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Creative art and medical student development:
A qualitative study

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ABSTRACT

Purpose: While many medical schools include arts-based activities in their curricula, empirical evidence is lacking regarding how the creation of art might impact medical students and their professional development. We used a qualitative research design in order to understand this process.

Methods: We conducted and analyzed interviews with 16 medical students who had created and presented original artwork in the context of a required narrative-based undergraduate medical education program. Teams of students collaborated to create interpretive projects based on common themes arising from conversations with individuals with chronic illness and their families. Open-ended questions were utilized to explore the conceptualization and presentation of the projects, the dynamics of teamwork, and the meaning(s) it might have for the student's professional development. We identified themes using repeated contextual reading of the transcripts, which also enhanced accuracy of the interpretations and ensured saturation of themes.

Results: Several major themes and sub-themes were identified. The creation of art led to a sense of personal growth and development, including reflection on past life experiences, self-discovery, and an awareness of art as a creative outlet. Students also reported an enhanced sense of community and the development of skills in collaboration. Lastly, students reflected on the human dimensions of illness and medical care and identified an enhanced awareness of the experience of those with illness..

Conclusions: A program involving the creation of art based on stories of illness encouraged students' explorations of conceptions of the self, family, and society, as well as illness and medical care while enhancing the development of a collaborative and patient-centered worldview. Creative art can be a novel educational tool to promote a reflective, humanistic medical practice.

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INTRODUCTION

Many medical schools include arts-based activities in their curricula.[1-11] The educational objectives of these offerings vary widely—from more practical uses such as sharpening observational skills[1,12-14] and teaching anatomy,[15] to stimulating reflection on the experience of illness and the nature of doctoring.[3,5] Furthermore, ways in which art is used similarly run the gamut from studying works of art in museums to the creation of art by students; however, studies assessing the educational significance of these efforts are few in number.[5,16-18] One of the authors (AKK) has previously theorized about the educational functions of creative art in medical education. The creation of original artwork by medical students, he argued, allowed access to thoughts, feelings, and impressions that students may acquire in interacting with families who live with chronic illness. These "lessons," which are interpreted by the student according to their own life experiences and worldview, may not exist in conscious memory but may be buried deep, contributing to the tacit knowledge of oneself, others, and the world.[19] Creative art also allows students to engage in perspective-taking and critical reflection on doctoring.[19,20] In this sense, the functions of art in medical education reproduce many of the roles that the humanities may play in the education of health professionals, prompting an exploration of the experiential, existential, deeply human side of medicine while fashioning a moral worldview towards the profession and its practice.[21,22] Underlying these comments is a belief that individuals develop their own personal—and professional—identities through a reflective process of interactions with others and the world.[23-25] Therefore, understanding the impact of creative art and humanities in general on medical students may contribute to the growing body of literature on the formation of professional identity in physicians.[26-28] Nevertheless, empirical evidence is lacking regarding how the creation of original art by medical students might affect their development.

The over-arching question guiding this study was "what is the impact of creation of original art on medical student professional and personal development?"

METHODS

Study Context

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The context in which the creation of original artwork by medical students was studied was the Family Centered Experience (FCE) program,[29,30] a required course at the authors' institution that involved a longitudinal relationship between a pair of preclinical medical students and patient-volunteers and his or her family. The students made scheduled visits to the volunteers' homes over a 2-year period and through a series of conversations about the volunteer's experiences, the students gained a unique, intimate view of how individuals and families cope with the challenges of chronic illness and health care. Previous studies have shown that volunteers' stories in the FCE helped to foster perspective-taking, self-reflection, empathy and growth in both students and faculty by challenging previous assumptions, beliefs, and perspectives.[29,31,32]

During the spring of their first year of medical school, students formed teams of 2-4 members who had different volunteer families with different experiences with illness, and were asked to reflect on common themes in the stories they were hearing from their FCE volunteers. Students were also encouraged to freely explore their own feelings about chronic illness and doctoring. They were then tasked with expressing their understanding via the creation of an "Interpretive Project" using any medium of their choosing.[19,33] Examples of completed projects included visual artwork such as paintings, sculpture, film, multimedia displays or diorama, as well as original poetry, musical compositions and dance.[19,33] These projects were presented at an annual reception during which each team of students displayed or performed their project for their classmates, faculty, staff and volunteer families. Many of these projects have been published or performed at national and international venues.[34-44]

Research Approach

A qualitative approach was utilized to better understand how the experience of creating an artistic representation of patient volunteers' experiences impacted medical student development. An email request was sent out during the academic year of 2013-2014 inviting all second-year University of Michigan Medical School students who had presented interpretive projects at the 2013 FCE Interpretive Project Spring Reception, as well as a random selection of students in their third and fourth years (total N=162), to participate and share their experiences. The students were assured that their responses would be de-identified and their consent to participate, as well as their permission to audio-record the interviews, was obtained.

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Data collection

Interviews were conducted by one of the investigators (EJ) who was a part-time instructor in the course with no direct teaching responsibilities for the interviewed students. Face-to-face individual interviews were done at a public place that ensured confidentiality. Open-ended questions were used to explore the students' previous experiences with art, their team member interactions, as well as their thoughts, feelings, and insights regarding the process of creating and presenting the artwork (see Appendix S1 available online). Respondents were encouraged to reflect broadly on their experiences with their FCE volunteer families, their own life experiences, perspectives, and personal values. The investigator also solicited thoughts they had on how this activity might impact their future role as physicians. Interviews were recorded, transcribed, de-identified, and distributed among the investigators. Transcripts were sent to each participant for verification of accuracy of answers, and although students were solicited for additional comments (i.e., member checking), no additional reflections were received.

Data Analysis

We used a general framework of Grounded Theory to analyze the content of the interviews, and thematic coding of the transcripts allowed identification of emerging themes.[45,46] Although we employed Grounded Theory to guide our approach, we explicitly acknowledged our belief that individuals and groups construct meaning from lived experiences and interactions,[23,47,48] and we, as investigators, interpret these meanings through the lens of our own experiences and worldviews. In this sense, our overall approach would be considered congruent with constructivist[23] and phenomenological[49] frameworks. Each investigator independently performed a line-by-line reading of all transcripts. Open coding was then performed to identify general themes, which were discussed and then agreed upon by consensus among the investigators. Axial coding was then applied to allow for identification of subthemes within, or relationships among, the major codes.[46] Finally, selective coding was performed to construct an overarching thesis of how creation of the interpretive projects impacted the students.[45] Throughout the process, careful reiterative readings of the transcripts and re-analysis of the codes was performed to ensure the themes authentically captured the participants'comments, as well as to ultimately

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ensure thematic saturation.[46] All aspects of the study were approved by the medical school's institutional review board.

RESULTS

A total of 17 students agreed to participate and 16 interviews were completed, which included 1 third-year (clinical) and 15 second-year (preclinical) students. Although not known with any certainty, we speculated that the lack of response in clinical students was due to the time commitment of clinical rotations, as well as lack of engagement due to the length of time passed since their own FCE Spring Reception. Interviews lasted approximately 45 minutes. Analysis of transcripts from the interviews revealed 3 dominant themes, regardless of preclinical versus clinical status. The Interpretive Project enhanced: 1) personal growth and development through the process of creation, 2) a sense of community among peers and development of professional skills, and 3) reflection on the human dimensions of illness and medical care. (Table 1)

Theme 1-The project led to a sense of personal growth and development

The students reported that the projects influenced the way they saw themselves and each other (Table 1). Students come to medical school with a breadth of experiences—personal, academic, and professional—and how they recalled and incorporated these experiences in the creation of their projects was a prominent subtheme within this category. A student who was a trumpet performance major in college used a technique attributed to the Italian composer Lucio Berio to create harmonic resonance with a trumpet playing against piano strings in order to express the emotional nuances that he felt from hearing his volunteer's story. Other students explained that the project allowed reconnection with their creative selves, such as the student who reflected, "[I am] the artsy kid at the math and science institution, and I am really getting a chance to delve into meaning and concept in a way that I [usually] don't as a medical student." For other students, art allowed them to emotionally respond to conflicts and challenges related to illness that they or their relatives had encountered in the past. One student who helped to create a portrait composed of stigmatizing expressions explained, "I have a father who has very severe learning disabilities, and he has given me stories about [hurtful] things that people have said to him in the past… so I understand that people can really hold onto words."

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A second subtheme identified was self-discovery and the feeling of pride through the creative process. One student commented, "(I am) definitely more confident because of this experience. This is something like part of my personal development." Through the process of self-discovery, students felt more engaged with the projects than they anticipated. One student, who elected to create two different projects, reflected "I just felt like I wanted to do more, because medical school is not really based on creative artwork and I thought that, well, I might do as much of this while I can." The self-confidence and pride arising from a creative project stands in contrast to the sense of vulnerability, distress, and depression that medical students often express and that worsens with training.[50,51]

A final subtheme identified within personal development was reflection on the importance of the creative process as an outlet within a science-based environment. As one student reflected, "it was an opportunity to really stretch my creative muscles, which at that time [medical school classes] were not particularly doing that."

Theme 2-The project enhanced a sense of community and the development of skills in teamwork and collaboration

Through the creation and presentation of art, students reported enjoying the camaraderie and personal connections arising from the projects, the experience of publicly presenting their work, and use of skills necessary when working in groups, such as communication and teamwork.

Nearly all the students commented on the role the project had in creating a sense of community among peers. This was evident in one student's reflections: "It was great to work with him…. We ended up just sitting and working on the project …and just had a deep conversation. We became really close through that conversation." It was further apparent in the interviews that the students found the talent and creativity of their classmates impactful. A second subtheme revolved around the experience of presenting their work. These reflections included statements of being out of their comfort zones as well as feelings about how their work was perceived by others. One student noted, "it is nerve-racking to put something out there that I made, and people can judge you. This is not just studying."

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A final subtheme in this category was reflection on skills that had an application in their future profession, such as time management, group dynamics and teamwork. “I am somebody who likes working alone and teamwork and group projects always present a certain challenge…probably the reason I did not like small groups (before) was because I was the smart kid who ended up doing everything… Working in a team that actually works well and where everyone can take ownership and responsibility--we have reached that maturity finally.”

Theme 3- The project enhanced awareness of humanistic values in medicine.

A final major theme identified was that the creation of art prompted reflection on the human side of medicine, including perspective-taking and gaining of a deeper appreciation of the experience of illness. Students commented on the unique challenge of learning about illness not just by passively listening to a story, but through an active process of interpretation. “[The person in the diorama] was having to deal with something that I had never had to deal with and that is reiterated when we would talk with our FCE volunteer every single time.... But what probably stuck out most to me while doing our artwork is that I haven’t had to deal with that. I don’t know how I would deal with that if I was faced with something so devastatingly crushing.”

As another student reflected, “when you do a thoughtful piece … it is another way to appreciate her. It was satisfying to me to say that we have tried to treat your story with dignity and bring something to it, that hopefully, other people understand what you’re living with and will help us understand too. Creating the piece makes you think about ‘what does this illness really mean to this person at a human level?” In this comment there is the suggestion of a deeply empathic connection, a process of bearing witness to the struggles of another—not through some act of voyeurism, but by emotionally forming an alliance with someone in need and taking responsibility for assisting them in their struggles.[52]

A final subtheme identified through the interviews was how the Interpretive Project prepared students for the complex human dimensions of their clinical encounters. Several students maintained that learning through creative art was complementary to their study of the biomedical sciences. One student stated, “understanding what people go through outside of their doctor appointment has taught me so much and it is wonderful. The biggest thing for us… [is] to gain exposure and to understand chronic illness outside of our science curriculum.” Another

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remarked, “this project opened up an avenue where it felt like that there is a skill here that I am more comfortable with and familiar with. It is another tool that I have added to my toolbox.”

DISCUSSION

A major function of the humanities in general and art in particular is not merely esthetic but *existential*: to explore the feelings, perceptions, experiences, relationships, and stories of human beings. Art has the ability to “make strange,” that is, to trouble the perception of everyday objects, events, and identities and force the viewer to re-experience them in new and generative ways.[20] The uses of art in medical education can capture all of these functions and allow both expression of the mystery and wonder of providing care to those in need[19,21,53] .The Interpretive Project was designed to provide beginning medical students with the opportunity to reflect on patient stories to explore experiences of illness and ways of doctoring. This study was intended to understand what these reflections consisted of, and whether the projects achieved the overall educational goals.

One of us (AKK) previously proposed that reflective functions of art in medical education include fostering perspective-taking and identification with the patient, acting as a form of social critique, and challenging perceptions and assumptions regarding patients, doctors, and medicine.[19] In addition, creation of art may allow assessment of the deep-seated or tacit lessons students acquire through stories or experiential learning activities, such as the Family Centered Experience.[19,30] The present study adds another critically important dimension to these ideas through the insights of the students themselves. The creation of art by medical students may enhance personal growth and the development of a humanistic, empathic professional self-identity.

The concept of professional identity development has recently garnered increasing attention in medical education,[26,27,54,55] and acts to counterbalance the idea of medical education as a process to fulfill educational “competencies,” often conceptualized as acquisition of specific knowledge, skills and attitudes. In contrast, professional identity development may be regarded as a continual process involving both the acquisition of clinical knowledge and skills, as well as the development of a practice that includes reflection on self, others, and the world.[56,57] Ideally, this

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development is meant to foster *phronesis*, i.e., practical wisdom in which an individual works for the betterment of self and humankind.[55,56,58-61] In the present study, evidence of this type of professional identity development is seen not only in the artwork itself,[34-38,40-43] but also in students' reflections on the actual process behind creation of art.

Students recalled past academic or personal interests and experiences in thinking about ways to interpret their volunteers' stories. One student thought that the projects were important because they allowed him to feel "more integrated" as he incorporated something that was so much a part of his past with his present (Table 1). For several students, the projects allowed engaging in non-science interests, such as poetry, Classics or rap, whereas with others, it represented a new and challenging mode of self-expression. This sense of building on past experiences in order to expand in new directions is part and parcel of transformative learning.[24]

Students also explicitly saw their work as an opportunity to enhance a sense of community and to develop skills that are valuable for clinicians, such as time management, teamwork, and collaboration. In contrast to individualistic views of learning in traditional models of medical education, there is an increasing emphasis on building learning communities as the basis of communities of practice.[55,62] These activities reaffirm the identities of medical students as thinking, feeling, creative members of a sociocultural community.[55]

Evidence from the study supports the idea that the goals of a humanistic medical curriculum were met as students reflected on how the creation of their project impacted their future approach to patient care. As with other forms of narrative and art,[30,31] these projects enhanced perspective-taking, often between students and individuals who are very different in terms of age, sociocultural backgrounds, and worldviews. The creation of projects also prompted students to embrace the idea that excellent medical care is not solely confined to the biosciences. In fact, as a former biosciences major expressed, the project stimulated him to be "to be more open and receptive" to thinking about ways of becoming a doctor that he previously had not envisioned (Table 1). This "reordering" of assumptions—often triggered by what has been termed "cognitive disequilibrium" elsewhere[63,64]—is a situation in which encountering an experience, idea, identity or perspective that is new, strange or unfamiliar leads to self-reflection, dialogue (either internal or with others) and the creation of new and more complex perspectives. It is at the core of identity development.[65,66]

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STUDY LIMITATIONS

This study has certain limitations. First, the total number of study participants was small and limited to one program at one medical school in the Midwest. The small cohort of responses to our invitation for an interview has multiple potential explanations, including time constraints and method of invitation via email. Furthermore, the views expressed may not be representative of all the students who have gone through this program. Nonetheless, the study was rigorously conducted and the responses were analyzed such that thematic saturation was achieved. By its very nature, qualitative research does not result in generalizable findings.[45] Rather, in place of generalizability is authenticity, i.e., how accurately the study represents possible responses to an event.

Second, almost all of the students who agreed to participate in our study were preclinical (second-year) students who may not have been able to gauge fully the true impact the project would have on their future professional identities or clinical practice. We extended invitations to a randomly selected group of clinical students; however, only one was able to participate. Furthermore, this qualitative study captures student reflections at a specific point in their educational development, where they are beginning to switch from an internal egocentric understanding of medicine to an external conceptualization and empathy of the experiences of others. Only a high-quality, truly longitudinal study[27] may provide evidence of long-term development of professional identity in medical students following an educational intervention.

Another potential limitation of our study is that students who volunteered to participate may have felt that they benefited in some way from the project and could have been more enthusiastic. However, this is a common limitation of qualitative research, and the responses did reflect a diversity of how students engaged with the project.

Finally, the relative impact of a single activity, even one as complex as the Interpretive Project, on the longitudinal development of medical students' professional identities is unknown, and is probably insufficient to foster a major transformative change towards a more humanistic worldview. However, when undertaken as part of a robust program aimed at stimulating

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reflection and dialogue on the patient's experience of illness and its care, these activities may play an important role in creating a humanistic, reflective orientation to medical practice.[67]

CONCLUSIONS

Medical educators often struggle to teach hard-to-define humanistic and professional values that, along with biomedical knowledge and clinical skills, produce physicians who can treat patients with compassion, fairness, and excellence. The current study found that the creation of original art within a narrative-based program encouraged reflection on self and enhanced the development of a professional identity dedicated to compassionate, collaborative, and professional patient-centered care.

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Table 1

Major Themes	Additional Representative Examples
1. A sense of personal growth and development	
a. Reflection on past life experiences and background	"That to me is the overall appeal of this project because I don't get to perform as often like I used to. To feel like I am not divorcing my past and yet to be in my present…And so it allows me to feel more integrated because I am taking something that will always be a part of who I am, but now I am giving it an application…in something that is also very meaningful to me, which is medicine."
b. Increased self-discovery and pride	"Everyone seemed very impressed and really liked the output of (my) project so that was really satisfying." "[D]efinitely the main thing I took away from [the project] was that it had nothing to do with my patient and that it had more to do with myself. I think that is the whole point of this [project] is that you try to realize something about yourself through an interaction with one of your patients."
c. The creative process as an outlet in a science-based environment	"[Writing poetry] started recently and really at the beginning of medical school, sort of as an outlet. …I love science and I am going to be doing research for the rest of my life.

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	But, we shouldn't be 100% consumed by science and the rigors and structures that is behind the curriculum that is used to teach science. I think this sort of takes away from the charm of science. And so…I needed to find my own little creative outlet"
2. Enhanced a sense of community and the development of skills in teamwork and collaboration	
a. Created a sense of community with colleagues	"It was really amazing to see everybody's talents, dancing, singing, and artwork. It was really amazing. I think this really shows that everybody's ideas should not just by interpreted by words but by all sorts of different mediums. I think that is really important." "People genuinely put thought and time and effort into their projects…I was blown away by some of the talent that people have outside of their "black and white" medical curriculum. For people that are supposed to be brilliant in medical school and be just as brilliant in these creative free flowing interpretations. So that just blew me away."

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b. Allowed an opportunity to present one's work	"It was good to just see the reactions. I think one of the best reactions to an artistic piece sometimes is just silence… We are used to judging pieces and performances by applause or laughter or loudness…but otherwise when you see people get it and what you hope for is a universal idea of thought. That was definitely rewarding to see that."
c. Heighted awareness of group dynamics and developing skills at teamwork	"Being given the chance to work in teams is good. I think that is where healthcare is going. Since the physician, second to the patient, is technically the leader in these teams, you have to know how to manage people and get their feedback in a way that is not condescending or degrading…being exposed (to teamwork) you want to know where you strengths are and [knowing] where you might need to work a little harder in that role is good."
3. Enhanced reflection on the human dimensions of illness and medical care	

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a. Prompted perspective-taking	"It is weird that someone like myself, only 23-years-old…feels like I can think the same ways as someone who is 70 plus years. Obviously, I haven't seen nearly as much of life as he has but there is certain conclusions that both of us have drawn just as a result of the limited interaction that I have had with him that are very, very similar."
b. Provided an important understanding that students can use in clinical encounters	"I think all the …projects actually helped me and others realize that you can help the patient and have a victory even if you don't cure their illness. You don't necessarily have to cure their illness to be a good doctor. If you can connect emotionally with the patients and show them that you are there and you care about them and you understand what they are going through and you are doing what you can do to enhance their quality of life."
c. Provoked reflection on the ultimate humanistic goals of the program and the human side of medicine	"The first time I heard about the project I didn't take it seriously and I thought to myself, 'How I am going to make an artistic project that represents a patient's illness?' I thought that makes no sense at all and it is not going to be productive and it is just going to be like something that I do and then it will be over with and I will never think about it again…It turned out that I was completely wrong about the usefulness of the project to me, my [FCE] family, and everyone involved in the program. I think in the future it will make me a lot more open and receptive to learning about how I can be a better doctor in ways that I have never previously thought about."

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