicians must look past the explicit symptoms with which patients present.”

“There is more that occurs during a physician-patient encounter than the medical discussions. Our body language toward the patients' caregivers, our interactions with them can also have a significant impact on the relationship and this is something I will be more conscious of in the future.”

To observe with all senses strengthens a physician's observational power and expands the data set available.

“I thought the entire activity with the lemon was incredibly valuable in redefining my understanding of how I “learn” and “approach the world”. The power of sight is amazing, and without that sense I really learned how to use my other senses to get to know an object in detail.”

When collecting information, as physicians do when interviewing patients, it is essential to have multiple methods of inquiry, in order to reach significant depth.

“The skill to look deeper into words and feelings is also vital skill for all physicians.”

“It reinforced the notion that in order to be a good physician one has to be a good listener first. While I am certain that this virtue is not unique to the physicians, but to all human activities involving communication, the effects of mis-communication can be much more damaging when one deals with human health.”

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY-FOUR: THE PERSPECTIVE OF THE OTHER

This theme is a close-cousin to the empathy and observation themes addressed above. Those exposed to the arts often comment specifically on seeing themselves—or a particular aspect of the shared environment—through a markedly different lens

“It was a refreshing reminder of how patients, specifically, non-medical people perceive illness. This is especially interesting when you see how artist's perceive disease given their unique abilities”

“The experience with Stephen Nachmonovish cultivated simple but fundamental insights into how we live our days our humans and how we perceive the world as physicians.”

There are alternate interpretations of similar phenomenon, different schools of thought, different socio-cultural factors, and different religious understandings. Appreciating this fact, and acknowledging ambiguity is sometimes harder than working with objective data.

“Many of the works of art revealed very raw human emotion, a type of emotion not often expressed to outsiders. I think as physicians, we are allowed deep into the human condition of near strangers on a daily basis... The concept of having to work with, and appreciate, and support something which you may not believe in or makes you uncomfortable. I think one of the greatest challenges in medical school is not in learning all the information, but in learning how to work with, support, listen to, or provide care to, every single type of colleague or patient, no matter how they treat you or present themselves.”

It becomes our challenge. Embracing this diversity and working with it, rather than against it, is sometimes hard. It is difficult both with one's peers...

“One physician may see one thing and another may see it differently so there is so much importance in communicating effectively with colleagues and with patients to develop a broad understanding of their condition in order to effectively treat.”

and with one's patients...

“His biggest challenge seemed to be the translation of an art form that is largely unfamiliar to the general public. In many way this is what we have to do in medicine: take our medical information and language and translate in a way that is understandable to a lay person. We not only have to make the information understandable (as does Benjamin) but we have to make it something that our patients can easily adopt, understand and use in their own lives.”

but we may use art as to help us practice, explore, and understand the perspective of the other.

“At the concert I felt as if the audience shared a position similar to what patients must hold in the face of their physicians: the performers spoke another language, of which we had only a disembodied translation (without the original text to follow alongside)... We appreciated the beauty and artistry of

the performance, but we couldn't entirely share in it; we were left a little outside, and it was an interesting perspective."

"how the arts helps to create a new forum to express illness and disease and a different way to understand that condition"

CHAPTER THREE: MEDICAL ARTS PROGRAM

SECTION TWENTY-FIVE: CREATIVITY – SAFETY FROM FAILURE

When we are free to fail, we are free to try.

“Important realization that while learning so many rule sets and algorithms, to not lose sight of one's own creativity and strengths...”

We are all presented, every day, with something new. Life hums a slightly different riff on a familiar melody or sings an entirely different tune with each passing moment. True mastery differs from skilled repetition. We may excel at a specific task, but that requires so much more than pure mechanical practice. It requires invention, discovery, and a willingness to try—and frankly, it requires failure.

“I think that every encounter with every individual (patient or colleague, mother or father) takes improvisation. You constantly have to balance between the rules (medical texts, differentials, social etiquette) and your personal style (including your humanism, compassion and humor) “

This last condition—failure—is hardly a commodity when another human’s fate rests on your shoulders. Art helps us increase our failures, a necessity for growth.

“I also believe that when we begin our path in medicine, the idea of stepping outside the boundaries is terrifying, but we have to learn how to walk the fine line on the edge, pushing ourselves and our colleagues to improve upon medical knowledge, treatment, etc. while remaining dedicated to medical excellence.”

Artistic processes help us develop this creativity, in part by allowing failure. Additionally, it pushes us into new territory of thought.

“I will continue to “play” at the edge of my knowledge base, and, in developing that art, will add to the quality of my care and my enjoying of my profession”

CHAPTER FOUR: DEVELOPMENTAL NEUROSCIENCE AND PSYCHOLOGY

INTRODUCTION

“Medicine is an art whose magic and creative ability have long been recognized as residing in the interpersonal aspects of the patient-physician relationship.”⁵⁸ Physician empathy—as evaluated by patients—increases the interpersonal trust patients feel in their relationships with physicians; this increases patient compliance⁵⁹ and improves patient outcomes. Additionally, patients judge clinical competence based on the physician’s communication skills⁵⁸ and go so far as to leave their primary care provider when their provider’s empathy skills are lacking⁶⁰.

The physician-patient relationship is informed by physician empathy; as such, empathy is an essential attribute for medical health professionals and an often-stated goal of many medical arts interventions. Empathic physician behavior includes the elicitation of feelings, paraphrasing, the use of silent reflection, and encouraging non-verbal behavior such as nodding.⁶¹ Unfortunately, the neurological, developmental, and psychological components of empathy discussed below have not yet been fully integrated into arts based medical education.⁶² By understanding the neurological and developmental models of empathy, physicians may develop more successful physician-patient relationships, which will lead to increased positive health outcomes for patients and decreased malpractice claims for the practitioner.⁶² An intervention module developed by Helen Reiss combines artistic and scientific elements to improve empathy in health care providers. Reiss has demonstrated efficacy in improving empathic behavior of resident physicians by first providing the residents with training on the neurobiology and physiology of empathy. Reiss then focused on increasing the awareness of the physiology of emotion—generally conceived. Training in the art of decoding the subtle facial expressions of emotion was also provided. Lastly, Reiss incorporated breathing exercises, commonly practiced by those in the performing arts. These exercises were introduced in order to teach empathic verbal and behavioral responses. By tailoring her intervention model to both the stable and plastic aspects of empathy, Reiss found a strong positive correlation between the physician’s ability to read subtle facial expressions and patient-rated empathy expression.⁶²

Empathy is a necessary component of smooth social interactions.⁶³ Prosocial behavior, inhibited aggression, and moral reasoning all build off empathy-related responsiveness.⁶⁴ But is empathy plastic; can it be cultivated and trained? Xiaosi Gu and colleagues argue that yes, therapies and education can impact empathy expression.^{65, 66} Some researchers, however, argue that empathy is more stable—an almost intrinsic characteristic.⁶⁷ This question will be investigated by examining the neuroanatomical literature of empathy, and the developmental literature of empathy, as well as genetic and socioeconomic studies concerning empathy. The capacity to which empathy can be trained is an important question for researchers from a variety of fields. Medical Education researchers are particularly interested in the plasticity of empathy. Increased empathy scores among physicians have been shown to produce more successful clinical outcomes among patients.⁶⁰ Overall, the literature suggests that empathy is neither completely plastic nor completely stable. Empathy expression has both stable (genetic) and plastic (environmental) components; it appears to be a complicated behavior with multiple governing factors.

Empathy appears to be a trainable behavior, possessing both stable and plastic components. The stability of empathy comes from the strong genetic factors that predispose each individual to a certain level of empathy behavior. The plasticity of empathy comes from the ability of environmental factors to modulate the expression of that baseline empathy behavior. Researchers advocate different degrees of influence between the stable (genetic) and plastic (environmental) components. Few support one component over the other as being solely responsible for empathy expression.

CHAPTER FOUR: DEVELOPMENTAL NEUROSCIENCE AND PSYCHOLOGY

SECTION TWENTY-SIX: NEUROANATOMY AND DEVELOPMENT OF EMPATHY

Basing investigations off the supposition that empathy is a biologically based human universal, efforts are being made to delineate the specific neural circuitry underlying empathy behavior. These studies hope to elucidate the influence of both genetic and environmental factors in empathy expression by examining its neuroscientific foundations.⁶⁸ The neuroscientific model of empathy is divided into three neurological components: the affectation of empathy, the cognition of empathy, and the regulation of empathy

The Affectation of Empathy

Affective empathy is observed early in human development. Behavioral manifestations of empathy have been observed in infants as young as three-months.⁶⁹ Affective responsiveness seems to develop before cognitive and regulatory aspects,⁷⁰ with newborns crying in response to the distressed cries of another newborn.⁷¹ Automatic discriminatory processes mediate this affective response.⁷⁰ These are our gut-feelings, our immediate—almost reflexive—reactions. They are the snap judgments that categorize a stimulus as attractive or repulsive, safe or dangerous, desirable or objectionable. According to these researchers, affective empathy thus appears to be relatively stable; the manifestations come too early to be dependent on environmental stimuli. They posit that empathy has been hardwired into us. The primary neural circuits of affective arousal are the subcortical circuits, including the amygdala, hypothalamus, hippocampus and orbitofrontal cortex.⁷⁰

There are, however, researchers that argue against the stability of affective empathy. Affective empathy, they claim, may be attributed to the mirror neuron system in humans. The mirror neuron system contains neurons that fire equally well when a human performs a set action *and* when a human observes another human performing that same set action. Thus, an environmentally driven learning process may be driving affective empathy; even before the major cognitive mechanisms have come online, the child may be learning empathic behaviors. The evidence is inconclusive, and this interpretation of affective empathy is weak. The existence of mirror neurons have not yet been proven due to insufficient investigative power; researchers are not able to obtain single-cell recordings in humans.⁶⁸ Functional neuroimaging studies have merely shown overlap between activated regions of observation actions and performance actions in humans. These areas are similar to the areas identified as containing motor neurons in monkeys. fMRI studies have identified six cortical areas showing overlap: the anterior inferior frontal sulcus, ventral premotor, anterior intraparietal sulcus, superior intraparietal sulcus, posterior intraparietal sulcus, and lateral occipital.⁷² The domain of mirror neuron systems in humans is hypothesized by some to contain not only imitation processes, but action understanding as well.⁷³ Such theories have detractors, arguing that the presence of mirror neurons in the frontal cortex of monkeys, as well as evidence gathered from human subjects, does not support the proposed role of mirror neurons.⁷⁴

Overall, the affective empathy system seems to be primarily stable. Interesting alternative theories pop up along the periphery of scholarly inquiry, but they tend to be weakly supported. The majority of research comes down in favor of affective empathy being predominantly ruled by innate, non-learned, mechanisms.

The Cognition of Empathy

The second neurological component of empathy is the cognition of empathy. Cognitive processing plays an increasingly pronounced role in empathy as the human matures. fMRI data indicates a distinct move away from affective empathy responses and towards more evaluative empathy responses with growth.⁷⁵ These cognitive processes are broad and encompass many other areas of study. Theory of mind (“the capacity to

infer the explicit content of others' mental states such as intentions and beliefs") and executive function ("attention, working memory, and inhibitory control") are two such areas of overlap.⁷⁰ This overlaps speaks to the plasticity of empathy. If higher order processes are capable of subverting whatever intrinsic hardwiring may or may not be responsible for empathy, then empathy can be cognitively trained and refined. In the brain, emotional understanding is associated with the ventromedial prefrontal cortex and the medial prefrontal cortex, while emotional awareness is represented in the anterior insula, which in turn communicates with the social conditions rendered in the prefrontal cortex.⁷⁰ This suggests that cognitive empathy in humans is primarily about understanding, which further supports the plasticity hypothesis. Cognitive empathy, as mentioned above, is also very tied in with theory of mind research. fMRI identifies the medial prefrontal cortex, temporoparietal junction, and temporal poles as areas of overlapping activation when presented with theory of mind and empathy stimuli.⁷⁶ Differences do exist however. Compared to the theory of mind stimuli, empathy stimuli yields increased activation of the paracingulate, anterior and posterior cingulate and amygdala.⁷⁶ It is unclear, at this time, what this finding implies. It does, however, caution researchers against drawing too strong a comparison between cognitive empathy and theory of mind, thereby limiting support for the plasticity claim.

The Regulation of Empathy

Like the cognitive component of empathy, the third neurological component of empathy—the regulatory component—overlaps significantly with other fields of neuroscientific inquiry, such as the regulation of emotional states more broadly conceived. The essential neural components of emotion regulation are the dorsolateral prefrontal cortex, the anterior cingulate cortex, and the ventromedial prefrontal cortex by way of their wiring with the amygdala, the superior temporal sulcus, and other cortical areas.⁷⁰ The regulation of empathy falls to the cortex, the autonomic nervous system, the hypothalamic-pituitary-adrenal axis, and endocrine systems.⁷⁰ The specifics of these regulatory components are extremely complex and represent active areas of research. Although this complexity prevents the regulatory components of empathy from championing plasticity over stability or vice versa, it does speak quite convincingly to both schools of thought having some merit. That is, the research on regulatory empathy supports the plasticity of empathy and the stability of empathy simultaneously, thereby suggesting that the true nature of empathy lays somewhere in between these two opposing factions.

CHAPTER FOUR: DEVELOPMENTAL NEUROSCIENCE AND PSYCHOLOGY

SECTION TWENTY-SEVEN: PSYCHOLOGY OF EMPATHY

Empathy is often subdivided further, into eight categories as defined by C. Daniel Batson,⁷⁷ though a more concisely phrased definition of empathy will suffice for the remainder of this investigation and inform our understanding of the psychological components of empathy. Empathy can be defined simply as one's receptivity to the emotions of others. Jean Decety implies a shared interpersonal experience and argues that the three components of human empathy—discussed above—each have different psychological trajectories. Each of these trajectories further informs our consideration of empathy plasticity and stability.

In support of the stability of empathy, Decety argues that all mammals share affective arousal circuitry; the primitive appetitive and aversive behavioral responses of mammals are managed by neural circuits in the brain (previously discussed) that share common “neuroarchitectures.”⁷⁰ So “phylogenetically ancient” are empathy behaviors, some researchers suggest they may even appear in birds, as evidenced by a flock taking off all at once when a single one of them startles.⁷⁸

Alternatively, the realm of affective empathy can be conceptualized as a mimicry of sorts. Whether this mimicry can speak to the plasticity or stability of empathy remains unclear. The birds we discussed previously could be said to mirror the startled emotions of one another, whether reflexive or learned. This same conceptual model can be applied to the aforementioned baby that cries out in distress when it hears another baby cry out in distress. Empathic cognition begins to differentiate itself from affective empathy when mimicry is subjugated by intentional emotional imagining. That is, when a human sees another human in a disadvantageous situation they may imagine the emotional experience of the other even when no outward manifestation of emotional distress is present;⁷⁹ e.g. a human may imagine the sorrow of a defeated athlete even when the athlete is presenting a brave front. Researchers are still unpacking the precise psychological lineage of cognition, but it is generally accepted that cognitive empathic behavior underlies the altruistic tendencies hardwired into humans because of altruism's contribution to genetic fitness by way of kin selection.⁸⁰ This all stands in support of a plastic empathy, albeit with very stable roots—an empathy certainly affected by the environment, but an empathy with solid genetic predispositions.

Furthermore, it is argued that empathy regulation is informed by language development trajectories. By putting emotions into units of language, humans are able to reflect on empathy. Thus, language development may bring the capacity to further develop and regulate the empathy lineage we inherit.⁷⁰

CHAPTER FOUR: DEVELOPMENTAL NEUROSCIENCE AND PSYCHOLOGY

SECTION TWENTY-EIGHT: GENETIC BASIS AND SOCIOECONOMIC STATUS

The evidence for a behavioral phenotype is small, but compelling. Genetic factors account for 35% of the variance in general empathy, 26% of the variance in affective empathy and 30% of the variance in cognitive empathy.⁶⁸ Additionally, investigators⁸¹ have conducted a fascinating study of 122 twin pairs that demonstrates increased genetic influence with age.⁶⁸ The investigators also report that higher genetic heritability of empathy correlate with increased emotional symptoms.

There are parallels between the genetics of empathy and the genetics of intelligence. Childhood socioeconomic status has been shown to amplify the genetic effects on intelligence.⁸² Following suit, investigators have found that decreased socioeconomic status reduces the genetic influence on empathy. Increased socioeconomic status provides the advantageous environment in which a child may fully thrive and realize their genetic potential.⁶⁸ These studies are relatively new, but they represent the traction being gained by the multi-factorial theories of empathy—the environmental modulation of genetic predisposition.

The specific genes that contribute to empathy are theorized to revolve around the body's physiological management of oxytocin—a peptide that acts as a hormone as well as a neurotransmitter. A polymorphism of the oxytocin receptor, rs53576, has been found to contribute to empathy reactivity. Individuals presenting the G and A alleles of rs53576 were compared to one another in order to determine if the naturally occurring genetic variation of the oxytocin receptor relate to respective empathy profiles. Those presenting the homozygous GG allele were shown to exhibit higher behavioral and dispositional empathy than subjects presenting with the homozygous AA allele or the heterozygous AG allele.⁸³

Another candidate gene is ZNF804A.⁸⁴ Individuals presenting the single nucleotide polymorphism rs1344706 in the gene ZNF804A on chromosome 2 were evaluated for an effect on brain activity.⁶⁸ The researchers concluded that dysfunction of the theory of mind network associated with empathy is linked to the rs1344706 genetic variant.

Researchers caution against any general genetic conclusions at this time. The replication experiments necessary for genetic investigations of this kind have not yet corroborated the aforementioned findings. Nonetheless, these studies suggest promising leads toward the neurogenetic foundations of empathy⁶⁸ and its increasingly recognized interplay with environmental stimuli.

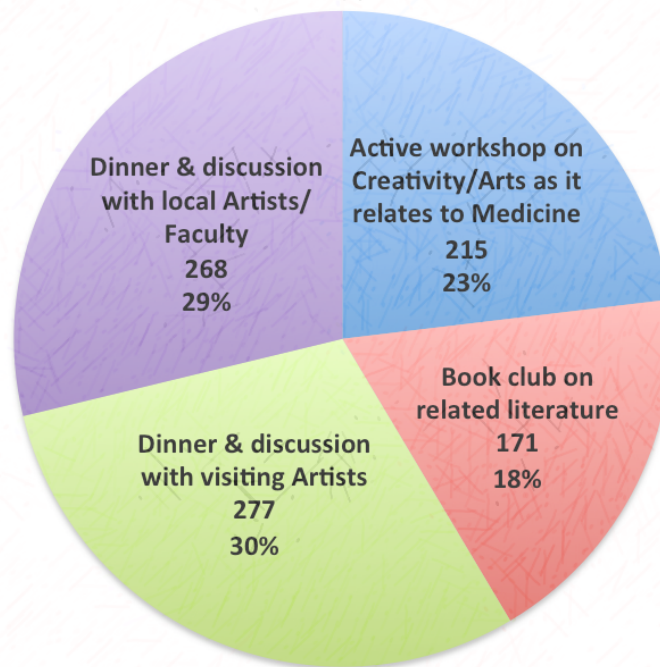
NUMBERS – QUANTITATIVE DATA

This data represents the survey responses collected from the University of Michigan’s Medical Arts Program

Prompt: Please select program formats that you are interested in (for future events):

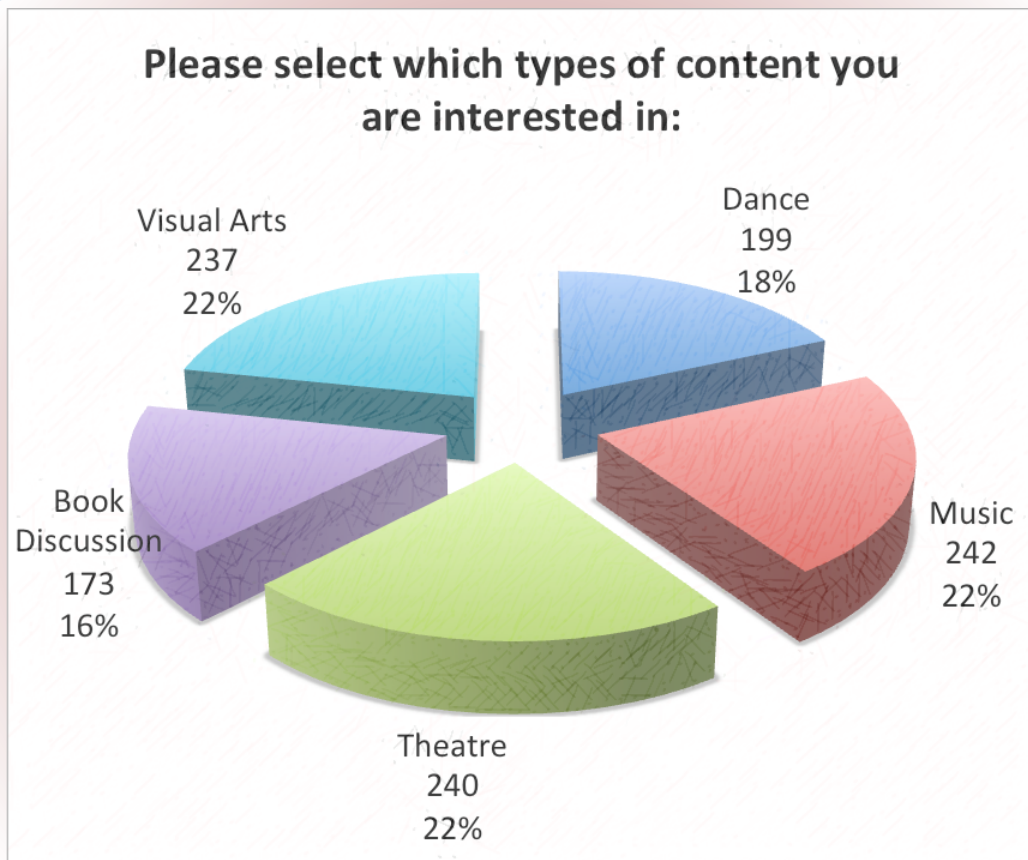
Active workshop on Creativity/Arts as it relates to Medicine	Book club on related literature	Dinner & discussion with visiting Artists	Dinner & discussion with local Artists/Faculty	Total
4	10	13	13	13
17	9	25	24	27
14	13	20	20	21
17	7	18	17	21
19	20	27	25	27
18	13	15	15	19
13	7	15	15	15
12	14	16	16	18
9	6	11	10	11
11	6	14	14	14
3	3	5	5	5
12	7	11	8	12
11	8	13	13	13
12	10	18	17	18
7	6	7	8	8
11	7	15	15	15
8	12	15	15	15
6	5	8	8	8
11	8	11	10	11

Please select program formats that you are interested in (for future events):



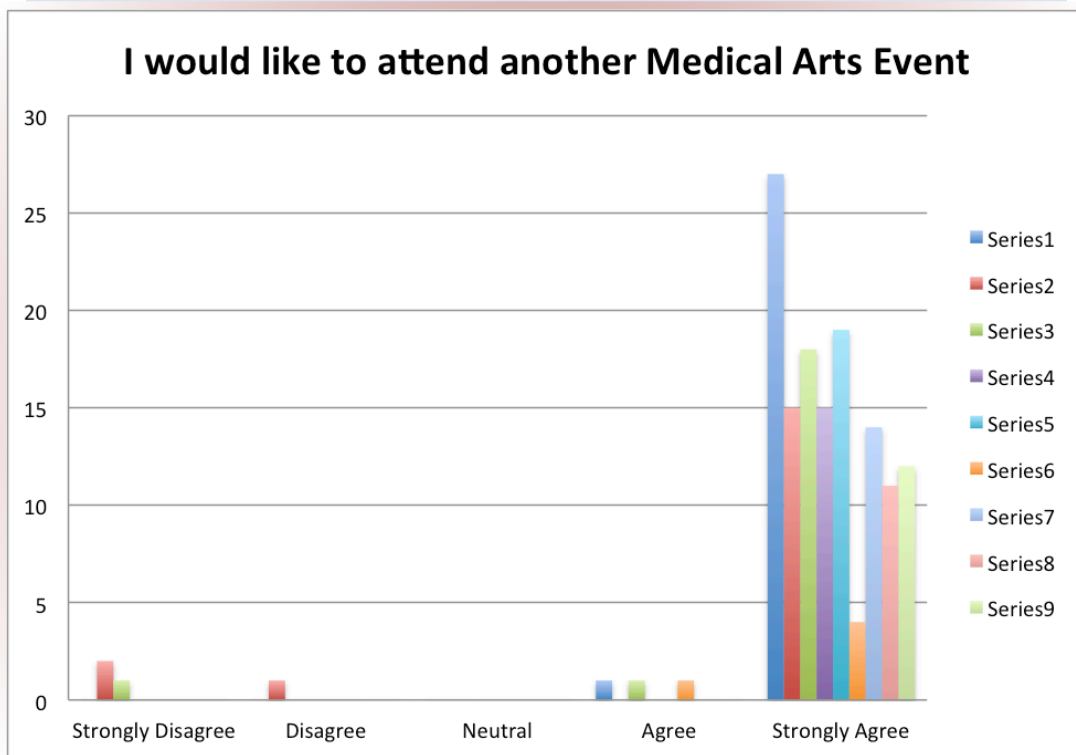
Prompt: Please select which types of content you are interested in:

Dance	Music	Theatre	Book Discussion	Visual Arts	Total
18	22	25	23	23	27
12	14	13	7	12	15
12	13	18	13	17	19
11	12	12	8	13	13
10	13	13	7	11	13
14	13	14	14	15	18
8	9	9	7	10	12
12	16	18	13	14	18
8	10	10	8	10	11
8	13	12	10	10	13
10	14	12	13	12	15
15	15	14	10	14	15
7	8	8	6	5	8
20	25	23	10	26	27
5	5	4	3	3	5
15	20	19	9	21	21
14	20	16	12	21	21



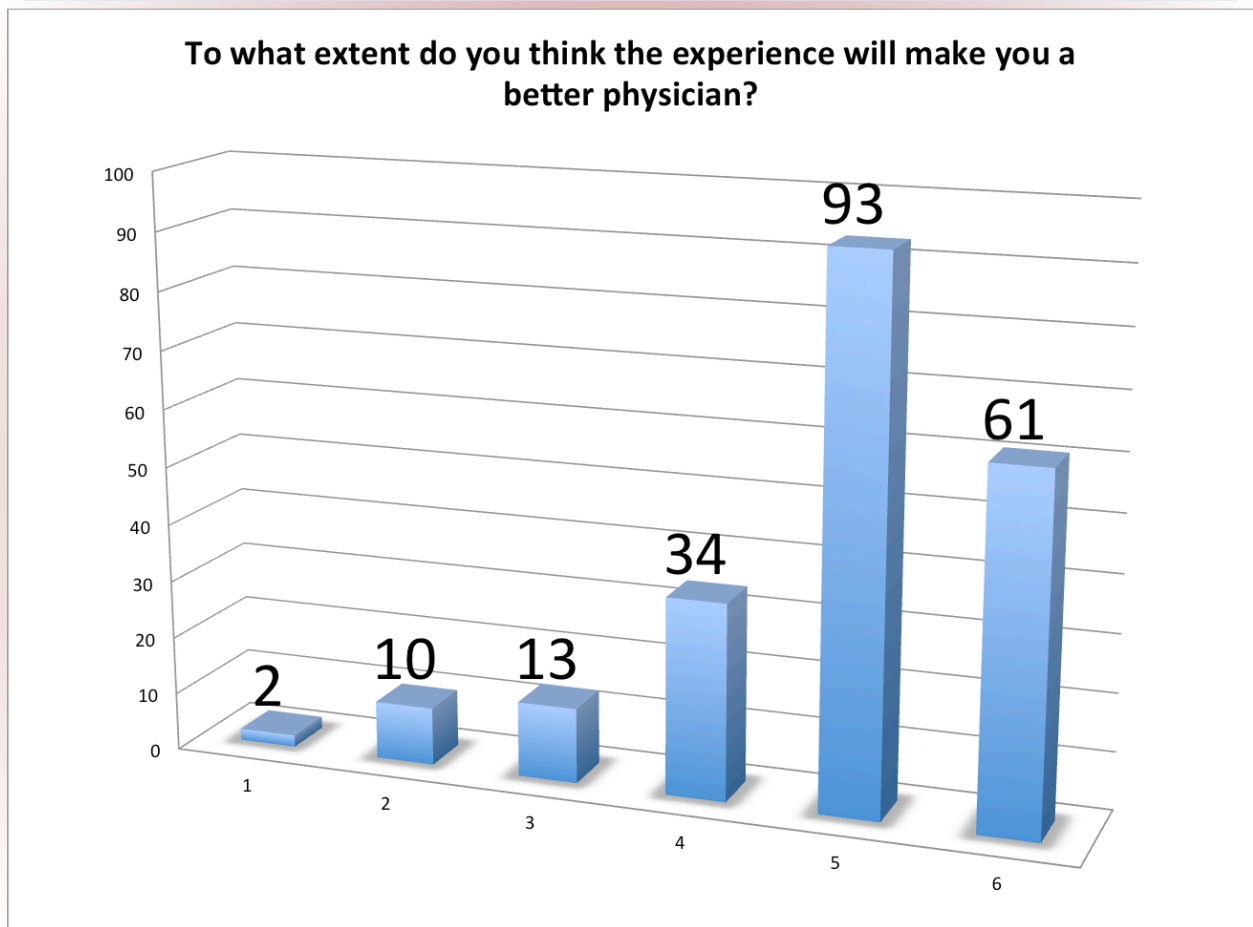
Prompt: I would like to attend another Medical Arts Event

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
0	0	0	1	27	28
2	1	0	0	15	18
1	0	0	1	18	20
0	0	0	0	15	15
0	0	0	0	19	19
0	0	0	1	4	5
0	0	0	0	14	14
0	0	0	0	11	11
0	0	0	0	12	12



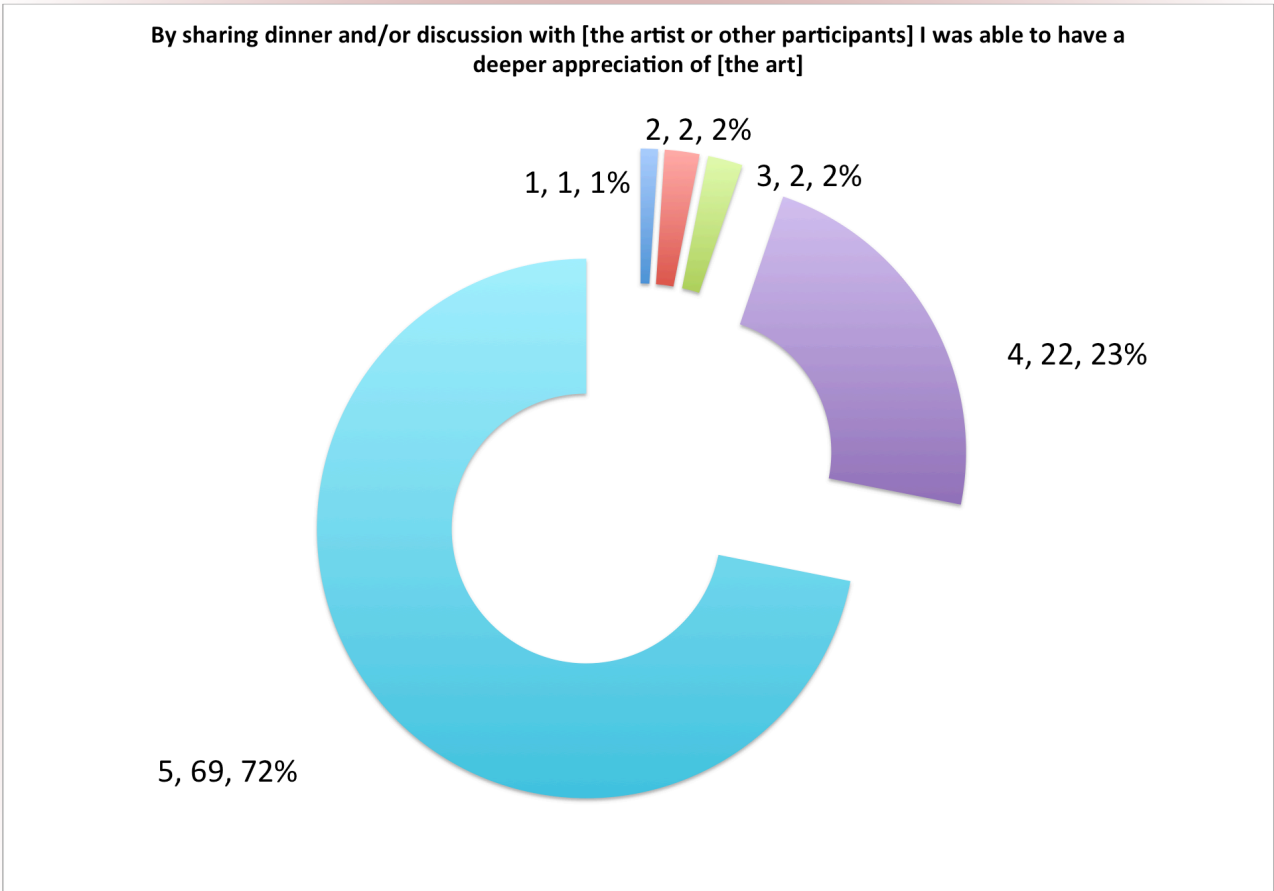
Prompt: To what extent do you think the experience will make you a better physician?

	0	1	2	3	4	5	Total
1	0	0	0	3	8	6	18
0	0	0	1	1	6	4	12
0	1	1	1	3	10	3	18
0	1	1	1	1	4	6	13
1	1	1	1	5	4	0	12
0	1	1	1	4	7	2	15
0	0	0	1	1	13	2	17
0	0	0	3	2	4	2	11
0	0	0	0	2	2	4	8
0	0	0	0	2	4	2	8
0	0	0	0	4	10	13	27
0	0	0	1	3	8	8	20
0	5	1	0	0	9	4	19



Prompt: By sharing dinner and/or discussion with [the artist or other participants] I was able to have a deeper appreciation of [the art]

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1	2	1	6	5	15
0	0	0	1	12	13
0	0	0	5	12	18
0	0	0	2	6	8
0	0	0	2	13	15
0	0	1	0	16	17
0	0	0	6	5	11



PERRY ET AL. LITERATURE REVIEW

In 2011, Mark Perry, Nicola Maffulli, Sury Wilson, and Dylan Morrissey published a very well researched, very articulate paper, *The Effectiveness Of Arts-Based Interventions In Medical Education: A Literature Review*. Any discussion of the arts as they relate to medicine and medical education would be incomplete if presented without brief exploration of this review.

The Perry Lit Review distills (very well, may I add) a few of the main nuggets of wisdom provided by the bulk of literature on the arts and their use in medical education:

- The arts are effective in altering medical student attitudes
- Poor descriptions of methodology and results make literature review difficult
- The arts are an effective aid in visual acuity training

Presented below are brief summaries of each relevant article in the Perry et. al review:

Stokes J. Grief and the performing arts: a brief experiment in humanising medical education.

J Med Educ 1980;55:215.

Thirty-five medical students were exposed to music expressing grief and a film excerpt that “satirises (sic) the way grief is commercially exploited”. Students reported a positive experience, no additional data was given.

Kirklin D, Meakin R, Singh S, Lloyd M. Living with and dying from cancer: a humanities special study module.

Med Humanit 2000;26:51–4.

“Poetry, prose, film, fine art and performing arts aimed at increasing...” student understanding of the impact of cancer on patients and relatives were shown to twenty-two medical students. Students reported the experience “useful” and the authors claim success in creating more humanistic doctors but we sort of have to take their word for it because there is not enough information in the article to come to that conclusion.

Shapiro J, Ruckner L. Can poetry make better doctors? Teaching the humanities and arts to medical students and residents at the University of California, Irvine, College of Medicine.

Acad Med 2003;78:953–7.

A general description of the “Arts in Medicine” program is presented with authors claiming marked improvements in student understanding of patient perspective. As above, we sort of have to take their word for it because there is not enough information in the article to come to that conclusion.

Lazarus PA, Rosslyn FM. The arts in medicine: setting up and evaluating a new special study module at Leicester Warwick Medical School.

Med Educ 2003;37:553–9.

A Likert-style questionnaire was distributed to participants of an “Arts in Medicine” module. Twenty-two student results were collected. The data suggests success in developing understanding of physician-patient interactions but because of their Likert-nature these results are not as powerful as they may have otherwise been.

Jacobsen L, Grant A, Hood K, Lewis W, Robling M, Prout H, Cunningham AM. A literature and medicine special study module run by academics in general practice: two evaluations and the lessons learned.

Med Humanit 2004;30:98–100.

In two “town hall meeting” style feedback sessions, students endorsed their completed Literature and Medicine module. Students expressed many positive outcomes including increased understanding of the illness experience.

Lewis W, Grant A. ‘The dark side of the spectrum....’ a ‘day of suffering’ for medical students.

Med Humanit 2003;29:43–5.

Twenty medical students were exposed to literary accounts of suffering. A nominal group meeting of the students concluded the program had been successful in encouraging the students to reflect on the value of medicine, that it successfully highlighted ways to alleviate suffering, and it also encouraged lateral thinking, and was relevant to clinical work. Perry adds:

“Interestingly, an enhanced ability to understand the suffering of others was not cited as a positive perceived outcome, which would perhaps have been expected if the aims of the session had been truly met.”

Lancaster T, Hart R, Gardner S. Literature and medicine: evaluating a special study module using the nominal group technique.

Med Educ 2002;36:1071–6.

Five medical students, again in a nominal group format, claimed increased understanding of patient perspective, greater awareness of patient individuality, and a mention of increased awareness of the “hidden subtext” beneath a patient’s words, as well as “reduced assumptions about patient feelings and motivations” as a result of their 4-week literature and medicine module.

Rosenbaum ME, Ferguson KJ, Herwaldt LA. In their own words: presenting the patient’s perspective using research-based theatre.

Med Educ 2005;39:622–31.

A group of first year medical students performed a dramatized reading of illness narratives for their peers. 413 surveys were collected and analyzed to show “five main themes of emerging awareness:

- ill health causes emotional reactions which should be responded to as much as the physical aspects of illness;
- patients desire to be listened to;
- the verbal and non-verbal communications of health care providers can have powerful effects on patients;
- patients want to be treated as humans rather than collections of symptoms,
- and disorders and information that may be considered as inconsequential by clinicians may be of significance for patients.”

Shapiro J, Hunt H. All the world's a stage: the use of theatrical performance in medical education.

Med Educ 2003;37:922–7.

Another dramatization of the illness experience was evaluated with a short Likert-style questionnaire that demonstrated increased empathic feelings and a greater sense of the experiences portrayed. It is noted that the response rate was low (36.4% and 58.8% of students for each respective performance).

Unpublished. Performing medicine – a qualitative analysis of students' experiences 2006–2009:

A open ended survey distributed to medical (and possibly dental) students that attended a performing arts-based module demonstrated increased self-confidence, enhanced verbal communication strategies, and a deepening understanding of patient perspective, diversity issues, and physical self-appearance.

Lorenz KA, Steckart MJ, Rosenfeld KE. End-of-life education using the dramatic arts: the Wit educational initiative.

Acad Med 2004;79:481–6.

A large 1401 person survey collected from medical students throughout the US demonstrated that the vast majority of students exposed to a particular illness dramatization were “emotionally affected” by the experience. Furthermore, the majority reported increased reflection on issues of death, diagnosis and prognosis disclosure, and physical and spiritual pain. This survey used a 5-point Likert scale making additional, more in-depth analysis difficult.

Bardes CL, Gillers D, Herman AE. Learning to look: developing clinical observation skills at an art museum.

Med Educ 2001;35:1157–61.

Medical students having attended three museum sessions of art workshops demonstrated increased (relative to their own pre-test score) ability to successfully differentiate between the emotions of others through observation.

Dolev JC, Krohner L, Braverman IM. Using fine art to enhance visual diagnostic skills.

JAMA 2001;286:1020–1.

Two studies including 90 and 86 students, respectively, collected quantitative data demonstrating the fine arts efficacy in improving visual diagnostic skills. Students participating in a fine art intervention were better able to “describe a photograph of someone with a medical disorder in as detailed a manner as possible in 3 minutes” than both a control group and a lecture group.

Naghshineh S, Hafler JP, Miller AR, Blanco MA, Lipsitz SR, Dubroff RP, Khoshbin S, Katz JT. Formal art observation training improves medical students’ visual diagnostic skills.

J Gen Intern Med 2008;23:991–7.

Students that attended the arts based interventions improved visual skills proportionally to the number of sessions attended. Additionally, the fine art intervention group outperformed the control group in both quantitative assessments of clinical image observation, and qualitative content analysis. The study contained 59 medical students.

Shapiro J, Ruckner L, Beck J. Training the clinical eye and mind: using the arts to develop medical students’ observational and pattern recognition skills.

Med Educ 2006;40:263–8.

A visual arts-based intervention (with supplemental dance training) generated data suggesting an improved ability to recognize and understand “the more complex and subtle patterns relating to human experience and emotion”. The students also seemed “more aware of the patient as a person rather than as a collection of symptoms.” Lastly, the students were increasingly aware of “of multiple perspectives, appreciation of subtle body language cues, and scepticism (sic) about initial impressions.” The study contained 38 medical students.

METHODS AND SOURCES

Sources included searches of PubMed, Stat!Ref, Web of Science, Google Scholar, Scopus, and The University of Michigan ArticlePlus search engine. Published literature was queried on the subject of the arts (generally: “art” and specifically: “theatre, sculpture, painting, poetry, etc.”) and the ability there of to inform medical education. 582 articles of interest were identified with these search parameters. Articles of interest were identified based on their relevance to arts related medical education; this was gauged by title and abstract. If an article did not contain an abstract the publication was scanned and gauged for relevancy. This provided 232 articles. Seven of these were duplicate. Seven could not be obtained. Three were non-English and were not considered. The 215 identified articles were then scanned and 150 articles were read in full. The cited references of relevant articles were explored and additional articles were identified.

Video recorded interactions between standardized patients and medical students were also studied. The University of Michigan Hospital System Standardized Patient Program supplied this footage.

Acknowledgements

On Whose Shoulders I Stand

Howell

Mueggler

McKay

Fortune

Creeden

Monk

Warner

Asso

Nolta

Meek

Becker

Thampy

Sullivan

References

1. Stone, J. Medicine and the arts. *Theoretical medicine* **6**, 309-325 (1985).
2. Kumagai, A.K. Perspective: acts of interpretation: a philosophical approach to using creative arts in medical education. *Academic medicine : journal of the Association of American Medical Colleges* **87**, 1138-1144 (2012).
3. Del Canale, S., *et al.* The relationship between physician empathy and disease complications: an empirical study of primary care physicians and their diabetic patients in Parma, Italy. *Academic medicine : journal of the Association of American Medical Colleges* **87**, 1243-1249 (2012).
4. Hubbeling, D. Experiments are necessary to study empathy. *Medical education* **46**, 722 (2012).
5. Ioannidis, J.P.A. Why Most Published Research Findings Are False. *PLoS Med* **2**, e124 (2005).
6. Stuart, J.S. Book Review: Educating the Reflective Practitioner. *British Educational Research Journal* **14**, 101-102 (1988).
7. Klugman, C.M., Peel, J. & Beckmann-Mendez, D. Art Rounds: teaching interprofessional students visual thinking strategies at one school. *Academic medicine : journal of the Association of American Medical Colleges* **86**, 1266-1271 (2011).
8. Schaff, P.B., Isken, S. & Tager, R.M. From contemporary art to core clinical skills: observation, interpretation, and meaning-making in a complex environment. *Academic medicine : journal of the Association of American Medical Colleges* **86**, 1272 (2011).
9. Boyd, T., *et al.* Music experience influences laparoscopic skills performance. *JLSLS : Journal of the Society of Laparoendoscopic Surgeons / Society of Laparoendoscopic Surgeons* **12**, 292-294 (2008).
10. Miskovic, D., *et al.* Randomized controlled trial investigating the effect of music on the virtual reality laparoscopic learning performance of novice surgeons. *Surgical endoscopy* **22**, 2416-2420 (2008).
11. Allen, K. & Blascovich, J. Effects of music on cardiovascular reactivity among surgeons. *JAMA : the journal of the American Medical Association* **272**, 882 (1994).
12. Modell, H.I., DeMiero, F.G. & Rose, L. In pursuit of a holistic learning environment: the impact of music in the medical physiology classroom. *Advances in physiology education* **33**, 37-45 (2009).
13. Christenson, G. Why we need the arts in medicine. *Minnesota medicine* **94**, 49-51 (2011).
14. Shapiro, J. Literature and the arts in medical education. *Family medicine* **32**, 157 (2000).
15. Newell, G.C. & Hanes, D.J. Listening to music: the case for its use in teaching medical humanism. *Academic medicine : journal of the Association of American Medical Colleges* **78**, 714-719 (2003).
16. Woolliscroft, J.O. & Phillips, R. Medicine as a performing art: a worthy metaphor. *Medical education* **37**, 934-939 (2003).
17. Haidet, P. Jazz and the 'art' of medicine: improvisation in the medical encounter. *Annals of family medicine* **5**, 164-169 (2007).

18. Kohn, M. Performing medicine: the role of theatre in medical education. *Medical humanities* **37**, 3-4 (2011).
19. Lorenz, K.A., Steckart, M.J. & Rosenfeld, K.E. End-of-life education using the dramatic arts: the Wit educational initiative. *Academic medicine : journal of the Association of American Medical Colleges* **79**, 481-486 (2004).
20. Shapiro, J. & Hunt, L. All the world's a stage: the use of theatrical performance in medical education. *Medical education* **37**, 922-927 (2003).
21. Shapiro, J. & Rucker, L. Can poetry make better doctors? Teaching the humanities and arts to medical students and residents at the University of California, Irvine, College of Medicine. *Academic medicine : journal of the Association of American Medical Colleges* **78**, 953 (2003).
22. Shoaib, T. Sculpture for Surgeons course, Cambridge, UK. *Annals of plastic surgery* **62**, 230-231 (2009).
23. Kodadek, L.M., Bettendorf, B.A., Uihlein, J.A. & Derse, A.R. The Memory Art Project: medical students and older adults. *WMJ : official publication of the State Medical Society of Wisconsin* **109**, 311-316 (2010).
24. George, D.R., Stuckey, H.L. & Whitehead, M.M. An arts-based intervention at a nursing home to improve medical students' attitudes toward persons with dementia. *Academic medicine : journal of the Association of American Medical Colleges* **88**, 837-842 (2013).
25. Karkabi, K. & Cohen Castel, O. Teaching reflective competence in medical education using paintings. *Medical humanities* **37**, 58-59 (2011).
26. Wear, D. & Zarconi, J. The treachery of images: how Rene Magritte informs medical education. *J Gen Intern Med* **26**, 437-439 (2011).
27. Hajar, R. Medical illustration: art in medical education. *Heart views : the official journal of the Gulf Heart Association* **12**, 83-91 (2011).
28. Neeta Jain, P.A. Teaching Medical Humanities in an Internal Medicine Residency Program. in *Academic Internal Medicine Insight* (2008).
29. Johnston, C. & Chan, M. Making film vignettes to teach medical ethics. *Medical education* **46**, 1133-1134 (2012).
30. Loh, K.Y., Boo, N.Y. & Cheong, S.K. Using digital photography to facilitate learning for medical students. *Medical education* **46**, 1120-1121 (2012).
31. Oh, J., De Gagne, J.C. & Kang, J. A review of teaching-learning strategies to be used with film for prelicensure students. *The Journal of nursing education* **52**, 150-156 (2013).
32. Rodenhauer, P., Strickland, M.A. & Gambala, C.T. Arts-related activities across U.S. medical schools: a follow-up study. *Teaching and learning in medicine* **16**, 233 (2004).
33. Karkabi, K. & Cohen Castel, O. Deepening compassion through the mirror of painting. *Medical education* **40**, 462 (2006).
34. Davidoff, F. Music Lessons: What Musicians Can Teach Doctors (and Other Health Professionals). *Annals of internal medicine* (2011).
35. Case, G.A. & Brauner, D.J. Perspective: The doctor as performer: a proposal for change based on a performance studies paradigm. *Academic medicine : journal of the Association of American Medical Colleges* **85**, 159-163 (2010).
36. Hedli, L. Dramatic Prescriptions for Doctors. in *The Wall Street Journal* (2011).

37. de la Croix, A., Rose, C., Wildig, E. & Willson, S. Arts-based learning in medical education: the students' perspective. *Medical education* **45**, 1090-1100 (2011).
38. Matharu, K.S., Howell, J. & Fitzgerald, F.T. Fearlessly exploring the other: the role of drama in medical training. *Medical humanities* **36**, 58-59 (2010).
39. Savitt, T.L. Medical readers' theater as a teaching tool. *Cambridge quarterly of healthcare ethics : CQ : the international journal of healthcare ethics committees* **19**, 465-470 (2010).
40. McCullough, M. Bringing drama into medical education. *Lancet* **379**, 512-513 (2012).
41. Williams, L.S. Calgary's Standardized Patient Program appears to be the wave of the future. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* **147**, 752-756 (1992).
42. Boesen, K.P., Herrier, R.N., Apgar, D.A. & Jackowski, R.M. Improvisational exercises to improve pharmacy students' professional communication skills. *American journal of pharmaceutical education* **73**, 35 (2009).
43. Unalan, P.C., *et al.* Using theatre in education in a traditional lecture oriented medical curriculum. *BMC medical education* **9**, 73 (2009).
44. Albardiaz, R. Dramaturgy in medical education. *Medical education* **45**, 756 (2011).
45. Csorsz, I., Molnar, P. & Csabai, M. Medical students on the stage: an experimental performative method for the development of relational skills. *Medical teacher* **33**, e489-494 (2011).
46. Stewart, M.A. Effective physician-patient communication and health outcomes: a review. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* **152**, 1423-1433 (1995).
47. Roter, D.L., *et al.* Improving physicians' interviewing skills and reducing patients' emotional distress. A randomized clinical trial. *Archives of internal medicine* **155**, 1877 (1995).
48. Wilson, D.M., *et al.* Family Physicians and Exercise Counseling: Can they be influenced to provide more? *Canadian family physician Médecin de famille canadien* **38**, 2003 (1992).
49. Makoul, G.P. Essential Elements of Communication in Medical Encounters: The Kalamazoo Consensus Statement. *Academic Medicine* **76**, 390-393 (2001).
50. Kumagai, A.K., *et al.* Use of interactive theater for faculty development in multicultural medical education. *Medical teacher* **29**, 335-340 (2007).
51. Hoffman, A., Utle, B. & Ciccarone, D. Improving medical student communication skills through improvisational theatre. *Medical education* **42**, 537-538 (2008).
52. Perry, M., Maffulli, N., Willson, S. & Morrissey, D. The effectiveness of arts-based interventions in medical education: a literature review. *Medical education* **45**, 141-148 (2011).
53. Hammer, R.R., *et al.* Telling the patient's story: using theatre training to improve case presentation skills. *Medical humanities* **37**, 18-22 (2011).
54. Davis, D., *et al.* Impact of Formal Continuing Medical Education: Do Conferences, Workshops, Rounds, and Other Traditional Continuing Education Activities Change Physician Behavior or Health Care Outcomes? *JAMA: The Journal of the American Medical Association* **282**, 867 (1999).

55. Leonardo & McCurdy, E. *The notebooks of Leonardo da Vinci*, (Braziller, New York, 1958).
56. Taylor, J.S. The Moral Aesthetics of Simulated Suffering in Standardized Patient Performances. *Culture, Medicine, and Psychiatry* **35**, 134 (2011).
57. Adamo, G. Simulated and standardized patients in OSCEs: achievements and challenges 1992-2003. *Medical teacher* **25**, 262-270 (2003).
58. Hall, J.A., Roter, D.L. & Rand, C.S. Communication of Affect between Patient and Physician. *Journal of Health and Social Behavior* **22**, 18 (1981).
59. Johnston, M.V., Kaplowitz, S. & Kim, S.S. The Effects of Physician Empathy on Patient Satisfaction and Compliance. *Evaluation & the Health Professions* **27**, 237 (2004).
60. Bellet, P.S. & Maloney, M.J. The importance of empathy as an interviewing skill in medicine. *JAMA: the journal of the American Medical Association* **266**, 1831-1832 (1991).
61. Ong, L.M.L., de Haes, J.C.J.M., Hoos, A.M. & Lammes, F.B. Doctor-patient communication: A review of the literature. *Social Science & Medicine* **40**, 903 (1995).
62. Riess, H., Kelley, J.M., Bailey, R.W., Dunn, E.J. & Phillips, M. Empathy training for resident physicians: a randomized controlled trial of a neuroscience-informed curriculum. *Journal of general internal medicine* **27**, 1280 (2012).
63. Decety, J. The Neurodevelopment of Empathy in Humans. *Developmental Neuroscience* **32**, 257 (2010).
64. Eisenberg, N., Eggum, N.D. & Di Giunta, L. Empathy - Related Responding: Associations with Prosocial Behavior, Aggression, and Intergroup Relations. *Social Issues and Policy Review* **4**, 143 (2010).
65. Gu, X., *et al.* Anterior insular cortex is necessary for empathetic pain perception. *Brain* **135**, 2726-2735 (2012).
66. Joan, A.-T. Finding Empathy's Roots in the Brain Points to Potential Therapies. *Psychiatric News* **47**, 19 (2012).
67. Buck, R. Communicative Genes in the Evolution of Empathy and Altruism. *Behavior Genetics* **41**, 876 (2011).
68. Walter, H. Social Cognitive Neuroscience of Empathy: Concepts, Circuits, and Genes. *Emotion Review* **4**, 9 (2012).
69. Hamlin, J.K., Wynn, K. & Bloom, P. Three-month-olds show a negativity bias in their social evaluations. *Developmental science* **13**, 923 (2010).
70. Decety, J. Dissecting the Neural Mechanisms Mediating Empathy. *Emotion Review* **3**, 92 (2011).
71. Martin, G.B. & Clark, R.D. Distress crying in neonates: Species and peer specificity. *Developmental Psychology* **18**, 3 (1982).
72. Ilan, D., Uri, H., Nava, R. & David, J.H. Brain Areas Selective for Both Observed and Executed Movements. *Journal of Neurophysiology* **98**, 1415 (2007).
73. Gallese, V., Keysers, C. & Rizzolatti, G. A unifying view of the basis of social cognition. *Trends in cognitive sciences* **8**, 396 (2004).
74. Gregory, H. Eight Problems for the Mirror Neuron Theory of Action Understanding in Monkeys and Humans. *Journal of Cognitive Neuroscience* **21**, 1229 (2009).

75. Decety, J. & Michalska, K.J. Neurodevelopmental changes in the circuits underlying empathy and sympathy from childhood to adulthood. *Developmental science* **13**, 886 (2010).
76. Völlm, B.A., *et al.* Neuronal correlates of theory of mind and empathy: A functional magnetic resonance imaging study in a nonverbal task. *Neuroimage* **29**, 90 (2006).
77. Craigan, U. Jean Decety and William Ickes (eds): The Social Neuroscience of Empathy. *Clinical Social Work Journal* **39**, 212 (2011).
78. de Waal, F.B.M. Putting the altruism back into altruism: the evolution of empathy. *Annual review of psychology* **59**, 279 (2008).
79. Jackson, P.L., Brunet, E., Meltzoff, A.N. & Decety, J. Empathy examined through the neural mechanisms involved in imagining how I feel versus how you feel pain. *Neuropsychologia* **44**, 752 (2006).
80. Foster, K.R., Wenseleers, T. & Ratnieks, F.L.W. Kin selection is the key to altruism. *Trends in ecology & evolution* **21**, 57 (2006).
81. Knafo, A., *et al.* Empathy in Early Childhood: Genetic, Environmental, and Affective Contributions. *Annals of the New York Academy of Sciences* **1167**, 103 (2009).
82. Bates, T.C., Lewis, G.J. & Weiss, A. Childhood socioeconomic status amplifies genetic effects on adult intelligence. *Psychological science* **24**, 2111 (2013).
83. Rodrigues, S.M., Saslow, L.R., Garcia, N., John, O.P. & Keltner, D. Oxytocin Receptor Genetic Variation Relates to Empathy and Stress Reactivity in Humans. *Proceedings of the National Academy of Sciences of the United States of America* **106**, 21437 (2009).
84. Walter, H., *et al.* Effects of a genome-wide supported psychosis risk variant on neural activation during a theory-of-mind task. *Molecular Psychiatry* **16**, 462 (2011).