

Running head: EXPERIENCING RESONANCE: CHORAL SINGING IN MEDICAL
EDUCATION

Experiencing Resonance: Choral singing in medical education

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Abstract

Arts and humanities programming is becoming increasingly incorporated in the medical school, balancing the biomedical paradigm, and nurturing human and emotional qualities and understandings in medical students. Music is often listed among these arts and humanities disciplines; yet there exists an acknowledged gap in the literature pertaining to musical activities and programming in the medical school, despite the prevalence of choirs, a cappella groups, small instrumental ensembles, and musical theatre programs in medical schools. Literature on choirs, musical ensemble, and community music suggests that choral singing can cultivate many of the intra and interpersonal skills that medical humanities programming encourages, such as empathy, cooperation, self-awareness, and human connection. Within the medical humanities, music has been tied to metaphors of “medicine as a performing art” or “the art of listening,” but very little literature exists delving into the actual musical experience of medical students. Drawing from medical humanities, community music, and education theory, and shaped by the metaphor of musical and emotional ‘resonance,’ this phenomenological study explores the relationships between choral singing and medical scholarship. Through semi-structured interviews, the primary goal of this inquiry was to develop in-depth understandings of the experiences of medical students singing as members of a musical community of practice: an extra-curricular medical school choir at a Canadian university. Findings indicate that choir is an informal, non-medical venue where students can engage with their musical identity during medical school; that choral singing can offer a means of stress-relief and creative outlet, mitigating symptoms of student burnout; and that engagement in the choir builds meaningful relationships and a supportive, connected community. Moreover, this study describes the role of music and choral singing in medical humanities and medical education, as well as suggests how involvement in a medical school choir may influence a medical student’s professional identity formation.

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Chapter One:

**Overture
(Introduction)**

Merging Dichotomies

I completed my undergraduate degree at McMaster University in the Arts and Science Program. It was a program I enrolled in as I had enjoyed and excelled in a variety of courses in high school, and did not want to narrow my focus of study right away. ‘Artsci’ was a place where I could continue to be a “Renaissance woman,” with the luxury of taking a spectrum of courses across multiple faculties: no requirement to choose a major. It was like a dream. I could start my day engrossed in a comparative literature class, and end it marveling at homeostasis in the physiology lab. I thought I would “figure things out” over the course of my degree, but the desire to specialize never really took me. The only real consistency was my Monday evening choir rehearsals. During the summer after my third year of university, I was determinately consumed with studying for and writing the Medical College Admissions Test (MCAT). In my fourth year, I thrived as I wrote an honours thesis on ensemble music making in low-income communities. But as I approached graduation, I felt pressure to “choose a field” in anticipation of leaving an environment where such breadth was explicitly celebrated. I chose to take a year off from study after graduation to try and better understand my career focus. In my initial application letter in high school to the Arts and Science Program, I wrote that I did not believe that the arts and sciences were mutually exclusive, yet I still entered the ‘unknown’ that September after graduation with a feeling that – in the “real world” – my interests were hopelessly dichotomous.

During my year-off after undergraduate studies, I actively explored and searched for the space where music and medicine authentically converge. Through connections in my new choir in Toronto, I met with a family physician, who was also an accomplished professional-level singer. I discovered that one of the basses in my new choir was an Ear Nose and Throat specialist, having chosen the specialty because it allowed him to work with the parts of the body that are responsible for singing. I went to a conference at the University of Toronto presented by the Music and Health Research Collaboratory (MaHRC), and learned about music therapy and music medicine. I met privately with a cardiologist, who researches the use of music to improve cardiac out-patient compliance to exercise regimen. I was struck by the numbers of physicians and physician-candidates I was beginning to encounter who were musical, and passionate about bridging the two worlds. My gut feeling that there *must* be a connection between music and medicine was continually reinforced. Yet, after all of my exploration, I still felt that a dichotomy

existed in all of these cases, and that the parts of music I felt most profoundly passionate about were not represented in any of these scenarios. I chose to pursue this master's degree in order to further explore my relationship with music and to continue to find my voice.

This question of a dichotomy between art and science, of not feeling fully represented by one's field of study, is a major theme in this thesis. The literature review, will present medical humanities literature that highlights this very theme in the context of medical education. In the transcendental data analysis, study participants will echo this feeling of disconnect and desire for wholeness in their academic journey. The focus of this thesis is in the field of medical education, but the themes that it discusses are hopefully relatable outside of it. Which brings me to another important theme in this thesis: resonance. A common thread through this thesis is the double entendre represented by the concept of resonance. The first is an explicitly musical interpretation, pertaining to sound reverberating in space; the second relates to emotional resonance, and to human connection, which presents in patient-doctor relationships, in the interview process of this study, and in the honesty of music-making. The methodology chapter will present this metaphor more deeply, illustrating the power of resonance in musical space. The conceptual framework will present how that musical space can facilitate connectedness in communities of practice; that is, in settings of informal, social learning. In keeping with the theme of resonance, this thesis will continue to include an amount of personal reflection from me, to try and help inform or contextualize concepts and findings, and to generate a greater sense of positionality of this work in the broader scope of discourse.

Overview of Thesis and Research Questions

The literature review will present a more thorough explanation of the major concepts in this inquiry, but to give a brief overview, this project is essentially a proposition of marriage between medical humanities and community music. Medical humanities is a field that represents human qualities of medical practice: the patient-physician relationship, perspective-taking, empathy, compassion, hearing and listening, seeing and noticing, and self-awareness. The field is as broad as its definition, ranging from discussion of philosophy and ethics; to engagement with literature – fiction and not – written about the medical field by doctors, patients, and medical students; to theatrical or artistic representations and reflection on experiences in the medical field. The manifestation of medical humanities in the medical school is both curricular and extra-

curricular, presented both as structured activities and interest groups within medical school communities.

An informal Google search of medical humanities programming in Canadian medical schools reveals a significantly large number of medical school choirs, medical school musicals, acapella groups, and other music ensembles occurring in extra-curricular medical school programming. Furthermore, many sources that describe and define medical humanities in the academic literature will include ‘music,’ amidst a list of arts that contribute to the medical humanities discourse. But despite this prevalence of musical programming and acknowledgement of its contribution, there is very little written on the specific or explicit role of music in medical humanities or medical education (Blasco, Moreto, & Levites, 2005; Cook, 2002; Kidd & Connor, 2008; Pellegrino, 1982; van Roessel & Shafer, 2006). In a recent metasynthesis of literature on arts-based programming in medical school, conducted by Haidet, *et al.* (2016), out of 179 relevant articles retrieved, only six pertained to music. This limited literature suggests that music does hold a position in the scope of medical humanities, but the quality of that significance has yet to be widely or deeply discussed. While literature exists on the value of choral singing in the field of music therapy, or music medicine (e.g., the use of frequency to treat illnesses, such as fibromyalgia), and despite the prevalence of choirs and music groups in medical schools, there seems to be very little literature written on the experience of a physician candidate or physician and music in medical education.

As a dedicated and experienced choral singer, with a research background situated mostly in community music and social aspects of music making, I find this gap in the literature particularly surprising, as I see a multitude of parallels between concepts in music-making and the mission of medical humanities. Music-making facilitates human connection and understandings; it is an accessible venue for self-expression; it cultivates critical listening skills; and it has a capacity to empower self-confidence, relieve stress, and encourage wellness. Furthermore, a personal bias of knowing many musical physicians and medical students deepens my bewilderment at the lack of literature combining music and medical humanities. Van Manen (2014) writes of the phenomenological research question, “a phenomenological question may arise any time we have had a certain experience that brings us to pause and reflect. Even the most ordinary experience may bring us to a sense of wonder” (p. 31). My exposure to this

surprising contrast between seeing so much music in the medical field and finding so little written about it, is what has sparked this inquiry.

Through the inquiry of this project, by interviewing medical students who sing in a medical student choir at a Canadian university, I aimed to answer these three questions:

- 1) What is a medical student's experience singing in an extra-curricular medical school choir?
- 2) What role does music (specifically choral singing) play in the field of medical humanities and medical education?
- 3) How does involvement in a medical school choir influence a physician candidate's medical education and physician-journey?

This inquiry could contribute to filling a gap in the literature of medical humanities by exploring the influence of a musical activity in medical humanities curriculum. The inquiry could also help to offer support and encouragement for the continued practice and development of the participating choir and other medical school choirs like it.

A Note About Hyperlinks

Given that so much of this thesis is about sound, and given that dissemination of this document will be predominantly online, I wanted to take advantage of the opportunity to include more sound in the text. Throughout this thesis, I have included hyperlinks to better contextualize ideas and provide audiovisual examples of certain musical concepts. Save for a few, these hyperlinks are, of course, optional to follow, and are really meant to enhance one's understanding and experience of reading this document. Of the choral works included, I have specifically selected pieces and examples that have been important works in moving me as a choral singer. As such, I hope that – even if you listen to only one minute of each – these pieces not only clarify concepts, but also move you as they have moved me and welcome you into the beautiful space created through choral music. Headphones are recommended for a better listening experience.

Chapter Two:
Literature Review

In the fourth year of my bachelor's degree, I took a [seminar course](#) through my program called "Medical Humanities." It was a popular course in my small program, and I signed-up based solely on its word-of-mouth rave reviews, thinking I was taking a medical ethics class, and knowing very little about what the syllabus actually included. To my surprise, we spent the semester reading literature and op-eds, listening to guest speakers from the medical field, and discussing the fundamentals of the patient-physician relationship; the intersection of competence and compassion; cross-cultural care; morality; mortality; and the human condition. Class discussion was challenging, thought provoking, and deeply moving, and my mind was opened not only to a field that was entirely new to me, but to an area of thinking about and engaging with humanity that I had never before considered: through the vulnerability of healthcare. ARTS&SCI 4CT3 was my introduction to medical humanities, and sparked a curiosity that has since led me to uncover a breadth to the field that extends beyond the study of medical literature, a breadth that leads me to take-on this thesis.

This chapter will open with a brief background and introduction to the concept of medical humanities and present the various contexts through which music exists in that discourse. I will then highlight an important gap in the literature that serves as the gateway to this inquiry. Once the gap has been established, I will present a range of literature from community music, music cognition, and neuroscience that will serve as a rationale for the study of music in the context of medical humanities, and provide the necessary background with which to hopefully better help the reader to understand the upcoming chapters of this thesis.

Introduction to Medical Humanities

The concept of medical humanities emerged in the late 1940s in response to a paradigm shift toward a research-focused, reductionist approach to medical study, and a resultant departure from "caring" to "curative" medical care (Bleakely, 2015, p. 12). This shift is considered to have begun in conjunction with and exacerbated by advancements in medical technology and developments in scientific research. These advancements have of course resulted in a vast expansion of the medical field by way of knowledge, detection, and treatment possibilities; but this focus on research, intervention, and reductionist medicine in the university and in teaching hospitals has arguably shifted the focus of medical education heavily toward a more biomedical, academic model as well (Cooke, Irby, Sullivan, & Ludmerer, 2006; Charon, 2006; Batistatou,

Doulis, Tiniakos, Anogiannaki, & Charalabopoulos, 2010; Greaves, 2001; Martimianakis, *et al.*, 2015; Misch, 2002; Pellegrino, 1982). Proponents of the medical humanities argue that the consequence of this shift is contributing to a disconnect between the practice of medical science and the more human components of medical care necessary for a meaningful physician-patient relationship. They suggest that physicians less readily see their patients, and more readily see illness, viable interventions, and treatment plans (Bleakley, 2015; Charon, 2006; Cooke, *et al.*, 2006; Foucault, 1973; Shapiro, 2008; Verghese, 2011). “Medicine has to regain its human touch,” writes Bleakley (2015, p. 20).

Led by pioneers like Charon, since the 1960s the medical humanities movement has been gaining more momentum, developing to incorporate the arts and humanities in medical education, both intra and extra-curricularly (Brody, 2011; Greaves, 2001; Kidd & Connor, 2008; Wear, 2009). The foundational premise of the movement assumes that the field of medicine combines the “science” of biomedicine with the “art” of diagnosis and human connection (Pellegrino, 1982). Proponents of the movement also argue that arts and humanities can help students to (re-)cultivate and engage with human qualities and skills, such as perspective taking, empathy and compassion, an understanding of the human condition, and self-awareness: concepts that are not explicitly taught or discussed in the textbook study of medical science (Batistatou, *et al.*, 2010; Charon, 2006; Downie, 1994; Downie, 2001; Finlay, 2001; Greaves, 2001; Kidd & Connor, 2008; Kumagai & Wear, 2014; Macnaughton, 2001; McLean, 2014; Spicer, Harrison, & Winning, 2013).

The literature suggests that the medical humanities movement in medical education aims to serve three major roles. The first is to help bridge this perceived gap between the “science” (biomedical) and “art” (humanity) of medicine in an effort to improve diagnostic, problem-solving, and communication techniques (Brody, 2011; Cooke, *et al.*, 2006; Pellegrino, 1982; Shapiro, Rucker, & Beck, 2006). The second perspective involves encouraging human qualities such as empathy and compassion (Finlay, 2001; Gillis, 2008; Kumagai & Wear, 2014; Pellegrino, 1982; Wear, 2009). The third relates specifically to the physician-candidates in aiding to cultivate meaning-making in education, helping them to cope with and understand difficult experiences that they are confronted with, express their emotions, reflect on their experiences, relieve the stress of medical school, and ultimately encourage the formation of a humanistic professional identity (Batistatou, *et al.*, 2010; Charon, 1986; Downie, 2001; Genovese & Berek,

2016; Gillis, 2008; Kidd & Connor, 2008; Kumagai & Wear, 2014; Macnaughton, 2001; Wear 2009).

Whether medical practice can or should be broken down into its dichotomous component “art” and “science” parts is seemingly a point of debate among medical humanities scholars, however an overarching concept seems to be that the practice of medicine is holistically interdisciplinary, “[requiring] a blend of intellectual pursuits: theoretical, practical, productive, and performative” (Bleakley, 2015; Boudreau & Fuks, 2015, p. 329; Hafferty & Franks, 1994). Furthermore, whether or not humanities should be incorporated into the medical school, and how, is a topic of ongoing debate surrounding whether these “softer” skills should be communicated through a re-conceptualization of the hidden curriculum or explicitly taught in the formal curriculum of medical school (Bleakley, 2015; Martimianakis, *et al.*, 2015; Misch, 2002).

Much of the medical humanities academic literature focuses on the use of narrative, literature, poetry, performing arts (music and drama), as well as visual arts in encouraging perspective-taking, and serving as a venue for self-reflection and expression. There is an additional component of medical humanities that relates to medical ethics, history, and philosophy. In the scope of this project, I am interested in exploring the role of arts-related activities (rather than traditional humanities) in medical humanities curriculum, specifically choral singing.

The Hidden Curriculum of Medicine

Bleakley, Bligh, and Brown (2011) write,

It is only to be expected that first-year medical students have trouble in demonstrating appropriate values and behavior during their first clinical encounters... But there is also worrying evidence that, instead of closing, the gap between patient and student actually widens during medical school. Medical students enter their education full of idealism and compassion, but subsequently have this trained out of them. (p. 190)

Scholars suggest that this emphasis on the biomedical and ‘widening of the gap’ is inherent to a hidden curriculum in medical education and implicitly taught to students early on in their training. Marimianakis, *et al.* (2015) writes,

A physician can be clinically knowledgeable and not be humanistic, and still be successful in the system, while a humanistic physician who is not clinically competent

will fail. This is the message received very early on by students, and it is knowledge that they need in order to succeed in their studies.... Thus students receive implicit messages that humanism is secondary to clinical scientific knowledge. (p. S9)

Medicine's hidden curriculum refers to content that is implied from the organizational, social, and cultural structures of the medical field. The institutional (schools and hospitals) structure, hierarchy of staff and faculty, policies, initiatives, resource allocation, evaluation methods, formal curriculum, routines and rituals, even the slang used by members of the professional community: the nature of these factors communicates cultural and moral values of the medical field to its learners (Hafferty, 1998; Hafferty & Franks, 1994; Martimianakis, *et al.*, 2015). Internalizing these principles contributes to shaping the becoming of medical students, which in turn presents in professional identity and practice (Hafferty & Franks, 1994). In other words, the hidden curriculum in medicine is what constitutes the socialization of medical students into the doctors they become (Hafferty & Franks, 1994; Martimianakis, *et al.*, 2015).

Not all of what is taught during medical training is captured in course catalogs, class syllabi, lecture notes and handouts, or the mountains of documents compiled during accreditation reviews. Indeed, a great deal of what is taught – and most of what is learned – in medical school takes place not within formal course offerings but within medicine's 'hidden curriculum.' (Hafferty, 1998, p. 403).

Radical scholar, Michael Apple (1979) opens his book, *Ideology and Curriculum*, writing "Education [is] not a neutral enterprise... The educator [is] involved, whether he or she was conscious of it or not, in a political act" (p. 1). Underlying premises of Apple's (1979) work are that education cannot be separated from the institution of which it is part, and that what is taught and what is learned in schools – overtly or covertly – relates to the sociocultural structure of society. What we choose to teach and how we choose to teach it indicates what we deem as important in our society.

The knowledge that got into schools in the past and gets into schools now is not random. It is selected and organized around sets of principles and values that come from somewhere, that represent particular views of normality and deviance, of good and bad, and of what 'good people act like'... Schools do not only control people; they also help control meaning." (p. 63)

What Apple (1979) is describing is education as a socialization process, where "the formal and hidden curriculum socializes people to accept as legitimate the limited roles they ultimately fill

in society” (p. 32). He frames this socialization process as a product of the hidden curriculum: “the tacit teaching to student of norms, values, and dispositions that goes on simply by their living and coping with the institutional expectations and routines of school, day in and day out for a number of years” (p. 14).

Hafferty (1998), whose work on the hidden curriculum is prolific in the medical education discourse, writes,

When a medical school begins a new capital funding drive, announces a new initiative...for example, faculty involvement in private-sector research, implicit messages are being disseminated throughout the community about what the institution considers important or not important... When a ‘new curriculum’ is announced, the very work of developing, implementing, and evaluating that curriculum conveys to faculty and students alike a variety of messages about what is, and what should be, valued within the community. (p. 404)

Hafferty (1998) describes medical education as a “cultural process” taking the form of a “life-space,” where learning is dynamic, transformative, and continuous, and occurs as a result of the cumulative elements of formal, informal, and social learning (p. 404). With the influence of the informal and hidden curricula, there is a “fundamental distinction between what students are taught and what they learn” (Hafferty, 1998, p. 404).

Hafferty and Franks (1994) and Apple (1979) all comment on the accepted “objective neutrality” that society gives to science. All three authors point out the disproportionate “legitimacy of knowledge” that is given to topics framed by science, and also the characterization of science as culturally neutral because of its objectivity and rigor. They suggest that a preference of scientific knowledge over other ways of knowing is suggestive of values held by our society. We need to acknowledge the cultural implications of a science-driven paradigm, many of which are manifest in the hidden curriculum of medicine, reinforcing notions of curative versus caring medicine, strong clinical skills, and scientific accuracy, among other as examples (Martimiankis, *et al.*, 2015). Hafferty and Franks (1994) highlight that this dichotomy presented by the discourse of medicine-as-art versus medicine-as-science, categorizing humanistic healthcare as “medicine-as-art” suggests that it is “thus something that operates along a dimension different from that of medicine-as-science” (p. 863). This dichotomy reinforces the idea that caring medicine and humanistic qualities represent a separate category within the

practice of medicine, and thus hold a separate space in medical curriculum: a secondary space, as implied by the scientific hegemony driving the field.

This influence of a disproportionate focus on the acquisition of biomedical expertise at the cost of human expertise is fundamental to the premise behind the necessity of medical humanities to reinforce humanistic values in medical professionalism. Shapiro (2008) writes that “medical education still seems surprisingly ineffective in helping students walk a mile in their patient’s shoes, as they are so often enjoined to do” (p. 2). Shapiro (2008) is one to attribute much of this gap to the advent of technology. She writes,

The explicit goal of medicine has always been to prepare its practitioners to draw closer to their patients, with the intention of providing understanding and assistance. But in the modern era, “drawing closer” is mediated by technology: instead of observing and touching the patient directly, scientific advances often substitute technological intimacy for personal closeness. Understanding is translated as diagnosis and prognosis; and assistance becomes treatment and intervention. (p. 4)

Dr. Abraham Verghese, author of one the award-winning novel, *Cutting for Stone*, and physician and professor at the Stanford Medical School, echoes this statement in a beautiful and inspiring [TED talk](#). He too attributes the decline of human connection in practice to technology, and speaks about the importance of human touch in medical practice for a thorough diagnosis and genuine physician-patient relationship. He says,

I joke, but I only half joke, that if you come to one of our hospitals missing a limb, no one will believe you until you get a CT scan, MRI, or orthopedic consult... When we shortcut the physical exam, when we lean toward ordering tests instead of talking to and examining the patient, we not only overlook simple diagnoses that can be diagnosed at a treatable, early stage, but we’re losing much more than that. We’re losing a ritual. We’re losing a ritual that I believe is transformative, transcendent, and is at the heart of the patient-physician relationship... that is the power of the human hand: to touch, to comfort, to diagnose, and to bring about treatment.

Verghese (2011) goes on to describe the advent of the stethoscope in the late 1800s and its significance of the shift in medicine toward precise, internal diagnostic capabilities, but also as a turning point that physically separated doctor from patient through apparatus. He also describes an image of present-day “rounds” in hospital, where physicians less often crowd around a patient to discuss their condition, but rather gather around a conference table with a computer screen, scans, and data, where “the one critical piece missing, is that of the patient.” Verghese (2011) and Shapiro (2008) illustrate how the more deeply medical care is influenced by data-oriented,

objective approaches, the more disconnected physicians become from the patient's human condition. They show how the advent of technology and a focus on science teaches through the hidden curriculum that tools are more reliable than touch, and that illness, not the patient, is at the focal point of a doctor's lens. I do not wish to undermine the importance and contribution that technology and science has made to treatment, diagnosis, and to *cure* the patient, but rather suggest that the human components required to *care* for the patient are perhaps being neglected as scientific and technological advancement in medicine is progressing. This focus on technological intervention teaches through the hidden curriculum the centeredness of procedure over centeredness of the patient in medical care.

This concept of 'patient-centered care' is significant in the discourse of humanistic healthcare and central to the professional medical competencies, which will be presented in an upcoming section. The Canadian Medical Association (2010) defines 'patient-centered care' as follows: "The essential principle is that health care services are provided in a manner that works best for patients. Health care providers partner with patients and their families to identify and satisfy the range of needs and preferences" (p. 8). In other words, the patient is placed as the driver in the care plan, where decisions are made not only with the patient in *mind*, but actually *with* the patient (and family) as players in the decision making process. This approach to care is important to humanistic healthcare discourse, as it responds directly to non-humanistic pitfalls of practice, such as objectifying patients and reducing patients from persons to illness.

Technology and the hidden curriculum.

Apple (1979, p. 27) writes that we need to question "how and why society is constructed in a certain way," and suggests that part of what shapes the hegemony and hidden curriculum of education is the economy. He argues that the curricular focus and bolstering of subjects that teach technical, functional skills, or prepare students for a track in higher education reflects societal motivations to produce individuals that contribute explicitly to economic growth. He follows that assertion with a quip suggestion that this motivation explains why arts are typically undervalued in the education system; which, if I am to extrapolate from his writing, in turn communicates through a hidden curriculum that arts are a less acceptable or less valued area of study for students to choose, not unlike the preference of science curriculum over humanism in medical education.

Apple's (1979) idea about the economic implications behind the hidden curriculum in many ways reflects the hidden curriculum in medicine. As described, the advent and advancement of medical technology is argued to be in part responsible for the physical, and subsequent emotional separation of doctor from patient. But it also represents a shift in the hidden curriculum of medicine, demonstrated through resource allocation towards new research and technology in the university, or communicated by hospital statements that praise the state-of-the-artness of its facilities, for example. This focus demonstrates a prevailing value in medicine for advanced technology and science as indicators of the quality of care. Again, I do not want to belittle the importance of these advancements to healthcare, but I do want to highlight that their centeredness in the medical field is part of a hidden curriculum that does seem to outwardly favour a curative over a caring practice of medicine. There is seemingly a more explicit appreciation for what physicians *do* to their patients over how they *act* with their patients. This value of technology and science is not only a part of the hidden curriculum of medicine, but a product of our societal preference toward science, as Apple (1979) suggests, which perhaps provides insight into economic drivers behind this hidden curriculum in medicine. Without indulging cynicism too deeply, a hospital may likely receive more funding from a philanthropic organization if it demonstrates excellence in research potential and technological investment (a value that can in turn be attributed to our societal preference for science), for example. Furthermore, technology itself is part of an industrial complex, intrinsically linked to our economy. Hafferty (1998) writes that a "culture of commercialism has invaded medicine's historically vaunted 'culture of professionalism'" (p. 403). As Hafferty (1998) suggests, hospitals and universities can be viewed as businesses in their own context: patients arrive sick, doctors are meant to cure them, patients are meant to leave in order to vacate bed-space for more incoming patients. This exchange resembles a business-like model, with healthcare as the product and the "patient-as-consumer" (Hafferty & Franks, 1994, p. 861). It is because of this focus on illness and curing illness that Hafferty (1998) writes that medicine needs to become more patient-centred instead of profit-centered.

Objectivity in medicine.

The objectification of patients and characterizing them by their illness is a concept discussed in much of the academic literature on medical humanities (Charon, 1986; Foucault, 1973). Shapiro (2008) writes,

[Medical education] promotes the use of depersonalized language, a way of thinking that prioritizes scientific rationalism, and a distanced professional demeanor that enables its adherents to avoid tackling complex emotional issues in self and/or patient that are experienced as unsafe or threatening... The modernist solution of transforming patients into objects or tasks, rather than as “beings to be known” consciously understood as a way of avoiding unscientific emotional entanglement... Once the patient becomes the other, empathy is no longer necessary... students may see patients not so much as human beings but as projects to be accomplished or puzzles to be solved. (p. 5)

Underlying Shapiro’s (2008) statement is the acknowledgement of a fear to connect, or rather a necessity to stay detached and objective in order to maintain professionalism and composure, embedded in the hidden curriculum. While Shapiro (2008) alludes to what is perhaps a more cultural influence to maintain a “scientific” outlook, other scholars suggest that this issue of detachment can result from the pace and high stresses of medical school, clerkship, and residency, where susceptibility to burnout and the need to work efficiently and effectively can lead to desensitization and emotional detachment as a means of self-protection (Batistatou, *et al.*, 2010; Bleakley, 2015; Bleakley, Bligh, & Brown, 2011; Charon, 1986; Dornan, Mann, Scherpbier, & Spencer, 2010; Jennings, 2009; Kalanithi, 2016). Answering to this phenomenon is countering literature suggesting that incorporating an emphasis on physician wellbeing early-on in medical education is essential to mitigating this problem and fostering the formation of humanistic physicians with improved quality of decision making and patient-care (Siedsma & Emler, 2015; West, 2016).

Other literature suggests that a dissonance of identity during medical school causes students to become disillusioned with the medical profession and contributes to their decline in wellbeing (and subsequent decline in empathy) (Martimiankis, *et al.*, 2015; Rabow, Remen, Parmelee, & Inui, 2010). This “dissonance” arises as medical students’ preconceived ideals and values about the medical profession are challenged through their experiences in the hidden curriculum of an outcome-driven, biomedical paradigm. In this way, a medical student’s wellbeing, and thus their capacity for humanism and patient-centered care, is in part linked to their professional identity formation.

Professional Identity Formation

Hafferty and Franks (1994) refer to medical training as “moral enculturation,” and the medical school as a “moral community” (p. 861). The authors express that the process of medical education instills in medical students the collective values of the medical field. They suggest that, as such, inclusion of ethics teaching or humanism in the formal medical curriculum is not enough to shape humanistic physicians: the hidden curriculum has a much deeper, long-lasting influence. There is a gap between what is taught and what the hidden curriculum models for students (Ginsburg, Hafferty, Levinson, & Lucey, 2014; Martimianakis & Hafferty, 2016). Hafferty and Franks (1994) argue that ethics and humanism cannot be taught like sciences, that compassion or ethical thinking cannot be treated like a “tool... something that can be picked up or put down, used or discarded, depending upon the situation or circumstances involved” (p. 862). Humanism must be instilled, physicians must be socialized to value and embody compassionate care, and as such curriculum reform lies most deeply in a reform of the hidden curriculum: the structures and values of the institution.

Hafferty & Franks (1994), Hafferty (1998), and Martimianakis, *et al.* (2015) call for a structural reform of medical curricula (formal, informal, and hidden) that “infuses” humanistic content and “blunts the negative impact” of the current paradigm. They call not only for changes in what is explicitly taught, but to “redesign the learning environment” (Hafferty, 1998, p.407). Martimianakis, *et al.* (2015) states that curriculum reform needs to address the “overarching institutional structure” of medical school, that simply encouraging the development of humanistic people is not enough to dismantle the influence of the hidden curriculum (p. S10). Apple (1979) writes, “We ignore the fact that the kinds of institutional and cultural arrangements which control us were built by us. They can be rebuilt as well” (p. 13). Medical schools need to “create structures that allow individuals to reflect upon the larger curricula... [and] emphasize learning over teaching” (Hafferty, 1998, p. 406). Martimianakis, *et al.* (2015) encourages medical educators to “think about education as a socio-political endeavour – a starting point for interrogating how systems, structures, and institutions impact socialization and professionalization processes” (p. S11).

The concept of professionalism and professional identity formation (PIF) is thus of growing focus and concern in medical education, and is often labeled as central to this necessary reform for mitigating the decline in humanism in medical education. Simply defined, PIF is “a

representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician” (Cruess, Cruess, Boudreau, Snell, & Steinert, 2014). It is often discussed, however, in the context of one’s capacity for empathy and communication with patients as it intersects with one’s ability to make sound and competent medical decisions (Rabow, *et al.*, 2010; Wald, *et al.*, 2015). Despite a quality of scientific decision-making, feeling that a physician is an “empty vessel,” void of emotion, communicates a deficiency in *care* to the patient (Schroeder & Fishbach, 2015). Strong, humanistic professional development education is thought to be one strategy for mitigating this prevailing problem and improving quality of care. “Professional [identity] formation enables scientific medicine to maintain its human relevance and to navigate the increasing complexities in social interactions” (Rabow, *et al.*, 2010, p. 312).

What constitutes “professionalism”? And what characterizes a “humanistic doctor”? Cohen (2007) distinguishes professionalism as a “way of acting,” and humanism as a “way of being” (p. 1029). Based on his definitions, then, a humanistic doctor is one whose values and morals of compassion and patient-centeredness are inherent to and inform both his or her identity and practice. The Royal College of Physicians and Surgeons of Canada (RCPSC) developed a guiding framework for medical professionalism in 1996. Now in its third edition (2015), the [CanMEDS framework](#) sets and encourages more humanistic, patient-centered standards of care at all stages of medical education, most explicitly in residency and continuing medical education (professional development), but the framework also serves as a guiding model in competency-based undergraduate medical education (pre-clerkship and clerkship). The framework considers the physician holistically based on the integration of six core “roles” or “meta-competencies” that define a physician as a “medical expert” (the seventh and central role in the framework). The roles are: “communicator,” “collaborator,” “leader,” “health advisor,” “scholar,” and “professional.” Each role is defined and broken into component competencies – “knowledge, skills, and attitudes of a physician” – through which physicians fulfill the role (The Royal College of Physicians and Surgeons of Canada, 2015, p. 28). For example, within the “communicator” role, physicians should demonstrate that they can “elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families,” among other key component competencies (RCPSC, 2015, p. 17).

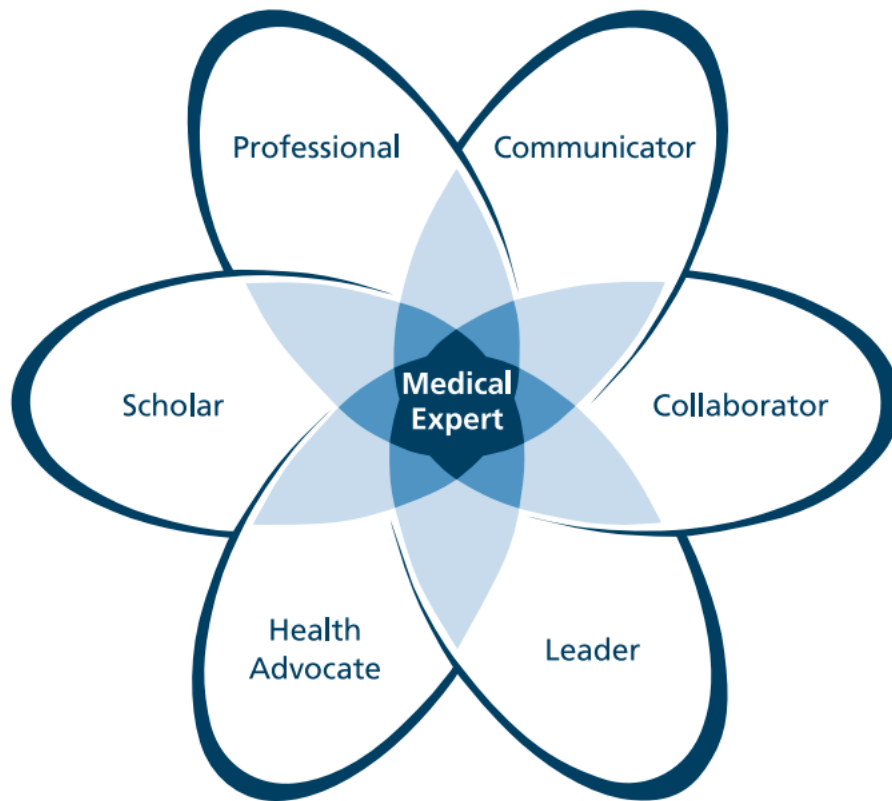


Figure 1. The CanMEDS framework demonstrating the interplay of six core roles that define a physician as a “medical expert” (RCPSC, 2015, p. 29)

The CanMEDS framework is an example of an insertion of humanism in the formal medical school curriculum. Each role is explicitly situated in a “patient-centred” approach, encouraging active listening, acknowledging the uniqueness of each patient’s context and circumstances, and ensuring patient autonomy and informed consent. The framework also recognizes the importance of physician wellbeing in the “Professional” role for “fostering optimal patient care,” and explicitly acknowledges a medical resident’s role modeling and the hidden curriculum in influencing medical students in the role of “Scholar.” However, while the CanMEDS framework does serve to encourage a more humanistic approach care, the language it uses is somewhat vague, for example, a physician should “exhibit appropriate professional behaviors in practice, including honesty, integrity, commitment, compassion, respect and altruism” and “demonstrate compassionate and patient-centred care” (RCFSC, 2015, p. 16). The framework sets humanistic standards, but is not hugely specific in outlining or suggesting what it means for a physician to

actually demonstrate those qualities.

The College of Family Physicians of Canada (CFPC) has adapted the CanMEDS framework more specifically for the specialty of family practice, and outlines slightly more explicitly humanistic and patient-centred values, emphasizing the importance of the physician-patient relationship in effective care. The [CanMEDS-Family Medicine](#) (FM) framework includes specific statements such as: “understand the whole person: the life history, personal, and developmental issues as well as their context;” “have an understanding and appreciation of the human condition, especially the nature of suffering and patients’ response to illness;” and “encourage discussion and participation in decision-making” (College of Family Physicians of Canada, 2009, p. 7; p. 9; p. 11). In the “Collaborator” role, the CanMEDS-FM framework includes the patient and their families as members to be considered in the healthcare team. In the “Scholar” role, the CanMEDS-FM framework encourages “a lifelong commitment to reflective learning,” which is also an interesting amendment that integrates literature in PIF about the importance of reflective exercises in developing humanistic physicians. It seems that the CanMEDS-FM framework more explicitly addresses problematic elements of the hidden curriculum in an effort to change them, and describes more explicitly *how* a physician might act more humanistically and deliver more focused patient-centered care. The CanMEDS-FM framework seems to align a bit more naturally with the structural reform that Hafferty (1998) suggests.

The CanMEDs framework represents one example of how medical humanities and PIF intersect, with PIF offering a natural platform for the integration of more humanistic curricula. But the CanMEDS framework, as a competency framework, still represents an objective-based system, with vague criteria that may encourage physicians to act more humanistically, but do not actually address how a medical student is meant to develop and later genuinely embody those qualities. The framework presents standards for physicians to strive toward, but in a way the framework is still a product of a hidden curriculum that encourages students to “get the right answer” – to meet these competency standards – treating humanism as a skill to learn and use, rather than a way of being, as Cohen (2007) would suggest. The CanMEDS framework is a strong starting point to addressing a more patient-centred approach to care, but it does not fully represent the type of structural reform that Hafferty (1998) describes.

This conflict of using objective goals to frame becoming reflects Apple’s (1979)

commentary on the development of learning objectives in schools, writing that the setting of these objectives shows a “lack of any significant amount of thought being given to how human beings do, in fact, operate in real life” (p. 111). Although perhaps an aggressive statement, the point that Apple (1979) makes is that the formulation of learning objectives reduces the learner to fit a determined mold that may not represent their subjective process of learning. He writes that learning objectives outline what “the learner is expected to be able to *do*, *know*, and *feel* as an outcome of [his or her] learning experiences,” suggesting that it is perhaps backward to establish what a student is meant to learn – the subjective meaning they will construct from their experiences – without considering the process or the environment that will shape that learning (p. 111).

A common approach that addresses this issue and takes into account the experiences of the learner is personal reflection. Literature on PIF identifies reflection as an important practice for developing humanistic professional identity, which is how it most explicitly relates to medical humanities, with many arts and humanities media offering strong potential for reflexive capacity (Beresin, *et al.*, 2016; Haidet, *et al.*, 2016; Hoffman, Shew, Vu, Brokaw, & Frankel, 2016; Rabow, *et al.*, 2010; Sharpless, *et al.*, 2015; Sinclair, *et al.*, 2016; Wald, *et al.*, 2015). “Serious engagement with medical humanities offers a unique and compelling way to tap into the emotional dimension of the clinical encounter and can validate for students what it means to *be*, and not just *act like*, a humanistic professional” (Cohen, 2007, p. 1031).

Music as Metaphor: Medicine as performing art

The field of medical humanities encompasses the use of narrative, literature, poetry, performing arts, and visual arts, as well as medical ethics, history, and philosophy. But I feel there is a unique quality and value that more explicitly artistic engagement or activities can bring to the field of medical humanities and medical curriculum.

Downie (1994) opens his anthology of ‘healing arts’ with the following statement:

The most obvious common ground between healing and the arts is morality. Healing in its many forms generates moral problems which the arts can portray through detailed narrative or with dramatic immediacy... The arts involve us directly and make us vividly and emotionally aware of what it means to be ill oneself, or to be a relative or helper of someone who is ill. In this way, the arts develop sympathy of the passive or empathetic kind... But the arts have this other aspect too: namely, that they can inform sympathy or

give it a cognitive shaping. In other words, the arts can develop our perceptions of the complex nature of needs. (p. xv)

Downie (1994) describes precisely what the incorporation of arts in medicine strives to do: to “develop our perceptions of the complex nature of needs.” As a musician, this extended statement resonates with me with regards to music, but the use of ‘arts’ in this writing is vague and over-arching, and somehow, while consistently listed as an ‘art’ contributing to the field of medical humanities, writers in the field acknowledge that there is very little existing literature on the role of music in medical humanities curriculum (Blasco, *et al.*, 2005; Newell & Hanes, 2003; van Roessel & Shafer, 2006). Of the limited existing literature, various writers have used the metaphor of “medicine as performing art” to frame an argument for the use of arts in medical education (DeSilva, 2014; Evans, 2007; Wooliscroft & Phillips, 2003). While there seems to be much application of this concept by way of theatrical or dramatic performance activities, of the small literature base, there is some literature that looks at music ensemble as a metaphor for clinical practice.

Wooliscroft and Phillips (2003) propose the metaphor of “medicine as performing art” in relation to the technical skill required by physicians to diagnose and treat illness, much like the technical skill required for playing a musical instrument; for the specified roles of physicians in a team of medical specialists, much like individual players in musical ensemble; for the ability to adapt practice and care to reflect each individual patient, much like the ability to adapt playing technique to reflect the emotions and style of a piece. Wooliscroft and Phillips (2003) also liken the field of medical “practice” to the practice of musicians in honing their art, and the concept of performance in that physicians must “perform” in a clinical setting at an “appropriate level,” much like how professional musicians are expected to play with a certain level of excellence. Wooliscroft and Phillips (2003) argue that the metaphor of ‘medicine as performing art’ is worthy and valuable as a starting point for a curriculum reform that brings more attention to patient-focused clinical care, in contrast to the prevailing biomedical model of ‘medicine as science.’ Evans’s (2007) presents the musical metaphor from a similar standpoint, and encapsulates the values of the metaphor in the following passage:

Like music, [clinical practice] has its own degrees of style, intensity, elegance, risk-taking, spontaneity, virtuosity (and so on) – not just in surgical and other physical interventions, but also in the way that a history is taken, a diagnosis framed and shared, a pattern of management identified, prescribed, encouraged... Like a live musical

performance, clinical medicine embarks on the risk-taking of interpersonal engagement between performer and an active, participatory audience ... In music, the primacy of listening over looking is obvious, but within clinical medicine, too, the balance of clinical examination and history-taking requires especial attention to the importance of skillful and informed listening. (p. 143)

Though Wooliscroft and Phillips (2003) and Evans (2007) are all suggesting the theoretical value of arts in medical education, rather than suggesting practical applications, their metaphor highlights how the intrinsic benefits of arts-based learning can overlap (for example, how the intrinsic qualities of spontaneity, listening and risk-taking that are cultivated in and necessary for musical ensemble are also transferable to the physician-patient interaction in a clinical setting). Bleakley (2015, p. 960) writes, “a surgical team can be likened to a jazz group which plays both scored passages and improvisation that must be linked coherently,” building on ideas from Haidet (2007), who compares the rhythmic nuances of the medical interview to the rhythmic nuances of jazz improvisation.

Another strong metaphor between music and medicine is the concept of the “art of listening,” or “close-listening.” Van Roessel and Shafer (2006) suggest that critical listening skills required in music making and appreciation are transferable to the medical profession in training the physician to listen critically to a patient’s narrative or history. Van Roessel and Shafer (2006) describe an activity at the Stanford medical school, in which students listen to a live string quartet and work with a composer to break down the music into “its component themes, accompaniments, phrases, transitions, and individual parts” (p. 6). Students then creatively reenact the piece themselves to audience members (using clapping, singing, etc.) to demonstrate their understanding of the piece as a sum of parts. Students then discuss the experience with the composer and a medical educator in order to relate the experience to medical practice. Van Roessel and Shafer (2006) write,

By demonstrating the subtlety and invention in even a single phrase of quartet-writing, we are reminded of the depth of cues and complexity of elements that may come from a patient as she or he relates a history of present illness. By encouraging listeners to consider pitch, rhythm, attack, voicing, repetition, color, and direction in music, we are encouraged to consider these qualities in voice and affect of our patients... Understanding this, we are encouraged to listen and attend broadly to the multiple streams of information that may come from our patients: for example a patient’s words, behavior, appearance, medical history, and interactions with family all convey relevant and actionable information to an astute practitioner. (pp. 7-8)

Van Roessel and Shafer's (2006) activity focuses on developing the art of listening, but it also applies the performative metaphor in the demonstration of the components of the quartet. This activity serves as a tangible example of how music can be used in medical humanities curriculum.

Newell and Hanes (2003) confirm that "listening to music has rarely been used by educators to teach medical students and residents," as "music's potential to teach humanism in medicine has been less explored, and incorporating listening to music into a medical humanism curriculum has rarely been tried" (p. 714). As the basis for their study, Newell and Hanes (2003) respond to this gap in the curriculum by designing a music listening course in an American medical school. The course was comprised of different modules that related to music in society, musical tastes, critical listening, interpretation, learning, and the intersection of music and medicine. The modules were listening and discussion-based, where students were led by various specialists in each module through the listening exercise and subsequent debrief. The premise behind the course was that the "basis of empathy [is] knowing how to listen," and that "music teaches us how to listen" (p. 715). Newell and Hanes (2003) suggest that our ability to understand the nuanced meaning behind a patient's words is dependent on the musical features of speech, such as "cadence, volume, inflection, [and] tone," so learning to recognize, interpret, and perhaps even manipulate these components may improve a physician's ability to listen critically to a patient narrative and understand their position from a more human standpoint, rather than merely the characteristics of their illness or condition (p. 715). This statement suggests that while a listening exercise is likely valuable to improve critical listening skills, perhaps music ensemble and practice could foster the human communication skills of a physician's bedside manner.

Students were surveyed about their experience in the course. Findings indicated that while students felt the course was valuable, they struggled to recognize if or how the musical component of the activity actually helped them in their process to becoming doctors. Students did note, however, that the course helped to introduce them to discussion of humanism in the medical school, which they found was valuable to their physician-journey. This latter comment suggests that if music itself does not *directly* relate to medicine, it may maintain a capacity to connect us to a more introspective and humanistic perspective.

What I find so interesting about the gap in the literature pertaining to music in the medical school is nicely articulated by Newell and Hanes (2003), who mention that music is easy for most people to relate to, in a way that a more technical activity like visual arts or writing may not be. Be it listening to music or joining in song or drumming activity, there is something universally relatable about music in the way that it can “materialize thoughts” in an unspoken and deeply personal way (Dunn, 2006, p.7). Almost universally, most humans can connect with rhythm, produce sound, and feel an emotional response from music (“chills and thrills”) (Sloboda, 1991). Community music scholars, Myers, Bowles, and Dabback (2013) write,

Regardless of context, content, or approach,... music development and growth embody distinctive ways of knowing that expand and inform our perceptual awareness, our sensitivity and responsiveness to others, and our creative potential. Ultimately, to the extent that lifespan learning nurtures a musically engaged society, music becomes a metaphor for the humanizing values that enhances the quality of life for all people. (p. 149)

Myers, Bowles, and Dabback (2013) suggest that there is a universally intrinsic quality to music that reflects our perceptions of humanity and connection: a quality that may not be quantifiable, but that makes it accessible and relatable regardless of one’s level of musical expertise.

Choral Singing and Community Music

Studies in community music suggest that communal music making has positive influences on mental and physical health, and that engagement in community music has the capacity to facilitate deep human connections between musicians (Cunha & Lorenzino, 2012; Hallam, Creech, Varvarigou & McQueen, 2012). Choral singing is the most common form of community music in North America, with an estimated over 32 million people singing weekly at various levels of intensity and levels (Avery, Hayes, & Bell, 2013). Lee Higgins (2012), a leading scholar in the field of community music, defines community music as “music of a community, communal music making, and an active intervention between a music leader or facilitator” (p. 3). Veblen, Messenger, Silverman, and Elliott (2013) deepen the definition, clarifying that community music is “socialized music,” involving “identity, heritage, group solidarity, healing, bonding, celebration, and other factors” (p. 2).

Cunha and Lorenzino (2012) write, “the expression of musicality is the main result of learning and playing music; however, being part of a musical group means more than playing

together” (p. 74). This statement appears in the introduction to their phenomenological study on the secondary aspects (as in, secondary to the actual playing of music) of playing or singing in ensemble – a study that, to me, presents the most thorough assessment of the social-aspects of music making that I have found to date. They open the study with statements such as, “making-music together requires human communication, sharing experiences, and synchrony” (p. 75); and “making music together is a process of sharing meaningful experiences through the collaborative work of individuals” (pg. 76). The data were collected through observation, semi-structured interviews, and focus groups, and participants were either members of a community choir, or a jazz combo at a Canadian university. The choir was an informal group that rehearsed for three hours each week. The jazz combo was part of a performance credit course in the university. These two groups were chosen in order to demonstrate the dynamics of both formal and informal types of ensemble. Each group had at least five members. The researchers observed three rehearsals of each ensemble, and five participants from each group were then chosen for the semi-structured interviews. The researchers developed seven themes to categorize their findings: “musical effect;” “social aspects;” “power relations;” “cultural aspects;” “affective aspects;” “cognitive aspects;” and “physical aspects” of collective music-making, and explored each with significant statements from the interviews and focus groups, and thematic analysis.

The “musical effect of collective music-making” pertains explicitly to the act of music making, improving musical skill, and learning as a group through the musical experience. Participants referred to feelings of “coming together” through the creative musical process and common goal of musical excellence, as well as learning from musical colleagues through listening and playing, and the aesthetic appreciation they had for the music they were creating. “Social aspects of collective music-making” referred to the collaborative aspect of musical ensemble and the sense of community formation and relationships that develop through that collaboration, cooperation, and teamwork. The researchers note,

The participants were aware of the web they were weaving through their musical practices. The social aspects they mentioned emphasized verbal, musical, and personal interaction among the group members. Moreover, this social web facilitated learning and sharing relations among themselves and extended its results to the community. (p. 81)

Cunha and Lorenzino (2012) make an interesting reference to the performative nature of music making, in that “performance is the product of music-making that occurs, for instance, in

rehearsals and concerts when individuals make music together; and yet, music-making and performance are bounded in the sense that one does not occur without the other” (p. 74). I find this to be a very important connection to note. Music ensemble is a live process. While rehearsals may be the necessary preparatory component of musical performance, the process of rehearsal is still in its own way a performance, where musicians essentially “perform” the piece for themselves. To me, this adds a second level to musical ensemble that sets it apart from solo play, in that there is constantly a performative and social/reactive aspect to it, and therefore an added aspect of vulnerability in relation to others.

Cunha and Lorenzino’s (2012) study reflects many others like it in the field of community music: perception-based studies where participants express a sense of connectedness, belonging, improvements in self-esteem and mental health, and an affective musical connection in the form of chills and thrills (Clift & Hancox, 2001; Clift & Morrison, 2011; Hallam, *et al.*, 2012; Livesey *et al.*, 2012; Long, 2014; Mellor, 2011; Sloboda, 1991). These studies highlight that music making is a deeply social experience, with a strong capacity for building community; but they also acknowledge that music making is deeply personal and has the ability to reflect a range of personal emotions. It is for these reasons that community choirs and ensembles appear in the field of music therapy when working with groups of people who are perhaps marginalized or stigmatized (e.g., at-risk youth, LGBTQ choirs); people suffering from certain illnesses and can benefit from the social, rhythmic, and aesthetic aspects of music making (e.g. inter-generational Alzheimer’s/dementia choirs, choirs for people with cognitive disability; choirs for people with acquired brain injury); or people who have suffered various trauma and/or are in need of a supportive, therapeutic community (e.g. choirs for military spouses, choirs for people suffering from mental health, etc.).

Literature in the benefits of community music tend to focus on social factors (community), personal-emotional factors (confidence, self-esteem, empowerment), and health/wellness factors (mental health, physical health, music therapy). With regard to the latter category, there exists much literature on the benefits of musical ensemble and community music, but it has been posited that “group singing may have particular and specific benefits for health over other forms of music-making and music listening, as it involves using the body to produce sound in a synchronized and coordinated way with other people” (Livesey, *et al.*, 2012, p. 10). I recognize a bias in myself, as my non-singing ensemble experience is limited to playing piano in

an exceptionally amateur cover band, but I do relate to this statement as a choral singer, where the music is produced by, controlled by, and experienced by my entire body as combined instrument and musician. Between the lack of *new* technical skill required for singing (in contrast to learning to play a new instrument), the universality of musical connection, and the physical sensation that singing can generate, singing in particular presents an accessible community for connection, release, and self-expression. It is for these reasons that having a choir in a medical community – where individuals are contending with challenging content daily, and are managing high levels of stress – seems like such a natural and effective addition to the extra-curriculum.

What is it about music that makes us feel connected?

Since writing my undergraduate thesis, a common criticism I have encountered about the ability for music to bring people together, is that arguably there are many other group activities that can also foster a sense of community within a group. I concede that this criticism is valid. But something that fuels my curiosity is the question of how the bonds formed through music making might differ from those formed through other activities.

While there is no concrete explanation for the cultural universality of music, nor any conclusive theory on the evolutionary or biological mechanism of music, one of the prevailing theories proposes that collective music making has served to facilitate group cohesion and human connection for millennia as a form of group fitness (Huron, 2001; Mithen, 2005). In response to the question of music as an evolutionary phenomenon, and growing interest in the effects of music on health and wellbeing, recent scholarship has suggested a biological explanation for the sense of connection people develop through the act of communal singing. Synchronous activity within groups has been linked to the release of neuropeptide hormones oxytocin, vasopressin, and β -endorphins (Chanda & Levitin, 2013; Huron, 2001; Keeler, *et al.*, 2015; Pearce, Launay & Dunbar, 2015; Vickhoff, *et al.*, 2013). Vasopressin and oxytocin work in tandem to promote trust and attachment, and encourage social behaviour in humans, and β -endorphins are responsible for promoting feelings of dependence required for long-lasting maternal bonds and romantic connections (Chanda & Levitin, 2013; Keeler, *et al.*, 2015; Pearce, Launay & Dunbar, 2015).

Before relating these findings to music, I feel it is important to note that while interesting discoveries and correlations have been found, a *causal* relationship between endocrine response

and social aspects of music making has not been firmly established, as “evidence is often weak or indirect and [many] studies suffer from important limitations” (Chanda & Levitin, 2013, p. 179). Nevertheless, the implications of these findings do suggest a potential for scientific explanation of an otherwise conceptual and self-reported phenomenon. I by no means argue for the hierarchical value of one research paradigm over another, but the measurable outcomes of such scientific studies can help to mitigate some of the biases of self-reported work that often weakens its credibility in other fields.

In the context of music, the release of these hormones can in fact be stimulated by the passive activity of listening to music, but the act of singing together yields a stronger endocrine response, which might account for feelings of attachment and trust between singers (Chanda & Levitin, 2013; Keeler, *et al.*, 2015). Interestingly, in a study by Keeler, *et al.* (2015), which measured oxytocin levels before and after standard and improvised singing activities, found that concentrations of salivary oxytocin were highest in the improvised singing condition. Keeler, *et al.* (2015) justify this finding, noting that “vocal improvisation naturally [elicits] behaviours conducive to social bonding, such as listening, responding, spontaneous communication, eye contact, and cooperation.” (p.7). This finding supports the idea that nonverbal communication required for communal singing likely contributes to the sense of connectedness singers feel to one another in choirs.

Another study by Pearce, Launay, and Dunbar (2015) suggests that communal singing can generate an “ice-breaker effect,” which “[promotes] fast cohesion between unfamiliar individuals, which bypasses the need for personal knowledge of group members gained through prolonged interaction.” (p. 1). The seven-month long study measured (weekly) the level of self-reported “closeness” between members of singing and non-singing groups (the non-singing groups involved craft-making and writing circles). A pain tolerance test (blood-pressure cuff) was also conducted weekly after each meeting in order to measure levels of endorphin release post-activity (increased pain tolerance was correlated with increased β -endorphin levels). Endorphin release was overall higher in the singing condition than in the non-singing groups, suggesting a prediction for increased attachment between singers; and while self-reported closeness increased in all groups, it increased more quickly in the singing condition (Pearce, *et al.*, 2015). “[The researchers] argue that, in the singing classes, shared musical activity initially facilitated group bonding by bypassing the need to get to know everyone in the class

individually, creating general feelings of positivity towards everyone present.” (p. 7). The researchers are careful to note that the presence of a shared-goal (mutual engagement) in the singing condition (versus the independent projects in the non-singing condition) presents a confounding variable, but overall the study does present a basis for more questions to be explored.

A study at the Max Planck Institute for Human Development in Berlin, Germany offers what could be interpreted as support for the idea that the connection between singers that is perhaps deeper and more passive than the just the rhythmic and tonal synchronization required to sing together. (As an aside, while I recognize the dangers of attempting to quantify concepts that we may accept as spiritual or philosophical, for fear of diluting their meaning and reducing them to mere physical phenomena, I find it hugely interesting and valuable to read tangible findings that suggest that our ideas are more than simply personal musings). Müller and Lindenberger (2011) conducted a study that explored the phenomenon of cardiac and respiratory synchronization in “temporally coordinated activities.” Their quantitative study focused on choral singing, and measured, using ECG (electrocardiogram) technology, the synchronization of heart rate variability (HRV) and respiration in singers in unison, in canon, with a conductor, without a conductor, and in relation to breathing frequency. The hypothesis that choral singers may display physiological synchrony while singing was based on the fact that heart rate (HR) is intrinsically linked to breathing (HR increases with inspiration and decreases with expiration); studies demonstrating the coupling of HR and breathing rate within individuals; and curiosity stemming from a study that found synchronization between maternal and foetal HR during increased respiratory activity, suggesting that coupling could occur *between* individuals. With singing being an activity that is dependent on breath and coordination, choral singing seems an appropriate context to test this hypothesis.

With statistical significance ($P < 0.0001$), Müller and Lindenberger (2011) found that, compared to at-rest conditions, HRV phase synchronization between singers was heightened during singing, regardless of other conditions. Synchronization was strongest when a conductor was present (suggesting the importance of a conductor), and strongest when singers sang in unison than in canon. In the absence of a conductor, synchronization was strongest when singers sang in unison with eyes closed, suggesting the importance of active concerted listening in choral singing, especially in the absence of visual cues. Interestingly, when singing in canon,

researchers found that synchronization occurred between singers of similar parts/voice-types, rather than collectively throughout the choir (Müller & Lindenberger, 2011). Generally, the higher the respiration frequency, the stronger the correlation of synchrony.

A similar study was subsequently conducted in Sweden at the University of Gothenburg in 2013, which corroborated the findings from Müller and Lindenberger (2011), and further suggested that song structure can influence the amount of synchronization (Vickhoff, *et al.*, 2013). Researchers measured changes in HRV in three different cases (undirected humming, standard choral singing, and unison mantra singing with guided breathing). Findings confirmed the degree of phase-matching in HRV correlated with the synchrony of breathing in the structure of the music (the unison mantra showed the highest compliance of HRV synchrony between singers).

Sebanz, Bekkering, and Knoblich (2006) explore the phenomenon of joint action and our ability to synchronize and coordinate – without verbal cues – in groups by studying “real-time social interactions” (p. 70). They propose “that successful joint action depends on the abilities (i) to share representations, (ii) to predict actions, and (iii) to integrate predicted effects of own and others’ actions” (p. 70). This conceptualization of joint action to me reflects the connection required in focused communal singing. Mirroring Sebanz, *et al.* (2006), I propose that singers must: (i) communally relate to the piece and the way they would like to present it; (ii) subtly predict the creative choices of other singers in the choir in order to match their intention; and (iii) integrate their personal choices in (i) with their predictions of others’ actions in (ii) in order to produce a uniform sound and expression of emotion. In other words, the premise of joint action can be applied to music-making to describe how musicians may communicate and coordinate without words or symbols.

Summary

When I was living in Toronto the year after graduating from McMaster University, I joined a semi-professional adult chamber choir. I was constantly in awe at how connected and in sync the choir was – not only temporally, but musically. There was a deep intuition within the group about how to express the music we were singing, and with seemingly the subtlest direction from our excellent conductor, we somehow managed to consistently produce delicately emotional and nuanced music. This literature on connection in music, and theories like Sebanz,

et al.'s (2006) resonate with me when I think back to those moments of unwavering connectedness; when I think back to a revelation I had one rehearsal when I looked around to see a spectrum of ages, cultures, and professions all expressing the same feelings – it must take a great deal of empathy to achieve this. It is revelations like those that solidify my sense that there is a powerful connection between music and medical humanism.

In the upcoming conceptual framework, I will delve deeper into more conceptual theories of connectedness in music making, and more deeply into this idea of empathy during music making. So far we have established that medical humanities serve to balance the biomedical paradigm of reductionist, academic medicine, and that their incorporation into the medical school may serve to “blunt [some of] the negative [impacts]” of the hidden curriculum of medicine (Hafferty & Franks, 1994, p. 863). We acknowledge that arts and humanities can function as both metaphor for medical practice and human connectedness, as well as vehicles for self-expression, cultivating perspective-taking, empathy, compassion, and close-listening. We have confirmed a gap in the medical humanities literature to be filled with regards to music making. We have also presented a spectrum of community music, music cognition, and neuroscience literature that suggests a bridge between the fields of medical humanities and community music, and proposes that music may hold a viable and important position within that gap. In the upcoming introductory chapters, we will engage with more conceptual aspects of music making and human connection, both with respect to music and medical humanities; as well as how both fields relate to education theory and the research methodology.

Chapter Three:
Communities of Musical Practice
(Conceptual Framework)

The Importance of Practice

Practice is one of the most crucial elements of musical learning and expertise. I have at times spent tens of minutes focusing on three challenging bars of music (mere seconds of sound) in order to perfect them. This rigor of practice in music is a necessary component to the larger activity of musical play and performance. In music, the concept of practice involves review, repetition, refining, gruelling exercises, and correcting performance errors. It refers more immediately to the short-term task of perfecting play. Practice in a medical sense seems to embody a rather different definition. Medical practice refers more directly to the performance of medical treatment. A doctor holds a practice, and practices medicine daily *as* their occupation, rather than as part of it, and builds on that practice with increased experience over the course of their career. Practice in the medical sense refers more readily to the ongoing building of knowledge, skill, and expertise – not to say that a musical career does not also involve this definition of practice – but practice in medicine seems to pertain more frequently to a longitudinal context, and hopefully with less of an abundance of mistakes.

This chapter will develop a conceptual framework around practice as on-going learning, both in a medical sense and in a musical sense. It will begin with a summary of Wenger's (1999) social learning theory of communities of practice, followed by an examination of where communities of practice may appear in medical education. I will then discuss how music making can also relate to communities of practice, and more deeply, how communal music making may help to strengthen communities of practice, and our ability to connect with other people on a deeply human level. This latter point will be presented using writings from Martin Buber, and scholars in community music, music cognition, and neuroscience.

Communities of Practice

“By recognizing the mutuality of our participation, we become part of each other”
(Wenger, 1999, p. 56)

Etienne Wenger (1999) proposes a social theory of learning rooted in the assumption that learning occurs “in the context of our lived experiences and participation in the world” (p.3). He writes that we actively negotiate meaning (which he constitutes as knowledge) from and through

our actions, interactions, and experiences, suggesting that learning is a participatory, dynamic, ongoing, and mutual process: a “fundamentally social phenomenon, reflecting our own deeply social nature as human beings capable of knowing” (p.3). Wenger (1999) proposes that the process of negotiating meaning is a product of two concepts, which he terms ‘participation’ and ‘reification.’

Participation refers to the social components of “living in the world” (p. 55). He writes that “it is a complex, [active] process that combines doing, talking, thinking, feeling, and belonging” (p. 56). It refers to the way we can find commonality with another person, or a reflection of our own self or values, and thereby strengthen our sense of identity through that experience. Reification refers to “the process of giving form to our experience by producing objects that congeal this experience into ‘thingness’” (Wenger, 1999, p. 58). In other words, it is the transformation of practice into something tangible, creating a focus from which we glean meaning. These two concepts – participation and reification – work in mutual duality to generate meaning and define practice.

Wenger (1999) has developed a theory of learning that employs the concept of “learning as social participation” in a variety of contexts, describing our role in this process as “being active participants in the *practices* of social communities and constructing *identities* in relation to these communities” (Wenger, 1999, p. 4). He describes the process of social learning as the process of finding meaning in our actions, interactions, and experiences (Wenger, 1999). Wenger (2002) defines these learning communities or units as ‘communities of practice,’ comprised of “a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (as cited in Andsell, 2010, p.4). ‘Community’ in this context is a unit of people who engage together towards goals or tasks. This engagement is their ‘practice,’ which defines the community. Wenger (1999) further defines communities of practice as being framed by three interacting components: “mutual engagement,” “joint enterprise,” and “shared repertoire” (p. 72).

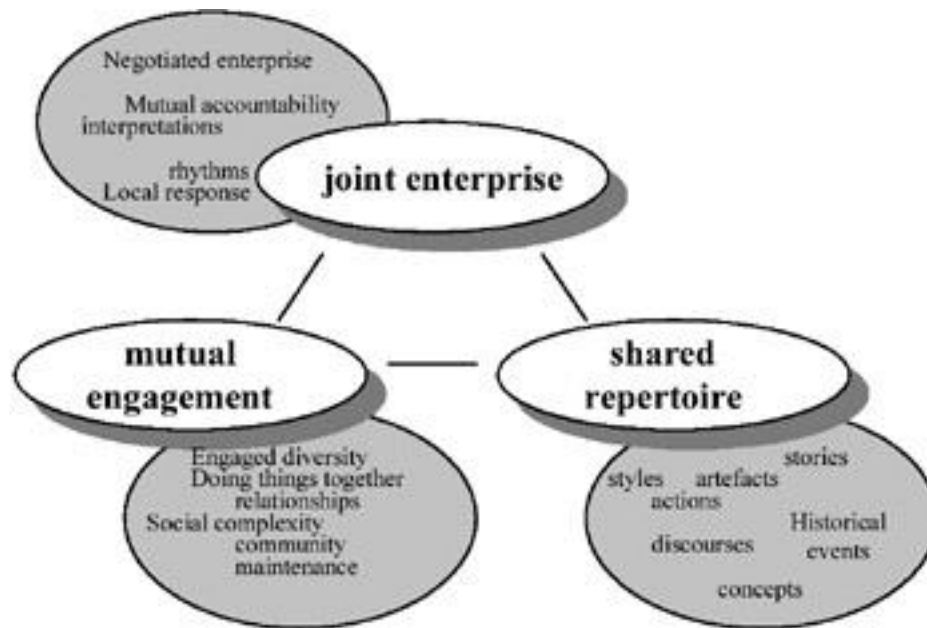


Figure 2. Wenger's (1999, p. 73) communities of practice are framed by the concepts of mutual engagement, joint enterprise, and shared repertoire.

Mutual engagement.

Mutual Engagement is the binding or defining element of a community of practice. It is the central function or goal that the group collectively defines itself in reference to. It is essentially the unit of membership in the community. The example provided by Wenger (1999) is the staff team at a claims processing firm. The 'mutual engagement' in this context is claims processing. While individuals in the firm may have a diversity of roles and contribute to claims processing in different ways, the coherent factor that the community is centred around is claims processing. Mutual engagement, therefore, refers to the interactive and invested coherence of community members in a community of practice. Community members develop unique roles that contribute to the overall structure and function of the community, and may engage in practice in different ways, so mutual engagement – though a collective concept – is not a homogenous one. Meaning making comes from the experience of engaging in practice and community, and the relationships they have with each other and their practice.

Joint enterprise.

Joint Enterprise refers to the *process* of the entire community working toward its shared goal or purpose (its mutual engagement). The concept refers not only to the actions that are

taken, but to how the community members negotiate and cooperate amongst themselves to accomplish the shared goal, task, or purpose. It is a dynamic element, which is constantly being defined and re-defined by the community as community members negotiate their practice and actions. Wenger (1999) highlights, as he did in his discussion of mutual engagement, the importance of recognizing a diversity of approaches to joint enterprise, and the significance in those differences in contributing to the uniqueness of a community of practice. For example, learning to negotiate points of difference, or the experience of learning from another's point of view, contributes greatly to the formation of the community, the strengthening of relationships, and the amount of learning and meaning making that can be gleaned from an experience. Wenger (1999) highlights the challenge of working with people with whom we might not agree – an experience that is likely very relatable to many of us – and the amount of growth we can achieve by working *with* those differences, rather than competing between them. He writes,

The enterprise is joint not in that everybody believes the same thing or agrees with everything, but in that it is communally negotiated... Their individual situations and responses vary, from one person to the next and from one day to the next. But their responses to their conditions – similar or dissimilar – are interconnected because they are engaged together in the joint enterprise [toward shared goals and tasks]. (pp. 78-79)

Shared repertoire.

Shared Repertoire refers to the routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions, or concepts that the community has produced or adopted in the course of its existence, and which have become part of its practice (Wenger, 1999, p. 83). This repertoire evolves in reflection of the community's mutual engagement, and is unique to the community of practice. The shared repertoire gives community members tangible sources of membership and represents a shared history of learning, serving as a frame of reference or point of entry for new members to enter the community and continue to shape its identity of practice.

Learning and meaning making.

“Still in the end, it is the meanings we produce that matter.” (Wenger, 1999, p. 51)

The learning outcomes posited by Wenger's (1999) theory are not explicitly tangible, nor are they presented as skills, but rather he defines learning as the negotiation of meaning from

lived experiences, not unlike the epistemological assumptions underlying the phenomenological approach to this thesis, or the concept of the hidden curriculum (Apple, 1979; Moustakas, 1994; van Manen, 1997, van Manen, 2014). Wenger (1999) implies that meaning making is inherently part of practice. He writes that we are constantly negotiating meaning from our experiences in the world, whether solo, or as part of a community of practice, and that a production of patterns in practice is what gives rise to deriving meaning. For example, when a musician learns a new piece of music, their experience of practicing it, shaping its expression, performing it, perhaps incorporating other musician's contributions to it in ensemble: all of these components in experience bring a new meaning and relevance of the piece to the musician.

Wenger (1999) writes that meaning making is negotiated through social interaction, writing, "Human engagement in the world is first and foremost a process of negotiating meaning... Participants shape each other's experiences of meaning. In doing so, they can recognize something of themselves in each other" (pp. 53-55). This latter sentence reflects the concept of resonance that we will be working with in the methodological approach. Wenger (1999) suggests that, whether the practice is independent or mutual, "the meanings of what we do are always social" (for example, a physician working alone on a medical chart is still practicing on behalf of another person) (p. 57). This statement bolsters Wenger's (1999) social theory of learning, with the learning outcomes not necessarily tangible skills or specific knowledge gained, but rather the making-sense of day-to-day experiences. The tenets of Wenger's (1999) theory reflect the epistemological assumptions of phenomenology that we are working with in the methodological approach, as well as the concept of learning from the hidden curriculum, where our subjective reality is defined by the meaning we derive from our experiences.

As members of communities engage in practice, they derive meaning of their experiences (knowledge), which in turn shape the community. Wenger (1999) writes, "Communities of practice can be thought of as shared histories of learning," (p. 89) where "the curriculum is then the community of practice itself" (p. 100). Meaning making is dynamic and continuous as newer and newer experiences, practices, and practitioners come into play.

Practice is an ongoing, social, interactional process and the introduction of newcomers is merely a version of what practice already is. That members interact, do things together, negotiate new meanings, and learn from each other is already inherent in practice – that is how practices evolve. In other words, communities of practice re-produce their

membership in the same way that they come about in the first place. They share their competence with new generations through a version of the same process by which they develop. Special measures may be taken to open up the practice to newcomers, but the process of learning is not essentially different. (p. 102)

In other words, not only is learning continuous, but it is transforming in response to an evolution of practice, changes in membership, and evolution of the identities of its members. Learning is not limited just to the negotiation of meaning, but involves also the *re*-negotiation of meaning as the community of practice evolves. Wenger (1999) spends a portion of the book discussing the interplay between identity and practice, and the importance of this interplay in shaping the community of practice. He writes,

What makes information knowledge – what makes it empowering – is the way in which it can be integrated within an identity of participation. When information does not build up to an identity of participation, it remains alien, literal, fragmented, un-negotiable. It is not just that it is disconnected from other pieces of relevant information, but that it fails to translate into a way of being in the world coherent enough to be enacted in practice. (p. 220)

This “identity of participation” refers to the way one’s identity transforms in relation to their experience in the community of practice. Wenger (1999) suggests that our identity is shaped as we negotiate meaning in our experiences, as we consider our membership to social communities, both locally and globally, and how we relate to the contributions and identities of others within those communities. In this way, he relates identity as inextricably linked to learning, as our identity seems to evolve in parallel to the meaning that we derive from practice:

Because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming – to become a certain person or conversely, to avoid becoming a certain person. (p. 215)

Though much of Wenger’s (1999) theory focuses on the connection of self to community, and the contextualization of experiences as knowledge, his theory is also very much one of transformative education, in which the learner is shaped by his or her lived experience. Wenger’s (1999) connection of identity to learning is a means of perhaps relating our lived or learned experiences in a meaningful way to ourselves, and I believe the concept of identity is actually central to his theory on an extremely profound and personal level. From social constructivist perspective, Wenger (1999) essentially communicates that our understanding of the self is

constructed based on how we relate to our surroundings. Those surroundings, those relationships, those understandings are ever changing and shifting, and thus so too does our sense of self. This perspective is almost an erasure of objectivity, where what I *know* is only how I perceive the objects around me, my experiences, and my relationships. That knowledge is personal and evolving, but also deepened as I continue to engage with it. Knowledge is contextual and a product of our lived experiences, as Apple (1979) asserts in his commentary on the hidden curriculum.

Landscapes of practice: Identity and multi-membership.

In his most recent book, Wenger partners with his wife and numerous other authors to present the concept of “landscapes of practice,” where one’s “body of knowledge” is comprised of the understandings and meaning making negotiated through multiple experiences in multiple contexts. This amendment to Wenger’s (1999) publication assumes that individuals are members in multiple communities of practice. It considers learning as dynamic beyond these distinct contexts, describing these multiple contexts as “the landscape” of learning. Wenger-Trayner and Wenger-Trayner (2015) write in their opening chapter that one’s “body of knowledge” is formed in and by this landscape as the interplay of many experiences in many communities of practice. “It is the becoming of a person who inhabits the landscape with an identity whose dynamic construction reflects our trajectory through that landscape” (p. 19). Our experiences and the meaning we make in our communities inform what we know and how we know, and it is at the *boundaries* between these communities where we reflect on our perspectives and concepts of knowing, acknowledging that what exist as knowledge and competence in one context may have little meaning in another. Wenger-Trayner and Wenger-Trayner (2015) write,

Our trajectory develops sequentially as we travel through the landscape and carry our identity across contexts. It is also simultaneous as we experience identification with multiple locations and boundaries at any given time. (p. 22)

They describe our inability to translate experiences from one community to another as our “accountability” to that community. For example, a doctor may use medical jargon freely in their medical community of practice, but using the same jargon in their book club comprised of a diversity of non-doctor membership might present challenges to communication. Wenger-Trayner and Wenger-Trayner (2015) would describe continuing to use that jargon in the book

club as the doctor's accountability to their medical community of practice. This accountability and subsequent inability to translate repertoire from one community of practice to another is hindering to one's ability to cross boundaries. On the other hand, from the doctor's perspective, *not* using the jargon that is so specific to their identity as a physician might make them feel less like a physician in the context of book club. In this way, when we release accountability at a boundary between communities of practice, we in some ways release an element of our identity that has been shaped by our engagement in another community of practice. Wenger-Trayner and Wenger-Trayner (2015) write "Crossing a boundary can force one to marginalize aspects of identity if some forms of identification from one context conflict with claims to competence in another context." (p. 25). In other words, when we cross a boundary, we face a disconnect and sacrifice of elements of our identity in order to engage with a different context. It is in this way that "the landscape shapes our experience of ourselves," as we negotiate our sense of self in relation to this conflict of accountability and multi-membership (p. 25).

Communities of Practice in Medical Education

Medical 'clerkship' (clinical teaching) is considered a "signature pedagogy" in medical education, where medical students learn necessary clinical skills for practice, are exposed to a variety of patients and cases, and begin to transition from student to practitioner by applying classroom knowledge to actual practice (Dornan, *et al.*, 2010; Kneebone & Nestel, 2010; Steven, Wenger, Boshuizen, Scherpbier, & Dornan, 2014). The process of clinical learning is based on principles of experiential learning, practice and routinization, and social learning theory. Clerkship is a participatory, experiential method of learning, in which "learners and practitioners learn by participating together" (Steven, *et al.*, 2014, p. 470).

Despite its centrality to medical education andragogy, some medical educators argue that various educational techniques within clerkship "have not generally addressed a major development in clinical practice" (Bleakley, 2006, p. 150). Bleakley (2006) writes that self-directed learning tends to be a prevailing and celebrated quality in student doctors, but that "autonomy in learning must be accompanied by a social conscience, and peer feedback must temper self-assessment" (Bleakley, 2006, p. 152). He advocates for the importance of 'teamworking' in medical education, and while he notes that "no single learning theory has enough explanatory and predictive power to inform the range of practices found in medicine" (p.

157), he suggests that a sociocultural education model may help to shape a more mutual approach to practice among physicians. This mutuality in learning that Bleakely (2006) describes reflects the mutuality in meaning making as described by Wenger (1999), where interaction with another member of the learning community can help shape the learner's identity and relationship to what is being learned.

Wenger's social theory of communities of practice has been "enthusiastically adopted by the medical education community worldwide because it so well applies to medical work-based learning" (Mann, Teunissen, & Dornan, 2010, p. 34; McLachlan, King, Wenger, Dornan, 2012). The process of clerkship is a form of 'workplace learning,' which is an active, dynamic, and participatory process, much like that described by Wenger (1999) in his social theory of learning. Students enter a triadic relationship between patient, teacher, and student in the clinic, through which the student negotiates meaning and learns from their experiences (Teunissen & Wilkinson, 2010). It seems from the literature that, among the many benefits of clerkship and workplace learning, central is the development of expertise through practice, as well as the development of a student's physician identity (van der Zwet, Zwietering, Teunissen, van der Vleuten, & Scherpbier, 2011).

Scholars in medical education emphasize the development of tacit knowledge in the process of medical clerkship. Tacit knowledge refers to knowledge that becomes second nature; when we no longer need to recall mental lists or steps or prompts in order to retrieve information (Eraut, 2000). Three years of high school Latin is enough to teach me that "tacit" is a conjugation of the Latin verb meaning 'to hide.' Literally, tacit knowledge is hidden knowledge. To take this definition even further, in his explanation of tacit knowledge, Eraut (2000) quotes Polanyi (1967), who writes of tacit knowledge that it is knowledge "to which we know but cannot tell" (p. 118). A common example is the process of riding a bicycle. Someone who knows how to ride a bicycle may be able to explain the steps of doing so to someone else, but when they themselves are in the process of riding, they are not consciously thinking about those steps in order to execute the action. Tacit knowledge is applied to medical education when a clinician eventually "just knows...how to do things and which actions to apply in which situations" (Mann, *et al.*, 2010, p. 26). This tacit knowledge "frees [a physician's] cognitive resources to frame and solve problems," and allows them to adapt to unexpected changes in routine and make fast, effective decisions (Mann, *et al.*, 2010, p. 26; Eraut, 2000). Eraut (2004, 2000) describes the

process of developing tacit knowledge as a product of “routinization,” or practice and repetition. This process of repetition can be linked to the development of expertise in an area (Kneebone & Nestel, 2010).

Tacit knowledge seems to reflect the intangible learning through experience described by Wenger (1999). While Wenger (1999) describes what might be a more active process of reflecting and understanding meanings from experiences in order to define knowledge, the experience of learning and what is being learned is still passive and experiential – more implicit – than the experience of learning a set of criteria or scientific theory. It is in this way that Wenger’s (1999) theory relates to the concept of the hidden curriculum and the tacit, implicit learning that results from it.

Transformation of professional identity.

The concept of learning as process of becoming, as described by Wenger (1999) and Wenger-Trayner and Wenger-Trayner (2015) is extremely pertinent in the context of medical education. An older physician-friend, who has been practicing for over 20 years, recently said to me, “medical school is almost like trades school.” He made this comment in response to my lamentations of the challenges in graduate work: getting lost in the theoretical and challenged to develop new ideas on my own. I caught myself, and acknowledged that I did not mean to belittle the challenges of medical school. It was at that point that my friend commented that a major difference in those challenges was that medical school teaches rigorous and specific skills that a student must learn and master, while in the experience of graduate school, the student is challenged to develop their own ideas and concepts on a large – but still focused – scale. But to me, the major difference between the two is not just the style or goal of learning, but the fact that medical students are not only grappling with developing an expertise of knowledge, but that they also grapple with a major identity shift in *becoming* a doctor. To take the trades school analogy as superficially as possible, just as a medical student becomes a doctor, a plumbing student becomes a plumber, a carpentry student becomes a carpenter: a graduate student may become a professor, but more commonly a graduate student becomes a more deeply learned person in their area of expertise. While I do feel a deepening of learning, and certainly a development of thinking, I do not personally feel a huge shift in identity in relation to my master’s degree. It has not changed who I am, or how I view myself or my role in society in quite the same way that a

medical student might sense an educational transformation. In the medical school, this learning as becoming seems most present in the experience of clerkship. In the next section, we will examine how communities of practice can aid in this process of ‘becoming’ as part of the clerkship experience.

The period of clerkship in medical education is a transformational period of professional (and personal) identity for medical students (Dornan, Boshuizen, King, and Scerpbier, 2007; Dornan, *et al.*, 2010). In the introduction to their book, “Medical Education: Theory and practice,” Dornan, *et al.* (2010) describe this transition eloquently:

There is, typically, a point of transition when the focus switches markedly from theory to practice, the settings switch from classrooms to clinical work-places, and faculty change from university scientists to practitioners. . . . One way or another, the experience of transition is a powerful one. Learners undergo an identity change from being a university student to being a student doctor. Norms of dress and behaviour change from student to professional ones. The subject matter switches from theory to practice. There are clinical skills to learn. Working days are long and tiring. The whole purpose of studying medicine – to be able to promote health and relieve suffering – comes into focus, which can be very motivating. (p. xvii)

Essentially, Dornan, *et al.* (2010) are describing a change in practice, and also a change in identity as students cross boundaries and derive new meaning from their experiences. They illustrate that for every student this change is personal and individual, but ultimately transformational. This experience reflects the transformational aspect of learning that Wenger (1999) and Wenger-Trayner and Wenger-Trayner (2015) describe in relation to identity, where students renegotiate their identity in a new context, and is clearly an important component of learning as becoming in the medical school (McLachlan, *et al.*, 2012). In some of the medical education literature on professional identity formation, this transformation has also been described as socialization resulting from the hidden and informal curricula, where one’s identity is shaped by their experiences in the medical field and by establishing their place in a community of professionals or community of practice (Ahrweiler, Neumann, Goldblatt, Hahm, & Schedder, 2014; Cruess, *et al.*, 2014; Martimianakis, *et al.*, 2015; Sharpless, *et al.*, 2015; Wald, *et al.*, 2015). While the hidden curriculum relates more directly to the organizational or institutional structure of medical education, the informal curriculum refers to a student’s interactions with fellow students, faculty, health professionals, and patients (Hafferty, 1998; Karnieli-Miller, Vu, Holtman, Clyman, & Inui, 2010). In this way, the relationships formed throughout the continuum

of medical education are also crucial to the development of a doctor's professional identity, and engaging in communities of practice of like-minded individuals (for example, in a medical student choir) could help to eliminate some of the "identity dissonance" that a medical student may encounter as they negotiate their values and sense of self with the requirements and realities of the medical profession (Cruess, *et al.*, 2014).

Canadian medical students Messinger and Chin-Yee (2016) recently published an article that beautifully describes their early experiences entering medical clerkship: their first encounter with the beginning of the transformation from student to practitioner, and their feelings of a lack of preparation in the more humane aspects of patient care. They open the article with a descriptive anecdote of taking a 50-year-old woman's medical history: she is suffering from advanced pancreatic cancer. In the opening paragraph they describe their clinical and medical observations of the patient, and how the patient abruptly interrupts their history-taking: "I'm dying. Do you know what that feels like?" The following is their reflection:

We left our patient's room feeling defeated. In that moment we were unarmed – suddenly neither our biomedical knowledge nor our clinical skills could help us provide our patient with the care that she deserved... As second-year medical students preparing to embark on our clerkship years – when we will exit the theoretical world of the classroom and enter the 'real' world of the hospital ... It became clear to us that we are learning how to cure disease but not how to effectively care for patients, how to decrease physical pain but not how to alleviate suffering. (p. 1)

At one point in the article, Messinger and Chin-Yee (2016) refer to themselves pre-clerkship as "competent technicians" (to stretch the tradesperson analogy further) and highlight beautifully that part of the process of becoming a physician is the ability to also become "humane healers": to not only have the theoretical knowledge to understand and treat illness, but also the expertise of compassion to work humanely with patients. This latter point seems to be crucial in the transformational process of learning as becoming in clerkship, and highlights two competing hidden curricula: one from a medical education that emphasizes developing an expertise in clinical skills, and one from patients, who emphasize a desire for more humanistic healthcare.

Situated learning.

In an earlier work, Lave and Wenger (1991) use the transformational process of apprenticeship as the basis for their situated theory of learning. Their book focuses on knowledge construction as a fluid, mutual process of "constructing meaning of present circumstances" (p.

34), which is dependent on the formation of a community and an individual's relation to that community (p. 53). They "emphasize the significance of shifting the analytic focus from the individual as learner to learning as participation in the social world" (p.43), and express that learning is a holistic process involving "the whole person...becoming a full participant, a member, a kind of person" (p. 53). Using examples of apprenticeship as the backdrop for this theory, Lave and Wenger (1991) propose that, in the case of apprenticeship, "there is very little observable teaching; the more basic phenomenon is learning," alluding to a dissolution of the hierarchical relationship of teacher and learner, replaced by a more organic and mutual learning process (pp. 92-93). This dissolution of hierarchy reflects somewhat the triadic relationship of medical students, physicians, and patients in medical clerkship as described by Teunissen and Wilkinson (2010). Lave and Wenger (1991) note the importance of identity and identity transformation as a measure for this learning, in that individuals shift from peripheral members, to full members, to practitioners in community, becoming central to the "learning curriculum [that is] characteristic of a community" (p. 97). It is in this way that a learner might embody the teachings from the current hidden curriculum of medicine, or a future humanistic curriculum: reflecting an "infusion," as Hafferty and Franks (1994) suggest, where the "whole person" is a "full participant" in a "social world" – in a "moral community" – as opposed to a consumer of formally developed learning objectives.

In his book *Between Man and Man*, Martin Buber (1947) writes of education,

What we term education, conscious and willed, means *a selection by man of the effective world*: it means to give decisive effective power to a selection of the world which is concentrated and manifested in the educator... The world, I said, has its influence as nature and as society on the [person]. He is educated by the elements, by air and light and the life of plants and animals, and he is educated by relationships (pp. 106-107)

Buber (1947) writes from the same constructivist viewpoint on education as Lave and Wenger (1991), Apple (1979), and Wenger (1999). He writes of the importance of inclusive relationships in learning, and speaks to a mutuality of learning that deepens our understanding of what Lave and Wenger (1991) are getting to. Buber (1947) labels empathy as a binding thread between learners in mutual, dialogic relation, in order to "[live] through the common event from the standpoint of the other" in "the complete presence of the reality in which one participates" (p. 115). He writes, "...unity itself, unity of the person, unity of the lived life, has to be emphasized again and again" (p. 137).

This empathy and perspective-taking reflects Wenger's (1999) description of learning from another's point of view in joint enterprise in order to shape one's sense of meaning in experience and strengthening a sense of community in that enterprise. He writes: "By recognizing the mutuality of our participation, we become part of each other" (Wenger, 1999, p. 56). This statement almost sounds as if it were written by Buber, and demonstrates how perhaps empathy plays an important role in the learning through communities of practice. Certainly the idea of perspective-taking seems hugely important in medical education, as medical students learn to relate to patients in medical clerkship: to understand an illness not only from the details of their medical textbooks, but from the perspective of the ill (Messinger & Chin-Yee, 2016). Buber will continue to play an important role in the development of this conceptual framework. In the upcoming section, we will see how Buber's commentary appears and is relevant to multiple dimensions of this thesis: to communities of practice, to medical education, and to music making.

Martin Buber

In his text, *Between Man and Man*, Martin Buber (1947) describes "genuine dialogue – no matter whether spoken or silent – where each of the participants really has in mind the other or others in their present and particular being and turns to them with the intention of establishing a living mutual relation between himself and them" (p. 22). In achieving this 'mutual relation,' Buber (1947) emphasizes the concept of unity, of 'turning the soul' fully toward another, and setting aside all notions of difference and otherness between beings. Buber (1947) writes that genuine dialogue can be either silent or spoken. He writes,

We should plunge into the silent unity, but for the rest leave its relativity to the life to be lived... There is a state in which the bonds of the personal nature of life seem to have fallen away from us and we experience an undivided unity. (p. 28)

Buber (1947) writes that this 'silent unity' is necessary for the "cessation of multiplicity" which is in turn necessary to facilitate genuine dialogue (p. 29).

Part of Buber's (1947) argument for achieving genuine dialogue is through the elimination of the notion of "the Other" (p. 26). Overcoming this difference requires that individuals relate on the level of the soul, disregarding any elements that set them apart from one another. In his discussion on the genuine dialogue in education, Buber (1947) comments on the

role of empathy in cultivating dialogic relations. He describes empathy as the ability to “transpose oneself over there and in there; ...to live through the common event from the standpoint of the other” (p. 115).

In their article on learning how to be “human” in medical practice, Messinger and Chin-Yee (2016) use Buber and the concept of the dialogic as a backdrop for discussion on how to better relate to patients. They write that Buber’s commentary is about how “at the most basic level, human beings relate to one another, and thus offers valuable insights into the doctor-patient relationship” (p. 1). In relating the anecdote of taking the pancreatic cancer patient’s medical history, and her abrupt interruption, sparking the jarring realization that there is a person behind the illness they are assessing, Messinger and Chin-Yee (2016) write,

We can be confident that after studying the mechanisms and management of disease, we have the necessary tools to become competent technicians. What we can be less certain of, however, is whether we have the appropriate skills to become humane healers. (p. 1)

Messinger and Chin-Yee (2016) call for a reform in medical education that incorporates more of this humane thinking and insight, through the use of humanities. Stern (2009) writes of higher education, in reference to Buber’s (1947) commentary that “higher education can suffer from monologic tendencies, as the temptations of high status disciplinary ‘expertise’ can lead academics and even students to believe they have no need to listen to others,” and that “dialogic higher education can generate better connected people” (pp. 273-277). He goes on to advocate for the value of ‘learning communities’ in higher education to facilitate the dialogic. This, to me, represents the call for *structural* reform in medical education, as expressed by Hafferty (1998) – to “create structures that allow individuals to reflect upon the structural picture of where they are a part” – where the problem lies more deeply in the structure of the learning community than it does in the content of its formal curriculum.

Music and Communities of Practice

The concept of community and social learning through the arts is not novel. In Cheryl McLean’s (2014) book, “Creative Arts in Humane Medicine,” Kaufman, Cowen, Rabinowitz, and Schneider (2014) write that

The experience of feeling connected to others is an important part of the healing process... Creative and expressive arts have a natural capacity to promote feelings of connection within groups of patients as well as within groups of health care providers.

The sense of connection and the sharing of experiences and emotions can help providers feel more empathetic toward patients and colleagues. (p. 113)

Kaufman, *et al.* (2014) provide a context that not only engagement in the arts, but the *communal* engagement in the arts is valuable in the field of medical humanities and medical curriculum, and suggests that the use of Wenger's (1999) 'communities of practice' in relation to music might serve as a viable lens through which to examine the choir in this study.

When I first read Wenger's (1999) *Communities of Practice*, I immediately saw parallels to my experiences as a choral singer. The unit of membership in a choir is the art of choral singing (mutual engagement), and we work together regularly on practicing and perfecting our music (joint enterprise), each contributing in our own way. Every choir I have sung with has had a set of routines throughout rehearsal: a certain set of warm-ups, collective responsibility for setting up the rehearsal room, analogies and nick-names for techniques that help us to sing better as a group (shared repertoire). It is an obvious parallel to me as a musician, and seemingly I am not alone in this observation.

Andsell (2010), a music therapist and leading scholar in the field of community music therapy, applies Wenger's learning theory of communities of practice to musical community and community choirs. Andsell (2010) characterizes a community choir from East London as a community of practice as a product of their mutual engagement in the form of weekly rehearsals and identity as a choir; their joint enterprise of planning, rehearsing, and performing; and their shared repertoire of routines and choosing the music that they sing. He terms the group a "Community of *Musical Practice*," where music is the "commonly held aim" (mutual engagement) that defines and directs the community (Andsell, 2010, p. 50). Andsell (2010) uses Wenger's (1999) theory to suggest that the experience of being part of a choir facilitates "musical learning," and stresses the importance of community, communication, and a sense of belonging as central to the process of this learning (p. 50). He makes an interesting distinction in outlining the concept of community, in that "contemporary community must be *performed*, it is something that we create, rather than somewhere we just *are*, or are 'inside'" (p. 45). He offers this distinction in support of the driving concept behind communities of practice, where community does not just 'happen,' but rather it is a place that is constructed through practice (Wenger, 1999).

Andsell (2010) builds further on Wenger's (1999) concept of "learning as belonging" in a community of practice, and applies Martin Buber's (1947) commentary on genuine dialogue to further explore this idea of communication and belonging within a community of practice. Ansdell (2010) writes that the development of a singer's sense of belonging in the group occurs "*in-and-through* musicing," (the experience of music making) characterized by a "highly mutual state of togetherness" (pp. 52-53). It is at this point that Ansdell (2010) turns to Buber and his commentary on dialogic relationships, referencing him as he describes community as "a concrete event that happens when people manage to really listen to one another... A community is built upon a living reciprocal relationship, but the builder is the living, active centre" (p. 53). This statement also reflects the constructivist approach that Ansdell (2010) reminds us of in reference to Wenger's (1999) concept of community: that it 'happens' through practice, rather than existing on its own.

Buber (1947) writes of community,

Community, growing community (which is all we have known so far) is the being no longer side by side but with one another of a multitude of person. And this multitude, though it also moves towards one goal, yet experiences everywhere a turning to, a dynamic facing of, the other, a flowing from I to Thou. Community is where community happens. Collectivity is based on an organized atrophy of personal existence, community on its increase and confirmation in life lived towards one another. (p. 115)

Though relating not to music, Buber's (1947) description of how community is formed arguably describes how effectively musical community is fostered, through the unspoken collaboration as a unit, working toward a shared goal. Ansdell (2010) highlights Buber's distinction between 'collectivity' and 'community,' where collectivity refers to the grouping of people together, whereas community is the mutuality and inter-subjectivity of individuals in the collective.

Ansdell (2010) writes,

Togetherness in the musicing is negotiated through the communicative process of timing and spacing... In the second-by-second events in their communal singing we see how precision and variance co-exist in the musicing ... The singers and instrumentalists are navigating and negotiating a musical 'intersubjective matrix.' (pp. 58-59)

I find Ansdell's (2010) use of the act of active listening to describe this mutuality to be quite apt in the context of his writing and how it relates to music. The practice of listening to other singers in a choir is arguably the most important component to singing cohesively and

expressively. Ansdell (2010) continues with this concept of mutuality as he builds on Wenger's (1999) theory, that communities are a product of relationships formed around a "central reference point," and in this case, that reference point is music and the act of making music.

Singing Together

Psychologists Kirschner and Tomasello (2010) suggest that humans have an "intrinsic desire to share emotions, experiences and activities with others," and that joint music making strengthens the "sense of acting together as a unit" (p. 362). McNeill (1995) attributes this "sense of acting together as a unit" in music making to what he calls "boundary loss," described as "the blurring of self-awareness" as music-makers engage in the synchrony of the music-making process (McNeil, 1995, p. 8). Mithen (2005) builds on this idea to suggest that the act of group music making "appears to [involve] cognitive coordination that is induced by the music, the arousal of a shared emotional state, and trust in one's fellow music-makers" (p. 209). As a choral singer, who engages regularly in the collective musical process, I find these hypotheses hugely relatable. Working as a group to express a common emotion, dynamic, and tone, all within temporal synchrony, involves a certain shared consciousness and coordination *as* a group, rather than as individuals *within* a group. I also see a parallel between Buber's (1947) "cessation of multiplicity," "silent unity," and "atrophy of personal existence" to the "boundary loss" and "shared emotional state" proposed by Mithen (2005) and McNeill (1995) with regard to group music making. The communication required for musicians to synchronize and express is both unspoken and yet collectively understood, reflecting studies on synchrony and prediction as outlined in the literature review.

Rabinowitch, Cross, and Burnard (2013) from the Cambridge Centre for Music and Science conducted a longitudinal study with school-age children, the results of which suggest that group musical interaction may contribute to a child's development of empathetic capacity. The researchers designed musical games and tasks based on "empathy-promoting musical components," which involved cognitive and affective aspects of music making such as entrainment/synchrony, shared intentionality, and inter-subjectivity (among others) that reflect the cognitive and affective aspects of empathy (Rabinowitch, *et al.*, 2013). The researchers developed their hypothesis based on the idea that group music interaction relies on the assumption of "shared psychological states" among musicians, which they relate to empathy (p.

484). The frequency of this concept of shared emotional or psychological states in the literature suggests how pervasive and relatable this notion of shared emotional states is among musicians.

Rabinowitch and Knafo-Noam (2015) explore this idea of ‘blurring of the self’ in a study that measures children’s sense of relatedness to each other after participating in synchronous tapping activities with another child. The study is based on previous research that found that our ability to distinguish our own face from another’s is reduced after synchronous activities with the other person (Paladino, Mazzurega, Pavani, & Schubert, 2010; Tsakiris, 2008). Rabinowitch and Knafo-Noam (2015) propose that this blurring of the self through synchronous activity may serve as one mechanism for heightened empathy and prosocial behaviour displayed by children after joint musical activities, which Rabinowitch, *et al.* (2013) found in their earlier study.

Rabinowitch and Knafo-Noam (2015) propose that

A sense of similarity may elevate one’s motivation and capacity to experience the other person more from the first-person perspective than from the third-person perspective, and in turn, this kind of simulation can potentially be a precursor for empathy. (p. 8)

Rabinowitch and Knafo-Noam (2015) imply that the sharing of an experience such as music making may be enough to cultivate a sense of connection and similarity that can lead to more empathetic behaviour. If true, this finding supports Andell’s (2010) relation of empathy to belonging in musical communities of practice, but further, this description of understanding a shared experience from the position of another is also reminiscent of the shared emotional states and boundary loss assumed in group music making, and contributes to one’s ability to, as Buber (1947) would say, transpose the self and un-see “the Other.”

The social aspects of group music making have been applied to the context of community, in that they contribute to strengthening a sense of community and belonging among members (Cunha & Lorenzino, 2012; Hallam, *et al.*, 2012). “When people share music it becomes a social experience; participants become members of a community of musicians and listeners” (Cuhna & Lorenzino, 2012).

Engaging and Connecting in Musical Space

Choral singing has served as an important and integral activity in my life for the past ten years. I enjoy the physical and technical discipline required for improving my singing, and for learning challenging music. I am inspired by the aesthetics of choral music: by the breadth,

variety, complexity, and history of different pieces, and the privilege to be part of those aesthetics, not as a patron but as part of a creative community. The sense of “boundary loss” and the “blurring of self-awareness” described by Mithen (2005) and McNeill (1995) is one component that has fuelled my “addiction” to choral singing since my first rehearsal at the beginning of high school. The first time I read Mithen (2005) and McNeill’s (1995) work was during my undergraduate thesis research, and it resonated with me deeply: I had found writers who could give words to an experience that I struggle to describe. This space and experience in choral singing is simultaneously physiological, philosophical, and profoundly spiritual, and, while dependent on the engagement of multiple people, deeply personal. The interaction between the focused synchrony of voices in time and space; the sense of shared emotion, expression and appreciation for the music with other singers; the vulnerable and intense connection with the conductor; and the physical reverberation and aesthetics of the music itself all contribute to creating this untouched musical space. It is a live experience, requiring full presence of the singer. With music as the mechanism, the space cannot be formed without the intense connection between singers: a connection that, at least in my life, is quite unique and beautiful. Connection in that musical space is [vulnerable and honest](#), and in that way so refreshing. The experience of entering that space is what I relish in communal singing.

In an article in *The Strad*, violinist Andreas Burzik (2003), writes,

Every musician knows that blissful feeling of being totally lost to the world, absorbed and effortlessly involved with one’s instrument. All steps of the activity run seamlessly into each other and any sensation of time disappears...Action and consciousness have become one. (p. 714).

Burzik (2003) brings this feeling into context by referencing the concept of “flow states,” developed by psychologist Mihaly Csikszentmihalyi. Flow states have been explored in reference to arts (including music), elite sports, surgery, prayer/meditation, and other focused disciplines (Wrigley & Emmerson, 2011). Wrigley and Emmerson’s (2011) write,

The flow metaphor best describes the effortless absorption and control experienced by people in their best moments. In this flow state, people experience a narrow field of intense concentration, they forget about personal problems, feel competent and in control, experience a sense of harmony and union with their surroundings, and lose their ordinary sense of time. (p. 293)

Their description of “flow states” is one that comes very close to describing the mental state I experience in musical space. It passively involves the full presence of the self and others in the moment and complete unfettered focus on the task of making music. For me, it is almost trance-like, or meditative. But what I personally feel is an important distinction in the application of flow states to the musical space I am describing, is that my “flow state” in a choir feels like one *communal* flow state. It differs from the focus I feel when absorbed in a piano solo, or working on a drawing, because it is a product of mutual, compounding flow states from other singers in the group. For me, the musical space I describe is perhaps one mutual flow state, reflecting again Buber’s (1947) “cessation of multiplicity” in the mutuality of community.

Influential ethnomusicologist, John Blacking (1995), writes about musical space in his book *Music, Culture, and Experience*. He writes of a space of “virtual time” created in music making, clarifying, “We may say that ordinary daily experience takes place in a world of *actual time*. The essential quality of music is its power to create another world of *virtual time*... [an] ‘other’ world – the world in which things are no longer subject to time and space” (p. 34).

Thinking back to the heart-rate studies outlined in the literature review by Müller and Lindenberger (2011) and Vickhoff, *et al.* (2013), the synchronization of heart rate variability in people who sing together is not only an interesting finding and a beautiful idea, but it suggests a profound and unspoken, yet measurable connection between singers that to me gives deeper meaning and relevance to the concept of boundary loss and the blurring of self-awareness in musical space. This phenomenon, along with the shared psychological states and blurring of self described by Kirschner and Tomaselo (2010), Rabinowitch, *et al.* (2013), and Rabinowitch and Knafo-Noam (2015), also provides another angle for the use of Buber’s (1947) genuine dialogue in the context of musical communities of practice. The idea of hearts beating together as a function of musical activity seems to resemble Buber’s (1947) “cessation of multiplicity,” and “silent unity” that occurs and is required for the “transposition of the self onto another in the “mutual relation” that is community.

To relate again back to the literature review, to the concept of joint-enterprise, communication, and predictability presented by Sebanz, *et al.* (2006), I feel that this ability to predict and match another’s action and intention requires a great deal of empathy, in that in order to *predict* something so subtle as the way one will relate to a piece or express an emotion, we must attempt to understand the piece from the perspective of another. In singing, this is not an

active process, but rather an intuition that singers seem to have and develop over time – and certainly, I feel that the more connected the group, the more unified and emotional a sound will they produce. It is not sufficient to merely sing the way *you* feel, but to align your feelings with those of the singers around you in order express one mutual essence of the piece. This concept of alignment is integral to Wenger's (1999) concept of communities of practice, in reference to our ability to understand different members of the community and align our perspective and approaches with theirs in joint enterprise.

Music as meaning.

In conceptual writing about music, community music, and music making, a common theme of meaning-making seems to arise, which leads me to draw a further parallel with music making and communities of practice. As Wenger (1999) labels practice as a way of knowing through meaning-making, so too do writers like Phelan (2008), Eisner (2001), Mellor (2011), Beineke (2013) and Blacking (1995) express aspects of music making as meaning-making. Phelan (2008) writes that we generate meaning and identity through the practice of music making. Eisner (2001) describes listening to music as “an encoding process, not only a decoding process, [where] the individual has to *make* sense of the music” (p. 21). Quoting participants in a community music ensemble, Mellor (2011) writes that making music helps build an “understanding of a context which we’re in” (p. 296). Beineke (2013) actually draws an explicit parallel with music making and communities of practice, suggesting that personal meaning is negotiated through the process of making music and relating to the musical community. Finally, Blacking (1995) writes in his book on music and culture that “the value of a piece of music as music is inseparable from its value as an expression of human experience” (p. 31). He continues,

There is a sense in which music conveys nothing except itself: in itself, it cannot awaken feelings that may benefit or harm humanity. But it can make people are more aware of feelings they have experienced, or partly experienced, provided there is a degree of cultural, and hence emotional, rapport between the composer and the audience. (p. 36)

Referring again to the “other world” or the world of “virtual time,” Blacking (1995) is careful to note that whatever feelings we experience in this flow-state are defined by the meanings that we give to them: “Such physical states have no meaning unless we relate them to emotional attitudes engendered by a real or imagined social situation” (p. 34).

Blacking (1995), like Phelan (2008), Eisner (2001) and Mellor (2011), suggests that music making puts emotion and experience into context through expression, giving meaning and reification to those feelings much like how Wenger (1999) describes the negotiation of meaning in communities of practice. It is with this parallel that I echo Beineke (2013) to suggest that a negotiation of meaning occurs within musical space, giving more form to the idea of a community of musical practice, where knowledge, meaning making, becoming can genuinely occur through the practice of music.

Presenting musical space to the non-musician.

Watching this linked video of Ola Gjeilo's setting of [Ubi Caritas](#), in my opinion, provides a good audio-visual example of what this alignment in musical space looks, sounds, and feels like. I find the collective focus of the choir to be intense. The choir sings almost distinctly as one voice in the unison chant sections, and you can hear the sensitivity of emotional expression and technical execution of that expression in the quieter phrases at the end of the piece. (If you enjoyed that piece, [this version](#) with improvised accompaniment from the composer is almost equally gripping). I do realize that this musical space may be as difficult to relate to as a non-musician as I find it to describe as a musician. So I will end this section with a final (hopefully more relatable, albeit perhaps less relatable culturally) anecdote that I hope will provide insight into the nature of this musical space.

Firstly, I do not believe that engaging in this musical space is an experience exclusive to traditional "choral" singing, or limited to those in choirs with years of technical experience. While the coordination of multiple trained singers could perhaps facilitate entrance into that musical space more frequently or perhaps more readily, some of my more profound and perhaps more relatable experiences with this space have been informal (in fact, with routine rehearsal, I find that a semi-professional choir can at times default to the mechanics of singing and hover on the periphery of the musical space).

Once a year, Jews gather in the synagogue for the Day of Atonement, *Yom Kippur*. On this holiest day of the Jewish calendar, following shortly after the Jewish New Year, members of the Jewish faith fast and repent for the spiritual and personal wrongdoings they have committed in the past year, and pray for good health and happiness in the year to come. It is an incredibly sombre and emotionally taxing day of personal reflection, meditation, mourning, and renewal.

The holy day begins at sundown with the singing of a prayer, *Kol Nidre*, whose solemn, mysterious melody dates back to the Renaissance, and is sung almost universally by Jews of European descent. While its English transliteration is not particularly inspiring, for many Jews this opening prayer and its melody marks the beginning of a 26-hour marathon of fasting and reflection and hope for a better year. When the congregation rises and begins to sing, the effect is chilling. The melody itself is very mournful, the opening notes of which are almost drone-like, mimicking the sound of sobbing. The notes are long and drawn out, and written in a lower range, and I can feel the notes build deep in the chest as I sing each note. Yom Kippur is perhaps the only day of the year when my synagogue is actually completely full with congregants, and *Kol Nidre* is one of very few prayers that I ever hear our entire congregation (which ranges from secular/cultural to orthodox/traditional) sing together at full voice, and with conviction. This collectively of hundreds of voices spinning in the air around me, singing in unison a particular melody that has bound our people for a millennium, and through that melody expressing an honest, almost desperate yearning for the reprieve of loved ones who are ill, for a coming year of happiness, safety, and stability, for the memory of people we may have lost: the collective vulnerability and spirituality of the congregation (whether religious or not) meets in the same profound musical space I relate to as I read Mithen (2005) and McNeill (1995). It is almost palpable as it moves the soul, and connects us in a deeply personal, yet collective, unspoken way.

I bring up this anecdote not as extraneous personal narrative, but because I find the musical space difficult to describe in a meaningful and relatable way to those who may have less experience singing in a group. The scenario written above describes an informal experience, where ‘singers’ are fully present in what feels overwhelmingly like a shared emotional state of mourning and longing. And it is the act of singing, the relationship to the melody that brings singers to that state – not words from a Rabbi, or meditative texts, but the music itself conjures that shared emotion and creates that musical space.

Summary

Practice, by Wenger’s (1999) and Wenger-Trayner and Wenger-Trayner’s (2015) definitions, seems to be a live, dynamic, and personal experience that we engage in, either actively or passively, in our everyday life. In this way, the longitudinal concept of practice, as it is often applied to medicine, can perhaps be applied holistically to our lives, as the ongoing

learning, shaping, and evolution of understandings that we experience as we engage in new activities, encounter new experiences and situations, and interact with groups of people. The negotiation and re-negotiation of that practice and interaction reflects the more immediate and rigorous concept of practice that is applied to music. The idea of ‘lifelong learning’ is one that I have come across frequently in the literature on medical education, and is one I feel is therefore pertinent to how I will view the findings of this study.

Here is a visual I have created to clarify the components of this framework:

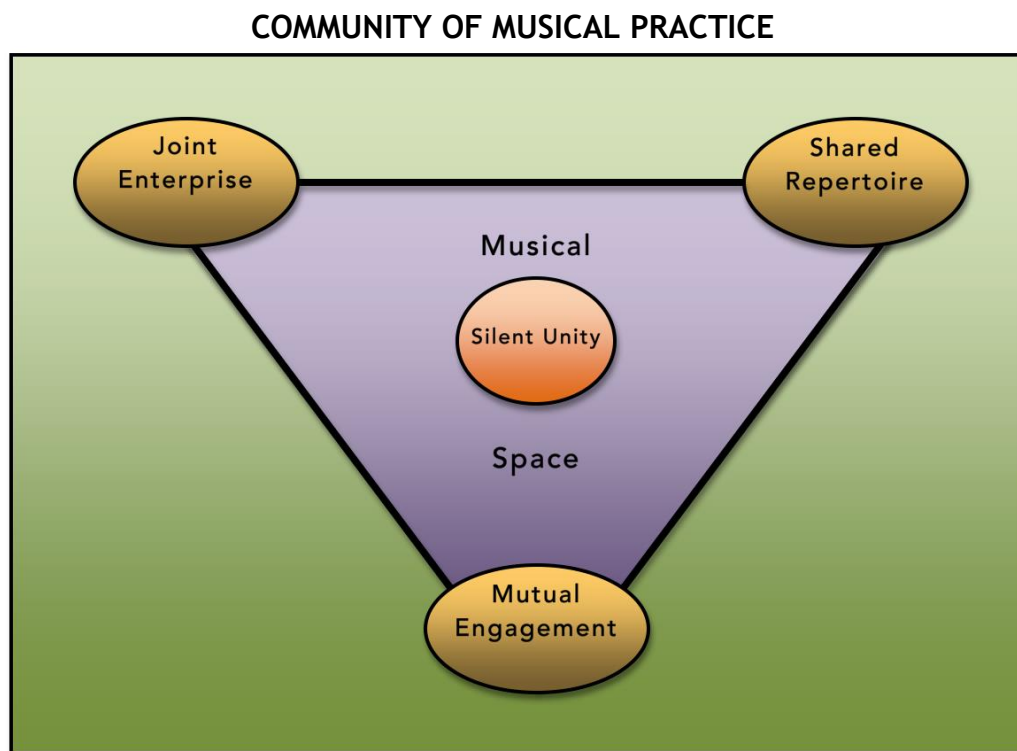


Figure 3. The community of musical practice is framed by Wenger’s (1999) three tenets: joint enterprise, shared repertoire, and mutual engagement. Negotiation of meaning occurs in the intersubjective matrix of musical space: a space where community and connectedness are strengthened through Buber’s (1947) concept of genuine dialogue and silent unity.

The concept of communities of practice, and learning as becoming serves as a backdrop of educational theory for understanding how engagement in a medical school choir may relate to a student’s physician-journey. It also suggests how engagement in musical ensemble can instill humanism in participants by representing a humanistic community and fostering humanistic relationships, countering the current hidden curriculum of medicine and easing a transition between medical and musical contexts of identity. The philosophical commentary of Buber and

the components of group music making discussed in this chapter offer context and insight into how music making relates to this backdrop. Wenger (1999) provides a lens and framework through which to contextualize and view the choir; Andsell (2010) suggests a relationship between community music and communities of practice; and Buber (1947), paired with social music literature, provides a basis for the capacity of music to encourage social learning and human connection in musical space, which can be related to the context of communities and humanism in medical education.

Chapter Four:
Resonance
(Methodological Approach)

Finding My Voice

In the process of writing my proposal for this thesis, feeling rather novice, I approached friends and mentors for advice. In a discussion about choosing a research methodology, a mentor mentioned in passing the importance of “finding my voice” as a researcher, and choosing a methodology through which to best express myself. Her choice of words was particularly apt given the subject of my project, and describes a concept I can relate to deeply both as a choral singer, and in reference to my journey as a student and young adult, as described in the introduction to this manuscript.

I come to this project as an interdisciplinary student, graduating from the McMaster Arts and Science Program in 2013 without a major or specialization. In the chaos that was my average school week, walking the full length of campus back and forth from physiology labs to music cognition seminars, from indigenous studies lectures to physics tutorials, Monday night choir rehearsals were a constant venue where I could reset, recharge, and find a sense of grounding again. Choir rehearsals offered a unique social opportunity; a collaborative, creative effort and focus outside of my academic life, and an emotional refuge and outlet during challenging times in my personal life. Since my first experience with choral singing in high school, I have not attended a school or moved to a new city without seeking-out a choir to join. Amidst transition and change, choral singing has always served as a constant in my life.

My relationship with singing began when I selected vocal music to fulfill my high school arts credit requirement. My first choir rehearsal was a life-changing experience. We were practicing “Oh Canada,” in preparation for an upcoming assembly, and the experience of singing the opening chords was so overwhelming, I almost had to stop singing. I found myself completely enveloped in a wash of sound – of which I was both part of and contributing to – as the room of 100 students evolved into one block of voice. I could almost not differentiate my sound from the sound of the group, and I felt part of some intangible unit in the ether.

To a non-critical listener, a good choir should sound like one voice of indistinguishable, multiple layers. To me, the choral sound reflects the concept of harmonics and resonance, where multiple frequencies interact to produce a rich, singular tone. On a technical level, a multitude of individual voices needs to modify their technique to create a ‘blend’ with singers around them. Singers need to listen critically and intently in order to match tone, pitch, tempo, and dynamic with other singers in ensemble. Achieving good blend requires humility and listening: my first

choir teacher used to say, “If you can’t hear the person next to you, you’re singing too loudly.” Singing in a choir is not about singing *well*, it’s about singing well *together*. On an emotional level, the challenge of singing well together is arguably greater, as it requires consensus of individual emotional expression. Singers need to somehow intuitively agree to express the same emotion, in the same way, and this to me requires an intuitive emotional connection between singers and a great deal of empathy. I cannot explain how this connection is achieved, but I can express that the feeling when singers are able to synchronize both emotionally and temporally is soul stirring. There is a focus within the group and a fragile buzz in the air, much akin to that of a crowd collectively holding its breath in suspense. I feel the emotion deep in my gut as it resonates through the chord hanging in the air. (Please follow [hyperlink](#) for an example that I feel expresses this feeling).

In music, the concept of resonance refers to the richness of a sound as it reverberates in a space. This richness and reverberation is a product of harmonics, where like-frequencies interact at different intensities to create layers within the tone. Musical instruments are built to facilitate resonance. A piano, for example, creates resonant sound as sound waves interact with other strings relating to the frequency struck at the key, all within the body of the instrument. Resonance is particularly important and challenging in singing, as the singer must actively create his or her own resonance in the body. As singers, we use various physical cavities to create resonance, directing air and sound to fill spaces in our chest, back, and skull, and to reverberate against bones in the forehead, nose, jaw, and cheeks. As a singer, I create and feel my own resonance, which in its own rite I find relaxing and therapeutic. Perhaps it is the only ensemble environment I have experience with, or perhaps it has something to do with the absence of non-human intervention (like instruments) in the creation of the sound, but feeling the communal sound of my choir filling a room and resonating through the group makes me feel deeply human and connected.

Outside the physics of sound, the concept of resonance refers to a personal reaction to an experience outside of the self. When you strike an ‘A’ key on the piano, close to the centre of the keyboard, ‘A’ strings of higher and lower pitch vibrate as well, ever-so-slightly, in reaction to the played frequency, and the combined interaction of frequency contributes to the overall richness of the tone. If all we heard was the single natural frequency of the ‘A,’ the tone would sound stagnant and bland (like a tone produced by a computer). The other strings react, because they

are related, much like how the words of a poem might ‘resonate’ with an individual, if that individual perhaps found something in common with the content of the poem. This concept of resonance is one that I would like to insert into the methodology of this thesis. I think what draws me to the practice of medicine, and what grounds me in my practice of music, is my deep desire to understand what it means to be human. Part of building that understanding is to reflect on our own experiences in relation to another’s.

A challenge that I come to in choosing a methodology for this particular study is that, while I am an experienced choral singer, I am not a medical student. While I might find that my experience singing in choirs is relatable to the experiences of the study participants, I cannot assert to intuitively understand what it means to sing as a medical student, with other medical students. This inevitable disconnect is why I have chosen to draw from a phenomenological approach to frame and direct this inquiry. It is a methodology that enables me to delve deeply into someone else’s experience, while actually *encouraging* me to situate that experience in relation to my own in order to establish meaning and context to the findings.

The Phenomenological Approach

The phenomenological approach deals with investigating how individuals experience a common phenomenon in order to better understand the “essences” of that phenomenon (Creswell, 2013; Merriam, 2009). Writers in phenomenological research have also termed it “human science research,” in which the ultimate purpose of the approach is to better understand the human experience, working under the assumption that knowledge is constructed and understood through lived experiences (Moustakas, 1994; Shutz, 1967; van Manen, 1997, van Manen, 2014).

Philosophical grounding.

The phenomenological approach is rooted in the philosophical process of Edmund Husserl (1970), who wrote that our perceptions of consciousness are rooted in our subjective interpretations of the phenomena of our lived experience, reflecting Wenger’s (1999) commentary on situated learning and Apple’s (1979) commentary on the sociocultural constructed hegemony that shapes our institutions and taken-for-grantedness of society. Husserl (1970) writes that in order to reduce our realities into these phenomena, we must first examine

their existence transcendently (objectively, as they are), and then re-examine them subjectively in order to situate these phenomena in meaning and context. He calls this process “transcendental-phenomenological reduction” (Husserl, 1970). Schmitt (1967) writes of this process, “The world before the transcendental-phenomenological reduction and the world which I have transformed into ‘mere phenomenon’ do not differ in content, but in the way in which I am related to each of them” (p. 61). This statement suggests that consciousness is referential: our subjective experience of our objective reality is what constitutes our consciousness and situation in that reality. Dilthey (1985) clarifies:

A lived experience does not confront me as something perceived or represented; it is not given to me, but the reality of lived experience is there-for-me because I have reflexive awareness of it, because I possess it immediately as belonging to me in some sense. Only in thought does it become objective. (in van Manen, 1997, p. 35)

Phenomenology posits that our reality – what we know as our reality – is constructed through reflexivity: consciousness and a sense of reality are objective concepts to *us*, as we perceive them through our own subjective processes. *My* reality can only be truly known by *me*, because of *my* subjective understandings of it.

Research Methodology.

The phenomenological approach as research methodology focuses on attempting to understand a lived experience from the perspective of others. Scholars in phenomenology suggest, however, that the researcher possess relatable personal experience with the phenomenon, in order to engage with the intersubjectivity and reflexivity that goes into constructing those understandings in the researcher’s own context (Moustakas, 1994; van Manen, 1997, van Manen, 2014). The researcher is meant to reflect on her own personal experience in order to give context to her understanding of the phenomenon, thus situating the phenomenon in her reality. This process acknowledges Husserl’s (1970) notion that reality is personal, and can only be given unique personal meaning from one’s own experience. In other words, one’s reality is one’s own personal interpretation, and cannot be completely generalized to the experiences of other people. It is not possible to fully understand another’s experience, and so we try our best by situating it in relation to our own. This point reflects a tenet of qualitative research, in that findings cannot be generalized, but rather transferred or related to another context by a reader

(Creswell, 2013). Interpretation is at the core of phenomenology, and thus at the core of the phenomenological approach. There is no absolute truth; there is merely our *best interpretation* of the truth.

Harmonics of sound: ontological and epistemological assumptions.

In the earlier stages of my inquiry, as I presented my methodology in preliminary meetings, it was brought to my attention that I should be wary of how I utilize the phenomenological approach. My original committee members were critical of my assumption that there were perhaps singular and universal understandings and essences to be gleaned from the data. They cautioned me to avoid using absolute language such as “in-depth understanding” or “universal essence” when referring to potential findings. The committee encouraged me to consider that in the multiplicity of participants, there would very well exist a plurality of realities and perspectives; that perhaps I should be working to develop in-depth *understandings*, to understand the *meanings* and *essences* of the participants’ experiences, rather than attempt to amalgamate, and in so doing reduce the experiences of participants to singular, objective phenomena. A phrase that remained with me was, “Just remember to add ‘s’s to words: meaning becomes meanings, essence becomes essences, understanding becomes understandings.”

In retrospect, this constructivist, pluralistic lens should have been obvious, but I was stuck in the literature surrounding phenomenology, which does iterate and reiterate that “phenomenologists are not interested in modern science’s efforts to categorize, simplify, and reduce phenomena to abstract laws” (Merriam, 2009, p. 24), but juxtaposed with phrases like “to get the essence of *basic underlying structure of the meaning of an experience*” (Merriam, 2009, p. 25, my emphasis). I have therefore worked to modify my own ontological assumptions as I worked through this thesis and its data, bearing an open mind that participants may share perspectives in experience, but may also vastly differ; to remember that an anomaly in data should not be disregarded, but rather considered as a valuable point of reflection adding a robustness to the analysis.

Moustakas (1994) writes of phenomenological analysis,

There is an interweaving of person, conscious experience, and phenomenon. In the process of explicating the phenomenon, qualities are recognized and described; every perception is granted equal value, nonrepetitive constituents of the experience are linked thematically, and a full description is derived. (p. 96)

There are two important aspects of Moustakas's (1994) statement. One is that he emphasizes the importance of each contributing perspective individually, and the other is the focus on "description" that is central to the phenomenological approach: the goal is to be able to *describe* vividly the experience, from the perspectives of the participants.

I feel this ontological assumption of multiple realities in experience is especially pertinent when discussing music. Participants in this study were asked to describe their personal experience with music making, which is a hugely personal and subjective experience. To assume that there would be continuity is not foolish, but to reduce that continuity to a singular experience could perhaps diminish the significance of the participants' experiences. Leonard Bernstein wrote a book entitled *The Joy of Music*, in which he attempts to describe in words the power of music, without reducing it to mere form and structure, as much musical analysis tends to do. In the opening to the book, Bernstein (1959) writes,

Ever since I can remember I have talked about music... But in the last few years I have found myself talking about it publicly, thus joining the long line of well-meaning but generally doomed folk who have tried to explain the unique phenomenon of human reaction to organized sound. It is almost like trying to explain a freak of nature... Can anyone explain in mere prose the wonder of one note following or coinciding with another so that we feel that it's exactly how those notes *had* to be? Of course not. (p. 11)

What Bernstein (1959) is suggesting is that the musical experience cannot be reduced to words, and that multiple explanations of the musical experience can all be valid in their subjective capacity. To return to the concept of resonance, a musical tone is comprised of multiple harmonics that add to the robustness of sound. Computers can create sound with singular frequency, and the result is a tone that sounds [mechanical and suffocated](#). For a tone to sound full, pleasant, and organic to our ears, it must be built from layering harmonics; the related frequencies collaborating to create something that [sounds whole and beautiful](#). Similarly, I feel that a description of data that strives to present singular, universal themes will lack the robustness of one that incorporates a multiplicity of voices. The plurality of realities in participant experiences will serve as the harmonics of this inquiry. Like the body of a violin, my personal experiences can help to contain the sound (findings) in such a way to allow for that resonance to propagate.

The Method

The method of phenomenological inquiry in many ways reflects a blended approach of both scientific and humanities principles, which reflects my interdisciplinary academic background and way of thinking. The inquiry begins with the researcher reflecting on her own experiences with the phenomenon, and then “bracketing” them away in order to control that she does not impose her experiences on the subject in trying to understand *their* experience from *their* perspective. This process, referred to as the “epoche,” and the analysis that follows, referred to as the “transcendental inquiry,” applies a degree of objectivity to the inquiry in order to eliminate biases and to glean accurate “essences” of the phenomenon from the perspective of the subject (Creswell, 2013; Moustakas, 1994, van Manen, 2014). This stage of the phenomenological inquiry involves rich description, rather than interpretation, of another’s experience, where the voice of the subject must be accurately expressed in the writing of the research report (van Manen, 1997; van Manen, 2014). Scholars in phenomenology recognize, however, that mere description of the phenomenon does not provide enough context or meaning for our understanding of it (Moustakas, 1994; van Manen, 1997, van Manen, 2014). It is with this limitation that writers stress the importance of intersubjectivity, in which the researcher must then return to the obtained descriptions and relate them to their own experience in order to more deeply understand the experiences through their shared context and meaning (Moustakas, 1994, van Manen, 2014). This idea of finding relatability to the leading narrative (of the subject) and that the reflexive contribution of the researcher is necessary to understanding the meaning of the experience in full, parallels the concept of resonance, where related tones respond to the played frequency to create a full tone. The researcher must find elements of the data that *resonate* with her own experiences in order to understand the experience more deeply.

Aside: Phenomenology in medical humanities.

In her piece, *To Render the Lives of Patients*, Rita Charon (1986), a pioneering and influential teacher in medical humanities, writes about the challenge and importance of empathizing with a patient while still maintaining the professionalism and objectivity at times required to complete medical tasks. Charon (1986) describes the challenge in achieving this balance, and that students often “overshoot” into what she describes as the dehumanization of physicians through the objectification of their patients. Charon (1986) describes “this extreme

objectification” and emotional detachment from the patient as a “maneuver” that medical students use to “protect themselves from the need to confront the human tragedy of illness” (p. 61). Charon (1986) writes that “[students] must learn to empathize without losing their objective stance” (p. 64). She suggests that an opposite extreme of complete empathy could leave a physician “passive” and “helpless” (Charon, 1986, p. 64). Charon (1986) continues to explain that students must be able to “perceive events from the point of view of the patient and [...] imagine the feelings involved... without losing the ability to collect data, to make dispassionate judgments, and to act” (p. 64). Charon (1986) describes a writing activity she conducts with her students, in which students objectively “render” a character description of their patient and what that patient must be feeling, without imposing their own personal emotions or interpretations. Students then reflect on the emotions of the character they have rendered. In other words, Charon (1986) is suggesting that physicians must first disconnect in order to *re*-connect with their patients and maintain their balance of humanity as a physician. This process seems much like the process of epoche, reduction, and intersubjectivity that is embedded in the phenomenological approach. The researcher needs to compartmentalize her own experience in order to obtain an unbiased dataset, and one that reflects explicitly the voice of the subject, but she then must re-connect with her own experience in order to give meaning and context to the data obtained.

Lauer (1967) writes of the phenomenological approach, “The method through which the Other becomes accessible to me is that of empathy, a thereness-for-me of others. Empathy is an intentional category comprising my experience of others’ experience” (as cited in Moustakas, 1994, p. 37). This approach of bracketing and intersubjectivity, disconnecting and reconnecting, and the overall concept of understanding the human experience, comes back to the concept of empathy and resonance, which are themes I hope to explore throughout this project.

The interview.

The interview is the central intervention for data collection used in the phenomenological approach (Creswell, 2013; Merriam, 2009; Moustakas, 1994; Schram, 2003; van Manen, 1997). Researchers conduct long, in-depth interviews, that are typically semi-structured and conversational, encouraging participants to describe their experiences in such a way that gives meaning to those experiences (Schram, 2003; van Manen, 1997). The focus of the process is on

interpretation and reflection in order for the researcher to develop the *most* accurate understandings of the participants' experiences.

Typically phenomenologists generate information through long, in-depth interviews, augmented by critical self-reflection by the researcher. It does not offer theory but rather plausible insights that bring [the researcher] in more direct contact with the world of [the] study participants. (Schram, 2003, p. 99)

Van Manen (1997) writes that a mere recollection of events is not sufficient for developing understandings of phenomena.

Instead, I must recall the experience in such a way that the essential aspects, the meaning structures of this experience as lived through, are brought back, as it were, and in such a way that we recognize this description *as a possible experience*, which means *as a possible interpretation* of that experience. (p. 41)

This statement can serve as a guide directing the nature of the interview, where the researcher must strive to delve into the “meaning structures” of the experiences, to make sense of what is being spoken, accepting nothing as assumed or taken for granted. This statement also gives heed to the researcher to bear in mind the foundations of phenomenology, that we cannot assume to truly know the experience that is being communicated, since it is our interpretation of someone else's subjective interpretation. In this way, van Manen (1997) writes that the interviewer must attempt to glean as much “objective” information from the participant, continuing to question through the desire to assume, until there is silence and nothing left to ask. He implies a thorough and thoughtful process, requiring full focus and patience from the interviewer, and a subtle collaboration with the participant as they (the participant) develop their interpretive description of the phenomenon through the interview process. “Thus, the interview turns indeed into an interpretive conversation wherein both partners self-reflectively orient themselves to the interpersonal or collective ground that brings the significance of the phenomenological question into view” (p. 99). In other words, a participant's response to a question is their own personal interpretation of their experience as they try to articulate their feelings, and a researcher's understanding of that response is in turn an interpretation of that interpretation. Van Manen (1997) writes of this relation, “*A good phenomenological description is collected by lived experience and recollects lived experience – is validated by lived experience and it validates lived experience.* This is sometimes termed the ‘validating circle of inquiry’” (p. 27).

This literature on the phenomenological interview informed the development of the interview protocol for this study (Appendix A). I tried to construct questions that were simultaneously open-ended and broad enough that they should yield a comprehensive spectrum of responses to paint a full image of the experience. The questions were developed both in relation to the research questions I was trying to answer, and to my own bracketed experiences with choral singing. I was careful to try and ensure that the questions were not leading toward and potential hypothesis of specific outcomes that I may have developed through the process of my literature review, but rather keep the questions open and unbiased, and focused on the experience, not the outcomes, assuming as little as possible about the individual's potential experience. The interview protocol was not piloted.

Reflections on the interview process and phenomenology.

During the period from February 25 to March 11, 2016, I conducted nine interviews (lasting upwards of 40-minutes each) with members of the medical student choir, in private study rooms at the medical school library (please see Appendix A for interview questions and protocol). The study sample represented almost 50% of the regular membership of the choir (total membership is approximately 20 singers), and was chosen both by convenience and for its basic demographics seeming to match the profile of a community of practice. Participants were recruited using a recruitment email (written by me and approved by the Research Ethics Board) that was circulated by the choir directors. The choir directors also circulated a printout of the recruitment email during rehearsals in late January and early February 2016. The only recruitment criterion was membership in the medical student choir. Interested choir members then emailed me personally to arrange an interview time. All participant names, as well as the name of the choir, the choir conductor, and the medical school have been changed, and all identifiers have been removed, in order to protect the anonymity of those involved.

The interview experience was a learning process for me. I learned to train myself to listen silently and allow participants to develop their ideas fully without interruption. I also learned to become comfortable with silence, as participants mulled over a question or tried to formulate ideas. Silence became a valuable tool for encouraging deeper or extended responses. I also learned to ask for clarification as much as possible, ensuring not to allow any of my own biases from my own experiences to serve as basis for assumptions on what a participant was trying to

explain. I learned to keep in focus my research question at all times in order to control that my follow-up questions were on topic, but not leading. And finally, I learned to both follow the interviews along their own unique paths, as well as to allow interviews to end when a participant seemed to have exhausted their ideas, even if I wished there could have perhaps been more to learn or more insights to be gained.

I very much felt that the interview was a valuable reflective exercise for the medical students, who seemed to enjoy developing interpretations of an experience that is important to them, but that they perhaps do not generally give critical meaning to. It seemed for some participants that their interpretations and responses were developing live, during the interview, as the questions prompted them to think of answers. In the moment, I questioned whether, if this observation were true, if perhaps my analysis and findings could be considered lacking validity. But I am reminded of van Manen's (1997) emphasis on the collaborative process that is the interview, "wherein both partners self-reflectively orient themselves to the interpersonal or collective ground that brings the significance of the phenomenological question into view" (p. 99). Van Manen (1997) almost suggests that this live development of ideas is in fact *part* of the phenomenological process.

This observation was most striking to me in thinking about the use of phenomenology in this context. An obvious purpose of research is to uncover new or deeper contributions to a new or existing body of knowledge; but research can also be directly contributory to the study sample itself. When I wrote my research ethics board application for this study, I wrote that participants might benefit from their involvement in this project by contributing their reflections to a growing body of literature on music in medicine, and that this study could help position the choir for further growth within the medical humanities movement, perhaps gaining more funding, recognition, and membership. I did not consider, however, the *personal* benefits that participants might feel from having an opportunity to reflect on and share their reflections on their experience. I wonder if the phenomenological interview or qualitative, reflective methodologies can be considered valuable and contributory in the context of medical education, not only in contributing to a richness of observation that is often lacking in this field, but in serving as a valuable reflective process for the individual. Furthermore, so much of the medical education literature on burnout and humanism discusses the act of reflection as an important learning tool (Martimiankis, *et al.*, 2015; Rabow, *et al.*, 2015; Sharpless, *et al.*, 2015). My experience with this

interview process has reinforced to me the importance of reflective experiences for medical students, but also the value of reflective research methodologies in actually contributing to a participant's process and experience, in addition to the contribution of knowledge to a broader discourse.

I am reminded of a discussion I once had with a journalist friend, where I suggested he must feel very privileged to have people share their stories with him on a daily basis. He corrected me and responded that no, in fact the privilege was to be able to speak to people on a daily basis who feel they have nothing to say or nothing to contribute, and after having been asked appropriate questions, find that a story emerges. My friend explained that the privilege was in watching those interviewees realize after an interview that in fact they *did* have something meaningful to say, and that he was able to help that realization occur, that story develop. I feel similarly about these interviews to what my friend described about being a journalist. The responses are not invalid because they were developed in the moment of the interview: it is the interview that helps bring those feelings and reflections into articulated, contextual form. This realization in many ways reflects a hallmark of phenomenology, which is the importance of language and description.

The write-up.

Schram (2003) writes in references to the phenomenological approach, "Language is the central medium through which meaning is constructed and conveyed. Thus, the meaning of a particular aspect of experience can be revealed through dialogue and reflection" (p. 99). This statement is true of the interview process, where participants express their experience through words, interpreting their experiences in the moment in order to articulate them. In this way, the write-up of a phenomenological study relies on rich language and writing in order to most accurately and honestly express the findings as presented by participants. The written synthesis of findings must accurately reflect the statements of participants (in this project, participants received a copy of the analysis for review and commentary), and use language that most expressively and richly illustrates the experience, so that "the reader of a phenomenological study should come away with the feeling, 'I understand better what it is like to experience that' (Polkinghorne, 1989, p. 46 as cited in Schram, 2003, p. 99). Notice that Polkinghorne (1989) writes, 'I understand better' and not 'I understand completely:' the writing of a

phenomenological study should invoke a sense of ‘wonder’ and ‘openness,’ where the findings are not reduced as conclusive evidence, but rather used as guiding themes for further interpretation, questioning, and engagement with the phenomenon in question (van Manen, 2014). The language should encourage us to continue to interpret in our own context: it should not tell us what to think. Just as conveying the meaning of a musical piece is limited by the language that we have to describe it as Bernstein (1959) suggests, conveying the experience of another, by another, to another, is also limited by our language. Musical analysis is musical *interpretation*. So too is the analysis of the phenomenological experience an *interpretation* of that experience.

In his book, *The Birth of the Clinic*, Michel Foucault (1973) highlights the power and permanence in language to shape our understandings of something – in his case, of patients and illness. Foucault (1973) writes about the “clinical gaze,” which is the lens through which a clinician sees a patient. He also writes about the danger in objectifying a patient as illness through the language we use, which he calls the “loquacious gaze” (p. xi). He writes,

The gaze is no longer reductive, it is, rather, that which establishes the individual in his irreducible quality. And thus becomes possible to organize a rational language around it. The *object* of discourse may equally well be a *subject*, without the figures of objectivity being in any way altered. (Foucault, 1973, p. xiv)

Here, Foucault (1973) establishes that the language of the gaze is what defines the patient in the eyes of the physician, much like how the language used by a researcher in interpreting their findings is in many ways what defines the findings.

Further in the book, Foucault (1973) writes, “It is the different diseases that serve as the text: the patient is only that through which the text can be read, in what is sometimes a complicated and confusing state” (p. 59). To me, this statement encompasses much of what van Manen (1997) writes about phenomenology, and a major challenge of writing phenomenological research. If I am entitled to re-write Foucault (1973) in the context of phenomenology: “It is the different [experiences] that serve as the text: the [participant] is only that through which the text can be read, in what is sometimes a complicated and confusing state.” In other words, in the context of this phenomenological study, the only way to have access to understanding the experience of choral singing is through the language that participants use to express themselves. To accept those experiences as they are, without reflexivity, is “sometimes a complicated and confusing state.” And so, in the transcendental inquiry stage of the write-up, I feel it is important

to attempt to write clearly and accurately from the perspective of participants, leaving my own voice aside as much as possible until the intersubjective analysis.

To draw a final musical analogy, like the harmonics of sound constructing a full tone, or the multitude of voices in a choir interweaving to build a complete chord, I have chosen to let the voices of participants express their experiences as much as possible in the write-up of this project. I have done this to maintain the integrity of their experiences from their perspectives as much as possible; to present how their experiences were initially communicated to me, before I apply a layer of my own reflexivity; and to separate the reader from the data by further stages of interpretation. I have extracted significant statements from all participants, presented in block quotes, to express the multiple perspectives of the participants, which hopefully conjoin to convey a collective idea of the shared experiences. I have tried to include narration and to actively use the pseudonyms of participants in order to maintain a sense of personhood in the work, rather than depersonalized data. In some instances, however, distinct block quotes appear in sequence without narration to link them. In these cases, I encourage you as a reader to read them as one voice, one thought, the succeeding quote a continuation from the preceding, despite coming from two separate participants. I hope this technique reflects the choral sound, as distinct, individual voices contribute to form a whole.

Data analysis.

Before interviewing and analyzing, I reflected on my own experiences with choral singing in order to then bracket that experience. Following the conclusion of the semi-structured interviews, I transcribed all of the interview data verbatim, taking notes of immediate observations I gleaned from re-listening to the interviews while typing them out. When I finished transcribing the four hours of interview audio, I printed all 65 pages of single-spaced, transcribed text, and proceeded to read and re-read the interviews, coding the data with multi-coloured highlighters and a legend on my kitchen table, using a selective reading approach for significant statements (van Manen, 2014, p. 320). I inputted those codes into NVivo qualitative analysis software (Version 11) by organizing codes into “nodes,” and printed each node for further analysis. I then returned to my coloured highlighters, working through each code, extracting significant statements and trying determine connections and emergent themes that expressed the ‘essences’ of the participants’ experiences. I did also run some word-frequency queries in NVivo

to determine the frequency of certain responses. I was careful to acknowledge significant outlier statements and their contribution to the complexities and multiplicity of the participants' experiences.

I chose to analyze the data both by hand and using NVivo for two reasons. First, I find that I read more closely and deeply on paper than through a computer screen. As a tactile learner, engaging with the material with my hands helps me to feel more connected to and in control of what I am working on. The data is convoluted when in the form of a transcript, and I found it to be somewhat overwhelming. Being able to highlight by hand, scribble notes in margins as I read, and being able to physically move between pages of text with my fingers, is a far more natural, effective, and efficient process for me than sifting through overwhelming amounts of un-coded data on the computer. The reason I still chose to use NVivo, however, is that I do find the software to be extremely effective and useful for organizing data. So once I had determined the codes, inputting them as “nodes” in NVivo allowed me to extract and organize the data in a helpful way. This combined process helped me to unclutter the data before revisiting each code again by hand. I feel that this hybridized method has resulted in a more thorough analysis than I would have been able to achieve using software or highlighters alone. Each participant took the opportunity to review my analysis (Chapter Five). Some participants made changes to the wording of their responses, and all have verified in writing that they feel accurately represented and that the analysis is valid.

After analyzing the participant responses from a bracketed position, I returned to my bracketed reflections, which I had recorded in a seven-minute self-interview (using the interview protocol found in Appendix A) prior to interviewing the study participants. I re-listened to my personal interview, and transcribed the interview verbatim in a word processing document. I then highlighted significant statements by hand (given there was not much data to work with) that related to the comments of the study participants and the themes of the transcendental analysis. I combined these prior reflections with reflections I had made throughout the interview process and throughout the transcendental inquiry to generate the intersubjective analysis (Chapter Six).

In Chapter Five, you will find a presentation of the participants' experiences (transcendental inquiry) categorized thematically. Chapter Six presents my reflexive process, engaging with the data and themes through a personal, subjective lens. Through this intersubjective analysis, I try and develop deeper and more contextualized understandings of the

meanings behind the experiences of the study participants as they relate to my experiences. In the discussion section (Chapter Seven), these themes are then compared and analyzed in contrast to the conceptual framework and the literature in order to develop understandings of the relationship between choral singing and medical education.

Chapter Five:

**Fundamental Frequencies
(Transcendental Inquiry)**

What I find is so special about music is, that you're able to feel things that you can't necessarily put into words, things that you can't necessarily explain. There are only things that you can feel, and it's emotions that you never knew that you had, and you never knew that you could feel. So I think those truths... it's just something so universal, and it's something that is so abstract, I guess, but it's something that is so real. Like, when you feel it, you know that you felt it. So I think to me that it's kind of truths that I feel that music brings to me. It's that really getting to the root of what I'm feeling.
(Jordan)

Disclaimers of Bias

1) All participants interviewed in this study had a previous musical background. Despite this unanimity of musical backgrounds, it is not sufficient for me to extend the assumption that *all* members of the choir (i.e., participants and non-participants) have some degree of musical background. This consistency does, however, suggest that perhaps musical people are drawn to and benefit from musical activities in the medical school. This relationship makes it difficult to suggest that music, in comparison to other arts or group activities, has uniquely intrinsic qualities that can benefit a medical student, but the aim of this study is to examine the relationship between choral singing and medical education for those who partake in choral activities. I will not (and cannot) attempt to illustrate that choral singing holds universally beneficial qualities to all medical students who engage with it. Participants themselves recognized this:

I think in terms of creative arts, I'm not sure why, but I've always had an inclination towards music rather than, I guess, visual arts in a sense. (Gregory)

[Music] helps me to understand people, and it helps me to figure out emotions and how people can feel. For me, music does that for me. Right? But, I get maybe for other people, it's not music, right? Maybe for other people it's art. Maybe for other people it's writing. Maybe for other people it's reading. Maybe for other people it's dance. Um... whatever it is, everyone has their different way. (Jordan)

It is possible that other activities and creative arts offer the same or similar feelings for other people as the experience of music making does for these participants, but for this project, all findings relate to and are not sufficiently transferable beyond the context of musically inclined individuals engaging in music-making.

2) Participants all had the opportunity to review the analysis and provide feedback. All participants felt accurately represented in the work, however some did choose to modify the wording of their statements as they appear in this document. The themes presented in this thesis emerged from my reading of the data in its verbatim form, which, for some participants, is not precisely as it is presented here. The content of their statements has remained ultimately unchanged – it is just the tone and reading of the statements that have been altered.

Choir Profile

The Faculty of Medicine at this particular Canadian university supports a medical humanities program in its undergraduate medical education curriculum. The program offers a way of encouraging students to engage with arts and humanities, with the belief that this engagement contributes to the students' holistic medical education. The activities offered within the program are combination of formative, faculty-organized extra-curricular, and student-run extra curricular components. The choir is one of those student-run activities in the informal curriculum.

The medical student choir describes its mission as being to sing for patients at events within the medical school, which is a mission it fulfills. The group meets weekly to rehearse with a paid musical director, Gilles (pseudonym), who holds a Master of Arts in classical voice performance. The choir sings a variety of repertoire from show-tunes, to pop music, to simple traditional choral pieces, and are comprised of a membership of varied musical skill levels. Involvement in the choir is extra-curricular, and can be credited toward recognition in the medical humanities program. On the following page, you will find a table presenting demographic information about the nine study participants.

Name	Year of Medical Study	Years in Choir	Previous Music Experience
Jordan	I	1	Instrumental band
James	I	1	Instrumental band, piano
Gabe	I	1	Instrumental Band, piano
Frances	II	2	Piano, some orchestral, guitar
Sophie	I	1	Orchestral (strings)
Olivia	II	2	Piano
Linnea	I	1	Piano, some choir
Gregory	II	2	Piano, guitar, some choir
Anthony	II	2	Instrumental band, rock band

Table 1. Demographic information of study participants, in order of appearance.

Background: Missing-out on music, filling a gap

All nine of the interview participants had a background in music – mainly instrumental (piano or ensemble). Some had mild choral experience, but for many this was their first formal choral experience. Some of the participants expressed having kept-up with playing in their undergrad by keeping a keyboard in their bedroom, or by continuing to practice their instrument alone, but these participants all expressed an appreciation for being back in an organized setting, playing in an ensemble. *“That’s the thing,”* said James:

I mean with piano, it's obviously just being alone, but in band it's really cool cooperating with other people... The music you can produce as a group is a lot different from what you can produce on your own. It's kind of neat to experience that.

For many of the participants, music had been an important part of their background before medical school that they felt they sacrificed during their undergraduate years as they focused on maintaining a strong academic standing in order to apply and be accepted to medical school. I was surprised by how many participants lamented that they felt music had been lacking from their life before medical school, and how important it seemed to all participants that they find a way to remain engaged in music during their time in medical school.

During my undergrad before coming here, I was always into studying constantly. I let a lot of shit fall behind. Like music, and friends, and stuff like that. I wouldn't see people as much during the school year because I'd always be studying all the time in my apartment. So coming to med school I was like, "okay, I'm not going to be the same boring dude who's studying all the time. I want to let things go back to how they were in high school where I was studious and smart, but also doing more extra-curriculars." (Gabe)

Like Gabe, James had also sacrificed music for his studies during his bachelor's degree, and expressed that not only had he let go of an important extra-curricular activity, but a passion that was important to his self-concept:

[Music] was always my 'thing.' I'm not very athletic, so I'm like, "Well, at least I have music." And then I went to university and completely stopped music and it just kind of felt... I dunno. It feels wrong when you grow up with it and then stop, so I just knew I needed to get involved... So I kind of made this promise that if [I got into med school], I need to make sure that I get involved in music somehow... It wasn't until this year where I got back into singing and music again. It's cool. Sort of reignited the passion for music, I guess." (James)

These statements suggest that music was an important part of the participants' lives or identities that was lost or neglected in their previous academic degree, and that the choir is an opportunity to re-fill that gap and to maintain or engage that musical part of themselves.

Fills the gap, and fits the lifestyle.

I asked all participants why they chose to sing in the medical school choir rather than seek a community ensemble, especially since some of the participants had more formal ensemble backgrounds than others, playing in high-level school or community youth groups. Participants

expressed the convenience of an ensemble that rehearses in the same building in which they have classes.

I wanted to find a community band, and I found a community band, but then I realized it was going to be too much work, and I was going to have to travel, and I was going to have to practice a lot on my own... Just to have something where the rehearsals are literally where your classes are, I mean, you stay here, and that whole transportation aspect and getting to your place doesn't take that much time. So, to me, it's more accessible if I'm just doing it with a med school choir. (Jordan)

Other participants who had a background in music but perhaps had less ensemble experience alluded to having felt they had 'missed an opportunity' to join a choir during their undergraduate degree, and that they wanted to ensure they take advantage of this opportunity in the medical school. Frances lamented about regretting having not participated in the class musical in her undergraduate program, and how glad she is to have the opportunity now to feel involved: *"Having had the chance and not taking it, and now having kind of a second chance and having actually taken it this time, I think it's been quite fulfilling."* Furthermore, participants who had more formal experience in ensembles were looking for an environment that was formal enough to feel like an organized group, but informal enough to accommodate their perceived skill level and busy medical school schedule. *"I didn't have experience in choir singing,"* said Jordan. *"So I felt like maybe here I'd be more on the same level, I wouldn't be so far behind, I wouldn't feel overwhelmed or whatever."*

"I would have a lot less music in my life if I hadn't joined the choir," said Sophie.

So there's that creative output... It's in the middle of the week, on Wednesday... so it's just gives you that extra little boost to keep going through the week, or maybe just through the night to do your homework or whatever you need to do. It's always really pleasant. Just making music makes me happy. (Sophie)

Sophie's statement suggests that in the busy lifestyle of medical school, the regular, weekly practices, and the team-like nature of the ensemble in many ways holds singers accountable to come to rehearsal and engage regularly with music making. The organized nature of choral singing, the draw of the social opportunities it comes with, and the genuine enjoyment of making music in a group motivate participants to practice in a more concerted way than they might if their only musical opportunity was solo play on personal time.

Why is music important to participants?

I asked participants the follow-up question of *why* it was important for them to find musical activities to refill this gap. I wanted to try and understand the nature of this “gap” that participants were alluding to.

Music keeps me sane. (Sophie)

For me, music has always been different from [academics]. And there's something about music that's just different, and your brain switches over and you're not using the same parts, I guess... It helps me to just shift over, I think. (Frances)

It's like, I could focus on music, then I could also focus on, you know, being a person instead of like, “ugh, med school” all the time. (Gabe)

In the upcoming two sections, I will present the two major responses to this question: maintaining well-roundedness, and avoiding burnout.

Well roundedness of Peers and Self: identity and a relationship with humanity

Participants alluded to the fact that they felt their identity was not defined by medicine and medical school, and that while the medical school environment is very focused and consuming, it was important to them that they be able to express their well roundedness and find room to engage in other interests. When asked why that well roundedness was important to them, participants had varied answers, but the general theme seemed to be that participants did not want to be defined by their medical education, and that engaging with a diversity of peers and different activities is a learning experience and a reminder that colleagues and patients come from a diversity of backgrounds with a diversity of personalities and perspectives. James and Jordan explain:

We're all neurotic, obsessed with school, want to help people kind of thing, but that's - you know, there's still quite a lot of breadth within the class and so it's kind of cool to get an idea of the different types of people you're going to be working with too... It's nice to be able to establish a view of somebody besides their studies and their career... Mostly people who you meet in med school, it is in the context of medical school, and so it's kind of interesting to be involved in their life from a different perspective, and kind of see that med students do have a life outside of school, and hopefully will continue that into their practice. (James)

To me, it doesn't just stop at “here's my medical education.” It's more like, “here's my life education,” right? So, I guess to me, that's the huge thing what music and singing in

choir brings to me. It's just that opportunity to learn and to grow, sure as a physician, great, but also as a person, as a human. (Jordan)

When asked about the nature of their relationships with other choristers or what it was like to sing with other medical students, many participants spoke about enjoying the discovery of their peers' talents outside of medicine and academia. There was a sense of appreciation for the diversity or breadth of their peers. *"I love that people are passionate about school and medicine and helping people, and also passionate about these other things that are not necessarily related, but can be related,"* said, Frances.

It kind of shows me that everyone has a lot of talent outside of class. Like, there are some people in the group that are so good, and you see sides, these things that you don't even see in class. (Olivia)

Everybody is so multidimensional. (Linnea)

Frances elaborated that well roundedness is important to medical practice for the sake of relating more easily to patients, suggesting that academic expertise alone cannot necessarily teach a physician to be personable with their patients:

I don't know that I would want, um. Hm. Well, maybe I would want a doctor who was super, super book-smart and didn't do anything else... I don't know. I guess that maybe makes you a good clinician, but not necessarily have good bedside manner, or being able to relate to your patients if you're only focused academically and not otherwise. Yeah. And like, that's, I guess, been studied too. That most people, if they're going to complain about something, it's that their doctor didn't communicate with them well, or it's not necessarily that, like, it was an actual medical thing. (Frances)

Along a similar vein, James felt that having exposure to a diversity of personalities in the choir was important for broadening his ability to relate to a diversity of patients, improving that level of communication that Frances spoke about:

[Singing and interacting with people from a breadth of different backgrounds] opens you up to different personalities, different views of the world, so that's good. Especially going into medicine it's important too. Everyone's different. All our patients are going to be different. They're going to come from different backgrounds, and it's important to have as broad of a concept of life as you can. (James)

James and Frances suggest that there is more to medical practice than competency as a clinician, implying that bedside manner and connecting to patients is an important aspect of medical practice that physician candidates must hone. The participants of this choir were all in their pre-

clerkship stage of medical school, however. From one perspective, this idea that the musical experience could help them to connect to patients could be considered a premature assumption or bias on behalf of these pre-clerkship participants; but some participants did express how their actual experience of singing for patients related to this notion of well rounded physician care.

Gregory explained that he was initially drawn to the idea of singing for patients in a choir because it reflected more “comprehensive care” and combined his passions for music and medicine. When I asked him to elaborate on the idea of “comprehensive care,” and how his experience actually related to that concept, he explained:

So medicine - sure, we are caring for patients, and we give drugs or we give therapy to improve patients... Being able to perform for patients, and doing something that [is] not actually medicine per se (like we're not addressing the disease directly), but seeing how much we can improve their mood by singing, it keeps at least for me in mind that patients are humans, and we have to consider that when we treat them as well. So, kind of having the idea that there are other things besides just getting the right treatment and the right diagnosis. You also have to consider how you can make them maybe feel better overall and all these other non-medicine ways that you can help people. So it keeps things, like I guess, in a humanistic point of view. (Gregory)

Other participants also expressed that they valued making patients happy “by doing something as simple as singing carols” (Linnea). Olivia elaborated, however, that from her point of view as a medical student, she valued the opportunity to make people happy with music, because much of medical practice – while positive and life changing (and life saving) – actually involves delivering upsetting news and outlining rigorous treatment plans: not uplifting interactions. She said,

A lot of the times the news that you give [patients], it's not good news. So yes you're helping them, but it's also really sad... Not to make it sound so depressing, but [medicine's] not exactly always a happy environment. But then, if you're in a choir, I guess, unless you're singing something really sad, it's more that you brightened up their day. Versus, medicine, you change a patient's life significantly by helping them have a better quality of life, but a lot of the times it involves talking to them to take their meds, or "this is what you have to do to get better." The clinical side of medicine is very professional, and not as relaxing as music. (Olivia)

Overall, participants seemed to value well roundedness, because it reinforced their belief that medical practice is more multidimensional than just understanding biomedical concepts. Being well rounded themselves, and having the opportunity to *sing* for patients, as medical students,

reinforced a sense of humanity in patients and a reminder that care and wellbeing extends beyond the context of illness.

Gregory and Olivia expressed these realizations in reference to their experiences of seeing how patients react to the choir's performances. Jordan, on the other hand, described on a more emotional or conceptual level how the experience with singing helps them to relate to patients:

[Singing] allows myself to explore a bit more how I feel. How I express these things. So kind of an "emotional intelligence," if you will. Which, as a physician, is huge, to be able to know, "okay, here are my emotions, here are other people's emotions. How do I control them? How do I manipulate them? And, I guess, how do I live them and how do other people live them, right? ... It helps me to understand people, and it helps me to figure out emotions and how people can feel. For me, music does that for me... To get down to the nitty-gritty emotion, human experience, human reality, is music. That's how I get there. So it helps me to understand people better. It helps me to connect with people better. To connect with myself.

This notion of connecting to self and engaging with emotions leads well into the upcoming sections, where participants discuss the emotional outlet they experience through singing.

Stress-relief and Self-Care

The second component to why engaging with music during medical school was important to participants was its capacity to relieve stress. Unanimously participants expressed that music offers them a sense of "escape," "stress-relief," or "outlet" in their daily life. Sophie summed up the general sentiment beautifully:

It's important to have those moments in your week, when you can just let go of all of your busy, stressful life and just be somewhere else, and be fully invested in something else that's just for you, that you're doing for you. So I think that's what choir does for me. It's really just like an escape for a couple hours and just allows me to do something that I've always done my whole life, which is music... It's a good amount of time to just be somewhere else and do something else. (Sophie)

Sophie's take on this question summarizes her fellow choristers responses in three meaningful ways: first, she comments on taking time in the week to focus on something other than medical school or her occupation; secondly, she acknowledges that music can serve as this break for her because she is musically inclined; and thirdly she alludes to a sense of "escape" or "transportation" that she achieves through music making, as did so many of the other

participants. I found the word-choice of the participants in describing the role of music in their life to be so fascinating. Gabe, Sophie, James, and Jordan all referred to music as offering them an “escape;” Frances referred to a sense of “release” and mental “switch;” Gregory and Linnea suggested that music offered them an “outlet;” Olivia described music making as “therapeutic;” and Anthony said firmly, “It’s definitely a stress-reliever.” These are vague, but loaded terms, and I will expand on what participants were getting at, and how they feel music offers them this sense of escape in the next section.

‘Escape’ through music making, according to participants.

Participants used beautiful, but vague language to describe what role music fulfilled in their lives. “Escape” from what? “Therapeutic” of what and for what? What is being “released” and how does music serve as the “outlet”? And what happens in the brain when a “switch” occurs? Some participants had more developed responses than others in describing the experience that they were alluding to, but overall I found that most participants could express the experience to a point, after which many said, “It’s hard to describe” or “I can’t really explain it.” Regardless of how it was articulated, the feeling of escape seemed to be unanimous among participants, and unanimously difficult to articulate. The following chorus of significant statements offers some insight:

When you’re singing or when you’re playing music ... I guess with all activities like that that you get into a zone or a little trance or whatever, so you know, you’re thinking more about hitting the notes and your mind is clear from all the other crap that’s going through your head the rest of the day, and you’re focusing on that one particular aspect, I guess. It’s kind of like meditation or something like that... I’m focusing on music, I’m focused on things aside from, you know, the outside world or whatever. (Gabe)

I think for me when I’m singing, I – instead of when I study and do things for medicine, it’s a lot about focusing at this exact point and so on and so forth. But for singing, I feel like I can just get into it and not think too much about the fine details. You just kind of go with how you feel, instinctively. (Gregory)

When you’re singing, you’re only thinking about the music in the moment. You’re only thinking about what the lyrics are, you’re not thinking about anything else, and so it’s nice to not have to worry about stuff.... It’s kind of indescribable. (James)

What participants seemed to be describing is an activity that requires a full presence and focus of mind, but not in an intellectually or cerebrally draining way. Singing and music making

requires for them enough mental energy to completely distract them from their daily foci (the stresses and responsibilities of medical school) and also provide entertainment and an opportunity to be creative and collaborative. Gregory added to his comment on musical inclination that *“I think it’s just a sense of enjoyment, because you like what you’ve created in terms of music that you’ve produced.”* James made a similar connection, saying,

I guess as you’re playing, it’s not just the act of producing the sound. It’s like, you’re listening to it... so you get to hang out and listen to music, but it’s music that you’re playing at the same time. It’s kind of weird. (James)

It seems that the “release” that the participants are referring to is a release of their brains from the stresses, responsibilities and tasks that they cling to; the “escape” is that their thoughts and energy can be directed fully to something low-pressure, social, and for their own enjoyment for a window of time. Sophie suggested in her interview that *“music is one of the few activities that occupies your whole entire brain.”*

You’re focusing so much on everything – like putting the words and the syllables in the right places and singing the right notes, and making sure you’re in tune, and making sure that the beat is right, and all those things – that you forget momentarily about all the things that you have to do, and it’s just that release that you need sometimes... I find it’s something that can really transport you somewhere else. (Sophie)

Many of the participants mentioned an immediacy and presence that occurs in music making, where the focus they have described occurs in “the moment.” While I did not ask directly, the consistency of these statements leads me to believe that perhaps the participants allot and balance a large amount of mental energy toward thinking about responsibilities, commitments, or tasks in the past and future: preparation for evaluations and deadlines, worries about performance on a past assessment, aspirations and considerations about the direction of their physician-journey. The fact that participants seemed to be cherishing an activity that – save for the preparation of performance – has little immediate consequence, leads me to believe that much of what occupies the majority of their time and focus requires long-term thinking. Jordan described their relationship to “the moment” beautifully:

I feel grounded. You feel... You start to become more aware of your senses, whatever it is: touch, hearing, sight – you just start to feel more aware of that, and it just seems that stress and all the stress that society builds, it melts away. It flows away... You’re able to build something beautiful, take the time to build something beautiful, in a song, in choir, in music, and live through these things, and enjoy the moment. So maybe that’s what it is. Maybe music gives you time and space to unplug from a schedule, from time, from a

responsibility or whatever, and you just have music. And you're creating that music. And the music you're creating, you're feeling stuff as you're doing that. So you're allowing yourself time to forget about time, and you're allowing yourself time to feel.

Jordan's comments capture the feeling of escape through music in a way that begins to allude to how music making relates to self-care: by "allowing yourself time to feel" amidst the intensity of medical school. The upcoming section gives insight into why having this "time to feel" is so important to participants.

Burnout and self-care.

When I asked participants to describe their experience in the choir as it related to their experience in medical school, they unanimously spoke about the phenomenon of burnout and the concept of self-care. All spoke in reference to the short-term urgency of avoiding burnout in their current stage of scholarship, but many also alluded to the more long-term concern of burnout in their careers. They spoke about the importance of building a habit of scheduling stress-relieving activities in order to avoid that burnout and maintain a healthy practice as a physician.

In this career we get told a lot that physicians burn out, and it's really tiring. So the fact that I devote time to something that's a hobby of mine and interests... reminds me... to really have stress management because otherwise things get busy in life and then you'll end up getting burnt out as well. (Gregory)

With medicine you can put all of your effort – like every waking moment for the rest of your life – into it, if you wanted to. And so I think it's important from the beginning to realize that you can't do that, and so this kind of blocks out two hours a week where you can't study. (James)

It would be too easy to just study all the time and get, like, caught up in everything. Doing electives, doing this, doing that... writing research papers, all those things. Um, and then you kind of forget about yourself... I just like to pick up my violin or go to choir and just forget about the world for a moment and then come back to reality after. (Sophie)

It definitely helps keep my mental health in check, which definitely helps going through med school, because you know, we got all these other stressors, and you can't overload yourself and burn out early on... We're in med school and it's not like a walk through the park. (Gabe)

Healer, heal thyself.

While many participants acknowledged that burnout is a phenomenon that a variety of professionals must be wary of for maintaining their own mental health, Frances and Jordan both suggested how a doctor's self-care is actually important for the sake of the patient.

If you can't care for yourself, or if you're not well yourself, I think you are not going to be able to care for others. So you need to make sure that you're balanced and not just study, study, study, because that's not really going to work out for you in the long run. (Frances)

I'm a huge advocate for humanities in medicine... I think once you start to get to that place where you're not always anxious, you're not always stressed, you just exhale. And you know things will be alright, and things will be good. Once you're at that place for yourself, that's when you can actually do good work, and that's when you can help people, and that's when you can actually reach out to people, because you yourself are not in distress. So for me, music has allowed me to get to that place. (Jordan)

These comments suggest that there may be a deeper role for arts in medical education beyond the personal benefits to medical students: the stress relief that these activities can offer may contribute to producing healthier, more functional physicians.

Emotional outlet.

Participants seemed to struggle with describing *how* music can offer an outlet, but they did suggest that music is a medium through which they can express and relate to emotions in a meaningful way. Jordan had an interesting perspective about the emotional outlet that music, especially song lyrics, can provide, and how that outlet can offer both an escape from, and perspective on challenging circumstances:

[As an adolescent], my escape was listening to music, listening to someone else tell my story. And being like, "Oh, okay. I'm not alone in what I'm going through." ... It gave me a way to I guess verbalize something that I couldn't verbalize, or to feel something that I didn't know how to feel... It [allowed] me that outlet to... explore emotions, I guess in a safe way... It allowed me to identify the emotions I was feeling.

But why, then, music and not poetry, for example? James mentioned in his interview, "*I guess music just better depicts emotions than any way you can articulate them... The best way to express emotions is through music, I guess.*" For these participants, who are musically inclined, James's comment seemed to be relatable. Olivia had a similar sentiment,

If you're going through something really similar, it forms a connection. We learned in

medicine that patients feel better simply by being understood. That's empathy – if you get the sense that someone understands you, it just makes you feel better even when the problem can't be solved right away. For me, music provides that sense of empathy. Say if I moved far away, and I was feeling really lonely, I can listen to some songs where someone else sings a song about being away from home and then thinking, "Oh yeah, I'm feeling that too."

Olivia then described how she found music helped her to overcome challenging circumstances in her first year of medical school.

Thinking back, I think music or being in choir really helped me, because I remember ... feeling really down about it, and then... just singing with people and being with people, it was really nice. I think we were singing "[Happy](#)," [by Pharrell Williams] ... I just remember being at med show and performing, and it made me feel better just doing that. I became really close friends with people in the group, and having these people and music helped me get over whatever setbacks I had.

For Olivia, she found an outlet through the song, "Happy," that allowed her to experience happiness during a time when she was generally feeling sad. But for Olivia, it seems that the social component of singing with a group of people provided an additional contribution to her overcoming or escaping her circumstances, through music, which leads me to question how making music with a *group of people* relates to some of the experiences the participants have articulated thus far in terms of music making.

Informal Social Opportunity

When asked about relationships in the choir, unanimously participants responded that the choir has given them the opportunity to interact with students they otherwise would not have had the opportunity to get to know. The medical school program at this particular university is bilingual, with both French and English streams, and participants expressed that they found choir was one of the only opportunities they have had to interact with students from the other language stream. The choir is open to all students in both streams, but is solely comprised of students in first and second year, since third and fourth year students have inconsistent schedules once they begin their clerkship. Participants also commented that the choir is a setting where first year students can interact with second year students, which again offers more opportunity for friendship, but also connects them to older students who can offer guidance and perspective as they begin their medical school journey.

Not only did participants express that choir offered them the opportunity to meet classmates they otherwise would not have met, but that the choir environment allowed them to get to know people (whether they knew them prior or not) “outside of class.” Participants seemed to feel strongly that they have opportunities to interact with medical students outside of a classroom or explicitly medical environment. *“It’s another thing that I get to do with med students that’s not going out and partying and stuff, which is fun, but you know, you want to do other things too, besides school”* (Gabe). I asked participants how the environment of choir was different from the environment in the classroom, and why they felt it was important or valuable to get to know classmates outside of the classroom setting. Olivia described that the nature of the relationships change dependent on the nature of the environment, and the expectations that accompany that environment.

I think it’s the change in attitude when you are at work, and when you are outside of work. Being in class is like going to work. Your classmates are your colleagues, [and] you can’t socialize during lecture.... And I think when you’re in an extra curricular together, you show your more relaxed side as well. When we’re in clinic or when we’re in class, there’s this unspoken expectation to be really professional. You kind of have to watch what you say and how you say it. I think in medicine, it’s not that you can’t be yourself, but you have to watch how to be yourself. You have to be very professional and mature in the hospital setting.... Just being in choir... it’s a contrast, and it’s nice to get away from the seriousness of medicine sometimes.

Overall, participants expressed that the relaxed, non-medical environment of the choir helped to facilitate relationships in a different way than class did. *“It’s not formal. A very friendly place... It’s not like a study group. It’s a more fun-oriented thing”* (Frances). While all participants expressed having made good friends in the choir, not all agreed that the nature of relationships made in choir were stronger or different from friendships made in class.

Not necessarily... The choir is small compared to the size of both classes, and I mean I have friends in the choir and I have plenty of friends that aren’t. I guess with the people in choir, you have a little bit more in common because they have the background in music...It’s cool to be able to talk about that. But I don’t know. I feel like we’re pretty generally tight-knit, regardless of whether or not you’re on this specific intramural team or you’re involved in choir. We’re all like, you know, we see each other all the time.
(James)

While James’s comments about his relationship to other choir members is still not dissimilar from what other participants described (having a common interest being a major factor), it is an important distinction to recognize, in that it could be easy to suggest a comparison, where music

making facilitates *stronger* relationships than non-musical interactions do. It is more accurate based on this data to state that music making can facilitate fast and meaningful relationships, perhaps between people who otherwise would not interact, but that those relationships are not necessarily stronger or more meaningful than those formed in other contexts. *“I don’t think that they’re necessarily different from the ones that I’ve made in class, but they’re just more friendships that I maybe wouldn’t have discovered just by going to class”* (Sophie).

If we accept, then, as participants have indicated, that participation in the choir has helped cultivate meaningful relationships, what is it about participation in the choir that has contributed to that? Aside from the regularity and frequency of contact time as a large contributing factor, participants unanimously spoke about how they appreciated interacting with people who shared a common interest with them outside of medical school, and that the common interest helped to facilitate those friendships.

The choir has a nice environment in the sense that everyone’s really supportive. So I think being able to share singing with them, it’s kind of like a common interest and it gives you a sense of rapport, like a belonging to. (Gregory)

Obviously when we’re all together just hanging out, that’s fun too. I think the singing is similar to working towards something together that brings people together. Like if you had a group competition or a sports team, you have a common goal. When you sing together and have to constantly listen to each other to harmonize and create the beautiful ensemble, that’s the common goal. (Olivia)

Maybe it’s because we’re working towards a common goal. The idea that we’re working to perform, that we’re trying to perfect this piece that we’re going to be showing to other people, that we’re going to hopefully inspire the same feelings in whoever listens to it. So we’re all kind of in it together in that sense. (Anthony)

Gregory added an interesting second layer to that sense of belonging to a common goal, in that not only do choir members share a common interest in music making, but they also share the common circumstances and long-term goals of being medical students.

I feel like part of it is also just because we’re med students as well, that we already feel like we’re going through the same thing or someone else has gone through it before... So that would lead to us being willing to talk about it because it’s a common interest and similar experience... You can connect with them better because of our common interest and the common goals that we want to achieve with the choir, because I think as everyone is a medical student and we are all for the most part, we know that we’re going in for the patient performances and to provide that kind of care, it feels like it’s easier to connect than if I were to just join a different choir.

Perhaps Gregory is describing a chicken-egg scenario: is the choir a close-knit group because it is comprised of members with a common background? Or are the medical students who participate in the choir a close group of friends because they have the common interest of singing in the choir? Anthony clarifies,

There's that aspect of "we're all in this together in more ways than one." Because, when you're making music, yeah, you're all doing this together and having this experience together, but there's also that feeling that, okay we're all also concurrently learning to become doctors... They both build that camaraderie and reinforce it."

While Gregory was the only participant to make this distinction, the sense of "understanding" that comes from everyone being a medical student was mentioned when participants spoke about the flexibility of expectations and understanding of changes to commitment due to everyone understanding the stress of medical school.

We're all med students and we all understand that we have priorities like passing exams, and getting all your studying done is super important to all of us there, so it's less intense [than non-medical ensembles might be] in the sense that if you don't go home and practice, no one is going to reprimand you for that. (Sophie)

All medical students understand how busy you are, so they're not judgmental if, say, you have to miss something. (Linnea)

These participants suggest that being in the choir strengthened relationships with other medical students because they felt that they had two commonalities: the shared experience of being a medical student, and a common interest outside of medicine, which is music. Perhaps in the case of these medical students, music serves as a catalyst to strengthen relationships that may have already formed or would have formed due to the commonality of the medical student experience.

An indescribable connection.

Jordan and Anthony, however, felt that their connection to other members of the choir was deeper than just a shared interest and background.

After having lived through music; after having created something beautiful; after having gone to rehearsals and worked on stuff, on meticulous stuff, and then having all of that come together to create something beautiful, something that you can't really describe: it brings you closer to people. So now when I see people, it's like, okay we have this connection that we create music together. So, they're more approachable, they understand me on a different level that people don't understand me. I understand them on

a different level that other people probably wouldn't understand them because we have that common experience of creating music together. So, it just brings us together, and it just – it makes it easier to connect. (Jordan)

How does music make it easier to connect, I wondered. Anthony explained,

It's a good way of building connections, I guess. Just in general talking and getting to know people: that is one way to understand your colleagues; but when you're connecting on a more musical level, there's a different feeling to it. It's hard to explain... I would say maybe that you're just connecting on a different level... Could be maybe that you're bonding over the music; over the feelings that you're feeling as you're singing the music. (Anthony)

As mentioned earlier, participants seemed to struggle with articulating certain feelings that they experienced through music making, such as the sense of escape and the sense of connection they felt to others through music making. Having bracketed myself as an interviewer, I attempted to understand this more conceptual commentary by asking participants to explicitly describe what happens for them physically, emotionally, and socially when they are singing in a group of people that leads them to describe these “indescribables.”

Experience of Singing

I asked participants to describe what it felt like to sing with a group of people, specifically what it feels to sing in harmony with others. Responses ranged from “it’s fun” to more conceptual descriptions. Many of the participants expressed to me that they found it difficult to describe how they felt, but their responses were actually quite insightful and – just as together their individual voices produce a complete choral sound – together their descriptions paint the feeling. Here, I would prefer to allow the participants to speak for themselves, with a range of significant statements describing the experience of making music in a choir:

I love how it sounds. It's amazing how powerful so many voices together are... Especially with the harmonies. I just think there's nothing like it... It just sounds very powerful and moving. (Frances)

You have like 20 other people singing with you, and you're trying to tune to each and every one of those people, and so if not everyone's doing it and things aren't always perfect; but when it happens, when everyone's listening and really paying attention and it sounds good and in tune, it sounds amazing. And there's all that - the full sound. It's pretty cool. And you get all the different harmonies. (Sophie)

Sometimes if you're on the edge of your section, you get to stand beside someone who's singing something completely different. So then there are certain points of the song where you hear two different sounds coming together, and it sounds really good, like a really nice chord... You get a real sense of appreciation for what everybody else does and how even if their part sounds really strange when they sing it on their own, how well it sounds with the other parts together... I think that's really cool. (Linnea)

I guess, when you [sing] solo you're kind of just introspecting, I feel, maybe more... You're really focused on you and how it brings you closer to, let's say Earth. Let's say spirituality. Let's say, to whatever it is that's inside of you. When you do it with other people, you're bringing people along this journey, and you're living through these other things along this journey. So sure you're getting closer to those intrinsic, introspective truths, or thoughts, or feelings, or emotions, but you're also doing it with other people, so you're connecting to other people... and you kind of just understand them a bit better, so, you're understanding not only yourself better, and life better, but you're understanding other people better, and you're getting closer to them. (Jordan)

Feeling supported and a sum of parts.

To give context to these conceptual comments, I asked participants what they felt was happening during singing that contributed to creating or achieving the feelings described above. Participants described a great deal of collaboration and communication was required in order for this “sum of parts” to function. I asked them to explain what this meant, and what they described was essential was a great deal of active listening.

Anytime you're working with a group and you have different parts that are coming together, then there is something about communication and being able to listen and adjust. (Frances)

It's kind of give and take to listen to everyone so that it's not just you that's sounding good or your part that's sounding good. It's that everything is fitting together nicely. (James)

You're always receptive to how everybody else sounds, and you kind of change the way you sing in order to help make the balance better. (Linnea)

It's a matter of trying to blend the notes whenever they need to be strong chords for everybody, but also allowing the melody to come out... It's a matter of I guess understanding the music. Understanding what's supposed to be loud and what's supposed to be quiet, maybe beyond what the dynamic markings on the sheet music say, and trying to even communicate that with the other members... It's unspoken because sometimes you look around and everybody has the same grin on their face. Or everyone kind of realizes and has that epiphany at the same time, like "this is cool." (Anthony)

Many participants attributed the social and non-judgemental atmosphere of the choir to their ability to connect easily with others in the group and enable this “unspoken communication” (as Anthony described it) more easily. Some participants alluded to a vulnerability that they feel when singing (and doing certain warm-up and stretching exercises) with or in front of others, and how facing that vulnerability and trusting that other choristers will accept them without judgment has contributed to the comfort-level they feel with other singers.

You sort of throw your shame – you leave it at the door when you go in. Especially the way Gilles makes us warm-up and stuff. You know, it’s like a more relaxed environment, and so I think that helps to facilitate getting to know people better, because... if you’re comfortable singing in front of people, you might be more comfortable talking about other stuff in front of people. So it’s a different environment that definitely allows you to get to know people a bit better. (Gabe)

I guess it makes me feel more comfortable with these people because they kind of see you in a vulnerable state. (James)

A number of other participants spoke about the supportive nature of the group, and the non-musical social opportunities that occur during choir rehearsal (at breaks, after a performance, or while other sections are rehearsing their parts).

If one section is focusing on something, the other sections will be talking about other things, and then things come up about what you’re stressed in life currently, and then you share. (Gregory)

A few participants described being able to share stresses and receive support and advice when needed from other choir members, and how the non-judgemental and social atmosphere of the group allowed for those sorts of discussions. But more consistently, participants spoke about a less explicit sense of support that seemed to accompany the act of singing itself. Participants spoke about the sense of confidence that singing with the group helped them to develop, at least in the context of singing and performing. Many participants spoke about having previously feared performance or solo singing, but that being in the choir and singing as a group helped them to overcome those insecurities. Many expressed feeling a boost in confidence when an audience reacted positively to a performance, or if another choir member complimented them on their voice. Simultaneously, much of that sense of support and confidence seemed to also stem from the communal nature of choral singing.

If you are lacking something, someone else can help cover that as well for you. So, if I say can't reach a certain note, maybe someone else can, and then together we can perform the piece. (Gregory)

When you're in a group, there's less focus on you as an individual, so it's not stressful – you know that if you fail, you have people around you. I mean, you know people are going to hear it in the audience maybe, but it doesn't really feel that way, so it's nice. I'm learning how to sing, I never really sang before, so it's nice to do it in that setting, where I feel like no one's specifically looking at me all the time, so I can just focus on myself and getting better without being preoccupied with what other people are thinking of me at the same time. (James)

You feel as if you're part of a group. I guess there's that group mentality... If I don't have something right, there's always other people who are there who are singing it as well. So, first of all, you don't sing it wrong and have it be 'known' by everyone. (Linnea)

Participants found confidence in physically being with the group, and in knowing that their individual contribution was equally important to the overall sound of the group as any other member of the choir, regardless of personal skill level, and that others could compensate in areas where they felt weaker. I had an overall sense that participants viewed the choir as a sum or parts, and that they derived confidence from feeling a valued part in that sum.

You hear this really big, full, sound, and you're like, "Wow! I contributed!" Like, if I wasn't there, it wouldn't be the same... I guess the finished product sounds so good that you're proud to be part of that, you know? Proud to feel like you were needed for that sound to happen... And you're not supposed to stand out. You're supposed to make the group sound good. And you feel like you're a part of something bigger. (Linnea)

I like that I don't need to, like, shine. And can just be part of this thing, and it kind of shines with everybody together. (Frances)

How do these relationships relate to medical education?

When I asked participants how these connections, and feeling part of this group related to their experience in medical school, what emerged was a variety of themes, including the importance of avoiding burnout, as presented earlier. James suggested that the confidence he gained from choir and the comfort he felt from his peers was important as he learns clinical skills, in that a fear of making mistakes or appearing incompetent in front of peers would hold him back from learning. He explained that choir helped him to overcome those insecurities.

Well like I was saying, you kind of have to leave your shame at the door. It's kind of the same thing in med school. It's a lot of information being thrown at you all the time, and

so you're inevitably going to look stupid on a thousand occasions, and so it's, you know, it's important to get comfortable with your classmates... You're going to mess up... and if you're worried about what people are thinking, it's going to add to the stress of it, and you're not going to be able to get through it. And so, um, yeah... It's the same. Developing comfort with your classmates so that you're recognizing that you're all in the same boat and that you all have improvements to make and to not be ashamed of trying to get better.

Anthony and Sophie both explained that they expected some of these relationships to extend into the professional stage of their career, and that developing meaningful relationships in medical school would be valuable on a professional and collegial level in the future.

Eventually we'll be referring patients to each other and, like, just good relationships are important in general in the professional world. (Sophie)

As a physician you have a team of different people. You have the nurses, you have the social workers, you have other physicians in other specialities, people that you refer to, the family doctor... So you do need to be on the same level in that sense, and so I think there's a lot of parallels to what you see in a musical group, that you do all have to be on the same level. So that's one aspect that would really inform that connection. (Anthony)

A more direct relationship mentioned was the opportunity to connect with other students and feel more involved in the medical school:

It also opens doors to other events. Like, we perform in other shows, and the arts nights. So it gives me more opportunities to do stuff with other people. (Gabe)

Being able to perform at a lot of the events, which maybe otherwise I wouldn't have gone to. I didn't get to perform at the art show that was, I think, a couple weeks ago, but maybe I wouldn't have gone if choir wasn't performing. (Linnea)

While not drawing an explicit connection to how the experience of singing in a choir relates to one's experience in medical school, these responses do suggest that a relationship does exist. Furthermore, all of these commentaries relate to much of the literature surrounding communities of practice, which I will expand on this relationship in the discussion section.

Creativity: A call for arts in medicine

It was clear to me that participants valued their experience in choir as an opportunity to de-stress, to engage with a non-medical part of their identity, and to interact with peers in an informal environment. As mentioned earlier, participants appreciated the contrast of the choir

culture and pace to the medical school culture and pace. But many participants also expressed that they appreciated the opportunity for creativity that choir allowed for. When I asked them why, each suggested that creativity was important in medicine, and that the rigor of the scientific model in medical education did not leave much room for that creative thinking, despite its necessity for problem-solving and perspective-taking.

A lot of the things I do in science is kind of like, it's really strict and rigid. You have to do 'this' and memorize 'this' and so on and so forth, but music I think gives you a chance to express that creativity that normally you wouldn't be able to. (Gregory)

You don't necessarily learn that in the formal training, but in terms of problem-solving or, like, seeing things outside the box... I think that's definitely important, because nothing is black and white, like they keep telling us. They teach us the textbook cases, but when you go into the real world you realize it's not all like that. (Frances)

We spend a lot of our time studying. It's good to have something outside of just medicine. Outside of studying, outside of classes, that just is not completely cut off, but at least has a different aspect, has a different way of learning, a different way of performing, and a different way of feeling. (Anthony)

If I think of my week right now... you learn a whole bunch of laws, and treatments, and symptoms, and tools to diagnose things, and anatomy, and histology... There needs to be this outlet of integrating how do we use humanities to heal ourselves, and also to heal others... I think in a lot of the science world... it has to be black and white. It has to be written on paper, and it has to be proven and demonstrated and rigorous... when to me, the things that I have felt the most connected to, the most, like, 100% sure that this was true, that this was real, that this is what I'm feeling... the, like, undeniably, it cannot be anything but this, is – was for me, through music.... Don't get me wrong, we need to know [the theory] ...But there also needs to be an exploration of that beauty that you can't get in a book, that you can't teach in a classroom. (Jordan)

These statements corroborate much of the literature surrounding humanities and creativity, which I will delve into throughout the discussion section. While maintaining a bracketed stance, it was interesting to hear participants echo so much of what has been outlined in the literature as argument for medical humanities curricula and program reform. Participants clearly valued the contrast between their scientific coursework and the creative process and environment of music making.

Summary

It has been a challenge to reduce the robust and multi-faceted reflections of the study participants to strict themes. What have participants spoken about? They have spoken about having a venue to continue engaging with music amidst their busy medical school schedule. They have expressed the importance of having an informal social opportunity where they can interact with peers outside of the pressures of the formal classroom, and to spend time with classmates who share a common interest beyond medicine. They have shared their perspectives on the capacity for music to relieve stress and offer a feeling of escapism, and they have explained why self-care and stress-relieving activities are so important to their professional journeys. Finally, they have expressed a value for creative activity in the scientific rigour of medical school. From these interviews, five common threads seem to emerge:

- *“Well roundedness: Professional identity as more than one’s profession,”* relating to the participants’ priority to continue engaging with music during medical school.
- *“Music Making as stress relief: Self-care, burnout, and empathy decline,”* relating to the sense of escapism and stress-relief that participants feel in the choir.
- *“Music Making as Community in Medical School: Importance of informal settings to professional relationships,”* relating to the nature of the relationships participants made with other choristers.
- *“The ‘Musical Level:’ Communication and an unspoken connection,”* relating to the sense of connectedness participants felt to their fellow choristers.
- *“Creativity in Medicine,”* relating to the value participants placed on having a creative outlet in the objective rigour of medical school.

The upcoming chapter will present an intersubjective analysis, where I approach the interview data with a deeper personal analysis. The purpose of the intersubjective process is to bring context to the findings. When I begin to un-bracket myself, I feel I can relate to many of the experiences shared by participants in this study. I have always made it a priority to join choirs and continue engaging with my musical self as an undergraduate and graduate student, and as a graduate in my adult community. I have developed strong relationships in these choirs through a shared connection to the music we sing together. And despite heavy workloads and

schedules, choir has served and continues to serve as a constant and consistent venue for stress relief for me.

I recognize that my experience, while relatable, is not the same experience as that of the participants in this study. My fellow choristers have not consistently nor unanimously been my colleagues. I have also never been a pure ‘science student.’ Most importantly, I have not known the same type of academic rigour they must experience in medical school. But if I extrapolate from what I do know of the experiences they have shared, I can begin to understand how deeply these participants must value the prospect of a professional relationship rooted in the type of understanding I have felt with friends I have sung with. Or the sense of relief they must feel to have a scheduled, structured, and social reason to take a break from their studies once per week; to be able to engage with an activity they love that may feel indulgent or superfluous to their scholarship. Or the enjoyment they get from an opportunity to be creative and emotive after memorizing facts all day. Most of all, I can begin to understand the sense of wholeness and support that participants might feel with respect to their identities, emotions, and experiences – their humanity – having the opportunity to sing in this unique professional, albeit informal, community. In the forthcoming intersubjective analysis I will expand on these ideas and try to give further context to some of the more conceptual reflections of the study participants, such as the nature of musical connection and escapism. I hope that these reflections help to deepen your comprehension of the discussion section as the five themes relate to medical humanism and medical education, and the conceptual framework.

Chapter Six:

**First Harmonic
(Intersubjective interlude)**

Introduction

Chapter Four, the methodology section, outlines the process of the phenomenological approach, where the researcher first brackets their personal biases and experiences (epoche), interviews the participants and analyzes the responses with an unbiased lens (transcendental inquiry), and then re-visits and contextualizes the findings based on her own personal reflection (intersubjective analysis). The rationale for this method is based on the philosophical assumptions of phenomenology, where reality is acknowledged as a subjective and referential perception. When trying to understand someone else's experience, we must at first set aside our own subjectivity in order to position ourselves in the subject's shoes, but then we must relate their experiences to our own to derive deeper meaning and context as it relates to our reality.

The previous chapter presented the transcendental inquiry, and in keeping with the phenomenological method, this chapter now follows as the intersubjective analysis. I will focus primarily on the experience of singing in this chapter, and some of the participants' more conceptual comments, as they are the themes that relate most directly to my own experiences. This chapter will work, again, with the theme of resonance, as was outlined in Chapter Four, where like-frequencies (harmonics) react in response to the played frequency (fundamental frequency) to create a wholeness of sound. My personal reflections (made prior to, during, and after the interview and transcendental inquiry processes) respond to and supplement the comments made by the study participants to provide deeper context and further description.

My Resonant Body

Before the first interview of the data collection process, I sat in my kitchen with my tape recorder and interviewed myself. I went through the full interview protocol, both to reinforce my comfort and familiarity with the questions, but also to give myself a clearer and recorded reference point from which to bracket my perspectives and experiences. I remember feeling surprised at how challenging I found the interview process to be. My interview lasted seven minutes (in contrast to the upwards of 30 minutes of the forthcoming participant interviews), and at the time I felt somehow vulnerable as I struggled to answer the questions and articulate subtle, passive reflections that have long nested in my brain.

When I re-listen to the interview now, I challenge my previous impressions and self-criticism. The interview, while short, does genuinely reflect my feelings about choir and my

experiences in choir. What is most surprising is to hear my own responses having now listened to, re-listened to, transcribed, and read over and over again the interviews with the medical students. Minus the medical experience, my responses are eerily similar to those of the medical students, the realization of which leads me to reflect on the universality of the choral experience.

“How Can I Keep From Singing?”: universality of the choral experience

I am not a medical student, but listening to my own pre-interview responses having now engaged so deeply with the participant responses of this study, I am truly bewildered at the similarities that exist in our responses. Statements like feeling “transported into a different space” and having a “sense of working toward one goal together as opposed to fulfilling your individual agendas,” to “meeting people you wouldn’t necessarily interact with... where the common ground is this really simple, creative, honest process” (my personal recording, February 17, 2016). These responses all seem very simple, and unsurprising, but the almost verbatim consistency with my personal interview to those of the participants, and the consistency of participants with each other all reinforces to me this sense of universality: there is something particularly special about singing in a choir.

In comparing my experience as a non-medical student to the responses of the participants in the medical student choir, I was also surprised to find my response to “How does this experience relate to your experience in your life or in school?” was oddly similar to those of the medical students:

It’s another task that you have to work on and practice, and it teaches you to take hobbies seriously and to manage all of the other components of your life. I think it also taught me as I struggled to come up with career goals for myself, it’s taught me a lot about your holistic occupation compared to your career, and that you can take your hobbies – if you want to call them hobbies – very, very seriously, without sacrificing necessarily other, sort of unrelated, goals. (self-interview, January 2016)

This statement reflects the commentary from participants that well roundedness and keeping music in their lives was important to them in the broader scope of their career. Medical students have a context of their own, certainly, considering the rigour of their education and the identity formation that occurs in their apprenticeship, but I am struck with the realization that in acknowledging this distinction, which serves as the basis to this study – what is the experience of singing in a *medical student* choir – in a way perhaps reinforces the fixation of identity, and

highlights a stereotype built by the hidden curriculum that medical students do not engage in non-medical activities like choral singing. But the simplicity of responses, the consistency of these responses with my own and with the literature, suggests that medical students benefit from music making in the same ways that non-medical students do; that choral singing holds value in the medical field just as much as it may in any other person's life; and that this universality of experience perhaps suggests that music making in the medical school need not be justified, applied, or quantified. Furthermore, this consistency leads me to wonder if the societal forces that implicitly teach me that music making is a hobby in the background of my career, are the same forces that teach medical students that music making is a hobby in the background of theirs (if time allows).

Music making is a profoundly communal, connecting, mutual and honest process that offers notable stress-relief and the opportunity to engage in and derive meaning from a social, creative experience, regardless of one's career or personal context. The role of music in the medical school mirrors the role of music in other communities: the difference being the make-up of the membership, and the location and accessibility of the group to that membership.

“For Music and Singing Have Been My Refuge:” escape in musical space

The one set of findings that was neither hugely analysed in the previous chapter, nor will I engage with in the discussion section, is that of the indescribable musical space. I deliberately left these findings somewhat untouched, because I find the participant responses to be so personal and abstract, that an academic lens may detract from the profundity of what participants were describing. I suppose this is really how the intersubjective analysis is meant to be used: to help situate meanings to findings that may not be fully expressed in academic literature, and to not impose the researcher's bias over another's experience that is clearly so personal. I hope that the following personal narrative on interacting with this musical space can provide valuable context for these findings.



Van Manen (2014) writes,

Phenomenologically, I need to open myself (the epoché) and try to bracket my presumptions, common understandings and scientific explanations; at the same time, I need to regard the phenomenon that was given in my experience (the reduction) and observe how the remembrance emerged as it were kicked from the leaves under my

shoes. Thus, I need to describe how my feet literally kicked the memories up from the layer of leaves on my walk through the field. How strange that memories were held captive in those leaves and how my feet were able to dislodge them merely by trodding right through them? (p. 217)

When interviewing Olivia, I had a very powerful resonant experience that “kicked the memories up from the layer of leaves” under my shoes. A second-year medical student, singing for her second year in the choir, Olivia spoke about how choir helped her to cope during a challenging time at the end of her first year. She had been struggling throughout the year with homesickness and a long-distance romantic relationship, all compounded with the stress of medical school. She spoke about how choir was a relief to her during that time: a distraction from her worries and a place where she could engage in something joyful. As mentioned in Chapter Five, Olivia remembers that the song they were singing at the time was “Happy,” by Pharrel Williams, and recalled a moment when she stopped to realize how appropriate it was to be singing that song during a time that was so difficult for her.

Despite my best attempts at bracketing, I was immediately drawn back to my final semester of undergraduate studies. During that time, I was battling the common stresses of completing my Bachelor’s degree, and worrying about where I would be that coming September. Meanwhile, I was also navigating an array of personal struggles, most notably that my mother had been recently diagnosed with cancer (thankfully, she is now well). I have always known how important choir was in my life, and the therapeutic benefits that it has for me, but I vividly recall my first choir rehearsal back at school in January, shortly after receiving news of my mother’s diagnosis, where we began working on a central piece in our upcoming concert, “[Earth Song](#)” by Frank Ticheli (2007). The piece is full of imagery, and it is easy to feel lost in the sparkling chords and expressive phrasing, shaped around the following lyrics:

*Sing, Be, Live, See
This dark stormy hour
The wind, it stirs
The scorched Earth cries out in vain*

*Oh war and power, you blind and blur
The torn heart cries out in pain*

*But music and singing have been my refuge
And music and singing shall be my light*

*A light of song, shining strong
Hallelujah, Hallelujah*

*Through darkness and pain and strife
I'll sing, I'll be, live, see*

Peace

“But music and singing have been my refuge/ And music and singing shall be my light:” with the notes hanging in the air, my windpipe closed and I stopped singing. It was as if the music and the lyrics were empathizing with me in a way that I had yet to experience from friends or family or professors. I felt completely understood, supported, and safe: yes, *this* is what I am feeling, *this* is where I need to be to truly get away, if only for minutes. When Olivia began to recount her story, and described the moment she realized the significance of singing “Happy,” I felt the ping again, and was brought back to my mother’s diagnosis, but also to the overwhelming sense of comfort and understanding that I felt when I first sang that line.

“Earth Song” became my mantra for the remainder of the “dark stormy hour” that was that final semester. The lyrics became a metaphor for my mother’s diagnosis and my ability to cope with it. The music served as a legitimate refuge in those challenging times. The therapeutic effects of choir – the community, and the music – became more apparent to me than ever before. When participants spoke about the therapeutic effects of singing, I was drawn to that moment; to that exact, jarring feeling I felt when I first sang that powerful phrase in “Earth Song,” and to the release I felt each time I sang it afterward.

A physical, musical space.

What is challenging when speaking conceptually about music as ‘escape,’ is that ‘escape’ implies a physical exit from one circumstance or location to another. Can singing in a choir generate such an out-of-body experience as described by participants? I feel that it can. Choral singing, for me, can feel like a full-body experience, where I can almost feel that I exist within a chord, in a phrase, in the air, in musical space. To quote my self-interview (January 2016), “I can feel the sound throughout my body, but it’s also throughout the group and in the room. And when I hear a chord, I feel physically enwrapped in the chord as I contribute my own individual

note.” Part of this enveloping feeling comes from hearing and feeling a multitude of voices resonating and spinning around me and through me (here are [1500 amateur singers singing](#) with Rufus Wainwright at Toronto’s 2016 Luminato Festival – if you turn up the volume, you may feel something too). To hold [beautiful “crunchy” chords](#) is to feel as if you are hanging in columns of air, with the note you sing adhering you to the column, the entire mass tightening and becoming more defined as other singers listen and focus with intensity. To sing [lilting phrases in perfect unison](#) is to feel like you are wafting through air like a clustered formation of birds, or fish in water. Resonance plays a huge role in this physical feeling of being in musical space, as I feel the reverberation through the resonant spaces and structures in my body. Jordan described it beautifully:

You just hit that note and it just emanates from you, right? ... Sure, it’s resonating inside your body, but it’s also resonating outside. So it kind of expands your personal space, and it kind of makes you feel that you’re not constrained by this physical body that we were given, right? Like, this is not just ‘me.’ Maybe there is such a thing as a soul. Maybe there is such a thing as energy, or spirituality. Maybe I’m not just confined in this space, my body. Maybe I can emanate and fill up even more room, right? So kind of letting that energy open.

(This [video recording](#) of the Phoenix Chamber Choir rehearsing Schmidt’s setting of “Lux Aeterna” may give an idea of how singers connect physically to musical space and the sound they produce. Notice facial expressions, body positions, and hand movements, as well as motions from the conductor).

During my final semester of undergraduate studies, my mind was in constant chaos: scattered and unfocused on anything but the cancer diagnosis. I constantly felt like I was scrambling in managing leadership responsibilities, my honour’s thesis, and the rest of my schoolwork. Choir, for me, offered the escape that I needed. I felt somehow supported by my choir community, despite most of them not knowing the details of my personal life, and weekly rehearsals offered an opportunity for escapism and distraction from other responsibilities and my cluttered thoughts. But music and singing, that *musical space*, served as what feels like a physical refuge that I could go to and be both far away from my reality, yet deeply connected to myself. It was a space where I could unpack the emotions I was having to compartmentalize in order to get through each day, in order to finish my degree. It was a space where I could engage with how I was truly feeling and what I was truly living during that time; to be with those

emotions without having to explain them to a friend, or in contrast protect a friend from feeling them too strongly with me. I could just be and feel fully and honestly, and not alone. Much of this therapy occurred while lost in the “moment,” as described by participants in this study, where I could simultaneously think of nothing, while feeling completely understood and expressed and present.

I remember when I began singing in choir in high school. We rehearsed in the school auditorium on Monday nights, sitting up straight on the edge of falling-apart auditorium seats in the front four rows of the theatre. At the end of each rehearsal, I remember walking quietly up the aisle to the back of the room, where we left our school bags, still humming the melodies and feeling completely calm and recharged, my brain empty, my body softly buzzing. The only other context where I have felt a similar feeling is at the end of a yoga class that concludes with a short meditation. So comments like Gabe’s, for example, referring to music making as a meditative activity for him, resonate strongly with me.

Choral music has the capacity to conjure my most intense emotions, allowing me to engage with what I feel without judgment, interpretation, or the need to explain or articulate. When I think about this, it is truly baffling how columns of air, produced by human lungs, reinforced by the resonant components of the human body, can have this effect. A cousin of mine (a hugely accomplished Ivy league PhD in computer engineering, who used to build prototypes for NASA, and now innovates MRI technology in breast oncology) once expressed to me how genuinely impressed and envious she was that I was musical. When I questioned her (thinking, “yeah right, *you* admire *me*,” next to all of her rigorous accomplishments), she said, “I just think it’s so profound that humans are able to create sounds that can evoke such deep emotion.” This felt like high praise, coming from someone who designs ground breaking, life-saving technology; but it also reinforced an important profundity about music that I, even as a musician, take for granted: the unique and fundamental ability for music to connect us to humanity in an intangible, non-quantifiable, non-scientific way. It seemed this sentiment was shared by participants in this study.



Summary

That notion of humans creating sounds that evoke emotion is so important to the power I feel in choral singing, because it is a live process using the physical body. I have deposited short anecdotes throughout this thesis that describe moments of connection while singing: with the diversity of membership in my Toronto adult choir, with members of my religious community in the synagogue, with my body as sound resonates through my bones and internal spaces. Again, I acknowledge my personal bias, but the fact that in choral singing we create something that is both expressive and aesthetically pleasing, *collaboratively* and *in the moment*, gives me chills. It is a different experience from painting, from reading literature, even from theatrical performance. It is pure emotion, *live* emotion, from the body to, I suppose, “the ether,” shared with and reciprocated by others. This musical space can be a true foundation for community and connection. A community of musical practice through choral singing can offer a physical connection to self, a physical sense of support and community, and also offers an accessibility to a diversity of experiences, personalities, and musical backgrounds that I feel makes this connection so powerful. Furthermore, music allows us to connect with our emotions and vulnerabilities in an honest and safe way, which is why I feel that a community of musical practice can be such a powerful venue for engaging with humanism in medical school.

In the upcoming discussion section, I will delve further into how these factors relate to the participant responses and to medical education literature. I hope that this chapter has offered further clarity and insight into the experience of singing, what the “indescribable” musical space feels like, and what connection in musical space feels like. I also hope that, as such, this chapter helps to inform your reading of the upcoming discussion topics with a personal, perhaps abstract feeling of what that musical space is, since I find it can at times be forgotten or cast aside in more analytical, academic discussion.

Chapter Seven:

**Second Harmonic
(Discussion)**

Introduction and Review

To reiterate, the five main themes that I have derived from the participant responses are:

- Well Roundedness: Professional identity as more than one's profession
- Music Making as stress relief: Self-care, burnout, and empathy decline
- Music Making as Community in Medical School: Importance of informal settings to professional relationships
- The "Musical Level:" Communication and an unspoken connection
- Creativity in Medicine

The following discussion will situate these themes in the corresponding literature to provide context and relevance in the broader discourse surrounding this thesis. I will also relate the findings to the conceptual framework to generate a frame of reference and continuity with the philosophical assumptions of this project.

Situating within the Conceptual Framework

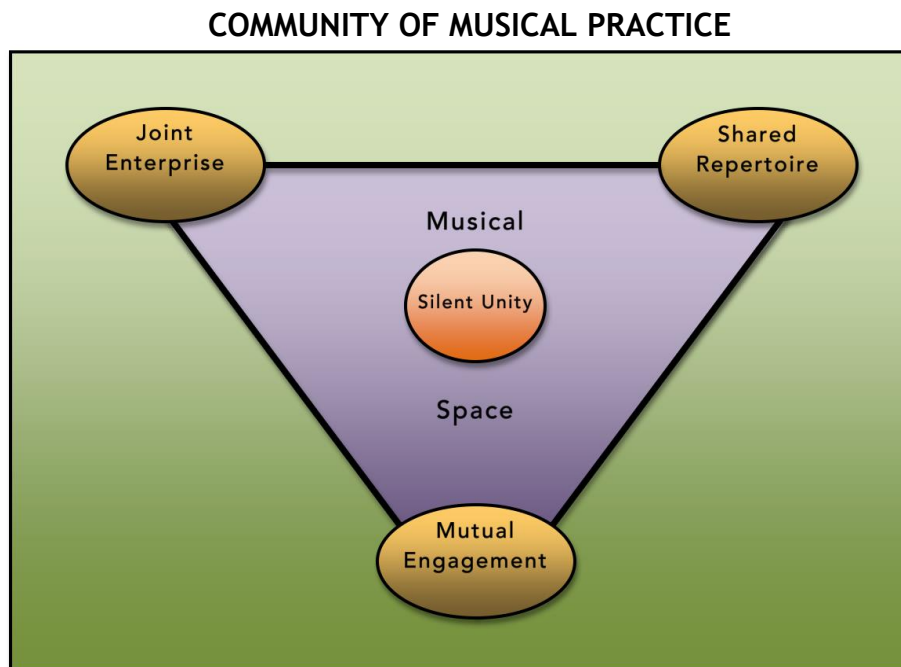


Figure 4. A community of musical practice, where negotiation of meaning occurs in musical space and human connection happens through a dialogic of “silent unity” during music making.

The medical student choir fits into the conceptual framework as a musical community of practice. It is framed by the *mutual engagement* of singing with other medical students for patients and at medical school events; the *joint enterprise* of weekly rehearsals and working toward performances; and the *shared repertoire* of the music they sing and the “silly” warm-ups and stretches they do with their director. It is a community of *musical* practice, as participants engage with a sense of escape, stress-relief, and connection to self in an “indescribable” musical space; they connect with each other and build a sense of cohesion and connectedness on a “musical level,” and “unspoken connection” much akin to the writings of Mithen (2005), McNeill (1995), reflecting Buber’s (1947) silent unity. Participants expressed the importance of this musical community of practice in shaping their ‘becoming’ of doctors, allowing them an informal space to interact with other musically inclined medical students outside of the classroom, building a supportive community and allowing participants to negotiate their identity and their experiences in medical school through music.

Well Roundedness: Professional identity as more than one’s profession

In her article on medical student burnout, Jennings (2009) writes,

In time, a student may lose touch with her own point of view, her own voice. To make matters worse, she is immersed in a socialization process that suppresses her unique and formerly multidimensional identity in favour of a narrowly defined “medical student” role. (p. 261)

Jennings (2009) acknowledges the multidimensionality of medical students, much in the same way participants in this study described themselves and their peers: that there is more that defines the self beyond the context of medical school and the medical profession.

As discussed in the conceptual framework, the clerkship years of medical practice do involve somewhat of a transformative process, as students shift from being classroom medical students to physicians-in-training – a time where they are vulnerable to negative shaping from the hidden curriculum; but it sounds like, in this study, that participants did not want to lose other aspects of their identity (being artistic or musical) at the cost of becoming a physician.

Using a post-colonial cultural studies lens and reflections from third-year medical students, Rachel Kaiser (2002), who at the time of authorship was a fourth year medical student, delves into the ‘fixation’ of medical student’s identity (harkening to Stuart Hall) as they enter

clerkship. She discusses the power that the hierarchical structure of the hospital – a component of the hidden curriculum – holds in ‘fixing’ and narrowing a medical student’s sense of identity, which is not a factor that participants in this study referenced (perhaps because they were all pre-clerkship, or perhaps it is not something that they feel). She also argues that the clerkship process can mute aspects of one’s identity that do not relate directly to medicine, such as music in the case of these participants. She refers to reflections from a third year medical student, Michael Konner (1987), formerly an anthropologist, who describes attending an anthropological conference to receive an award during his clerkship. He writes that upon return to the hospital, his colleagues are so devoted to their medical work that they show no interest or curiosity into how the conference went, and so, he writes, “within minutes, I sank back into my medical student persona” (in Kaiser, 2002, p. 103). Kaiser (2002) comments,

The residents had no interest in Konner’s award and accomplishments as an anthropologist, refusing to acknowledge or even consider that his former studies might help him, for example, to better understand patients’ behaviour during illness or the different reactions to illness by patients from different cultures. (p. 103)

Kaiser (2002) quotes another third year medical student, Fanon’s (1967) reflections, who writes that from his experiences in the institution of the hospital, “my originality was torn out of me” (p. 103).

Kaiser (2002) and Jennings (2009) both call for a more fluid and accepting definition of self in medical student identity that is not bound to the limits of medical scholarship and practice. Kaiser (2002) writes, “It would seem to be more productive to conceptualize becoming a doctor as a process that is unique and never finished rather than to try to become exactly like other doctors, particularly during medical training” (p. 98). Drawing again on Stuart Hall (1996), Kaiser (2002) suggests the use of art (using the example of reflective writing) to combat the forces that narrow medical student identity, by way of re-writing one’s self-representation. “[The student] can also continue to define and redefine herself with interests outside of medical school so that her professional identity as a doctor is not narrow and limited, filled with I was’s and I used to be’s” (p. 104).

These “I was’s” and “I used to be’s” reflect how participants in this study described they felt about the musical selves that they felt they lost touch with during their undergraduate years; particularly Gabe, who said , “I’m not going to be the same boring dude who’s studying all the

time. I want to let things go back to how they were in high school where I was studious and smart, but also doing more extra-curriculars”; and Anthony, who said, “I want to make sure that I don’t have that moment like I did a few years back when I couldn’t play music for a while.”

Gabe and Anthony exemplify how the hidden curriculum of medicine affected them before they even became medical students. The hidden curriculum of medical education influences students before they are even accepted to medical school, as the qualities defining a physician are communicated through the criteria for acceptance and the components of the application process (Hafferty & Franks, 1994). In Canada and the United States, students must achieve high academic standing, and an excellent percentile on the standardized Medical College Admissions Test (which is comprised of three science sections and one “critical reasoning” section) in order to even be *considered* for an applicant interview. If anything, the medical application process communicates to students that a physician is someone who can work exceptionally hard and perform well academically, and as Gabe and Anthony suggest, possibly at the expense of other interests and aspects of self.

This implication, however, does not reflect how Gabe, Anthony, and other participants in this study truly feel about their professional identity. We know this because they have taken an active approach in maintaining and expressing their musical self. While not a reflective exercise, based on the commentary for the participants who acknowledge music as an important aspect of their identities, I argue that in committing to the regular practice of music, with each rehearsal they “continue to define and redefine [themselves] with interests outside of medical school” by engaging with and developing their musical selves *with* other peers, who are doing the same and appreciate the musical dimension of their multidimensional selves (Kaiser, 2002, p. 104).

The participants, however, are still in their pre-clerkship years of study, and those in their second year of medical school did express concern as to how to continue with musical practice during clerkship and residency. Anthony has taken up the guitar in order to be self-sufficient musically, knowing that the clerkship schedule will no longer allow for participation in the choir:

It was November/December when I sort of realized, "oh wow, clerkship's coming up fast"... And so, yeah, it's become, "okay, where am I going to be able to keep doing music next year if I don't try to put other steps in place?" And that was before we had done the [scheduling], so I had no idea if I was going to have musical friends in my group, so I picked up guitar. (Anthony)

Both Anthony and Gregory mused about the idea of starting a clerkship choir, but both

also seemed resigned to the fact that the busy and inconsistent clerkship schedule would simply not allow for regular engagement. Gregory said, “I think it's hard to continue choir during our third year, just because the time schedule won't permit it... If possible I would be open to coming back every so often, like once a month.”

In the next section of the discussion, I will present characteristics of medical student burnout and the erosion of one's self and empathic capacity, both of which first tend to present in or after third year medical school, when students begin clerkship and interaction with patients. I find it so interesting, telling, and sad that in the years when students may need it most, identity-building, stress-relieving, non-medical activities are seemingly prohibited simply by the nature of the clerkship rotation. This is a perfect example of how the hidden curriculum of medicine communicates to students that other interests should be set aside, that the stresses of clerkship are to be endured, with little time for self-care. This is communicated by the structure of clerkship, by the expectation that students abide to its pace and schedule and leave behind other foci that may be important to their sense of self and wellbeing. The hidden curriculum tells students like Anthony and Gregory, that music does not hold a *natural* place in the becoming of a physician.

Identity in communities of practice.

Wenger (1999) writes of identity, “Building an identity consists of negotiating the meanings of our experience of membership in social communities,” and later, “Practice entails the negotiation of ways of being a person in that context” (p. 145; p. 149). Kaiser's (2002) writing on identity formation for medical students reflects this notion, but presents a scenario where students are negotiating an identity in their professional communities that subverts other important aspects of their being formed in previous contexts, much like how Wenger-Trayner and Wenger-Trayner (2015) describe aspects of identity to become “marginalized” as learners enter new contexts. It seems that Wenger (1999) is suggesting that learners negotiate how to be themselves in the context of their communities of practice, whereas Kaiser (2002) describes how medical students negotiate how to become like other doctors in their field, or how they perceive – subliminally or not – the way they should be. Wenger (1999) writes, “Because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming – to become a certain person or conversely, to avoid becoming a certain person” (p. 215). This latter clause in Wenger's

(1999) statement resonates with me almost as a warning: learning is inevitably transformative, and we should be cautious and wary of how that transformation manifests. In the case of medical students in clerkship, as Jennings (2009) and Kaiser (2002) write, there is a risk of “becoming a certain person” that does not reflect the full concept of how students personally identify, leading to diminished sense of self, and potentially burnout in the position.

Participants in this study express that they do not want to become physician candidates or physicians who are constantly consumed by medicine, who only study, and who do not relate to anything outside of their field (as abstract or perhaps overly stereotypical as that may be).

Participants wish to continue to keep music in their lives, and to maintain their personal self-concepts of multidimensional, musical people, who are also doctors. Rabow, *et al.* (2010) writes:

In a safe, diverse community, it is possible for individuals to assess the truth or appropriateness of their beliefs and values. Hearing and respecting the perspectives of others encourages learners to examine the negative biases that might underlie some of their behaviors and choices, encouraging students to remain committed only to those values that withstand a rigorous analysis of self within community. (p. 315)

Rabow’s *et al.* (2010) statement reflects Wenger’s (1999) idea that we construct identities “in relation to [social] communities” in which we participate (p. 4). It also reflects the well roundedness valued by participants, in that being exposed to a diversity of peers in a setting where non-medical aspects of self are valued reinforces the notion that there *is* a diversity of students in medical school, and that sacrificing activities that are important to one’s identity and wellbeing is not required.

Literature on professional identity formation in medical education often cites both the importance of relationships and role modeling in the development of humanistic physicians (Ahrweiler, *et al.*, 2014; Cohen & Sherif, 2014; Hendelman & Byzewski, 2014; Rabow, *et al.*, 2010; Sharpless, *et al.*, 2015; Sinclair, *et al.*, 2015; Wald, *et al.*, 2015). While this concept of role modeling is usually discussed in the context of students aspiring toward more senior physicians who reflect the ideals of medicine they hope to practice, the underlying premise is that students who are presented with role models and examples that challenge their preconceived ideals about medical practice may experience disillusionment, burnout, and subsequently, cynicism and empathy decline (Sharpless, *et al.*, 2015; Wald, *et al.*, 2015). In medical education, there is a “challenge of integrating identities and reconciling preconceived ideas about the physician role with the lived reality of medicine” (Sharpless, *et al.*, 2015, p. 713). While participants in the

medical student choir are not senior physicians to whom students can model themselves, they do reinforce to each other the acceptance of a medical student identity that includes music. Wald, *et al.* (2015) suggests that enhancing professional identity formation involves, in part, “the integral role of relationships... and the creation of collaborative learning environments or ‘communities of practice’ for promoting the socialization process” (p. 758). Further, the CanMEDS framework emphasizes the importance of “relationships based in trust, respect, and shared decision-making” to encourage a collaborative approach to “safe, high-quality, patient-centered care” (The Royal College of Physicians and Surgeons of Canada, 2015, p. 7).

Similarly, in later chapters in Wenger-Trayner’s *et al.* (2015) book, contributors write, “Disconfirmation of identity often results in powerful negative emotions...” and that “a core challenge of identity work is the need to maintain a continuous sense of self in the face of threats to identity across landscapes and over time, and to manage the emotions this evokes” (Fenton-O’Creedy, Dimitriadis, & Scobie, 2015, p. 37; Fenton-O’Creedy, Bringham, Jones, & Smith, 2015, p. 45). They write that “The identity work entailed in crossing boundaries between communities of practice is intensely emotional,” and like Wald, *et al.* (2015) suggest the importance of peer support and “reflective spaces” in helping to mitigate these emotions and help learners reflect on managing this dissonance as they cross boundaries (Fenton-O’Creedy *et al.*, 2015, p. 38; Fenton-O’Creedy *et al.*, 2015, pp. 57-58).

Following this literature, it is reasonable to propose that the choir is a collaborative learning environment giving way to meaningful, trusting relationships that very well may contribute to shaping one’s professional identity and collaborative relationships, reinforcing or reflecting shared values within the group. The community of choir and the experience of singing “[creates] a structure that allows individuals to reflect upon the larger structural picture of which they are a part,” as Hafferty (1998, p. 406) writes, the “larger structural picture” being the medical field. The choir also represents a “reflective space” that acknowledges and appreciates participants’ identities as products of their multi-membership in more than one community of practice. Based on the prevailing feeling in my interviews that participants do not want to sacrifice their musical selves in the formation of their professional selves, I suggest that continued engagement in the activities that shape, reflect, or contribute to that perceived multidimensionality can help to maintain it. That perhaps having a community of practice that is both medical and musical – like a medical student choir – can provide a context where students

can negotiate “becoming” into the “certain person” that reflects who participants are and the type of physicians that they want to become.

Well roundedness in relating to patients.

It is interesting to me that Kaiser (2002) acknowledges that Michael Konner’s non-medical background can enhance his medical practice. This idea was also expressed by participants in this study, where participants like James stated that well roundedness and engagement with a diversity of peers should enhance one’s ability to connect with a diversity of patients. How can music help us relate to others? This, unfortunately, is a challenging concept to justify or situate in the literature. Some medical humanities scholars have drawn a parallel between engagement with literature and narrative in cultivating understandings of a diversity of personalities. Scholars like Eisner (1992; 1999; 2000) have written about how the arts and music education can cultivate perspective-taking and subjectivity, and Younie (2014, p. 177) suggests that “participatory engagement in the arts is seen to extend or potentially to facilitate different, more holistic ways of knowing;” but there is little in the *medical humanities* literature relating to the role of music in this relationship. There is literature that reflects team-working and the bringing together of a diversity of individuals within a choir, and how music can facilitate that connectedness, as presented in the literature review, but I have yet to find literature on how choral singing can influence one’s relationship with a diversity of individuals outside of the choir as a result of the choral experience.

Participants in the study suggested that being well rounded can offer a common reference point for patients to relate to with their doctor. They also suggested that engagement with the diversity of people in the choir can help them learn to interact with or relate to a variety of different patients, but these factors all seem to be extrinsically related to the choral experience, rather than a direct result of the music itself.

Music Making as Stress Relief: Self-care, burnout, and empathy decline

“I cannot give my self if I have no self to give. I must care for my hands, if I am to lift the fallen; my heart, if I am to love the stranger; my mind, if I am to cure the ill; my eyes, if I am to find the lost, and my soul, if I am to guide them home.” (Irvine, 2009 in Jennings, 2009, p. 262).

Burnout and empathy decline.

Participants in the study spoke to their experience in the choir as being a means of maintaining good mental health, relieving stress, and avoiding burnout. Furthermore, participants spoke about the importance of sound mental health in maintaining a physician's capacity to care for patients. In the literature, this idea is discussed as a concept called "empathy decline." The existence of burnout in medical students, residents, and practicing physicians is a well-documented and widely accepted phenomenon in the medical field (Batistatou, *et al.*, 2010; Bleakley, 2015; Dornan, *et al.*, 2010; Enoch, Chibnall, Schindler, & Slavin, 2013; Jennings, 2009; Neumann, *et al.*, 2011; Santen, Holt, Kemp, & Hemphill, 2010). Studies have attributed burnout to a variety of factors: maltreatment from supervisors in the medical hierarchy; disillusionment with the profession; exposure to upsetting and challenging emotional or ethical situations; stress from a fast-paced schedule, lack of sleep, and managing a sizable workload; erosion of a sense of identity; and the deterioration of a sense of community and social supports (Dornan, *et al.*, 2010; Jennings, 2009; Neumann, *et al.*, 2011).

"Empathy decline" is one of the myriad side effects of medical student burnout, and a prevalent phenomenon in the medical education discourse, where medical students and residents begin to lose their ability to empathize with their patients, or detach themselves from their emotions and objectify patients in order to protect themselves and maintain competency, efficiency, and professional composure (Charon, 1986; Jennings, 2009). This trend of burnout, and subsequently empathy decline, typically presents in the third year of medical school, when clerkship and contact with patients begins, and continues through residency (Batistatou, *et al.*, 2010; Bleakley, 2015; Enoch, *et al.*, 2013; Jennings, 2009; Neumann, *et al.*, 2011). As mentioned in the literature review, some authors also attribute empathy decline as a product of the hidden curriculum in medical school, the factors stated in the previous paragraph being components making up that hidden curriculum (Martimianakis, *et al.*, 2015). From interactions with or observation of faculty in the fast pace of the clinic, for example, "students may learn that poor communication styles are acceptable, including not expressing empathy when it is called for or hurrying through informed decision making conversations" (Ginsburg, *et al.*, 2014).

In his memoir, *When Breath Becomes Air*, Paul Kalanithi (2016) reflects on his medical career as a neurosurgeon, and life in the face of death as he grapples with his personal diagnosis with stage IV lung cancer. Recounting his clerkship years, he shares a story of a friend exhibiting

textbook signs of empathy decline during their surgical oncology rotation. I have included this heart-wrenching excerpt to portray both how severely empathy decline can erode one's ability to practice medicine with compassion, and how contending with this decline can also erode the self as well.

A few weeks in, after a sleepless night, [Mari] was assigned to assist in a Whipple, a complex operation that involves rearranging most abdominal organs in an attempt to resect pancreatic cancer, an operation in which a medical student typically stands still – or, at best, retracts – for up to nine hours straight... It is gruelling, the ultimate test of a general surgeon's skill... The surgeon always begins a Whipple by inserting a small camera through a tiny incision to look for metastases, as widespread cancer renders the operation useless and causes its cancellation. Standing there, waiting in the OR with a nine-hour surgery stretching out before her, Mari had a whisper of a thought: *I'm so tired – please God, let there be mets*. There were. The patient was sewn back up, the procedure called off. First came relief, then a gnawing, deepening shame. Mari burst out of the OR, where, needing a confessor, she saw me, and I became one. (pp. 66-67)

Here, Mari is struck with the jarring realization that in her sleep-deprived and run-down state, she essentially willed terminal, metastatic cancer on a patient in order to spare herself from enduring a long, exhausting procedure. As a reader, my heart goes out to Mari. I can imagine the feelings of regret and horror in that personal realization; but I also empathize and, admittedly, I forgive her when imagining her exhaustion in that moment. How can a physician be expected to care for a patient when their own most basic needs are not being met? The challenge is that they *are* expected to care for that patient. It is their professional obligation to care for that patient, no matter their personal state. So here is the crux of the issue: doctors need to care for humans, but doctors themselves are also humans who need caring for. I am reminded of the clichéd airplane oxygen mask analogy: mask yourself before you mask others, else you may asphyxiate before you can do any good.

The hidden curriculum communicates that doctors are expected to be resilient and continue through debilitating stress and exhaustion. Later in Kalanithi's (2016) book, he writes about the end of his neurosurgical residency, where faculty members delayed his graduation because, despite countless sleepless nights, workweeks in the triple digits, and exceptional performance in the operating room, he had not logged enough hours working in the hospital due to his first cancer diagnosis. The faculty was concerned he had not demonstrated enough resiliency and endurance to manage the speciality. In this case, the hidden curriculum communicates that the number of hours spent in the hospital, and the doctor's resiliency through

those hours are considered a stronger measures of medical expertise than actual, observable medical expertise, and that a physician's own health is irrelevant to his or her ability to perform.

The medical education literature suggests that in fact an increase in the prevalence of burnout (and empathy decline) can result in a poorer quality of care (Enoch, *et al.*, 2013; Jennings, 2009). In other words, the implications of burnout extend beyond the health of the doctor, but directly toward the health of the patients. In this way, the hidden curriculum ultimately governs the quality of patient-care that is administered by the physicians it shapes. Jennings (2009) and Hafferty and Franks (1994) believe that a medical curriculum that allows for connections and community to be built around humanizing activity can be helpful in mitigating this "epidemic" (as it has been referred to) and promoting self-care in medical students.

The participants of this study are both well-aware and wary of the potential for burnout and the importance of self-care, and have labelled their experience of choral singing as a way of mediating this potential problem. They see choir as a venue for caring for themselves, as an opportunity to de-stress, to express emotions, and to receive social support from peers. As such, I see choral singing as a means to "heal the healer" and ultimately in so doing also improve the quality of medical care received by the patient.

Music and mental health.

It is not surprising to claim that music has beneficial effects for wellness and mental health: the existence of "music therapy" as a field can almost serve as proof enough. Studies on participation in choirs have illustrated a positive relationship between group singing and social and emotional wellbeing, with effects of improving mood, mitigating symptoms of mental illness, and fostering a sense of confidence and social inclusion (Chanda & Levitin, 2013; Clift & Hancox, 2001; Clift & Morrison, 2011; Livesey, *et al.* 2012). Reminding you from the literature review, most of these studies focus on the *perceived* benefits of choral singing, from the perspectives of the singers. Some studies have been conducted to measure biomarkers of stress and mood, suggesting that singing may be a stress-relieving and mood enhancing activity, but little is conclusive as to a causal relationship between specific intrinsic or extrinsic factors of music making that lead to this result. Some scholars attribute this stress reduction to the deep, regulated breathing that is required for singing, much as it is for meditation, lowering heartbeat and decreasing blood cortisol levels, calming the nervous system. Others suggest the mental

“flow state” achieved by singers – which participants alluded to using words like ‘meditation,’ and ‘trance’ and describing the focus they felt in singing – is akin to the focus in Mindfulness teaching, where people work to maintain focus in the present, acknowledging and dismissing negative thoughts (Livesey, *et al.*, 2012). Others suggest that the music itself can influence mood through aesthetic (and through biochemistry, increasing dopamine levels in the brain (Salimpoor, *et al.*, 2011 in Livesey, *et al.*, 2012). And finally, scholars in community music write about the influence of the social and communal environment of the choir, building support and empowerment, and increasing social capital (Clift & Hancox, 2001; Wright, 2012).

But there is also an intrinsic, abstract quality to music, an emotional component related directly to the chord structure itself that seems to offer a unique emotional outlet. Citing Cooke (1959), Martin (1996) writes,

By judicious combinations of notes, harmonies and melodic devices, then, composers knowingly or otherwise create works which have an inherent meaning: musical notes are ‘sounds which have clear but not rationally intelligible associations,’ rather inherent associations, with the basic emotions of mankind. (p. 35)

Acknowledging that those associations may be tied to sociocultural constructs of emotion as they relate to music (i.e., a Western major chord is associated with happiness in Western culture), Martin (1996) echoes comments like those of James and Jordan, who say, “*Music just better depicts emotions than any way you can articulate them... The best way to express emotions is through music, I guess*” (James); and “*What I find is so special about music is, that you’re able to feel things that you can’t necessarily put into words, things that you can’t necessarily explain. There are only things that you can feel*” (Jordan). Both of these statements again reflect the writing of John Blacking (1995), where “Music is not so much an immediately understood language which can be expected to produce specific responses as it is a metaphorical expression of feeling” (p. 37). It is a challenge to distinguish whether or not these abstract emotions and meanings we feel through music are subconsciously cultural constructs, or if the music does intrinsically ‘speak’ to us; but I am inclined to ignore that distinction in the scope of this project, only because – regardless of the reason why – participants of this study (and in the perception studies mentioned above), without mentioning culture do express feeling a unique emotional outlet and release through music making in contrast to other activities in their lives; that music has an indescribable capacity to resonate with “the basic emotions of mankind,” as Martin (1996) puts it.

The overarching finding from this literature is the fact that – regardless of the reasons why – people do find music to be relaxing, mood enhancing, and therapeutic. As presented in the literature review, there is some scientific data suggesting that these perceptions may be more than just opinions, and in contrast, there is also sociological literature that suggests that these feelings are products of our own construction. But in the case of this study, I feel that the comments from participants can arguably do a much better and more comprehensive job of describing why or what part of choral singing serves to relieve stress or increase their mood than any of the studies I have read: partly because there is no literature describing choral singing in this particular context, and partly because I feel there should be no better way to posit that choral singing can be an act of self-care for medical students than with testimonials from medical students themselves. It is clear that participants in this study do see their engagement in the choir as a form of self-care, and that engagement in music can continue to serve as a viable method for that self-care.

John Blacking (1995) writes of communal music making, “Music has been studied as the product of societies or of individuals, but rarely as the product of individuals in society” (p. 32). This comment leads well into the next topic of discussion, being the communal component of group music making, but the point he makes is important to the topic of self-care, in that he acknowledges the individual’s personal contribution in the communal process. He continues,

Since the public and the private self, and even the vision of what the self could or should be, are products of social interaction, the structure of every aspect of the self will reflect in various ways the process of that interaction. Thus music, which is a product of the processes which constitute the realization of self, will reflect all aspects of the self. (pp. 32-33)

What Blacking (1995) is suggesting is the subconscious reflective component of group music making. Similar to the unspoken communication that will be discussed in the upcoming section, Blacking (1995) suggests that the process of making music is deeply personal, and that each individual’s personal contribution to the sound is, while a part in the sum of the group process, still a reflection of that *individual’s* personal contribution. Furthermore, Blacking (1995) acknowledges the role of the community or the context of community in shaping and reflecting sense of self, as Wenger (1999) does. This passage, to me, almost serves as a case-in-point for the therapeutic capacity of music making: a fundamentally social, yet deeply personal experience

of creative expression, where one can honestly and communally express and reinforce a sense of self in a safe, and supportive environment.

The “Musical Level:” Communication and an unspoken connection

“Communication is central to human experience.” (Haidet, 2007, p. 164)

Participants spoke about connecting on a musical level, and the elements that enabled them to effectively function in ensemble to produce music together.

Anytime you're working with a group and you have different parts that are coming together, then there is something about communication and being able to listen and adjust. (Frances)

It's kind of give and take to listen to everyone so that it's not just you that's sounding good or your part that's sounding good. It's that everything is fitting together nicely. (James)

You're always receptive to how everybody else sounds, and you kind of change the way you sing in order to help make the balance better. (Linnea)

Participants know that some sort of communication is occurring, but could not explain what. Anthony's comment, “It's unspoken because sometimes you look around and everybody has the same grin on their face,” however, summarizes precisely what is happening in musical ensemble that allows the group to express a piece together.

Laurel Trainor of McMaster University, leading scholar in music cognition and child development, recently presented an interactive and inspiring talk at Toronto's Koerner Hall (June 9, 2016) about how musicians connect and communicate in ensemble. Trainor (2016) traces the origins of music as long as 35,000 years ago, citing Darwin's theory that music served as a mechanism for courtship (and therefore sexual fitness) and was a pre-cursor for the development of language. Both of these ideas – courtship and language – deal with music as a vehicle for communication.

Reflecting Sebanz, *et al.*'s (2006) theory of joint-action presented in the literature review, Trainor (2016) suggests that ensemble music making requires a great deal of communication and a capacity of unspoken prediction. Much like how athletes in team sports must predict the locations, movements, and strategies of fellow teammates in order to pass and receive passes, musicians need to anticipate what to play and when in order to coordinate tempo and timing, and

they need to coordinate the emotion they are going to collectively communicate. Trainor (2016) says that these ‘predictions’ are not only unspoken, as the participants noted, but that they are also *unconscious*. She attributes our ability to make these unconscious predictions to rhythm and movement.

Using motion capture technology in the [LIVELab](#) at McMaster University, Trainor (2016) and her team traced the movements of musicians in the famous [Gryphon Trio](#) as they played a range of pieces with a spectrum of different emotions. The movements can then be viewed as stick-figures in motion. As an audience member watching these playbacks, it was undeniably clear how in sync musicians movements were, but furthermore how body sway changed depending on the mood of the piece. For example, without even hearing the piece, we could tell that a piece was sad as the stick figures swayed [slowly and weakly](#), in contrast to the motion capture from a happy piece were musicians’ body sways were [spritely and fast](#). As an audience member, these motions can help to communicate the emotion of the piece, and as a musician, Trainor (2016) suggests that this synchrony of movements (“Group Coupling”) is what helps musicians to make unconscious predictions in expression. Trainor (2016) also notes how central the role of rhythm is in this relationship, as humans possess a subconscious and almost universal capacity to anticipate rhythm in time.

Trainor (2016) also noted that this synchrony can increase bonding, as demonstrated in studies where infants were bounced in synchrony with an experimenter, and then left alone to test how the infants would respond to a helping task with the experimenter. With statistical significance, infants who were bounced in sync with the experimenter were more willing to help them in the helping task, than those children who were bounced out of sync. Furthermore, children who were willing to help the experimenter after having been bounced in sync did not help strangers with whom they had not bounced with at all, confirming the relationship between synchrony and bonding. In other words, participants in this study were spot on with their assessment that an unspoken but highly coordinated amount of communication occurs in their music making. And this unspoken communication may be subconsciously leading to higher feeling of connectedness between them, reflecting many of the studies cited in the conceptual framework of this thesis.

Paul Haidet (2007), physician and jazz enthusiast, writes of this predictability in his article paralleling jazz improvisation to the “medical encounter” between patient and physician,

where communication is “unscripted and constructed ‘in the moment’” (p. 164). He writes of the idea of “space” in this encounter, describing the solo work of Miles Davis, where,

Miles does not play a lot of notes, he just plays the *right* ones. He conserves notes, plays them at a relaxed pace, plays on the “back end” of the beat, and drops musical hints that allow the listener to use their imagination to fill in the phrases... As a physician I strive to use communicative space as Miles did. Rather than take up all the space in the conversation with strings of “yes/no” questions or long physiological explanations, I find that I am at best when I can give patients space to say what they want to say, using my communications to gently lead patients through a telling of the illness narrative from their perspective, rather than forcing the narrative to follow my biomedical perspective... allowing me to understand the context around their symptoms,... to tailor my explanations to their unique concerns.” (p. 165)

This communicative space that Haidet (2007) describes, especially as it pertains to Davis’s playing, is much like the predictive communication that Trainor (2016) describes as a result of rhythm, where our brains extrapolate from the minimal rhythmic information provided to predict the emerging development of the piece. (Here is a clip of one of my favourite jazz trios during an improvisational interlude. Notice how coordinated they are – without words – despite the unpredictability of the bassist’s playing, and how the rhythmic *pauses*, or spaces, in sound are what seem to be communicating to the percussion and keys when to come in with accents, as Trainor (2016) suggests: <https://youtu.be/4rSt1hAxbuY?t=1m10s>).

Haidet (2007) continues in his article to liken the medical encounter to *ensemble* improvisation, where patients and physicians adjust and accommodate to the cues given by the other member(s) in ensemble in a process of “shared decision making” (p. 167). He writes,

It takes recognition that all voices in the medical encounter have things to say that are as important as one’s own statements. It takes listening aligned toward *understanding*, not just the collection of factual data. And it takes raising one’s awareness to clues – nonverbal signals, fleeting glimpses of emotion, and key words... and following up on these clues when they present themselves. The essence of ensemble, whether in jazz or in medicine, lies in looking beyond one’s own perspective to see, understand, and respond to the perspectives of others. (p. 167)

This relationship reflects and perhaps informs both the CanMEDS and CanMEDS-FM frameworks in the way they encourage understanding patients’ unique contexts, including patients in decision-making, and noticing emotional cues. Participants in this study echo in their own words what Haidet (2007) is describing as they explain their communicative process in choral singing. While participants did express the notion that experience in the ensemble

broadened their perspectives, none of the participants drew any parallels from this communicative process to communicating with patients in the way that Haidet (2007) does. Perhaps this is due to a lack of experience as pre-clerkship students, or perhaps it is too indirect or conceptual a parallel to relate to or accept as valid. I do feel, however, that Haidet's (2007) hypothesis and perspective does propose an interesting context to the participants' responses as it extends to their professional practice, where the practice of "listening and adjusting," as participants described it, is a skill that can be honed and applied in a medical, communicative process.

Music as close-listening.

Returning to the literature review, in the limited discourse on music and medical humanities, I will remind you of the common parallel of musical play and "close-listening" in the medical interview (Bleakley, 2015; Dunn, 2006; Evans, 2007; Misch, 2002; Newell & Hanes, 2003; van Roessel & Shafer, 2006; Wooliscroft & Phillips, 2003). This analogy parallels the nuances of speech – pace, volume, pitch, and tone – to the nuances of musical expression: tempo, dynamic, pitch, and timbre. The basis of this parallel is that these nuanced aspects of speech inform the emotional components of one's medical narrative, and a physician's ability to perceive and understand these nuances can help them to empathize and connect more genuinely with the patient (van Roessel & Shafer, 2006). Some scholars, such as van Roessel and Shafer (2006) and Newell and Hanes (2003) feel that musical listening and playing exercises can help to train a physician's ear to these nuances by training the ear to their musical counterparts.

I cannot conclude whether or not participation in the medical student choir has honed such skills for these participants, however their identification of the critical listening required for singing in ensemble does reflect the parallel of close-listening presented in the literature.

Music Making as Community in Medical School: Importance of informal settings to professional learning and relationships

Much learning at work, even in an education context, occurs outside the formally organized and delivered curriculum. Informal learning has been described by Eraut as taking place 'in the spaces surrounding activities and events with a more overt formal purpose' (Eraut, 2004). From an educational viewpoint, informal learning appears to be unstructured, unintended, and opportunistic. (Teunissen and Wilkinson, 2010, p. 195)

Also known as “water-cooler interactions” or “water-cooler learning,” informal experiences in these informal “spaces,” as Eraut (2004) describes them, have been described as highly valuable and informative in the context of workplace and informal education, and congruent to the framework of communities of practice (Waring & Bishop, 2010).

Conversations and interactions that take place outside of the formal learning space – at the water-cooler in an office; in the lounge or corridors of a hospital; or perhaps in this case during a choir rehearsal in a medical school – have been documented as valuable spaces for a more honest and fluid exchange of information between peers, lending to a deeper understanding of concepts and practices in the workplace (Eraut, 2000; 2004; 2007; Lave & Wenger, 1991; Waring & Bishop, 2010). This ease of information and knowledge-flow is attributed to the trusting, familiar relationships between members of the work community and the non-judgemental, low-pressure nature of the interaction setting (Eraut, 2000; 2007; Waring & Bishop, 2010). Being removed from the immediate pressures of the work environment or context of the problem/question being discussed, these unscripted interactions allow people to openly and honestly discuss their questions and understanding with co-workers (co-community members), whereas they may bracket or limit themselves when observing in an information session, or engaging with a superior staff or teacher.

The supportive nature of communities of practice – the sense of identity-sharing and understanding – helps to facilitate this deeper learning and exchange of information (Eraut, 2000; 2007). Participants in this study seemed to allude to this notion, expressing that they found the nature of their relationships with other members of the choir to be supportive, that they felt they could engage with older students for guidance and advice, and that during the breaks of rehearsal, they could vent their stresses to their peers and receive the support that they need. There was an overwhelming sense from participants that they felt that other choristers understood where they were at and where they were coming from, being medical students as well as members of the choir, and that the supportive nature of the group allowed for the ease of those relationships and the openness to share, ask for advice, and seek support. Furthermore, participant responses about the nature of their relationships in the choir (that being a comfort level and a connection with people they otherwise may not have connected with) suggest perhaps the occurrence of the “icebreaker” effect at play, as proposed by Pearce, *et al.* (2015). On the one

hand, participants expressed that they valued having a space where they could take a break from medicine, but at the same time, the environment of the choir enabled participants to openly discuss aspects of their education (stress, confusion, apprehension) that they maybe felt was inaccessible in the classroom context. Olivia spoke about the professional attitude that is seemingly expected from medical students in the classroom and hospital wards. She says, “I think that in medicine, it’s not that you can’t be yourself, but you have to watch how to be yourself.” Choir gives students an opportunity to take a break from that aspect of the hidden curriculum and be themselves, while still in their experience of medical school.

This finding reflects findings of a study by Vries-Erich, Dornan, Boerboom, Jaarsma, and Helmich (2016), who found that medical students tend to share their emotional experiences in “backstage” settings (outside of the professional context), and that they prefer to share those experiences with other medical students who perhaps better understand what they are going through. The medical student choir mirrors this scenario: a non-medical, non-professional setting, outside of the medical classroom, but still comprised of medical students, where individuals can express and share their emotions in an informal and uninhibited way. Emotional expression is argued to be an important practice in medical education for mitigating burnout, and building an empathetic professional identity (Haidet, *et al.*, 2016). This finding also reflects the literature on professional identity formation and the hidden curriculum, in that engaging with a strong community of role models and peers can help to subvert disillusionment with the profession and can reinforce humanistic values (Martimiankis, *et al.*, 2015; Rabow, *et al.*, 2015; Sharpless, *et al.*, 2015).

Creativity in Medicine

“A lot of the things I do in science is kind of like, it’s really strict and rigid. You have to do ‘this’ and memorize ‘this’ and so on and so forth, but music I think gives you a chance to express that creativity that normally you wouldn’t be able to.” (Gregory)

“We need to encourage the ability to wonder” (Lippel, 2002, p. 521).

Participants expressed enjoying a creative outlet in the midst of medical school, and that their involvement in the choir provided them that creative outlet. Participants suggested that

creative activities offered a contrast to the more rigid structure of their coursework and schedule, and furthermore that having the opportunity to exercise more creativity was valuable in the broader context of their education and professional development.

Scholars advocating for reform in medical education have been calling for a more creative approach to medical teaching for over a decade, arguing that effective clinical practice requires outside-the-box thinking and the ability to problem-solve and assess problems from multiple perspectives (Bleakley, 2015; Handfield-Jones, Nasmith, Steinert, & Lawn, 1993; Lippel, 2002; Rees-Lee & Kneebone, 2012). In her article on creativity in medical education, Shee Lippel (2002) writes of a divide between academic ability and clinical competence, suggesting that a different skillset is required for success in coursework versus in clinical work. She supports this claim with a study by Rhoads, Gallemore, Gianturco, and Osterhout (1994), who found that students who performed worse academically in medical school typically performed better in clinical training, and vice versa. This inverse relationship suggests that the thinking required to “get the right answer”(as Lippel (2002) describes is the thinking in typical scientific coursework and examination) is not the same thinking required to quickly and accurately determine a diagnosis, while still relating to patients.

In Bleakley (2015), Danielle Ofri (2013) writes,

Rote recitation inhibits the ability to think beyond diagnostic straightjackets... Medical school can seem like an ongoing exercise of committing lists to memory, the only creativity being the mnemonics for memorizing branches of the facial nerve or diseases with anion-gap metabolic acidosis. When students present cases, there is a sense of rotteness. A patient with chest pain, for example, becomes ‘Rule-out M.I. Gen an EKAG, serial troponin levels, stress test, cardiology consult... (p. 102)

Participants like Gregory alluded to the rigidity of the medical curriculum, and the mental taxation that rigidity has on the student. But in the statement above, Ofri (2013) describes how the standardization of teaching can lead to the standardization of patients, rather than embracing the diversity of their symptoms, contexts, and circumstances to problem-solve each unique case and provide appropriate treatment. Ofri (2013) further qualifies this idea by describing four cases of patients with diabetes, writing, “Other than insulin dysregulation, these patients have nothing in common. Yet our medical approach is expected to be ‘standardized’” (in Bleakley, 2015, p. 102). Again we see how the patient is affected by a hidden curriculum that teaches that “knowledge is what [students] need in order to succeed in their studies” (Martinmianakis, *et al.*,

2015, p. S9). It results in the objectification of the patient and further distances the physician from humanistic, patient-centered aspects of care.

It is from this divide and disconnect between academic rigidity and clinical fluidity that shifts toward Problem Based Learning Curriculum (PBL) in medical school, for example, have derived from, where there is less emphasis on memorizing medical facts and more emphasis on learning how to work through problems and symptoms critically and effectively in order to reach a diagnosis (Batistatou, *et al.*, 2010; Lippel, 2002). A diagnosis is essentially a hypothesis of what is happening with a patient that is causing their symptoms to present. “Good clinical hunches and competent moral judgements are not simply picked out of the sky. They arise from the same creative imagination that allows the scientist to generate worthwhile hypotheses” (Greenlough, 2001, in Lippel 2002). ‘Hypotheses’ being “imaginative and inspirational in character; they are adventures of the mind” (Medawar, 1964 in Lippel, 2002). These two scholars, Greenlough (2001) and Medawar (1964), both suggest that creativity is a necessary component of making effective diagnoses. I am again reminded of Abraham Verghese’s (2011) powerful TED talk, to the part where he recounts a story about a Dr. Joseph Bell, a physician and professor of medicine in 19th century Edinburgh, Scotland. Please take the time to follow this [link](#) for the two-minute clip before continuing on (unlike the others, this hyperlink is “mandatory”).

What Verghese (2011) is describing is essentially close-noticing and creative hypothesis, where Dr. Bell determines a concept of the patient not from her textbook symptoms, but from the unique characteristics and features that she presents as a whole person, and works backward from there. Dr. Bell employs what Lippel (2002) describes as a “backward-directed hypothetico-deductive mode of reasoning,” rather than the “forward-directed,” conventional method common to scientific inquiry (p. 520). In Haidet (2007), violinist Stephen Nachmanovitch (1990) is quoted saying,

In *real* medicine you view the person as unique—in a sense you drop your training. You are immersed in the case itself, letting your view of it develop in context. You certainly use your training; you refer to it, understand it, ground yourself in it, but you don’t allow your training to blind you to the actual person who is sitting in front of you. In this way, you pass beyond competence to *presence*. To do anything artistically, you have to acquire technique, but you create *through* your technique and not *with* it. (pp. 164-165)

This detailed, arguably non-medical, observation and creative extrapolation from that observation I feel reflects the holism and critical, creative problem-solving that Lippell (2002) and Ofri (2013) are describing as lacking in current medical and clinical teaching. Furthermore, this holism of the patient as person in many ways justifies Foucault's (1973) wariness of clinical reduction of the patient to mere illness.

How can we define, isolate, and apply creativity in medical education?

And should we?

A very dear friend of mine, and physician candidate, Kayla Simms (2016) was recently quoted on a medical humanities magazine's Facebook page, saying,

We talk about medicine as an art, but we don't have that obvious statement – there's no lecture about it. We're simply supposed to accept that in order to apply your knowledge at the bedside, you will be performing an art... I gradually came to be aware of the unfortunate way in which we compartmentalize ourselves. Bedside manner is taught as though the only part of you that gets to be human is in that micro-moment of your interaction with the patient. As if you don't get to express your humanity in any other way. So, for me, art is valuable because it dresses up the body with the human characteristics that I feel we lose out on a lot in the study of textbook medicine.

Simms (2016) is describing how the hidden curriculum of medicine manifests in a way that compartmentalizes humanism, and she suggests the value of art in de-compartmentalizing that humanism in her medical education.

Handfield-Jones, *et al.* (1993) call for a more innovative approach to teaching and approaching problems in medical school, suggesting curriculum changes such as experiential learning and role-play. Bleakley (2015) criticizes this article, and many like it, arguing that the discourse surrounding creativity in medicine tends to be vague and shallow, and does not provide specific definitions or applications of creativity in medical curricula. My personal opinion on Bleakley's (2015) argument is that creativity is a concept, and as such not easily defined or "applied." By nature, creativity is neither objective nor objectifiable. In reading the medical humanities literature, I have found much that suggests that arts and humanities should be actively applied in a medical context in order to teach specific components of the curriculum and nurture emotional development. I agree that these activities (certainly, for example, reflective work with literature and writing) can be hugely valuable.

I was struck, however, at a recent medical humanities conference at the Michael G. DeGroot School of Medicine in Hamilton, Ontario with an overwhelming sense of urgency from conference delegates from the medical community that something in the medical curriculum is fundamentally broken, and that to fix it, we must figure out how to harness and quantify the benefits of the arts in such a way so that they may be applied to the problem; much analogous to how a scientist may harvest a medicinal property from a plant and convert it into a potent pharmaceutical. I do see how there is some value in this. For example, one delegate – a plastic surgery resident from the Dalhousie School of Medicine – presented the hugely popular and effective outcomes of a clay bust-sculpting workshop she conducted with undergraduate medical students to teach facial anatomy. Survey data from the workshop revealed that it was not only enjoyable and successful in teaching anatomy, but that it also allowed students to combine their knowledge of anatomy with creative expression and artistry to create busts of people with personalities, not just lifeless faces. The researcher linked this to potentially employing and fostering empathy.

In contrast, however, when thinking of my own project, essentially about how arts build community, where I offer no direct *application* for choral singing in medical education curriculum, I am left wondering: is it not enough that participants in this study felt that singing offered them a creative outlet and contrast to curricula? Is it not enough that this experience offered them a unique social opportunity that strengthened professional relationships? Was it not enough that participants *enjoyed* singing in the choir so much that it was central for many of them in keeping the stresses of medical school at bay? I am not convinced that all arts have intrinsic qualities that can be applied to a more ‘purposeful’ context without diluting the power of those qualities themselves. Literature, for example, can be written on the topic of medicine, on physician or patient emotions and experiences, and still maintain its full literary and artistic power. Music, on the other hand, often exists without context at all. Music has the capacity to communicate meaning without the use of any symbols or visual cues whatsoever (Martin, 1996; Trainor, 2016). How, in this case, can it be *applied* to a medical curriculum?

As a non-medical student and therefore outside observer, but as a musician, I am not convinced that it can. Exercises like the listening activity at the Stanford Medical School, as outlined in the literature review and revisited here, have interesting implications for honing skills in close-listening by way of, essentially, ear-training; but this activity, to me, lacks the emotional

and expressive components of music making that I find to be so powerful, and that are seemingly so powerful to the participants of this study. To build on Hafferty and Franks (1994), to me, music is not really a “tool” that can be “picked up or put down, used or discarded, depending upon the situation or circumstances involve” (p. 862). Music is an embodied experience, a way of being.

Early proponent of medical humanities, Edmund Pellegrino (1982) writes,

To cultivate literature, philosophy, history, painting, or music is to add dimensions of delectation to living unattainable in any other way. These pursuits delight us because they correspond most closely with those capacities that most clearly distinguish us as human – the capabilities to recognize and experience truth, beauty, and virtue. (p. 136)

This statement reflects Jordan’s comment:

The things that I have felt the most connected to, the most, like, 100% sure that this was true, that this was real, that this is what I’m feeling or this is what I’m living or experiencing or whatever, the, like, undeniably, it cannot be anything but this, is – was for me, through music. (Jordan)

Pellegrino (1982) and Jordan suggest that the intrinsic benefits of the arts are what are distinct in encouraging our capacity for humanism. In terms of the medical humanities literature, much of it reflects this notion by focusing on many intrinsic benefits such as perspective-taking, observation and listening skills/attention to detail, and analytical and critical thinking (Downie, 2001; Gillis, 2008). These intrinsic benefits, however, are not quantifiable, and in the current paradigm of medical education, which is located primarily in the biomedical sciences, non-quantifiable outcomes seem to hold little clout in an argument for curriculum reform. Gillis (2008) writes in the abstract to her article,

Accepting as a given that the humanities disciplines are not product or “results” driven... the core of an interdisciplinary field of medicine and humanities, or medical humanities, is an interpretive enterprise that is not readily open to quantitative assessment. (p. 5)

Gillis (2008) argues that medical humanities, and further arts in medical education, cannot be quantified, but also should not be quantified. It seems that a challenge in arguing for arts in the current climate is to justify the value of arts in their own right, rather than in contrast to results of the current paradigm. Furthermore, to quantify whether humanities do or do not have an effect on a physician’s humanistic capacity would involve the isolation of so many additional variables that any results would likely be hugely inconclusive. Save for some affective

extrinsic benefits such as heightened compassion and capacity of empathy, it would seemingly be less challenging to argue for the incorporation of arts from the standpoint of their extrinsic benefits in medical curriculum, such as increased self-awareness and identity, meaning-making, improved judgment, improved communication, and improved mental health, as reflected in this study and in other literature (Downie, 2001; Gillis, 2008). Though the purpose of medical humanities is to hone skills and capacities transferable *outside* of the arts, both intrinsic and extrinsic benefits of the arts contribute to building a more human curriculum.

In response to the debate on the incorporation of arts and humanities in medical curriculum, Misch (2002) writes,

If, indeed, professionalism and humanism are components of the art of medicine and it is professionalism and humanism that we wish to measure, then it follows that assessment in this domain may be more akin to artistic evaluation than scientific evaluation. (p. 491)

Misch (2002), in this statement, is not only advocating for the incorporation of arts in the medical school, but for a more qualitative and subjective approach to professional learning and evaluation. Earlier in the article, Misch (2002) writes that assessment of professionalism is a subjective measure, in that what may express as compassion from the perspective of one person may not be interpreted as compassion or compassionate enough from another's. He writes,

We do not argue that Rembrandt was a great painter but Picasso was not; they are very different in style but both have elements of greatness. Why should we require the humanistic physician to follow a rigidly prescribed regimen so long as his or her chosen approach works with a given patient? (p. 491)

Subjectivity and adaptability in medical practice is important, and Misch (2002) draws a parallel that expresses how arts and humanities can help to foster that subjectivity. He reminds us that,

In art as in science, the whole is much greater than the sum of its parts. Both music and literature may be broken down into their component parts for analysis – notes, chords, and rhythm for music; words, sentences, and paragraphs for literature – but such an analysis provides little useful information when evaluating art... I propose that the same is true of the art of medicine. Teaching and evaluating the use of particular steps in the medical interview may be a useful educational device, but the interview steps themselves are the building blocks, the “notes”; they are not the music. It is not only what the physician says that makes him or her humanistic, it is also the precise wording, tone, pacing, and inflection of the voice, the timing of the message, and the body language. The humanistic physician makes nuanced use of touch, a look, a pause – can these be quantified in an evaluative useful way? All of these elements are key parents of the humanistic physician, and none can be assessed numerically or quantitatively.” p. 491

Misch's (2002) relationship of the nuances of medical care and communication to the nuances of musical play or artistic interpretation suggests yet again how arts, and specifically music, could serve a valuable role in the "ear training" of medical students to hear the subtleties and acknowledge the perspectives and attributes that accompany various emotions and circumstances. But furthermore, he presents a warning as to the dangers of dismantling arts into their component parts for the sake of quantification or evaluation.

Aoki (1991), in an essay on curriculum reform, draws a parallel between "curriculum implementation" and musical "improvisation," with an aim that curriculum "cease to be an instrument" in an "ends-means paradigm," where "a way to do has become *the* way to do, indifferent to the differences in the lived world of teachers and students" and instead be treated as a fluid and dynamic process (p. 368). Aoki (1991) engages a jazz trumpeter, Bobby Shew, who helps to build the parallel, saying that in order for a trumpet to no longer be treated as an instrument, "the trumpet, music, and body must become as one in a living wholeness" (p. 368). Aoki (1991) writes,

He spoke of how in improvising he and his fellow musicians respond not only to each other, but also to whatever calls upon them in that situational moment, and that, for him, no two situational moments, like life lived, are exactly alike... "Exact repetition, thank God, is an impossibility. It's a remarkable feature that ought not be suppressed!" (p. 368)

Using this metaphor, the curriculum that Aoki (1991) describes mirrors the structural reform of the hidden curriculum as described by Hafferty (1998), where humanism is not treated as a tool, but rather "infused" into the structure of medical education. Aoki (1991) writes, "musicianship is more than a matter of skills and techniques, that music to be lived calls for transformation of instrument and music into that which is lived bodily" (p. 368). As Cohen (2007) suggests, to shape the development of physicians who are genuinely humanistic, medical humanism should also be "lived bodily" through the medical curricula (formal, informal, and hidden). Aoki (1991) conceptualizes a dynamic curricular space: a "sonorous clearing" where "curriculum words can sound and resound in an inspirited way" (p. 369). He describes a departure from objective and fixed "curriculum implementation" toward a more fluid "curriculum improvisation" (p. 370).

For me, music is a bodily experience. A choir is a "sonorous clearing," where understandings and learning happens dynamically and bodily. Perhaps artistic spaces in the

medical school, such as the choir, can begin to embody such a space as Aoki (1991) describes, where student experiences can “resound” and shape their becoming as humanistic physicians.

Interestingly, Wenger (1999) also writes,

Communities of practice should not be reduced to purely instrumental purposes. They are about knowing, but also about being together, living meaningfully, developing a satisfying identity, and altogether being human” (p. 134)

I find this statement to be particularly apt in this discussion on the application of creativity in medical school. Participants in the choir seemed to value their experience for what it was to them, and also because it was distinctly non-medical. While the choir experience still maintained contact with the medical experience, through singing for patients and in being comprised of other medical students, and while participants seemed to appreciate that connection, there was an overwhelming sense that participants valued the opportunity to engage explicitly with music and implicitly with medicine. An applied musical activity in a medical school might engage explicitly with both realms. The experience of being part of this musical community of practice seemed to be fluid and personal, as participants developed relationships, grappled with personal stresses, received support and stress-relief, and learned to sing and engage with music in a meaningful way. These outcomes are extensions of the experience in a community of practice: a dynamic context for negotiating meaning and becoming. As Wenger (1999) says, echoing Aoki (1991), to reduce that experience to a “purely instrumental purpose” may risk diluting its potency, may divert from our personal, fluid process of negotiating humanism.

In another reflective moment at the medical humanities conference in Hamilton, I had a musing that creativity, in a way, is a process of deriving and communicating meaning. To express ourselves creatively, we give and translate meaning from our experience: we substitute feelings with words, colours, and sounds, choosing and developing through creative process those that fit best, that communicate our feelings most honestly and effectively. So to respond to Bleakely’s (2015) criticism that the discussion of creativity in medical education is vague and superficial, I challenge that an activity need not be explicitly reflective, related, or applied in order to be valuable. The creative process of these participants through their non-medical, extra-curricular choir seemed a valuable outlet and experience for them, their community of musical practice serving as a venue for meaning making and becoming within their medical school

experience, helping them maintain the fluidity of their identities and to subvert the aspects of the hidden curriculum they wish to reject.

I do recognize, however, the concerns of scholars like Bleakey (2015), Haidet, *et al.* (2016), and Dennhardt, Apramian, Lingard, Torabi, and Arntfield (2016), who express that a lack of systemization or outcomes in medical humanities programming and research can limit its legitimacy in the medical field, and furthermore the feasibility of its integration and replication in medical curricula. We see this in the structure of the CanMEDS frameworks. Hafferty (1998) calls for an infused structural reform, but it seems the objective hegemony of the medical field may still be too prominent to completely overhaul. Furthermore, despite the bias in this thesis to express the value of arts, we must not deny the enormous value and importance that science and technology has in growing and improving medical knowledge and practice; and science and technology flourish in an objective paradigm. So perhaps there needs to be a balance between measuring and assessing the effectiveness of arts programming while not reducing it too heavily to its component parts.

Summary

This chapter opened by relating the interview data to the conceptual framework, defining the medical student choir as a community of musical practice; proposing that identity and meaning are negotiated in musical space; and suggesting that community is strengthened through the silent unity and unspoken connection achieved through music making. The subsequent discussion engaged with literature that offers insight into how a participant's experience in the medical school choir might relate to their experience in medical school, and contemplated the role of creativity in medical education. The upcoming concluding chapter will explicitly relate the findings, analysis, and discussion to the research questions, and will serve as an overall summary of the thesis with some concluding reflection.

The notion that I feel is most strongly represented throughout this analysis is the concept of multi-membership in communities of practice, and the renegotiation of identity that occurs as people cross boundaries between communities. To me, a medical student choir represents the centre of a Venn diagram between two seemingly distinct communities of practice. It is a space where medical students can engage genuinely and wholly as both physicians and musicians without sacrificing any of their "accountability," as Wenger-Trayner and Wenger-Trayner (2015)

describe it, to either community of practice. It is in this dynamic space where medical students' whole becoming can truly "resound," as Aoki (1991) writes, through musical-medical experiences with musical-medical peers. It is a space where medical students can be "themselves," engage with and express their stresses and emotions, exercise creativity, and relate to their medical experiences in a less formal way, with peers who share that more complete understanding of the landscapes shaping each other's identities.

In this discussion, I write that music should perhaps not be used as a tool to teach humanism, but that instead the choir should perhaps remain part of the informal curriculum as it stands as this unique community of musical practice. You may still feel left with the question of how this analysis relates specifically to humanism in healthcare. As I reflect, I begin to consider that perhaps involvement of these participants in the medical student choir reinforces humanism because it *acknowledges* these students' humanity and holistic identities as physicians-to-be. It is a space that safely allows students to express their vulnerabilities and embraces the multidimensionality of their identities. To synthesize, this analysis presents the overall image of how a community of musical practice represents a singular community of practice that encapsulates the nuanced multi-membership of the individual singers, and bolsters those aspects of their identities that are prone to marginalization as learners cross boundaries between these two contexts of music and medicine.

Chapter Eight:

**Coda
(Conclusion)**

In Western music, a piece does not generally feel complete without the use of a cadence. A cadence in Western music writing serves to signify the end of the piece, using a sequence of at least two chords in specific combination ([example](#)). A cadence is to a musical piece what a period is to sentence, but an important difference is that a cadence always has a lead-up of one or two other chords. In that way, a cadence resembles, to me, more of a conclusion, where instead of abruptly ending the piece, we reflect briefly and then close.

Van Manen (2014) writes, “Phenomenology is primarily a philosophic *method of questioning*, not a method for answering or discovering or drawing determinate conclusions” (p. 29). Instead, van Manen (2014, p. 29) writes that phenomenological inquiry should “[give] us glances of the meaning of phenomena and events in their singularity,” if anything, encouraging us to continue to question and wonder. As such, to conclude this thesis, I will try to answer the three research questions as deeply as the findings and my own insights will allow, and in the context of this particular choir, without trying to enforce a sense of absolutism or finality.

What is a medical student’s experience singing in an extra-curricular medical school choir?

The choir in this study is a space where students can engage with their musical selves, take a break from their busy weeks – “escaping” from the stresses that plague them – and interact with medical school friends in a non-medical context. The choir setting is a supportive, non-judgemental environment where participants can “be themselves,” and express their stresses. Choir provides a unique social opportunity, with potential for meaningful friendships with people that participants may otherwise not have interacted with. Participants feel a sense of belonging to the group, working toward common goals of both making beautiful music and becoming physicians. They feel supported and supportive as contributing individuals in the sum or parts, sharing in the honest and personal experience of music making. Finally, choir offers the opportunity for creative outlet.

What role does music (specifically choral singing) play in the field of medical humanities and medical education?

Medical humanities is, of course, a broad field. To revisit the fundamental premise of the movement, medical humanities represent the human qualities of medical practice through the media of arts and humanities. Medical humanities strive to deepen insight and awareness of the

patient-physician relationship and the human condition, and to promote and cultivate perspective-taking, empathy, compassion, hearing and listening, seeing and noticing, and self-awareness. Medical humanities also promote self-reflection and self-expression. Engaging in these self-reflective and expressive activities are meant to help foster meaning making in medical practice, and to relieve some of the stresses of medical school, especially as physicians and physician-candidates engage with challenging circumstance in the clinic and at the bedside.

According to participants, the choir represents an opportunity for self-care within the medical school. Participants expressed the immense stress-relief and escape that they felt when singing, and while accessibility and convenience of the choir were major contributing factors to why participants chose to join this particular group, the fact that the choir was comprised of medical students and was located in the medical school seemed to allow for a stronger sense of support and a deeper understanding between participants. Singers felt that other choir members understand what they were going through, and could therefore be even more supportive during times of stress. Anthony's comment "we're all in this together in more ways than one" encapsulates this conclusion. The actual act of singing allows participants to escape into musical space, engage with their musical sense of identity that they feel is not represented in their medical school experience. These factors – supportive relationships, reinforcing a sense of identity, expressive and stress-relieving activities – all contribute to mitigating burnout. Self-care was noted by participants and reflected in the literature as extremely important in the experience of medical education and practice. Furthermore, engagement in the choir allows for a creative and expressive outlet: an opportunity for singers to engage with their humanity, the humanity of their peers, and the humanity of the patients they sing for in an honest and personal way.

In the context of medical education, the choir mirrors a "water-cooler" setting, as outlined in the discussion section: an informal space in a professional context, where members of the learning community can engage in deeper, more honest questioning, and therefore more meaningful personal learning. The fact the choir is comprised of both first and second year students also plays an important role in this "water-cooler" effect, in that first year students have access to trusting relationships with older students, who can offer support, insight, and advice about the medical school experience. For first year students, this factor seemed to be hugely valuable. This informal, non-medical, community-building space in the medical school seemed to be valued by participants in a significant way, which leads me to suggest that having what I

would like to call informal, non-medical medical communities is perhaps extremely important in medical education for both deeper learning, humanistic professional identity formation, and mitigating burnout, as mentioned above.

It seems that the hidden curriculum of medical school, which medical humanities aims to surface and confront, can be very much challenged in and by the choir environment. The space created by the choir represents a structured environment – a “sonorous clearing,” a community of musical practice – where students can reflect, negotiate meaning from their experiences, and engage with their humanistic identity and relationships. Through music making in the medical school, students can “live bodily” through their experiences in education and improvise their becoming of embodied humanistic physicians.

How does involvement in a medical school choir influence a physician candidate’s medical education and physician-journey?

Participants expressed that involvement in the medical school choir allows them to maintain a sense of well roundedness that they feel is important for their medical practice and to their professional identity, as it helps them to relate to others and to be related to by others, and also maintains their musical sense of self. Engagement in the choir exposes participants to a diversity of individuals with whom they learn to connect. Participants feel that this connection is important both for their future ability to connect to a diversity of patients, but it also helps them to form meaningful relationships with colleagues with whom they may be working as professionals. Singing for patients also reminds participants of the humanity of their patients beyond the context of illness, and the importance of connection and promotion of wellbeing with patients in the medical wards. Participants also expressed that their experience in the choir is confidence boosting, which they feel is important as they navigate their way through medical school, making mistakes and learning from them. The choir experience exposes them to a sense of vulnerability in a learning setting, but also reinforces a sense of confidence and learning in the wake of that vulnerability, paralleling their experiences in a clinical setting. Finally, participants alluded to the role of creativity in shaping their thinking and problem-solving abilities, which they feel is an important skill as physicians-to-be. These are examples of how students develop their humanism in relation to their experience in the choir, helping to shape a physician-identity

that embodies their personal humanistic values, not the values communicated to them by the hidden curriculum of medicine.

Strengths and Limitations

This project presents a qualitative, in-depth perspective on musical activity in medical school. Though the inquiry is not outcome-driven, I feel that it does serve to reveal an in-depth and honest account of the role and value of choral singing in medical education, from the perspective of medical students themselves. In a discourse that is heavily bent toward a biomedical paradigm and outcome-oriented research, I feel that this opportunity for the participant voice offers a valuable counter-balance and provides a richness and depth to medical education research that is not always present (though is becoming increasingly prevalent).

I do recognize, however, some limitations to this study. One is that this study was not longitudinal. The analysis presents a glimpse into one experience, with suggestions from medical students about the significance of the experience, rather than a comprehensive reflection of how involvement in a medical student choir may relate to or influence a medical student's full journey of becoming a doctor. What is exciting about this limitation is that it represents a broad area for further study, questioning how singing in a medical student choir might relate *throughout* one's medical education, with longitudinal reflection, rather than the live, on-the-spot reflection of this study.

A second limitation is the fact that this study is – much like many studies in social music – perception-based. Again, given that the study is not outcome-oriented, perhaps this limitation is not hugely significant, but it is nonetheless important to bear in mind that perceptions hold personal and contextual bias, and that (to reiterate) this study cannot be used as “evidence” supporting education reform. Rather, I hope that this thesis can provide insight and serve as a suggestion for how incorporating arts and music in a medical school *may* be valuable in medical education.

Contributions of Thesis and Implications for Further Study

Following Ansdell (2010), this thesis contributes to broadening the scope of Wenger's (1999) communities of practice to a musical context, and provides an interesting example of multi-membership and identification across boundaries in professional learning, relating to

Wenger-Trayner's *et al.* (2015) latest book. It also extends the discourse of communities of practice in medical education beyond the context of clerkship, as is most common in the medical education literature. This thesis contributes to a growing literature demonstrating that there are areas for informal learning and the development of professional identity beyond the medical classroom and hospital teaching wards, and reinforces the importance of those activities to medical student wellbeing and to challenging the hidden curriculum of medicine. I hope that this thesis begins to fill a gap in the medical humanities and arts in medicine literature pertaining to music, and presents *how* engagement in arts relates to a medical student's education, from their perspective. With regard to this latter point, I hope that this study demonstrates the importance and strength of incorporating qualitative work in a prevailing evidence-based paradigm.

Most importantly, however, this thesis contributes to building an attention in medical education discourse that improved quality of care is intrinsically related to physician wellbeing and the reinforcement of humanism in medical curricula. The medical field has been shifting its focus toward patient-centered care, and is recognizing that improved quality of care can be correlated with physicians who empathize with their patients, respect their autonomy, and recognize their centerness in the care plan. Physician wellbeing has been positively and causally correlated to levels of physician empathy, which tells us that improving physician wellbeing will improve physician empathy, and should in turn improve the quality of care. This thesis shows that a strong sense of community and belonging, strong relationships, positive role models, and an opportunity for creative expression can improve medical student wellbeing and challenge their experiences with the current hidden curriculum. As such, this thesis suggests that the incorporation of artistic communities at the undergraduate medical level could contribute to instilling a reformed hidden curriculum that embraces humanism and wellbeing, helping to replace the current hidden curriculum and contribute to the development of humanistic doctors and an improved quality of patient-centered care.

Further study could involve a more longitudinal analysis of how involvement in that community of musical practice, a medical student choir, relates over the course of a student's experience in medical school. I am also interested in how the medical students' involvement in a medical student choir may relate to their patients' experience with them as well. In both cases, I could see potential for a mixed-methods study that could incorporate an outcome-oriented, evidence-based research design in conjunction with the more reflective protocol used in this

project. The aim of using such methodology would be to better inform and strengthen the development of music-based medical humanities programming and curricula without diluting the choral experience to a learning tool and outcomes. A mixed-methods approach would also satisfy both evidence-based requirements of curriculum reform while embracing the richness of qualitative work (Dennhardt, *et al.*, 2016).

Summary: Reflections and finale

A challenge I found in writing this chapter, in answering the three research questions, is that the answers were very intertwined, and there is a lot of repetition. What this communicates to me, however, is how powerful this experience of singing in the medical school choir may be: that factors intrinsic to the experience of singing, and of being in the choir also encompass and explain the role of the choir in medical humanities and medical education, as well as the significance of the experience to a medical student's personal, professional, and educational journey. This realization, to me, represents what may be a major argument for the continued engagement of music in the medical school without quantification, measurability, or application as justification for its value.

If medical humanities are meant to engage us with the human condition, then I find that music (and choral singing) is an extremely powerful way to do so – without the need to intellectualize or rationalize that engagement. To quote Jordan again,

What I find is so special about music is, that you're able to feel things that you can't necessarily put into words, things that you can't necessarily explain. There are only things that you can feel, and it's emotions that you never knew that you had, and you never knew that you could feel.

In this thesis, I have written about the universality of music, but also about the fact that perhaps the benefits that participants feel from their experience in the choir are somewhat exclusive to those who are musically inclined. I recognize this contradiction between establishing findings in this study in the context of those who are musically inclined, and then writing about the universality of the musical experience. What I would like to clarify is that the musical experience may not be *exclusive* to those who are musically inclined, but that those who are musically inclined more likely seek engagement in musical activities. Demonstrated by the range of experiences and musical backgrounds of participants in this study, “musically inclined”

to me represents a broad definition: that a person who is “musically inclined” is someone with whom a musical experience, of any level of formality, resonates.

As mentioned in Chapter Three, the methodology section, phenomenology is also termed “human science research.” inquiry into human experiences and what makes them human experiences. I find choral singing to be one such deeply human and humanizing experience that is accessible and valuable in a variety of contexts. As such, it is also one that suggests powerful potential and implications as it contributes to the development of those whose role in society is to connect with us in one of our most vulnerable human experiences: at the medical bedside.

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APPENDIX A

Interview Protocol Project: Experiencing Resonance: Choral Singing in Medical Education

Time of interview:

Date:

Place:

Interviewer: Laura Nemoy

Interviewee:

Position of interviewee: chorister in the medical student choir

The aims of this project are to understand the experience of an undergraduate medical student singing in an extra-curricular medical school choir. The duration of this interview will be approximately 30-40 minutes.

Questions:

1. Please describe your experience singing in the choir thus far.

Prompting/sub-questions if necessary:

- a. Please describe the experience of singing (in harmony) with a group of people.
 - i. Physically, emotionally, socially
 - b. How do you feel before, during, and after rehearsal?
 - c. Can you please describe your relationship with other choristers?
2. Can you describe your experience with the choir in relation to your experience in medical school?
 3. What is it like to sing in a choir with other medical students?
 4. What contribution, if any, does your experience in the choir have in your life, or to your education?

Prompting/sub-questions if necessary:

- a. What was school or life like before joining the choir? How have things changed now since joining the choir?
- b. Did you have any experience with music or choirs before joining this group? If so, could you please describe that experience? How is this experience the same or different? Why did you join this choir?