THREE STUDIES INVESTIGATING THE EDUCATIONAL EFFECTS OF HUMANITIES-BASED CURRICULAR EXPOSURES

I. **First year literature and medicine elective**
   A. **Research Question:** Does reading literature about patients' experiences of illness improve student empathy?
   B. **Design:** 22 first year self-selected students were randomly assigned to either Group 1 (immediate intervention) or Group 2 (delayed intervention).
   C. **Intervention:** Participation in 6 literature and medicine elective small group reading and discussion sessions.
   D. **Assessment: 3 data collection periods**
      1. **Time 1:**
         a. Pre-assessment/baseline **-** Groups 1 and 2
            1. Focus group
               a. What is empathy?
               b. How can study of humanities improve empathy?
               c. How can study of humanities make you a better physician?
            2. Quantitative empathy measures (2)
            3. Quantitative attitude-toward-humanities measure - extent to which humanities could be useful in professional development
      2. **Time 2:**
         a. Post-assessment Group 1
            1. Follow-up focus group
            2. Empathy/attitude measures
         b. Repeat baseline Group 2
            1. Empathy/attitude measures
      3. **Time 3:**
         a. Post-assessment Group 2
            1. Follow-up focus group
            2. Empathy/attitude measures
         b. Follow-up post-assessment Group 1
            1. Empathy/attitude measures
   E. **Results**
      1. Quantitative: analysis in progress
      2. Qualitative:
         a. Definitions of empathy remained unchanged
         b. Understanding of the patient's perspective became more detailed and complex
            1. pre - get insight into human condition; understand others' feelings
            2. post - understand patients as particular people; see how disease affects patients' daily lives; realize patients can be afraid, belligerent, vulnerable
         c. Insights about how humanities could make them better physicians were also more specific and sophisticated
            1. pre - think on a human level; be more insightful about patients; become more well-rounded

2. post - learn how to change perspective from self to other; develop skills of empathy; focus on patient, not only disease; deal with own negative feelings as physician; pay attention to patient cues; listen for patient agenda; importance of asking about difficult issues (sex, culture); importance of delving below the surface

F. **Conclusion: Quantitative:** May be difficult to show quantitative changes in self-reported empathy with such a small sample, but the design itself is worth considering
Qualitative data suggested that, after intervention, students had a more detailed and sophisticated understanding of how studying literature could help them understand their patients better as well as be better physicians generally

II. **Second year Patient-Doctor course -** required organ system-based, case-based course that teaches history-taking, communication skills and physical examination; organized around 8 patient modules, with SP interviews conducted in small groups

A. **Research Question:**
1. Does participation in a point-of-view writing group (which I'll explain in a moment) increase student professionalism and communication skills compared to participation in a clinical reasoning group?
2. Does participation in a point-of-view writing group increase student ability to express emotion and empathy compared to participation in a clinical reasoning group?

B. **Design:** 94 second year students were randomly assigned to small groups that included either 8 point-of-view writing assignments or 8 clinical reasoning writing assignments.
1. POV writing group: Each module had a literary selection pertinent to the patient's medical problem (ie., cancer, heart disease), which students read and then wrote about in the 1st person from the perspective of the patient
2. Clinical reasoning group: Students wrote about the cognitive reasoning involved in establishing a differential diagnosis

C. **Assessment:**
1. Final course examination included
   a. Assessments of student professionalism and communication skills by standardized patient in an OSCE station of male patient with chest pain and possible cardiac disease
   b. A point-of-view writing assignment in which students read a prose poem by cardiologist John Stone about a 39yo man experiencing an MI who dies in the ER. Students were asked to write for 10 minutes about this incident from the point of view of the treating physician
   c. Student writing was coded according to
      1. Pennebaker's Linguistic Inquiry and Word Count - provided a word count in language categories such as positive and negative affect, certainty, insight, cognitive mechanisms

2. 6 global categories indicating presence or absence in each essay of: empathy, sense of meaning, limits of medicine, blaming the patient, importance of prevention, and clinical reasoning
3. Overall global score (rated 1-4), indicating quality of reflection and insight

D. Results
1. No difference between point of view and clinical reasoning groups on professionalism or communication skills ratings
2. Overall global writing scores were not related to professionalism or communication skills ratings
3. Analysis of writing assignments:
   a. In comparison to the clinical reasoning group, point-of-view students demonstrated significantly more
      1. Ability to adopt 1st person point of view
      2. Overall affect
      3. Negative emotion
      4. Empathy
      5. Religious/spiritual language
   b. Across both groups,
      1. **Higher empathy scores** were related to greater ability to express anger, optimism, and sadness
      2. **Sense of meaning** was related to words showing insight
      3. **Blaming the patient** was related to decreased insight, inhibition, and certainty; while a related construct, **limits of intervention**, was related to decreased expression of negative emotion and increased use of analytic, causal words
      4. **Emphasizing prevention** was related to greater expression of positive emotion and optimism, and to lesser expression of negative emotion
      5. Acknowledging the **limits of medicine** was related to greater expression of optimism
      6. Evidence of **clinical reasoning** was related to greater expression of negative emotion and anxiety
   c. Across both groups, students who expressed more negative emotion were more likely to write essays rated as having evidence of both empathy and clinical reasoning
   d. Students who expressed more positive emotion and cognitive language were more likely to write essays characterized by limit-setting, prevention emphasis, and patient blame

E. Conclusions:
1. Not able to demonstrate a link between training in pov writing and clinical behavior
2. Training in pov writing did make it more likely that students expressed emotion, particularly negative emotion, as well as empathy and spiritual orientation in their writing

3. Further, students who were able to overtly express negative emotion in their writing also showed evidence of empathy and clinical reasoning in their essays; whereas students who expressed positive emotion and cognitive language also tended to write distancing, patient-blame essays

III. Third Year Medicine Clerkship Humanities Component
  A. Research Questions:
  1. How did students use a required creative project in terms of point of view, empathy, tone, resolution, and theme?
  2. What was the effect of a required humanities course component in the clerkship on students' attitudes toward the usefulness of the humanities in professional development?
  B. **Design:** Quasi-experimental, pre-test-post-test
  C. **Intervention:** 88 third year students were required to complete two humanities sessions, including class discussion of literary readings, and group sharing of a creative project. Students were asked to identify and reflect on a problematic or meaningful experience that occurred during the clerkship (eg., patient encounter, interaction w/resident or attending, personal or family illness) and represent some aspect of what happened through poetry, short story, personal essay, photography, painting and drawing, song, music, dance, videos, role-plays (ceramics, collage, mobiles, shoe-box art)
  D. **Assessment:**
  1. Qualitative: process and content analysis of 74 creative projects
  2. Quantitative: A subset (46 of 49) students participating in the last 3 quintiles of the clerkship completed 3 administrations of an attitudinal assessment measure
     a. At baseline (Time 1)
     b. After participation in the literary reading/discussion session (Time 2)
     c. After completion and sharing of the creative project (Time 3)
  E. **Results**
  1. Qualitative:
     a. Overall, students used the creative project to exploring various aspects of "becoming a physician"
     b. Students were most likely to choose their own point of view in the creative project
     c. The vast majority of projects expressed empathy for patients, but less empathy toward self and colleagues
     d. Tone of the project varied widely
     e. About half of the projects were judged to have achieved some resolution of the issue they examined
  2. Quantitative
     a. There was a significant positive shift in overall student attitude scores between Times 1 and 3, but not between Times 1 and 2
     b. These results can be interpreted to mean that completing and sharing creative projects had a more positive effect on students' attitudes than reading and discussion

TABLE 1 - 3rd Year Clerkship
Percentage of Student Creative Projects Represented
in Each Qualitative Coding Category

THEMES (1)	Number	Percent	RESOLUTION(2)	Number	Percent
Doctor-patient relationship:	12*	16.2*	Yes:	35	47.3
Doctor-patient communication:	12	16.2	No:	30	30.5
Medical student role:	23	31.1	Ambiguous:	9	12.2
Stress in medical school:	12	16.2			
Parallels/conflicts between students/patients:	11	14.9			
Patients as teachers:	7	9.5			
Patient experience of illness:	15	20.3			
Emotion and empathy:	12	16.2			
Death and dying:	23	31.1			
Miscellaneous:	8	10.8			
sociocultural issues, difficult patients, healing, research ethics					

* Numbers add up to greater than 74 and percentages add up to greater than 100 because multiple themes were often explored in a single project.

POINT OF VIEW(3)	Number	Percent	TONE (4)	Number	Percent
1st person:	37	50.0	Objective:	10	13.5
1st person (pt):	2	2.7	Reflective:	18	24.3
1st person pl:	3	4.1	Humorous:	11	14.9
2nd person:	0	0	Ironic:	7	9.5
3rd person:	18	24.3	Tragic:	11	14.9
Mixed:	14	18.9	Positive:	7	9.5
			Empathic:	10	13.5

EMPATHY (5)	Number	Percent		Number	Percent
For patient:			For self/others:		
Yes:	45	60.8	Yes:	5	6.8
No :	3	4.1	No:	13	17.6
Ambiguous:	6	8.1	Ambiguous:	2	2.7

1 **THEME** – The main ideas/issues explored in the student creative project
2 **RESOLUTION** – Whether the project demonstrated a conclusion regarding the issue explored, or whether it expressed ambivalence
3 **POINT OF VIEW** – The point of view (1st, 2nd, 3rd person, combination) adopted by the project
4 **TONE -** The style or mode predominantly represented in the project
5 **EMPATHY** – Evidence of understanding/feeling about a situation from the perspective of another

TABLE 2 - 3rd Year Clerkship
Student Attitude Changes between Time 1 and Time 3
on Individual Items and Total Scale

	Time 1	Time 3	t-value	p-value
I am likely to turn to humanities to help me understand my experience in medical school	3.5(sd=1.2)	4.3 (sd=.66)	-3.86	.000
The humanities can effectively help us understand physicians, patients, and the culture of medicine	4.1 (sd=.61)	4.8 (sd=.55)	-2.72	.008
The humanities should be a core component of the medical school curriculum	3.3 (sd=.88)	4.0 (sd=.75)	-3.90	.000
The humanities are an effective method to foster empathy in medical students and physicians for both patients and colleagues	3.5 (sd=1.0)	4.3 (sd=.76)	-4.00	.000
The humanities are a useful way to help me expand my understanding of the experiences of doctors and patients	4.1 (sd=.62)	4.3 (sd=.67)	-1.27	.208
The humanities are useful in helping me pay attention to variations in language, tone, and point of view that occur in doctor-patient encounters	3.9 (sd=.89)	4.2 (sd=.76)	-3.47	.001
The humanities are a useful tool to explore personal feelings evoked by illness experiences and the doctor-patient relationship	4.0 (sd=.75)	4.5 (sd=.66)	-1.79	.077
The humanities are helpful in improving my understanding of myself as a student-physician and as a person	4.2 (sd=.66)	4.4 (sd=.62)	-1.39	.169
OVERALL SCORE	3.8 (sd=.61)	4.3 (sd=.52)	-3.95	.000