Clinician’s Eye: using community partnerships and the arts to expand medical trainee cultural humility

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Background: Art in medicine programming has become increasingly common to develop the intangible skills of the practice of medicine. The Clinician’s Eye program sought to improve medical trainee’s (students, residents and fellows; n = 50) cultural humility by analyzing works that challenged perceptions of the new American South with the novel inclusion of diverse community members.

Methods: Mixed methods survey data was analyzed using an empirical phenomenological approach and Wilcoxon signed-rank/rank sum of median scores from the previously validated Health Belief Attitudes Survey (HBAS).

Results: Qualitative thematic analysis revealed direct programmatic benefit by including diverse community participants with prominent self-reported insights based on the art works' significance, appreciation of others' perspectives, recognition of biases, enhanced critical observation, and discussion of the social determinants of health. There was no statistically significant difference in median HBAS scores present among paired groups of medical trainees (n = 19; p = 0.37) or groups based on community member participation (n = 50; p = 0.85).

Conclusions: The qualitative data suggest the Clinician’s Eye program encouraged trainee cultural humility, despite a lack of quantitative statistical significance. A larger, longitudinal multi-center follow-up study should be completed to further delineate program efficacy and individual curricular component effects.

Keywords: Art in Medicine; Narrative Medicine; Medicine; Collaborative/peer-to-peer; Medical education research; community-oriented
Appreciation for and practice of the humanities has been intertwined with the field of medicine for centuries, yet the public continues to advocate for more compassionate care amidst growing scientific complexity (Weisz and Albury, 2010). Francis W. Peabody's (Peabody, 1927) critique of this issue and his charge that "one of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient" still rings just as true today. That said, medical schools remain under constant pressure to adapt their curricula (Mavis, 2017) to address not only the latest scientific advances in medicine but also the skills required to develop one's practice of medicine. Infusion of the arts into medical curricula has been increasing in popularity for its potential to hone these more intangible skills of medicine's practice: inspection, critical thinking, empathy/respect, teamwork, curiosity and career sustenance (Katz and Khoshbin, 2014). Together these programs seek to improve participants' critical eye for observation, patient-centered focus and personal wellness (Katz and Khoshbin, 2014; Varpio, Grassau and Hall, 2017; Doley, Friedlaende and Braverman, 2001; Gaufberg and Williams, 2011; Perry et al., 2011). The myriad of programs have varied in participant (medical student, resident, fellow or physician), facilitator (medical faculty, museum curator or liberal arts professional), profession (medicine, nursing and interprofessional groups), methods (curricular activities), medium of study (digital, print or performance), length (from single multi-hour courses to semester-long classes) and study goals (Katz and Khoshbin, 2014; Varpio, Grassau and Hall, 2017; Dellasega et al., 2007; de la Croix et al., 2011, De Santis et al., 2016; Jasani and Saks, 2013; Naghshineh et al., 2008).

The sub-set of art in medicine programs that have been conducted regarding empathy/respect have targeted either introspective or extrospective empathy generation: focusing on one’s personal experiences with the art or engendering greater empathetic understanding of a specific patient population (Cutler et al., 2012; Gonzales, Morrow-Howell and Gilbert, 2010; Liao, 2013). Additional studies employing perspective-taking techniques have shown improvements in patient satisfaction scores (Blatt et al., 2010). In a time of rising social polarization, patient inequity gaps, and medical professional burnout (Pew Research Center 2014; Bor, Cohen and Galea, 2017; Rotenstein et al., 2018), it is imperative to identify ways to infuse empathetic interpersonal understanding between physicians and their diverse patients. Art in medicine programs have been proposed as one such tool to beget this mutual understanding and respect (Katz and Khoshbin, 2014).

Despite the growing body of literature describing art in medicine programs that seek to expand medical trainee's (students, residents, and fellows) capacity for empathetic understanding, no studies have included patient and/or community member participants alongside medical trainees to further facilitate this generation of interpersonal empathy and cultural humility. Cultural humility, as defined by Tervalon and Murray-García (Tervalon and Murray-García, 1998), "incorporates a lifelong commitment to self-evaluation and self-critique, to redressing the power imbalances in the patient-physician dynamic, and to developing mutually beneficial and non-paternalistic clinical and advocacy partnerships with communities on behalf of individuals and defined populations." This paper describes the impact of the Clinician's Eye art in medicine program to improve medical trainee's cultural humility, and whether the inclusion of diverse community members as participants alongside the trainees further facilitated this.

Methods

Program Design:
Through inter-institutional and community partnerships, groups of medical trainees, attending physicians, and diverse community members were brought together with gallery curators to discuss the challenging images of the Halsey's exhibition Southbound: Photographs of and about the New South (Sloan and Long, 2019). Four separate groups completed the Clinician's Eye, with the intention of having all aforementioned groups of health professionals present for each of the four sessions and only two of the four sessions containing diverse community participants.
One session with and one without community members was held in the fall semester and repeated in the spring semester. Paired analysis was only completed with the spring groups. The community participants are students from the Charleston Clemente Course, which provides free, university-level humanities education to individuals in economic distress (Charleston Clemente Course, 2019). Using a mixed-methods approach, the goal of the Clinician’s Eye is to improve participant cultural humility — measured using the pre-validated Health Beliefs Attitudes Survey (HBAS) and open-ended questions for qualitative assessments of participant opinions (Tervalon and Murray-García, 1998; Corley et al., 2016; Crosson et al., 2004). Medical trainee responses are compared between and within groups with and without community member participants to assess for added value of community member inclusion.

Visual Thinking Strategies (VTS) is the central mechanism for group art discussion based on its previous evidence of utility and promotion of open-ended discussion (Katz and Khoshbin, 2014; Reilly, Ring and Duke, 2005; De Santis et al., 2016). Five photographic works displaying challenging interpersonal imagery from the Southbound exhibition were specifically chosen to incite differences of opinion and interpretation based on each participant's unique perspective. See Figure 1 for an example of a work analyzed during the Clinician’s Eye and the VTS questions used to facilitate the discussions. Each work was allotted 10-15 minutes of VTS discussion time (based on Halsey curator knowledge of likely time to thematic saturation) and followed by a brief explanation of the work by an exhibition curator. Time was left at the beginning and end for the completion of surveys, consumption of food, and individual observation of the exhibition on display. Each session lasted about 1.5 hours. A goal of 15-25 MUSC medical students, 5-8 MUSC residents/fellows and 5 MUSC faculty were to be present for each session with the inclusion of 4-8 community members at two of the four sessions. The overall group size was determined by the Halsey curators’ experience leading discussions in the space with participant subgroup totals chosen to emphasize medical trainee participation. All participant recruitment was sent out via email to all MUSC medical students, residents, fellows, and faculty in addition to in-person and telephone reminders to Charleston Clemente Course students. The participants in the Clinician’s Eye self-selected based on individual interest and freely registered through an online portal to maintain appropriate group sizes. Since the Charleston Clemente Course was a community partner for the Clinician's Eye, a ‘Healthy Staple Foods Drive' was coupled with this program to collect donations for the new food pantry managed in-part by the Charleston Clemente Course on their campus.

Figure 1. Sample image from the Southbound exhibition with adjacent discussion technique.
This image (Watch, 2015. From the *Mi Chien, Mi Loup* series. Memphis, Tennessee) by Tommy Kha was the first piece discussed by the groups, with the primary author initiating and facilitating each discussion using the adjacent Visual Thinking Strategies questions and methods (Reilly, Ring and Duke, 2005). See Acknowledgements for additional image citation information.

**Assessment Tools:**
A single, 25-item mixed qualitative and quantitative survey was developed to be taken after session completion. In addition, for two of the groups (one with and one without community members), a 20-item pre-survey consisting of the HBAS, demographic information and a unique anonymous participant identification number was administered in order to compare pre- and post-session responses (Corley *et al*., 2016). Only two groups received the pre-survey to limit the overall participant survey burden. Both the pre- and post-surveys contained all HBAS items. The HBAS was developed to assess the efficacy of cultural competency training for medical students (Crosson *et al*., 2004). It consists of 15 items on a 6-point Likert scale comparable by the average participant scores. The HBAS's four constructs identify the importance of assessing patients’ perspectives and opinions, determining patients’ beliefs for history taking and treatment, assessing patients’ psychosocial and cultural contexts, and knowing the patient’s perspective for providing good health care (Crosson *et al*., 2004). The pre- and post-survey tools can be found in Supplementary File 1 and Supplementary File 2.

**Analysis:**
Mean HBAS scores were calculated for each participant (Corley *et al*., 2016). In the community member comparison, a Wilcoxon rank sum test (given the data's skew) was performed to identify statistically significant changes in the medians between the combined groups with and without community members present. For the individual paired comparison, a Wilcoxon signed-rank test was used to compare medians between the paired pre-survey and post-survey mean HBAS results for two of the groups. All statistical analyses were performed at the 95% confidence interval. Wilcoxon rank sum and signed-rank tests were performed with all non-normally distributed data.

The primary author compiled and reviewed all qualitative question responses using an empirical phenomenological research method to systematically identify themes and their associated frequency (Aspers, 2009; Braun, 2006). This project was deemed a Quality Improvement Project by the Medical University of South Carolina’s Institutional Review Board in Charleston, SC and exempt from further review.

**Results**
The medical trainees were the primary group of study to assess programmatic efficacy, though all MUSC healthcare professionals present completed the surveys. Trainee surveys with incomplete data pertaining to the analysis were excluded from all statistical and qualitative analyses. The group of participants with community members present (n = 27) consisted of 66.7% males and 29.6% females, of whom 66.7% self-identified as white with representation from Hispanic, African American, Asian, American Indian or Alaskan Native, and non-binary or third gender individuals. The group without community members present were 47.8% male, 52.2% female, and 69.6% white with representation from Hispanic and Asian individuals. Each group contained trainees from all four years of medical school and a resident or fellow (see Table 1 for details). All group HBAS scores were skewed positively yet held similar distributions, warranting non-parametric analysis.
Table 1. Descriptive statistics of average HBAS scores sub-divided by medical trainee level.

<table>
<thead>
<tr>
<th>Title</th>
<th>MS Year</th>
<th>Sample Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Median</th>
<th>Quartile 1</th>
<th>Quartile 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Student</td>
<td>Year 1</td>
<td>11</td>
<td>5.42</td>
<td>0.33</td>
<td>5.47</td>
<td>5.13</td>
<td>5.80</td>
</tr>
<tr>
<td></td>
<td>Year 2</td>
<td>11</td>
<td>5.20</td>
<td>0.61</td>
<td>5.40</td>
<td>4.80</td>
<td>5.73</td>
</tr>
<tr>
<td></td>
<td>Year 3</td>
<td>3</td>
<td>5.24</td>
<td>5.27</td>
<td>5.27</td>
<td>5.20</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td>Year 4</td>
<td>16</td>
<td>5.25</td>
<td>0.34</td>
<td>5.20</td>
<td>5.00</td>
<td>5.45</td>
</tr>
<tr>
<td>Resident or Fellow</td>
<td>NC</td>
<td>9</td>
<td>4.93</td>
<td>0.30</td>
<td>5.0</td>
<td>4.67</td>
<td>5.17</td>
</tr>
</tbody>
</table>

Total sample size, n = 50. Abbreviations: MS, medical student; NC, not collected; NR, not reported

Comparison of Groups With and Without Community Members:
Of the post-survey HBAS results, 52 participants self-identified as trainees, though 2 were excluded due to incomplete results. Looking at the 50 included mean HBAS scores, 23 were from sessions without community member participants and 27 were from sessions with community member participants. The group without community members had a mean HBAS score of 5.27 (standard deviation (SD), 0.36) and a median of 5.23 (quartile (Q) 1, 5.0; Q3 5.47), and consisted of residents/fellows (n = 7) and medical students from years 1 (n = 7), 2 (n = 6), 3 (n = 1) and 4 (n = 2). The group with community member participants had a mean HBAS score of 5.18 (SD, 0.47) and a median score of 5.20 (Q1, 4.93; Q3, 5.47), and consisted of residents/fellows (n = 2) and medical students form years 1 (n = 4), 2 (n = 5), 3 (n = 2) and 4 (n = 14). We found no difference in mean HBAS scores between groups with and without community members (p = 0.85). The combined without and with community member participant groups’ mean and median HBAS scores are displayed in Table 1, showing the lowest median HBAS scores among residents/fellows (5.20) and highest median HBAS scores among first year medical students (5.47).

Individual Paired Comparison:
Fifteen of the 53 total pre- and post-trial HBAS results were excluded for incomplete data. This resulted in 38 pre-/post-trial results completed by 19 study participants, representing medical students from years 1 (n = 4), 2 (n = 3) and 4 (n = 11); and one resident physician. The pre-trial data had a mean of 5.24 (standard deviation, 0.39) and a median of 5.4 (Q1, 5.17; Q3, 5.64). The post-trial data had a mean of 5.28 (standard deviation, 0.49) and a median of 5.33 (Q1, 5.10; Q3, 5.57). We found no difference in mean HBAS scores between pre-trial and post-trial survey results (p = 0.37).

Qualitative Comparison:
The total sample of MUSC trainees in the groups without and with community member participation was 23 and 27 respectively. One trainee from each group did not answer any of the qualitative survey questions with an additional trainee failing to answer all but the final qualitative question. Table 2 displays the identified themes from each question response and the frequencies of thematic identification for each question and group.

Table 2. Identified thematic categories and frequency of the five qualitative post-survey questions by community participant grouping.

| Qualitative Question | Group Without Community Participation (n = 23) | Group With Community Participation (n = 27) |
| What was your most memorable experience from the Clinician's Eye session? | Meaning of the Art Work (12) AOP (8) Individual Analysis of the Art (3) Group Discussion (1) | Meaning of the Art Work (14) AOP (10) Group Discussion (6) Individual Analysis of the Art (3) Added Value from Community Participation (2) |
| How did the Clinician's Eye session integrate with your medical training or experiences? | AOP (8) Enhanced Critical Observation (5) Improved Empathy for Patients (3) Recognizing Biases (3) SDH (3) | AOP (11) Enhanced Critical Observation (7) Recognizing Biases (5) SDH (2) Personal Wellness (1) |
| What was the most impactful insight that you had during the Clinician's Eye session? | AOP (6) Meaning of the Art Work (5) Enhanced Critical Observation (4) SDH(4) Importance of the Photographer (2) Improved Empathy for Patients (1) | Meaning of the Art Work (6) SDH(6) AOP (5) Recognizing Biases (4) Enhanced Critical Observation (4) |
| How did the Clinician's Eye effect your understanding of doctor-patient relationships? | AOP (8) SDH (4) Power Dynamics (3) Enhanced Critical Observation (2) Emotional Understanding (1) | AOP (10) Importance of Continued Conversation (4) Enhanced Critical Observation (4) Recognizing Biases (3) SDH(2) |

Themes only listed if identified in the group’s answers. Frequencies in parentheses are not corrected for the number of participant responses. Only the five most common theme were reported.

**Abbreviations:** SDH, Social Determinants of Health/Appreciation for Community Context; AOP, Appreciation of Other (Patient or Colleague) Perspectives

**Discussion**

We found that cultural humility did not differ between the Clinician’s Eye groups with community member participants and those without. There was also no difference in scores when measured before and after the art in medicine session. There are several possible explanations for this. Selection bias for student participants with high cultural humility may have made it challenging to see a significant difference through their participation. Previous studies have shown median HBAS scores of 5.3 for first year medical students (Corley *et al.*, 2016), where it was 5.47 for first year participants in this study. The trend of decreasing HBAS scores with increased levels of training is
counter to previous studies of improved cultural competency in medical students as they progress through their training (Green et al., 2017). That said, the heterogenous sample of trainees in various stages of training could have muted the programmatic impact. Two additional contributing factors could be the low sample sizes for each group, and an insufficient program length to yield an effect with it being only a single session of exposure (Katz and Khoshbin, 2014).

Aside from the quantitative measure of cultural humility via the HBAS, qualitative exploration demonstrated additional value of the program for medical trainees. The two most consistently discussed themes were the importance of the art works' meaning and the appreciation for diverse perspectives. As the appreciation for divergent perspectives is a key to developing cultural humility (Tervalon and Murray-García, 1998), this qualitative data provides evidence of the Clinician’s Eye’s efficacy in fostering this humility among MUSC’s participating medical trainees. Since many individuals noted the importance of the art works' meaning, it is challenging to identify individual curricular effects upon the stated increase in participant cultural humility (i.e. from the exhibition content, the use of Visual Thinking Strategies, the inclusion of medical and non-medical leaders, and the collaboration with the Clemente Course). Additional self-reported insights into power dynamics, the social determinants of health, enhanced critical observations, personal wellness, and improved interpersonal acceptance shows the depth of participant engagement and benefit through this initiative. The inclusion of this qualitative data provides important context that otherwise would have been lost, as one participant stated: "I see activities such as contemplating art as wholly congruent to our training.” In addition to the previously described limitations, all qualitative questions followed the quantitative responses, which could have resulted both in survey fatigue limiting response quality and provided an anchoring bias on themes discussed by the HBAS questions. Future iterations of the Clinician’s Eye could avoid some of these challenges by developing the course into a more longitudinal program with more strategically recruited groups, baseline sampling from non-participating medical students, a formally trained moderator, multi-center inclusion, stepwise variation in program administration, the inclusion of a larger study population, and subgroup analysis based on a stage of training.

**Conclusion**

The Clinician's Eye program was able to unite multiple community partners in the Charleston area to provide MUSC trainees and community members an evening of unique cultural engagement and discourse. The Southbound exhibition’s rich imagery about the challenges of the New South led to self-reported trainee appreciation for alternative perspectives, enhanced critical observation, understanding of the social determinants of health, and many more themes essential to the development of cultural humility. Program efficacy was more clearly captured by the qualitative rather than quantitative analysis. This study provides a foundation for increased community partnership, the inclusion of culturally relevant works for discussion, and the benefits of a mixed-methods analysis when developing art in medicine programing.

**Take Home Messages**

- Expanding medical trainee's cultural humility should be a central goal for medical education along the continuum of training.
- Art in medicine programming may be able to facilitate the development of medial trainee’s cultural humility.
- Identifying relevant, challenging works of art and leveraging diverse community partnerships may enrich art in medicine programming towards the development of medical trainee cultural humility.
- Applying both qualitative and quantitative methods of analysis for curricular effectiveness studies yields
additional insights that may not be garnered by either methodology alone.

Notes On Contributors

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Lisa K. Kerr is the Director of the Office of Humanities for the Medical University of South Carolina in Charleston, SC.

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Bibliography/References


**Appendices**

None.
Declarations

The author has declared that there are no conflicts of interest.

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Ethics Statement

Exemption from approval was deemed appropriate by the Medical University of South Carolina's Institutional Review Board due to this project's nature as a Quality Improvement project.

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