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RELATIONSHIP OF MUSIC APPRECIATION AND

EMOTIONAL INTELLIGENCE TO RELATIONAL HEALTH

A DISSERTATION APPROVED FOR THE

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Abstract

The purpose of this study was to examine the relationship between music appreciation and emotional intelligence to relational health. Participants consisted of 848 adults aged 18-80 (M = 38, SD = 12.71) from 2 independent sampling sources, Mechanical Turk (n = 430, 51%) and Social Media (n = 418, 49%). The study consisted of three separate hypotheses: (a) as a set of variables, relevant demographic data, degree of music appreciation, and emotional intelligence scores will significantly predict overall relational health scores; (b) music appreciation and emotional intelligence scores will individually and significantly predict relational health scores; (c) music appreciation and emotional intelligence scores will significantly interact to predict relational health scores. Data analysis included a four step hierarchical multiple regression to investigate the relationship between music appreciation and emotional intelligence on relational health scores.

CHAPTER ONE

Introduction

"No man is an island." - John Donne (1624)

Relationships

Humans are inherently social creatures. While individuals are able to accomplish many tasks independently; ultimately, people live and perform at their best alongside others in groups (Jordan, 2010). Healthy relationships create the opportunity for people to grow within supportive environments and better survive negative environments. *Relational health* refers to the qualitative state of relationships, or lack thereof, in one's life. One of the most common forms of torture among prisoners of war and inmates at correctional facilities is long-term isolation or solitary confinement (Arrigo & Bullock, 2007). The advent of supermax prisons placed individuals in complete isolation 23 hours a day for months, or even years at a time. While this is an extreme example, one can imagine what becomes of the psyche from consistent relational disconnection. Such depths of deprivation are associated with negative psychological effects, including a 28-35% increase in psychiatric disorders when compared to individuals in the general prison population, causing some researchers to label such practices as *mental health hazards* (Andersen, Sestoft, Lillebaek, Gabrielsen, Hemmingsen, & Kramp, 2000; Arrigo & Bullock, 2007). This is not how individuals are meant to live and function.

People thrive in positive relationships and suffer in toxic relationships or long-term disconnections. The *Relational Cultural Theory* (RCT) of psychological development (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991) attempts to capture the centrality of relationships in people's lives, focusing on the importance of connection and influence with others. RCT offers a lens into the more subtle nuances of relationship formation and attempts to capture a more

multiculturally, inclusive framework of psychological growth outside the static constraints of classic psychoanalytic approaches. RCT emphasizes the importance of connectedness rather than individualism in health and development. Jordan (2018) states people are hardwired to connect, and likens the need for relationships to the same level of significance as the need for air and water.

Abraham Maslow, in his seminal paper *A Theory of Human Motivation* (1943), devised how the *self identity*, composed of self-esteem and personal worth, occurred through the creation of strong social bonds. Maslow believed that love and belonging are significant, universal needs to the human condition that allow for intimacy to grow between individuals, thereby strengthening the bond between one's sensed self and one or more of the other individuals in the relationship. Erick Erickson (1963), although a contemporary of Sigmund Freud's *drive theory*, corroborated the importance of relationships in his *Psychosocial Theory of Development*. Erickson discussed the roles that others play within each developmental milestone, from learning the basis of trust versus mistrust in early infancy; to forming a healthy identity in adolescence and early adulthood; to the goals of *generativity*, defined as the concern for guiding the next generation, and *ego integrity*, defined as a sense of coherence and wholeness, in later adulthood and retirement age, respectively. Relationships are critical vessels for growth and understanding over the course of any lifespan.

Modern research in relational health focuses beyond the nuclear family structure and traditional ego-driven mentality, emphasizing more of a strength based approach to health and development throughout all relationships across an individual's lifespan. Jordan (2018) speaks to the importance of relationships in early brain development and function, stating, "The brain is programmed to learn and programmed to make connections, internally between neurons and

externally with a responsive caregiver" (p. 91). RCT challenges the tenet of earlier psychological approaches that believe personality and identity crystallize early in life, and stipulates that growth and development continue well past childhood, into adulthood and beyond. This sustained advancement and maturation can be found within healthy, *growth-fostering relationships*, defined as two or more individuals actively participating toward the investment of mutual development and growth (Jordan, 2018). Growth-fostering relationships are characterized by: (a) *authenticity*, defined as the ability to represent oneself as fully and genuinely as possible in relationships; (b) *mutual engagement and empathy*, defined as mutual involvement, investment, and the openness to impact and be impacted by another person when being present and caring about the relationship and the individuals involved; (c) *empowerment*, defined as the capacity for action and sense of personal strength in relationships; and (d) *the ability to deal with differences and conflict* that can further foster understanding, acceptance, mutual empowerment, and empathy in relationships (Liang, Tracey, Taylor, & Williams, 2002; Jordan, 2010).

Every person possesses the capacity to influence and be influenced by another person. Growth-fostering relationships further increase empathy, trust, and intimacy, thereby strengthening relational health between individuals as they weather the great sea of influence in life. Miller & Stiver (1997) illustrate the significance of mutual empathy as "the great unsung human gift" in relationships (p. 29). Empathy, whose role is no stranger to relational health research, is often characterized as the affective-cognitive experience of understanding another person. *Mutual empathy* emphasizes the impact between two or more individuals in understanding the influence they have between each other, both cognitively and emotionally (Jordan, 2010). Mutual empathy is the openness to be affected by someone else. This is true in both positive and negative interactions. In fact, RCT views conflict as a natural part of

relationships; a useful indicator that disconnection has occurred, thereby informing the individuals in the relationship to work towards reconnection and resolution through mutual empathy and engagement. While conflict resolution can be a difficult task, the authenticity and trust formed within growth-fostering relationships allows conflict to runs its course from disconnection to reconnection. Again, in life, each person influences and is influenced by others.

"Without music, life would be a mistake." - Friedrich Nietzsche (1889)

Music

Music is life. It is the soundtrack of everyday experiences; from a catchy commercial jingle or television theme song to a deeply moving religious or memorial service, music connects people. It was woven into the fabric of every culture and society around the world for millennia. Music is believed to have played prominent roles in the lives of Neanderthals and early humans, namely during social alliance formation, territorial divisions, and sexual selection (Mithen, 2006; Hagen & Hammerstein, 2009). Music is powerful. A sports team's anthem or fight song has the capacity to unite or divide people depending on basic geographical differences. Music is ubiquitous. The proliferation of digital streaming and online music gives individuals access to a global database of music at their fingertips. Oliver Sacks (2007) wrote, "This propensity to music–this *musicophilia*–shows itself in infancy is manifest and central in every culture, and probably goes back to the very beginning of our species" (p. x). One would be hard pressed to escape the influence of music in life.

Music is also historical. It is an oral/aural anthology chronicling significant and foundational events and commemorations, from royal coronations and weddings to the deaths of soldiers and leaders on the battlefields of yesteryear. Durheim (1921) captures the importance of music in history, stating, "History is not complete without the study of music in its connection

with events or in its own development," and moreover, "Literature and music are so closely associated that a study of either without the other is necessarily impoverished, this being particularly true for music" (p. 5). Music can impact anyone. Perret (2005) stated that musical appreciation and expression are likely a reflection of ourselves, both past and future, like a fingerprint or birthright one carries throughout their lifespan. While people's capacity to write and perform music may fall on different parts of the spectrum, almost all individuals possess the proficiency to listen and differentiate sounds, the basis for experiencing music and understanding language (Mithen, 2006).

Music can heal and unite. Obviously, music has multiple applications beyond fight songs and war dances between tribes. Mithen (2006) hypothesized that music most likely co-evolved alongside alliance building relationships in early human evolution. This appears to be true in other primates as well. Chimpanzees and bonobos are known to drum and vocalize (hoot, holler, and grunt) at each other during communal interactions (Crockford, Herbinger, Vigilant, & Boesch, 2004). The exact evolutionary history of music is thoroughly debated among linguists, psychologists, musicologists, anthropologists, archaeologists, and other great minds, but music is believed to coincide along with the foundation of early language, commonly referred to as *musilanguage* (Brown, 2000). The creation of musilanguage was most likely possible due to the larger brain size of early humans in relation to their closest evolutionary relatives: bonobos, chimpanzees, gorillas, and orangutans (Brown, 2017). With these larger brains came two specific areas for language acquisition and production, known as Wernicke's area and Broca's area, respectively. The greater capacity for intellect brought with it the universally and culturally diverse skills of music and language, essential tools for early human development and relational formation. The proliferation of styles and individual/social purposes of music is as rich and

diverse as the 6,000 languages spoken today. To listen and experience music, now and then, is to be human.

Finally, music is relational. Music strengthens attraction and cooperation within relationships (Hagen & Hammerstein, 2009). Modern day humans rely on music just as much as their ancestors, and even for similar purposes. Reasons for listening to music include mood and emotional regulation, identity expression and fulfillment, and social connectedness (Behne, 1997; Tarrant, North, & Hargreaves, 2000; Schäfer, Sedlmeier, Städtler, & Huron, 2013). Music is as much a part of human history as tool making, and as natural as verbal communication. The power of music continues to forge relationships and offer insight into emotional and identity development.

"Our feelings are our most genuine paths to knowledge." - Audre Lorde (1982)

Emotions

Emotions, like music, have been studied for millennia yet do not possess a universally agreed upon definition. Writers of antiquity spoke of competing passions, sentiments, and supernatural phenomena (i.e., spirits and demons) as the sources for different feeling and mood states (Watt-Smith, 2015). The Ancient Greek physician, Hippocrates, is commonly credited with applying the *4 Humors* of the body (i.e., black bile, blood, phlegm, and yellow bile) to medicine for the treatment of physical and mental health conditions (as cited in Loyd, 1984). When in balance, these humors were believed to grant wellness and vitality. When out of balance, the humors were believed to produce a range of mood and personality changes, physical illnesses, and mental deficits.

The term *emotion,* however, was not clearly conceptualized until the mid-17th century (Watt-Smith, 2015). Philosophers René Descartes and Baruch Spinoza were at odds over the

relationship between the mind and body. Descartes famously stated, “I think, therefore I am,” asserting that the mind and body are two separate entities (as cited in Veitch, 1960). Spinoza sat in opposition, writing how the mind and body are one continuous structure working in parallel with each other. At the time, Descartes appeared to win the debate, for if one is able to question their existence then they must exist after all. This overreliance on mental ability set the foundation for behaviorism and cognitivism to be the focus in psychology for the next three centuries (Hatfield, 2007).

The concept of emotions gained more relevance in modern psychology during the mid-to-late 20th century as much of the field began focusing on the purpose and function of emotions. Alfred Adler, also a protégé of Freud, believed the purpose of emotion was to satisfy psychological goals and biological needs (e.g., reduce anxiety and fear, or increase joy and pleasure) in order to “bring about a change of the situation in favor of the individual” (Ansbacher & Ansbacher, 1956, p. 227). Cabanac expanded on the pleasure principle, defining emotion as “any mental experience with high intensity and high hedonic content (pleasure/displeasure)” (2002, p. 80), meaning, emotions are a psychophysiological process whose goal is to increase pleasure and/or avoid pain and displeasure. Daniel Goleman (1995), one of the early writers of emotional intelligence, thought emotions functioned as a type of mental-kinetic energy, stating that emotions possess an inherent range of propensities and impulses to act in response to people, environments, and other stimuli.

Some scholars looked for answers within the social and historical nuances of emotion. For example, Zembylas and Schutz (2009) viewed emotions as socially constructed judgements or “ways of being” regarding perceived successes at attaining goals, or maintaining standards and beliefs during social interactions. Ekman, Friesen, and Ellsworth (1972), building upon the

previous 30 years of research investigating emotion and facial expressions, theorized there was enough evidence for 6 basic, universal emotions: *happiness, surprise, fear, sadness, anger,* and *disgust*. Ekman later revised the list to include *contempt*, and again to potentially include as many as 25 universal emotions (Ekman, 1992; Ekman & Cordaro, 2011).

The creation of more strength-based therapeutic orientations, such as Gestalt, Humanistic, Client Centered, Interpersonal, and Relational Cultural, offered more diverse and multicultural understandings of the roles emotions play. For instance, Barrett (2017) stated that Western ideology understands emotion as a personal experience taking place inside an individual's body, whereas other cultures understand emotions as interpersonal events between two or more people. Obviously, emotions can be difficult to operationalize. For the purpose of this study, emotions will refer to psychophysiological responses to a person, object, or event in one's environment (Rosenberg, 1998).

The concept of Emotional Intelligence (EI) was first defined as a set of abilities involved in the perception, usage, understanding, management, and regulation of emotions within one's self and others (Mayer, DiPaolo, & Salovey, 1990). The construct has become wildly popular over the three decades since its inception. Stough, Saklofske, and Parker (2009) scoured nearly 1000 publications referencing emotional intelligence and found EI literature covered a large swath of research domains, including the workplace (e.g., industrial and organizational psychology, management, personnel psychology, training), psychometric and construct validity (e.g., test construction, reliability, validity, and relations to other psychological constructs, particularly personality and intelligence), neuroscience, health (e.g., health psychology, psychiatry, clinical disorders health promotion), educational (e.g., primary, secondary or tertiary training, scholastic results, student attrition, selection), cross-cultural, sport, and other domains.

There has been limited research on the link between EI and relational health. Specific areas of EI research on relational health have included establishing and maintaining relationships (Goleman, 1995), self-efficacy (Chan, 2004), aggression (García-Sancho, Salguero, Fernández-Berrocal, 2016), attachment (Cherry, Fletcher, & O'Sullivan, 2013), personality development and individual differences (Petrides, Vernon, Schermer, Ligthart, Boomsma, & Veselka, 2010), and gender differences (McIntyre, 2010), to name a few. More specifically, EI was shown to relate significantly to empathic perspective taking (e.g., the ability to see another individual's experience) and self-monitoring in social situations (Schutte, Malouff, Bobik, Coston, Greeson, Jedlicka, Rhodes, & Wendorf, 2001). This finding is congruent with one of the core beliefs of EI, the ability to perceive and understand emotions in others. In another study from the same publication, Schutte et al. (2001) also found higher scores of EI were significantly correlated with higher scores for social skills, cooperative responses, interpersonal relations (e.g., relational health), and marital satisfaction, offering more credence to the relational-social importance of EI.

The purpose of this study was to examine the relationship between music appreciation and emotional intelligence to relational health. No research has been published to date investigating these relationships. Exploring the role of music appreciation and EI to relational health has important implications for theory development, practice, and research. Understanding these connections has potential to better inform how music appreciation and EI can foster authentic, engaging, and empowering relationships among individuals, thereby providing a novel tool for psychologists and other mental health professionals to aid clients in building and maintaining systems of support and self care.

CHAPTER TWO

Review of the Literature

Relational Health

Contemporary relational health literature owes much of its beginnings to Relational-Cultural Theory (RCT) in counseling psychology (Jordan et al., 1991). RCT is a developmental model that focuses on the relationship as a conduit for personal and interpersonal growth. Jordan (2018) posited, "Mainstream Western psychological theories tend to depict human development as a trajectory from dependence to independence… [and] celebrate autonomy, self-interest, competition, and strength in isolation" (pp. 3-4). RCT places authenticity and mutuality in relationships over independence from others as the catalyst for development. Classical psychological theories of development, such as psychoanalysis, view the human condition as inherently selfish and aggressive, driven only by the biological drive to satisfy needs like sex and hunger (McWilliams, 1994). RCT views people as inherently empathic and relationally seeking with the ability to continually grow within relationships throughout their lifespan (Jordan, 2018; Jordan, 2010).

Relational-Cultural Theory began as a new approach to developmental psychology from a woman's perspective and has since grown into a more multiculturally, inclusive voice for all genders (Jordan, 2018). RCT considered how healthy, meaningful relationships allow for healthy, meaningful growth by empowering individuals with the tools to validate and appreciate each other's experience. The basic tenets of RCT are as follows:

1. People grow through and toward relationships throughout the lifespan.
2. Movement toward mutuality rather than separation characterizes mature functioning.
3. On-going relationship differentiation and elaboration characterize growth.

4. Mutual empathy and mutual empowerment are at the core of growth-fostering relationships.
5. Authenticity is necessary for real engagement and full participation in growth-fostering relationships.
6. In growth-fostering relationships, all people contribute and grow or benefit. Development is not a one-way street.
7. One of the goals of development from a relational perspective is the ongoing expansion of relational competence and capacities over the lifespan.
8. Mutual empathy is the primary means through which we grow. Placing mutual empathy at the core of human development not only affects the individual but also contributes to the growth of a socially just society. Social justice is the outcome of the practice of mutuality in which the needs and experiences of all people in any given interaction are respected and honored. (Jordan, 2018, pp. 28-29).

Relational-Cultural Theory challenged the traditional notion of the *separate self* within an individual's growth, and instead emphasized the value of relational experiences and connectedness in healthy development rather than individuation and separation. Jordan (2018) stated, "Although it has often been presented as a natural fact, *the self* is actually a construct...seen as functioning better if it is more independent of other selves" (pp. 5-6). RCT diverted from the traditional view of the strong, independent, separate self and instead viewed *disconnection from others,* defined as a psychological rupture within a relationship where one or more of the individuals are prevented from participating in a mutually empathic and mutually empowering interaction (Miller & Stiver, 1997), as the source of most psychological difficulties. RCT viewed disconnection as a normative and inevitable state in relationships. However, chronic

disconnection has the power to create a deep social pain; cause people to feel less capable or competent in different aspects of their life; and lead to a decreased sense of worth and confidence, which in turn may prompt them to turn away from relationships in general, especially in the face of any level of conflict, a natural result in the relational cycle of connection, disconnection, and reconnection (Jordan, 2010; Jordan, 2018).

Miller and Stiver (1997) challenged the importance of the separate self in healthy psychological development with the concept of *growth-fostering relationships*. These relationships are characterized by (a) *zest*, defined as an increase in energy; (b) *action*, defined as feeling empowered to act in the moment of the immediate exchange; (c) *knowledge*, defined as clarity about one's own and the experience of others in the relationship; (d) *sense of worth*, defined as feeling worthwhile with another; and (e) *desire for more connections*, defined as greater concern and care for others. Growth-fostering relationships occur alongside mutual empathy, allowing for a type of relational resilience in the face of inevitable disconnection (Jordan, 2018). RCT stresses the importance of connection and relational growth as the catalyst for psychological development; a dramatic shift from the more static, black and white view of development in traditional attachment theory.

In contrast, Bowlby, a psychoanalyst and protégé of Sigmund Freud, wrote extensively on attachment theory and behavior. Bowlby (1982) viewed attachment as a means of survival with the help of a more capable (usually adult) person or persons in hopes of "...attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world" (p. 668). Bowlby believed attachment was a response through which one moves from weakness to strength, continuing, "It is most obvious whenever the person is frightened, fatigued, or sick, and is assuaged by comforting and caregiving" (p. 668). Bowlby's

view of attachment asserted that the bond a child initially developed with their parent(s) or caregiver(s) was largely predictive of how successful the individual would be in becoming a mature, autonomous adult capable of developing close personal relationships. This view of attachment, especially the latter assumption, is obviously more rigid, and less inclusive than the tenets of RCT.

Bowlby suggested that a secure attachment with a caregiver needed to occur within the critical period of the first 2-5 years of life or else the individual risked irreversible long-term consequences in relational and mental health, including, but not limited to, delinquency, reduced intelligence, depression, aggression, and psychopathy (1969). Much of Bowlby's work was based on the pathologizing of insecure attachments. For example, his most famous study examined the attachment styles of juvenile delinquents. Bowlby interpreted the delinquents' development as an unattached, insecure relationship with their mother (Bowlby, 1944). This interpretation has been thoroughly challenged in modern relational and feminist literature and stands in stark contrast to the strength based, growth-oriented approach of RCT, among other orientations.

Relational-Cultural Theory proposed that mental health issues manifest through inequalities within gender, race, social status, unchecked privilege and power differentials, and other relational dynamics in society (Jordan, 2010). While the relational-cultural model agreed with the importance of healthy parental/caregiver connections, RCT did not emphasize this early attachment as the primary determining factor in the quality of future relationships, since it assumed people possess the capacity to grow and change within relationships over their lifespan. RCT described the ways people use and understand relationships through the concept of *relational images*, defined as individual blueprints for understanding relational patterns based on

experiences (Miller & Stiver, 1997). These images serve as templates for hopes and expectations in relationships, which while they may be initially learned in childhood, develop and transform over time to provide a framework for relational competency to flourish and allow meaning and expectations to be better understood within relationships. Enjoyable experiences from growth-fostering relationships often lead to the formation of positive relational images, whereas the experience of chronic disconnections from others often lead to the formation of negative relational images (Jordan, 2018).

Frey, Beesley, and Miller (2006) tested the influence of relational images by exploring the interconnections between parental attachment, relational patterns (i.e., peer, mentor, and community), and psychological distress in college aged women and men. Frey et al. found that relational health was a stronger predictor of psychological distress beyond what was accounted for by parental attachment. In other words, although parental attachment was a predictor of psychological distress, it was not the critical factor in whether an individual was psychologically healthy. This finding lends more credence to the RCT assumption that consistent relational disconnection and a lack of growth-enhancing qualities in relationships over the lifespan may lead to psychological distress, versus the view of traditional attachment theory, which asserts that psychological distress from attachment issues may lead to relational problems.

Mutual empathy speaks to the openness of being affected by and affecting others, bridging two or more individuals into a deeper connection from a shared emotional experience. During times of mutual empathy, all individuals interact with a purposeful sense of mutual intention toward growth, respect, and connection. The ability to be empathic toward someone else's experience often leads to further empathy towards one's own experience, and vice versa (Miller & Stiver, 1997).

Music, like empathy, offers a glimpse into the affective-cognitive and relational lives of individuals. Music, as will be more fully discussed below, has the ability to increase emotional engagement between people. Using fMRI scans, Wallmark, Deblieck, and Iacoboni (2018), found that *trait empathy*, defined as the relatively stable level of empathy an individual experiences across different situations, could modulate how someone processes music. Wallmark et al. stated that listening to music not only activated the areas of the brain associated with empathy, but individuals who identified as more vs. less empathic reported (a) greater neurological sensitivity when listening to "abrasive" music, and (b) stronger emotional reactions to music with which they were familiar. The emotional engagement of music may help further delineate the relationship between emotional intelligence and relational health.

Music Appreciation

Music, like other artistic expressions, can evoke an array of different memories, emotions, and physiological reactions when listening or performing. Music has the ability to soothe or arouse anyone who attends, be it positively or negatively. Early music literature focused mainly on physical changes in the body. Music was found to increase and decrease basic physiological functions, such as heart rate, respiration, and blood pressure, as well as lessen sensory thresholds and muscle fatigue (Vernon, 1930). Further physiological research with music measured the reactions of lumps in the throat, shivers down the spine, and piloerections (i.e., goosebumps), often referred to as the *rush* or *high* a person experiences when listening to music (Nagel, Kopiez, Grewe, & Altenmüller, 2008).

Music can elicit various thoughts, feelings, and memories ranging from anger and fear to enchantment and nostalgia (Juslin & Laukka, 2004; Garrido, 2014). *Musicality*, defined as the internal process a person experiences when presented with music (Behne, 1997), captures "the

qualitative aspects in musical expression [and appreciation]" that is unique to each listener, performer, and composer (Perret, 2004, p. 330). Behne (1997) expanded the concept of musicality further with his definition of *Musikerleben*, defined as "the sum of psychic processes which accompany the experience of music in situations when music is in the focus of interest: when a person is not only hearing but listening to and appreciating music" (p. 143). Music can tap deeply into individuals, consciously or unconsciously, and connect them on a profound, authentically emotional level. True music appreciation comes from the "awareness of salient characteristics" (Behne, 1997, p. 143) in music and the pleasure, perhaps relationally shared, of aesthetic perception (Rakowski, 2001), and requires only a positive attitude toward and an openness to be affected in order for a meaningful appreciation to manifest. The literal translation of musikerleben is "music experience," but this seems to lack the complexity of the listeners' perception and the potential for relational connection music possesses. *Music appreciation* was the closest English equivalent of musikerleben and was used for this study.

Music is the language of emotions. Perret (2005) noted musicality was a part of people's biological nature; an innate propensity accorded from the beginning of life that over time became "the expression of our emotions [and] feelings" (p. 19). Huron (2006) suggested that music-induced chills are an automatic fight-flight-or-freeze reaction from the body's response to a startling stimulus. The listener initially judged the stimulus as threatening, then pleasurable or rewarding (Panksepp, 1995; Huron, 2006). Blood and Zatorre (2001) found these music-induced chills can also cause a reduction of neural activity in the areas of the brain associated with anxiety; further evidence of music's affective connection and mood regulating abilities.

Music is therapeutic and possesses a variety of clinical implications. For instance, music therapy is commonly utilized as a lone method or in conjunction with other treatment modalities

to treat an array of physical and psychological disorders, including aphasia, Alzheimer's, pain and anxiety management, focal dystonia, and Tourette's syndrome (Evans, 2002; Altenmüller, Kopiez, Grewe, Schneider, Eschrich, Nagel, & Jabusch, 2007). Specifically, music therapy can offer individuals with these disorders a less threatening form of self-articulation and expression through a more natural application (e.g., drumming, singing, humming, etc.), and may be the only way certain individuals with physical or communicative issues can outwardly process their inner struggles (Aldridge, 1998). The scope of treatment with music therapy is extensive, finding success within greater mood regulation and arousal tolerance in adolescents, to patients with developmental delays, chronic health issues, and terminally ill conditions in intensive care units (Shuman, Kennedy, Dewitt, Edelblute, & Wamboldt, 2016).

Music can produce altered states of consciousness and awareness in listeners. Experiencing music can stimulate physical changes in the areas of the brain associated with learning, including areas related to reading, writing, and arithmetic skills (Rideout, 2002). This occurs in relation to the degree in which an individual is engaged or spellbound in the music itself. For example, listening to music during studying or testing sessions is shown to be related to an increase in an individual's level of memory retention and recall, depending on the level of musical awareness (Perret, 2004). Although music can enhance the sensory integration in these areas, music has not shown to increase overall intelligence (Moreno, Lee, Janus, & Białystok, 2015).

Schäfer et al. (2013) attempted to capture the ever-expanding field of music appreciation research. The authors identified over 500 proposed musical functions from an extensive literature review and distilled the reasons into three fundamental categories: (a) *enhancement of self-awareness* (e.g., self-related thoughts, feelings, and meaning), (b) *fostering of social relatedness*

(e.g., relational closeness and identity expression), and (c) *regulation of mood and arousal* (e.g., entertainment and anxiety diversion). These findings further communicate how music can operate both as a private experience of self-discovery and as a social exercise in expressing relational needs and values to others. Music is a powerful mechanism for growth and development. The tools of self-awareness, social relatedness, and mood regulation speak to several aspects of RCT. Wallmark et al. (2018) discussed how listening to music can act as a relationship in and of itself, because the listeners' experience can feel like a "virtual other," and in turn, may be capable of altering the listeners' views of real individuals and relationships (p. 16). This construct demonstrates how music might operate as a moderator for emotional intelligence in predicting relational health.

Music and Emotion. Music is the universal language. It can speak to individuals on an emotional level and speak for individuals as a communicative tool. Listening to music uses similar neural pathways in the brain as understanding language (e.g., musilanguage). Both music and language rely on the same acoustic cues of *pitch* (i.e., degree of highness or lowness of tone), *tempo* (i.e., timing and speed of tone), and *timbre* (i.e., character or quality of tone) to convey a message or infer any meaning (Swaminathan & Schellenberg, 2015). Although this finding is ubiquitous, emotional understanding of music regarding *mode* (i.e., alternative tonalities, such as major or minor scales) is more of a Western cultural phenomenon (Huron, 2011). Experiencing music (i.e., music appreciation) is an affective-cognitive process that relates to a person's inner psyche through an aesthetic vocabulary of personal and relational experiences.

The capacity to communicate meaning and induce affect is one of music's most powerful properties. Music appreciation allows individuals to relate their discrete emotions, judgements,

and realities when connecting with others, with or without the use of verbal or nonverbal languages (Aldridge, 1998). These encounters, though uniquely processed within an individual, are generally universal among all music listeners. Children as young as 5 years old possess an ability to make emotional judgements about music (e.g., Is this song happy? Sad? Angry?) based on the different acoustic cues, specifically pitch, tempo, and volume (Holochwost & Izard, 2008; Mori & Iwanaga, 2014). Overall, younger children are best at identifying high-arousal emotions in music (i.e., happiness, fear, and anger), but most children are as capable as adults in identifying all emotional cues in music by age 11 (Hunter, Schellenberg, & Stalinski, 2011). The ability to identify, experience, and appreciate different emotions within music, as well as the different emotional reactions in response to music continues to develop across a lifespan.

As mentioned earlier, the relationship between music and empathy is becoming clearer in the literature. Neuroimaging research shows that music, like language, utilizes *mirror neurons* (i.e., neurons that fire when an individual acts, and when observing another individual acting in a similar manner) in the production and reception of information (e.g., messages and emotions) between two or more individuals (Molnar-Szakacs, & Overy, 2006; Clarke, Denora, & Vuoskoski, 2015; Matyja, 2015). These mirror neurons activate within a performer and an observer of music, acting as a "mirror-matching system" within the shared affective-cognitive experience (Schiavio, Menin, Matyja, & Cohen, 2014, p. 2). Livingstone and Thompson (2009) break down this *Music-Emotion Framework* by distinguishing between three forms of emotion: (a) *induced*, defined as emotion felt by the observer in response to a stimulus; (b) *expressed*, defined as emotion embodied in the stimulus; and (c) *perceived*, defined as emotion detected in the expression of the stimulus. Wallmark et al., (2018) continue:

> According to this theory, composers and performers encode affective gestures into the

> musical signal, and listeners decode that signal by way of mimetic, mirroring processes; musical expression is conveyed transparently as affective bodily motions are internally reenacted in the listening process (p. 3).

These findings paint a rather unique relationship between language, music, and empathy. RCT would argue that mutual empathy captures each form of emotion in the Music-Emotion Framework during growth-fostering relationships. Empathy allows the individual, or observer, the ability to perspective take across the competing roles of inducing, expressing, and perceiving emotion within their own experience and the experience of others.

Music and Relationships. Several researchers theorize that music acts like a social glue within groups and societies (Mithen, 2006; Huron, 2011; Clarke, DeNora, & Vuoskoski, 2015). Self-expression through creative means (e.g., art, music, dress, language, etc.) is an important part of a person's identity, maturation, and relational development. Music offers a medium by which experiences unique to a person can evolve, and by which relationships can prosper. Hargreaves, Miell, and MacDonald (2002) found this fundamental channel of communication could be a means through which the perceived sense of self and relational identity are established. Trevarthen (1999) stated that communication through music, or *communicative musicality,* bridges an individual's inner world with the need to create, learn, and convey self-worth in a social situation or relationship. That is, music is an affective-relational mechanism; it is meant to be felt and shared with others. *Social Relatedness* refers to the potential for music to display the degree of belongingness one has to specific social groups or communities (Schäfer et al., 2013). This is a key relational function of music, as sharing similar musical preferences can strengthen a sense of fit or belonging within a group. Schäfer et al. (2013) found the perceived impression of shared musical preferences among listeners could be a cue that nonverbally

communicates other shared values and orientations. Thus, even the perceived notion of similar musical tastes can signal the potential for furthering a relational engagement between total strangers. Music appears to be a powerful medium for mutual empathy to blossom.

Adolescents' reasons for listening to music ranges from mood and emotional regulation to identity development and expression (Behne, 1997; Tarrant et al., 2000). The importance of music in youth may serve as a form of resiliency, a basis for emotional grounding and self-care during the chaotic, often laborious time of cognitive, affective, and relational development in adolescence. Music can help youth better integrate their ever-growing emotional/hormonal selves into a working sense of identity. Behne (1997) found that, while there is considerable gender overlap in the use of music in adolescence, male adolescents utilize music at an earlier age than females as a conduit to forming intergroup relations, as well as in discriminating between members of ingroups and outgroups (Tarrant et al., 2000; Tarrant, North, Edridge, Kirk, Smith, & Turner, 2001). On the other hand, female adolescents utilize music at an earlier age than males for emotion and mood regulation (Tarrant et al., 2000; Tarrant, North, & Hargreaves, 2001). Musical preferences can make or break social and relational bonds. In fact, listening to music with a trusted friend or partner is associated with a more intense emotional experience than listening alone (Liljeström, Juslin, & Västfjäll, 2013; Egermann, Sutherland, Grewe, Nagel, Kopiez, & Altenmüller, 2011). This phenomenon seems to help foster the shared meanings that contribute to constructing positive relational images.

Musical preference is not necessarily a constant entity; rather it too develops and evolves over time. Rentfrow, Goldberg, Levitin, and King (2011) composed a model of musical preference based on listener's emotional reactions to different genres of music. The model included 5 factors: (a) *Mellow*, comprised of smooth and relaxing musical styles (e.g., R&B,

soul, soft rock); (b) *Unpretentious*, comprised of music perceived as basic and stripped down (e.g., country, bluegrass, singer-songwriter); (c) *Sophisticated*, comprised of music perceived as complex, intelligent, and inspiring (e.g., classical, operatic, jazz); (d) *Intense*, comprised of loud, forceful, and energetic music (e.g., hard rock and heavy metal); and (e) *Contemporary*, comprised largely of rhythmic and percussive styles of music (e.g., rap, funk, hip-hop). While this model is not an exhaustive list of musical preferences, it does well in capturing the different ways musical genres are felt on an individual basis. Musical preferences change over time in response to exposure to new thoughts, feelings, and experiences. Behne (1997) found that the intensity of musikerleben (i.e., music appreciation) increases as an individual's personal and/or relational problems grow in number or magnitude, suggesting that a person learns to rely on music even more during times of distress. Aldridge (1998) compared the human life to that of a piece of jazz music, stating that a person is constantly adapting or *improvising* to meet their biological, psychological, and relational needs. This personal improvisation furthers the idea that as a person grows in life, so should their musical preferences in order to help satisfy individual and relational needs.

Emotional Intelligence

Mayer, DiPaolo, and Salovey first proposed the term Emotional Intelligence (EI) in 1990. EI was initially defined as a manner in which an individual uses emotions to better perceive, manipulate, and learn from their environment. This groundbreaking idea was influenced by the growing popularity of literature on multiple intelligences from Gardner (1983) and others in the 1980's. The publication of *Emotional Intelligence: Why it can matter more than IQ* (Goleman, 1995) introduced a more accessible conceptualization of EI to the public. Goleman deconstructed EI into 5 major characteristics: (a) *self-awareness* (e.g., recognizing a feeling as it happens), (b)

self-regulation (e.g., handling feelings in an appropriate manner), (c) *motivation* (e.g., emotional self-control), (d) *empathy* (e.g., recognizing and feeling emotions in others), and (e) *managing relationships* (e.g., social competency).

Goleman's main focus with emotional intelligence was social and relational competency. He understood EI as a crucial skill in building and maintaining personal and professional relationships. Goleman believed that EI could be learned and taught to better improve future interactions, stating, "Lapses in emotional skills can be remedied: to a great extent each of these domains represents a body of habit and response that, with the right effort, can be improved upon" (1995, p. 44). The language describing self-awareness, self-regulation, and motivation, while worded more cognitively in nature, still speak to the notion in RCT that individuals rely on others for growth and understanding. Goleman's use of empathy and managing relationships in EI also captures RCT's idea of relational images (i.e., blueprints for understanding relationships, Miller & Stiver, 1997; Jordan, 2018). The popularity of Goleman's work spawned competing definitions of EI and led researchers to wonder how best to conceptualize emotional intelligence.

Ability versus Trait. Salovey and Mayer (1990) originally constructed the concept of EI as a three-tiered model: (a) the appraisal and expression of emotion; (b) emotional regulation of self and others; and (c) the utilization of emotion. Mayer and Salovey (1997) later updated their model into four branches: (a) emotional perception; (b) appraisal and expression of emotion; (c) emotional facilitation of thinking; and (d) understand, analyze, and employ emotional knowledge to further emotional and intellectual growth, as well as attain specific goals. The four-branch model, similar to Goleman's (1995) theoretical intention, emphasized an individual's *ability* to navigate relational goals and issues using a set of skills to understand, validate, and express emotions within themselves and others. EI as an *ability* soon became the standard for EI

research.

While the original definition of EI was comprised of "a set of interrelated abilities" (Mayer, Salovey, & Caruso, 2008, p. 503), other researchers, preferring a more mixed method statistical approach, broadened the construct of EI to incorporate inherent personality characteristics and individual differences. These *trait* models included additional variables in their operational definitions of EI that captured a range of noncognitive skills and competencies that influence other environmental and relational needs or applications, including self-esteem, self-efficacy, introversion/extroversion, optimism, motivation, and well-being, (Bar-On, 1997; Mayer et al., 2008). Both the ability and trait classifications of EI proved to be useful in the literature. Indeed, the popularity and interest in EI also produced an enormous number of measures. Some popular EI measures include the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey, & Caruso, 2002), Emotional Quotient Inventory (Bar-On, 1997), Level of Emotional Awareness Scale (Lane, Quinlin, Schwartz, Walker, & Zeitlin, 1990), Test of Emotional Intelligence (Śmieja, Orzechowski, & Stolarski, 2014), Trait Emotional Intelligence Questionnaire (Petrides, 2009), and Assessing Emotions Scale (Schutte, Malouff, & Bhullar, 2009), to name a few.

Petrides and Furnham (2001) proposed differentiating the competing definitions of EI not by *what* they measure (ability vs. trait), but *how* they measure (performance vs. perception). For example, *Ability EI* generally referred to cognitive proficiencies that are best measured through task based maximum-performance measures (e.g., how well one scored in identifying an emotional response to a given scenario), whereas *Trait EI* generally referred to self-perceived dispositions and potentials that are best measured through self-report surveys (e.g., how effective one felt regarding their emotional competencies). Petrides and Furnham (2001) proposed

renaming Ability EI as *cognitive-emotional ability* and Trait EI as *emotional self-efficacy*, to further delineate the competing definitions, but also noted "the two constructs are not mutually exclusive and may therefore co-exist" (p. 427). Schutte et al. (2009) affirmed this sentiment, stating, "both approaches are important and complementary dimensions of adaptive emotional functioning" (p. 120). Researchers continue to debate over whether to define EI as an *ability* to actively use emotions in decision-making, or as a set of innate personality *traits* for building emotional competency and efficacy. In reality, there is no reason why either EI definition should preclude or impede the other. Perhaps ability and trait EI should be viewed as two sides of the same coin; ability EI capturing task-performance, and trait EI capturing self-perception.

EI and Relationships. Emotional intelligence has previously been investigated within relational health literature. Because EI is believed to contain the capacity to understand and regulate emotions in an individual and in others, several authors posited the importance of EI in building and maintaining relationships across social, educational, occupational, and personal domains (Goleman, 1995; Schutte, Malouff, Hall, Haggerty, Cooper, Golden, & Dornheim, 1998; Mayer, Salovey, & Caruso, 2000; Parker, Saklofske, & Stough, 2009; Schutte et al. 2009). Eslami, Hasanzadeh, and Jamshidi (2014) found a significant and positive relationship between EI and marital satisfaction. Schutte et al., (2001) found higher levels of EI scores correlated with higher scores for empathic perspective taking and self-monitoring in social situations, overall social skills, cooperative responses towards their partners, close and affectionate relationships, marital satisfaction, and greater satisfaction within relationships in general. Petrides, Sangareau, Furnham, and Frederickson (2006) found children who scored higher on a trait EI measure were perceived by their peers and teachers to possess more prosocial characteristics, such as cooperative and leadership skills, and fewer antisocial characteristics, such as disruptive and

aggressive behaviors. Nasir & Munaf (2011) found that adolescents who scored higher on EI variables (i.e., intrapersonal, interpersonal and general mood) showed greater consistency in their mood, behavior, and attitude with others, and in turn were believed to be better equipped at maintaining healthy relationships overtime.

Copper and Ng (2009) found that counselor trainees and supervisors with higher levels of perceived (i.e., trait) emotional intelligence were more likely to report a positive working relationship/alliance. This suggests the benefit of using EI in understanding the subtle nuances and relational processes in supervisory relationships in order to break down hierarchical, "power over" struggles (Jordan, 2018). The emotional processing and understanding aspects of EI also played a central role in re-examining Abraham Maslow's concept of self-actualization (Leclerc, Lefrançois, Dubé, Hebert, & Gaulin, 1998). This too was congruent with RCT theory in that possessing the capacity to process and express different emotions can allow an individual to become more relationally and environmentally adaptable. This emotional flexibility may allow a pathway into the furtherance of relational competencies and the development of relational images with others.

EI, Personality, and Music. Personality research also gained considerable interest in the literature alongside emotional intelligence in the early 1990's. The five-factor model (FFM) of personality, also known as *The Big Five*, is still the preferred research construct in personality literature. The Big Five personality traits include: (a) *openness to experience* (i.e., curious vs. cautious), (b) *conscientiousness* (i.e., organized vs. careless), (c) *extraversion* (i.e., outgoing vs/ solitary), (d) *agreeableness* (i.e., compassionate vs. detached), and (e) *neuroticism* (i.e., nervous vs. confident) (Goldberg, 1992). Barchard and Hakstian (2004) factor analyzed 24 measures of EI with the Big Five and constructed five new factors across the two dimensions: *Emotional*

Congruence, *Emotional Independence*, *Social Perceptiveness*, *Alexithymia*, and *Social Confidence*. This factor analysis spoke to the compatibility between personality development and emotional self-efficacy (i.e., trait EI) in individuals. Chamorro-Premuzic and Furnham (2007) found that (a) neuroticism positively predicted using music for emotional regulation, and (b) openness to experience positively predicted using music for more cognitive reasons (e.g., greater interest in more complex forms of music). Trimmer and Cuddy (2008) investigated the connection between music training, emotional intelligence, and emotional perception in music (i.e., melody) and language (i.e., prosody) between musicians and non-musicians. They found that EI was a greater predictor than music training in the ability to recognize and process emotions in speech and melody. However, Lima and Castro (2011) found that musicians were better than non-musicians in recognizing emotions in speech prosody, offering further evidence of shared resources between emotional processing in music and language, no matter an individual's musical ability.

Given that the objective of this study was to examine participants' (a) music appreciation and (b) emotional intelligence in predicting (c) relational health scores (refer to Statement of Problem section), the trait-based model of emotional intelligence (also labelled emotional self-efficacy; Petrides & Furnham, 2001) was most relevant, and was therefore utilized in the study.

Statement of Problem and Hypotheses

This study sought to explore the predictive relationship of music appreciation (MA) and emotional intelligence (EI) to the understanding of relational health from the perspective of Relational Cultural Theory. As the literature review discussed, research on MA has shown a thorough connection to several important aspects of healthy development, including but not limited to, academic learning, emotional maturation, mood regulation, relationship health and

formation, identity development, and overall well-being. Research on EI has sought to clarify both the construct itself (i.e., ability vs. trait) and the beneficial characteristics associated with healthy EI development, including but not limited to, emotional maturation, mood regulation, relationship health and formation, identity development, and overall well-being. Given what is known about the universal roles of MA in development and well-being, as well as the emotional universe within music itself, it is plausible to question how MA interacts with EI when impacting relational health.

Therefore, the current seeks to clarify the following research questions: (a) What impact does music appreciation have in predicting relational health scores? (b) What impact does emotional intelligence have in predicting relational health scores? (c) How does the interaction between music appreciation and emotional intelligence predict relational health scores? Consequently, the current study consisted of three hypotheses: (a) as a set of variables, relevant demographic data, degree of music appreciation, and emotional intelligence scores will significantly predict overall relational health scores; (b) music appreciation and emotional intelligence scores will individually and significantly predict relational health scores; and (c) music appreciation and emotional intelligence scores will significantly interact to predict relational health scores.

CHAPTER THREE

Methods

Participants

Originally, a total of 1,016 individuals from 2 independent sampling sources, Mechanical Turk (MTurk; *n* = 590, 58%) and Social Media (SMedia; *n* = 426, 42%), participated in the study. However, preliminary data analysis revealed a relatively large international (i.e., Non-United States) based subsample (*n* = 168). In an effort to control threats to external validity, only U.S. participants were included in the study. Because significant differences in the predictor and criterion variable scores were found between the two subsamples (i.e., MTurk, SMedia; see Results section), the demographic makeup of each subsample and the combined sample will be presented.

Mechanical Turk Sample. There were a total of 430 participants from Mechanical Turk. The mean age of participants was 35 (*SD* = 11.06; range = 18-72). The gender identity or preferred gender expression reported was 43% female (*n* = 187), 56% male (*n* = 239), and 1% (*n* = 4) genderqueer or fluid. Sixty-nine percent of the participants identified as Caucasian or White (*n* = 297), 15% as Asian or Asian American (*n* = 63), 7% as Black or African American (*n* = 30), 4% as Hispanic or Latinx (*n* = 16), 3% as Native American or American Indian (*n* = 13), and 2% (*n* = 10) as Biracial or Multiracial. Regarding sexual identity, 84% identified as heterosexual (*n* = 361), 14% as lesbian, gay, or bisexual (*n* = 60); and 2% (*n* = 9) designated another sexual identity (e.g., queer, asexual). Forty-seven percent of participants indicated being married (*n* = 204), 24% being in a committed dating relationship (*n* = 104), 23% being single (*n* = 99), and 6% (*n* = 21) being divorced, separated, or widowed.

MTurk participants reported full-time employment status at 70% (*n* = 299), part-time at

18% (*n* = 76), and not employed or student at 12% (*n* = 52). Annual income was reported as less than $25,000 for 17% of participants (*n* = 72), between $25,000 and $45,000 for 27% (*n* = 116), between $46,000 and $65,000 for 25% (*n* = 104), between $66,000 and $85,000 for 17% (*n* = 76), and greater than $85,000 for 14% (*n* = 62). Ten percent of participants reported having a high school diploma or GED (*n* = 42), 26% as attending vocational school or some college (*n* = 113), 49% as having a bachelor's degree (*n* = 210), and 13% (*n* = 57) as having a master's, professional, or doctoral degree. Regarding U.S. geographical location, the majority of participants (28%) indicated living in the South (*n* = 120), 21% in the Midwest (*n* = 90), 21% in the Northeast (*n* = 89), 20% in the West (*n* = 86), and 10% (*n* = 45) in the Southwest.

Participants reporting growing up in households with their parent's or caregiver's relationship status as married was 77% (*n* = 332); divorced, separated, or widowed was 12% (*n* = 50); and single or never married was 11% (*n* = 48). Birth order was reported as only child for 19% (*n* = 83), oldest child for 30% (*n* = 129), older-middle child for 7% (*n* = 28), middle child for 15% (*n* = 65), middle-younger child for 3% (*n* = 13), and youngest child for 26% (*n* = 112). The average number of siblings in the household growing up was reported as 2 (*SD* = 1.66; range = 0-14), and the average number of current close relationships was reported as 6 (*SD* = 5.88; range = 0-50). In summary, MTurk participants were more likely to be heterosexual or straight (84%, *n* = 361), Caucasian or white (69%, *n* = 297), male (56%, *n* = 239), in their mid-thirties (*M* = 35; *SD* = 11.06), married or in a serious relationship (72%, *n* = 308), working full-time (70%, *n* = 299) with a college or graduate level education (62%, *n* = 267), and having 6 close relationships on average.

Social Media Sample. There were a total of 418 participants from Social Media. The mean age of participants was 41 (*SD* = 13.57; range = 18-80). The gender identity or preferred

gender expression was 70% female (*n* = 292), 29% male (*n* = 121), and 1% (*n* = 5) genderqueer or fluid. Eighty-five percent of the participants identified as Caucasian or White (*n* = 356), 5% as Biracial or Multiracial (*n* = 20), 4% as Native American or American Indian (*n* = 17), 2% as Asian or Asian American (*n* = 8), 2% as Hispanic or Latinx (*n* = 9), 1% as Black or African American (*n* = 4), and 1% (*n* = 4) identified as another race or ethnicity (e.g., South Asian, Middle Eastern). Regarding sexual identity, 87% identified as heterosexual (*n* = 363), 10% as lesbian, gay, or bisexual (*n* = 40), and 3% (*n* = 14) designated another sexual identity (e.g., queer, asexual). Sixty-six percent of participants indicated being married (*n* = 277), 14% being single (*n* = 58), 13% being in a committed dating relationship (*n* = 55), and 7% (*n* = 27) being divorced, separated, or widowed.

SMedia participants reported employment status as full-time for 70% (*n* = 291), part-time for 14% (*n* = 58), and not employed or student for 16% (*n* = 68). Annual income was reported as less than $25,000 for 7% of participants (*n* = 29), between $25,000 and $45,000 for 13% (*n* = 55), between $46,000 and $65,000 for 13% (*n* = 53), between $66,000 and $85,000 for 18% (*n* = 74), and greater than $85,000 for 49% (*n* = 206). Three percent of participants reported having a high school diploma or GED (*n* = 14), 21% as attending vocational school or some college (*n* = 88), 28% as having a bachelor's degree (*n* = 117), and 47% (*n* = 197) as having a master's, professional, or doctoral degree. Regarding U.S. geographical location, the majority (75%) of participants indicated living in the Midwest (*n* = 314), 7% in the South (*n* = 31), 7% in the Southwest (*n* = 29), 6% in the West (*n* = 24), and 5% (*n* = 20) in the Northeast.

Participants reported growing up in households with their parent's or caregiver's relationship status as married for 75% (*n* = 313), divorced, separated, or widowed for 22% (*n* = 90), and single or never married for 3% (*n* = 12). Birth order was reported as only child for 8%

(*n* = 34), oldest child for 37% (*n* = 154), older-middle child for 5% (*n* = 21), middle child for 12% (*n* = 48), middle-younger child for 5% (*n* = 20), and youngest child for 33% (*n* = 140). The average number of siblings in the household growing up was reported as 2 (*SD* = 3.16; range = 0-42), and the average number of current close relationships was reported as 12 (*SD* = 11.03; range = 0-101). In comparison to the MTurk sample, SMedia participants were more likely to be older (*M* = 41, *SD* = 13.57), Caucasian or white (85%, *n* = 356), female (70%, *n* = 292), married or in a serious relationship (80%, *n* = 332), possess a college or graduate level education (75%, *n* = 314), wealthier (i.e., 49% [*n* = 206] reported making over $85,000), and report nearly double the number of close relationships as compared to MTurk participants.

Combined Mechanical Turk and Social Media Sample. When the subsamples were collapsed, a total of 848 individuals from the two independent sampling sources, Mechanical Turk (MTurk; *n* =430, 51%) and Social Media (SMedia; *n* = 418, 49%), comprised the combined sample. The mean age of participants for the combined sample was 38 (*Md* = 35; *SD* = 12.71; range = 18-80). The gender identity or preferred gender expression was 57% female (*n* = 479), 42% male (*n* = 360), and 1% (*n* = 9) genderqueer or fluid. Seventy-seven percent of the participants identified as Caucasian or White (*n* = 653), 8% as Asian or Asian American (*n* = 71), 4% as Black or African American (*n* = 34), 4% as Biracial or Multiracial (*n* = 30), 4% as Native American or American Indian (*n* = 30), 3% as Hispanic or Latinx (*n* = 25), and <1% (*n* = 5) identified as another race or ethnicity (e.g., South Asian, Middle Eastern). Regarding sexual identity, 85% identified as heterosexual (*n* = 724), 12% as lesbian, gay, or bisexual (*n* = 100), and 3% (*n* = 23) designated another sexual identity (e.g., queer, asexual). Fifty-seven percent of participants indicated being married (*n* = 481), 19% being single (*n* =157), 19% being in a committed dating relationship (*n* = 159), and 5% (*n* = 48) being divorced, separated, or widowed.

Combined participants reported employment status as full-time for 70% (*n* = 590), part-time for 16% (*n* = 134), and not employed or student for 14% (*n* = 120). Annual income was reported as less than $25,000 for 12% of participants (*n* = 101), between $25,000 and $45,000 for 20% (*n* = 171), between $46,000 and $65,000 for 19% (*n* = 157), between $66,000 and $85,000 for 17% (*n* = 149), and greater than $85,000 for 32% (*n* = 268). Seven percent of participants reported having a high school diploma or GED (*n* = 56), 24% as attending vocational school or some college (*n* = 201), 39% as having a bachelor's degree (*n* = 327), and 30% (*n* = 254) as having a master's, professional, or doctoral degree. Regarding U.S. geographical location, 48% of participants reported living in the Midwest (*n* = 404), 18% in the South (*n* = 151), 13% in the Northeast (*n* = 109), 13% in the West (*n* = 110), and 9% (*n* = 74) in the Southwest.

Participants reported growing up in households with their parent's or caregiver's relationship status as married for 76% (*n* = 645), divorced, separated, or widowed for 17% (*n* = 140), and single or never married for 7% (*n* = 60). Birth order was reported as only child for 14% (*n* = 117), oldest child for 33% (*n* = 283), older-middle child for 6% (*n* = 49), middle child for 13% (*n* = 113), middle-younger child for 4% (*n* = 33), and youngest child for 30% (*n* = 252). The average number of siblings in the household growing up was reported as 2 (*SD* = 2.54; range = 0-42), and the average number of current close relationships was reported as 9 (*Mo* = 5; *SD* = 9.20; range = 0-101).

Measures

Musical Ability-Background Scale-Revised (Laws-Rodriguez, 2007). The Musical Ability-Background Scale-Revised (MAB; Laws-Rodriguez, 2007) was designed for a previous study. Factor analysis of the original 13-item scale indicated two weak loading items (i.e., "I

have attended at least one concert in the last three months" and "I listen to music on a daily basis."), which were deleted from the final scale. The revised scale is composed of 11 items measuring the participant's perceived ability to perform and understand music. Examples of items within the scale include: "I sing or play a musical instrument proficiently" and "I possess 'perfect pitch'." Each item is scored on a 5-point Likert Scale ranging from *Not at all like me* (1) to *Like me* (5). Lower scores indicate the individual's perceived deprivation or absence of musical ability background, whereas higher scores indicate the individual's perceived formidable or skilled musical ability background. The Cronbach's alpha for MAB in a previous study was .93 (Laws-Rodriguez, 2007). The Cronbach's alpha for this study was also .93.

The Musikerleben Scale (Behne, 1997). The 28-item Musikerleben Scale (MA; Behne, 1997) measures a participant's musical appreciation when they choose to listen to music. Each question begins with the stem, "When I listen to music" and is followed by such statements as: "…it changes my mood" or "…I like to dream." Participants respond to each item on a 5-point Likert scale ranging from (1) *Not at all like me* to (5) *Like me*. Lower scores indicate a lower appreciation of music, whereas higher scores indicate a higher appreciation of music. The original questionnaire was found through cluster analysis to be comprised of 9 sub-scales, or *listening styles* (e.g., emotional, sentimental, stimulative). However, each subscale consisted of only 3-4 items and lacked sufficient internal consistency; therefore, a composite scale score from all 28 items is generally preferred in the literature (Behne, 1997), and was ultimately used in the final analysis. Previous research using the Musikerleben Scale found a Cronbach's alpha of .93 (Laws-Rodriguez, 2007) and .89 (Behne, 1997). The Cronbach's alpha for this study was .92.

Assessing Emotions Scale (Schutte et al., 2009). Formerly known as the Schutte Self Report Emotional Intelligence Test (Schutte et al., 1998) and the Schutte Emotional Intelligence

Scale (Schutte et al., 2001), the Assessing Emotions Scale (EI; Schutte et al., 2009) measures emotional intelligence. This self-report inventory consists of 33 items scored along a 5-point Likert Scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). Lower scores indicate a lower level of perceived emotional intelligence, whereas higher scores indicate a higher level of perceived emotional intelligence.

Schutte et al. originally based the measure on the work of Salovey and Mayer's three-tiered model of emotional intelligence (see Salovey & Mayer, 1990), stating:

> In this set of 33 items, representation of different categories of the model was roughly proportionate to the model; 13 of the items came from among those generated for the appraisal and expression of emotion category of the model; 10 of the items came from among those generated for the regulation of emotion category of the model; and 10 came from among those items generated for the utilization of emotion category of the model (1998, p. 171).

Further factor analyses showed the EI to load onto four factors: (a) *perception of emotions*, defined as identifying emotions and nonverbal cues of emotion; (b) *managing emotions in the self*, defined as seeking out activities to motivate or elevate one's mood; (c) *social skills or managing others' emotions*, defined as actions that tend to maintain or increase people's moods; and (d) *utilizing emotions*, defined as emotional problem solving or planning ahead (Petrides & Furnham, 2000; Ciarrochi, Chan, & Bajgar, 2001; Schutte et. al., 2001; Saklofske, Austin, & Minski, 2003; Schutte et al., 2009). The EI instrument was chosen on the grounds that it fits well with the originally proposed three and four-tiered models of emotional intelligence (Salovey & Mayer, 1990; Mayer, & Salovey, 1997) and because of its prolific use in EI research. Previous research using the EI has shown an average Cronbach's alpha score of .87

in a meta-analysis of 45 separate studies, including translations and norms across 12 different countries, including Canada, Israel, Malaysia, New Zealand, Sweden, South Africa, Turkey, and the United States (Jonker & Vosloo, 2004; Schutte et al., 2009). The Cronbach's alpha for this study was .93.

The Relational Health Indices (Liang et al., 2002). The Relational Health Indices (RHI; Liang et al., 2002) is a 37-item self-report scale that measures three relationship domains (i.e., Peer, Community, and Mentorships) along three qualitative dimensions (i.e., Engagement, Authenticity, and Empowerment). Participants respond to each item on a 5-point Likert scale ranging from *Never* (1) to *Always* (5). A total composite score of all three domains was used for this study. Lower scores indicate a lower quality of relational health (i.e., engagement, authenticity, empowerment), whereas higher scores indicate a higher quality of relational health. Examples of items include "I feel positive about my friend" (peer), "I can be genuinely myself with my mentor" (mentor), and "I feel understood by members of this community" (community). Cronbach's alphas for the composite RHI scale from previous studies have ranged from .85-.92 (Frey, Beesley, & Newman, 2005; Frey et al., 2006; Frey, Tobin, & Beesley, 2004; Liang et al., 2002). The Cronbach's alpha for this study was .94.

Procedure

Participants were recruited via social media postings (i.e., Facebook and Instagram), snowball sampling, and the online data collection website Mechanical Turk, where participants were paid $0.50 for each completed survey. All research guidelines were followed in accordance with the ethical standards set forth by the American Psychological Association and with approval from the Institutional Review Board at The University of Oklahoma prior to recruitment.

Survey construction and data collection were performed through the Center for

Educational Development and Research (CEDaR) at The University of Oklahoma with participants completing the measures individually and anonymously using Qualtrics software. The researcher, graduate advisor, and CEDaR personnel were the only individuals with access to the data. The online survey consisted of the participant verifying their understanding of informed consent before completing the survey. Originally, each participant was to receive the measures in randomized order, including demographic questions, Musical Ability-Background (MAB), Musikerleben Scale (MA), Assessing Emotions Scale (EI), and the Relational Health Index (RHI). However, a logistical error in the test's online construction resulted in the order of the measures not being randomized during data collection, and were instead administered in the order of demographics, MAB, MA, EI, and RHI.

Data Analysis

Initially, a four step hierarchical regression was used to investigate whether higher levels of relational health (criterion variable) were significantly accounted for by relevant demographics and musical ability-background, emotional intelligence, and music appreciation, both as a set of variables and individually, entered in that order. The rationale for entry order was that music appreciation and emotional intelligence were both theorized to significantly relate to relational health, therefore emotional intelligence needed to be controlled for in order to better capture the association of the main predictor variable of interest, music appreciation, and the criterion variable, relational health. At the last step, the interactional impact between music appreciation and emotional intelligence on relational health scores was examined. Ultimately, a three step regression was found to be the best model for the data (see below), with the entry order of predictors being demographics and musical ability-background, emotional intelligence, and music appreciation.

CHAPTER FOUR

Results

Preliminary and Descriptive Analyses

There was a significant difference in RHI scores between the MTurk (M = 128.49, SD = 24.95) and SMedia (M = 140.05, SD = 20.68) subsamples, t (764.44) = -7.09, $p < .001$ (two-tailed). The magnitude of differences in RHI means (mean difference = -11.56) was moderate (η^2 = .06). There were also small to moderate differences between the subsamples on MA (t [791] = -5.57, $p < .001$; η^2 = .04) and EI (t [762.22] = -6.90, $p < .001$; η^2 = .06), with higher mean scores on all measures in the SMedia subsample. Thus, in order to better understand the subsamples, preliminary analyses involving correlations, t-tests, and ANOVAs were initially examined separately.

Overall, the two subsamples were similar in the strength and direction of correlations and in ANOVA and t-test results. More specifically, for each subsample, gender and close relationships showed a small correlation with the RHI and all predictors (i.e., EI and MA) were moderately to strongly correlated with the RHI. The MTurk subsample showed a significant correlation between income and RHI scores, while the SMedia subsample showed a significant correlation between education and RHI scores. Therefore, the demographic variables of gender, income, education, and close relationships were included in the hierarchical regression model. Due to the relatively trivial differences between the subsamples on the preliminary analyses, the subsamples were collapsed and the subsequent analyses were focused on the combined sample.

For the combined sample, bivariate correlations among demographic variables and the criterion and predictor variables were examined. Means, standard deviations, and intercorrelations (Pearson's r and Spearman's ρ) for all variables included in the regression

models are shown in Table 1. All demographic variables (i.e., age, gender, education, income, number of close relationships, and musical ability-background) showed a small, but statistically significant correlation with RHI, and were ultimately included in the hierarchical multiple regression models. The predictor variables were moderately to highly, positively correlated with RHI (MA: $r = .36$, $n = 745$, $p < .001$; EI: $r = .68$, $n = 748$, $p < .001$), with higher levels of both MA and EI associated with higher levels of RHI, indicating 13% (MA) and 46% (EI) of shared variance with RHI scores, respectively. There was no evidence of high multicollinearity among the predictor variables.

One-way analyses of variance were conducted to explore the impact of race/ethnicity, sexual identity/orientation, participant relationship status, birth order, childhood parental/caregiver relationship status, and employment status on the RHI. There was a statistically significant difference in RHI scores on participant relationship status (F (6, 783) = 3.41, $p = .003$). Despite reaching statistical significance, the actual difference in mean scores between the groups was small ($\eta^2 = .03$). Post-hoc comparisons using the Tukey HSD test indicated that mean score for *single* ($M = 127.26$, $SD = 25.84$) was statistically significant from *married* ($M = 135.79$, $SD = 21.95$), as well as statistically significant from *in a relationship* ($M = 137.35$, $SD = 24.82$). All other ANOVAs were nonsignificant, including race/ethnicity, sexual identity/expression, birth order, childhood parental/caregiver relationship status, and employment.

Multiple Regression Models

In an abundance of caution, hierarchical regression models were initially completed separately on the MTurk and SMedia subsamples. An examination of each model indicated no substantive differences between the regression models with the exception of more RHI variance

being explained by EI in the MTurk sample (MTurk = 50%, SMedia = 24%); therefore, the samples were collapsed in the final regression model, with the demographic variables that differentiated the two samples being controlled.

Additionally, a four-step hierarchical regression model was initially examined, with the EIxMA interaction entered at Step 4. While the full model proved to be statistically significant, the interaction was ultimately inconsequential as it did not explain any substantial amount of variance (0.3%) in RHI sores, R^2 change = .00, F change (1, 701) = 4.68, p = .03. Therefore, the three-step model was found to have more explanatory value and will be presented.

Combined Mechanical Turk and Social Media Three-Step Hierarchical Regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Age, gender, education, total household income, number of close relationships, and MAB were entered at Step 1 (see Table 2) and were statistically significant, explaining 10% of the variance in RHI scores, F (6, 738) = 14.31, p < .001. EI was entered at Step 2 and was statistically significant, explaining 38% of the variance in RHI after controlling for demographics and MAB, R^2 change = .38, F change (1, 737) = 530.78, p < .001. MA was entered in Step 3 and was also found to be statistically significant, explaining an additional 1% of variance in RHI, R^2 change = .01, F change (1, 736) = 7.74, p < .01. In the final step, the predictive effects of EI, MA, the number of close relationships, and gender were all individually statistically significant, with the EI main effect (β = .61, p < .001) contributing the most to the model variance, followed by MA (β = .09, p < .01), number of close relationships (β = .09, p < .01), and gender (β = .06, p < .05).

In summary, after accounting for age, gender, education, income, number of close relationships, and MAB, higher RHI levels were best predicted by higher levels of EI and MA

effects, with the EI effect accounting for the largest amount of variance.

Supplemental Multiple Regression: Emotional Intelligence Subscales and Music Appreciation. As noted earlier, previous research using the EI instrument found that the measure consistently factor analyzed into four subscales: (a) *perception of emotions*, defined as identifying emotions and nonverbal cues of emotion, which was found to have Cronbach's alpha of .84 in this study (M = 38.08, SD = 6.71); (b) *managing emotions in the self*, defined as seeking out activities to motivate or elevate one's mood, with a Cronbach's alpha of .83 (M = 34.27, SD = 6.04); (c) *social skills or managing others' emotions*, defined as actions that tend to maintain or increase people's moods, with a Cronbach's alpha of .79 (M = 30.10, SD = 5.31); and (d) *utilizing emotions*, defined as emotional problem solving or planning ahead, with a Cronbach's alpha of .77 (M = 23.13, SD = 15.57).

Given the correlation between EI and MA, it was of interest to explore whether specific subscales of the EI were more predictive of MA than others. Thus, an exploratory supplemental regression was performed using the four EI subscales to examine their predictive influence on MA scores. The model was statistically significant, explaining 31% of the variance in MA scores, F (4, 769) = 86.92, $p < .001$, with *utilizing emotions* recording the highest beta value (β = .56, $p < .001$), followed by *managing others' emotions* (β = .20, $p < .001$), *managing emotions in the self* (β = -.15, p = .001), and finally *perception of emotions* (β = -.08, p = .05).

CHAPTER FIVE

Discussion

This study utilized hierarchical multiple regression to explore the predictive relationship of music appreciation and emotional intelligence to relational health. To date, no other study has examined this question. Specifically, the study aimed to clarify the following research questions: (a) What impact does music appreciation have in predicting relational health scores? (b) What impact does emotional intelligence have in predicting relational health scores? (c) How does the interaction between music appreciation and emotional intelligence predict relational health scores?

Hypothesis Testing

Hypothesis 1 stated that as a set of variables, relevant demographic data, degree of music appreciation, and emotional intelligence scores would significantly predict overall relational health scores. This hypothesis was fully supported by the data. The effect size of the model as a whole was small to moderate (Cohen, 1988).

Hypothesis 2 stated that music appreciation and emotional intelligence would individually and significantly predict relational health scores. This hypothesis was also fully supported by the data, with a statistical caveat. While both emotional intelligence and music appreciation were individually and significantly predictive of relational health scores, emotional intelligence accounted for more variance in relational health (38%) than music appreciation (1%). This result was expected due to the lengthy history showing a connection between emotional intelligence and relational health/satisfaction found in the literature (see Goleman, 1995; Schutte et al., 1998; Mayer et al., 2000; Parker et al., 2009; Schutte et al., 2009). It makes sense that emotional intelligence strongly predicts relational health, as a central aspect of

emotional intelligence is the ability to understand, analyze, and employ emotional knowledge to further emotional and intellectual growth, as well as to attain specific goals (Mayer & Salovey, 1997).

The fact that music appreciation did not account for as much variance as emotional intelligence may be due to a couple of factors. First, the nature of the music appreciation and emotional intelligence instruments may have played a role, in that the music appreciation instrument is written more from an individual, intrapersonal perspective, whereas the emotional intelligence instrument captures more of an interpersonal, relational perspective. Second, there may be some overlap between the predictor variables (see below), as evidenced by music appreciation and emotional intelligence sharing a medium to large bivariate correlation ($r = .43$, $p < .001$). Lastly, perhaps emotional intelligence plays more of a mediating role between music appreciation and relational health. That is, emotional intelligence may offer a partial mediating effect in strengthening the relationship between music appreciation and relational health. From a more practical-clinical perspective, music appreciation may be a more readily available instrument, filtered through the lens of emotional intelligence, for work on relational health issues in therapy (e.g., identifying and processing different moods and emotions in response to individuals and relationships and then communicating them through music). After all, emotions are key components of musical and relational growth and understanding. Regardless, these results potentially shed new light on the relationship between music appreciation and relational health by establishing the predictive power of music appreciation on relational health.

Concerning the third and final research hypothesis, the interaction between emotional intelligence and music appreciation on relational health was found to be statistically significant ($p = .03$), but ultimately inconsequential in predictive power, accounting for only 0.3% of shared

variance in relational health scores. This may be due to the large sample size of the study (n = 848) strengthening the power to detect small effects, or is due to the effects of suppression, and less likely due to a meaningful effect from the interaction. However, it is possible that the interaction supports the idea that the main effect of music appreciation plays some role in relational health, and offers further support that emotional intelligence may play a mediating role between music appreciation and relational health.

Among demographic variables, gender was found to be significantly correlated with emotional intelligence and relational health. Independent t-tests showed there were significant differences between males and females in emotional intelligence and relational health scores, with females scoring higher in both categories. These results support previous findings investigating differences in emotional intelligence scores between men and women (Mayer & Salovey, 1997; Mayer et al., 2004; Schutte et al., 2001; Schutte et al., 2009; Cabello, Sorrel, Fernández-Pinto, Extremera, Fernández-Berrocal, & Eccles, 2016), as well as differences in relational health scores between men and women (Liang et al., 2002; Frey et al., 2004; Frey et al., 2005; Liang, Tracey, Kenny, & Borgan, 2008). In addition, the number of close relationships also showed a small but significant correlation with relational health. The term "close relationship" was purposefully chosen, as relational health has more to do with the qualitative aspects, as opposed to the quantitative aspects of relationships. That is, the role of relational health has more to do with an individual's qualitative experience with others rather than with an improbable quantitative Dunbar number (i.e., the maximum number of people with whom an individual can maintain stable relationships; Dunbar, 1992).

Supplemental Analyses

The supplemental multiple regression between the emotional intelligence subscales and

music appreciation was statistically significant, with the emotional intelligence subscales accounting for 31% of variance in music appreciation scores. This is an important finding, as the model further explains the relationship between music appreciation and emotional intelligence, as well as offers continued support that emotional intelligence may play a mediating role between music appreciation and relational health. The possible mediating effects of emotional intelligence makes sense when looking at potential overlap between individual items on the music appreciation and emotional intelligence scales. Of the twenty-eight items in the music appreciation scale, ten items referenced a mood or emotional state (e.g., "...it changes my mood." "...I feel less lonely." "...it makes me feel better."), with an additional four items that referenced physical or emotional reactions to music (e.g., "...I like to close my eyes." "...I assume a different body position." "...I sometimes want to cry."). Unsurprisingly, of the thirty-three items in the emotional intelligence measure, nineteen items referenced a mood or emotional state (e.g., "I like to share my emotions with others." "I know why my emotions change." "I easily recognize my emotions as I experience them."), with an additional six items that referenced an action in response to emotion (e.g., "I know when to speak about my personal problems to others." "I seek out activities that make me happy." "I present myself in a way that makes a good impression on others.").

As a final side note, the difference in relational health scores based on participant relationship status was an interesting finding. The one-way analysis of variance found a statistically significant difference between participants who reported being *single* and participants who reported being in a committed relationship (i.e., with both *married* and *in a relationship* groups scoring higher). This finding has not been reported elsewhere and may lead to future research in the impact of romantic relationships on relational health; however, a more

likely explanation is the role of mutuality (i.e., shared vulnerability and openness to change in response to each other's affective states; Jordan, 2018) in romantic relationships. Looking at the relational health measure items, it is possible the participants in committed relationships were thinking of their respective partners during the peer subscale (e.g., "Even when I have difficult things to share, I can be honest and real with my friend." "I feel understood by my friend." "I feel positively changed by my friend."), thereby strengthening the overall relational health score. This could help explain the difference in relational health scores between participants who reported being *married* or *in a serious relationship* and participants who reported being *single*.

Limitations and Future Research

Results of the study seem to suggest a potential mediating effect of emotional intelligence on the predictive power of music appreciation with relational health. Furthermore, the strong predictive power of the emotional intelligence subscales on music appreciation scores in the supplemental analysis is a matter of potential importance for future research, especially when considering the impact of each subscale. *Emotional perception*, *managing others' emotions*, and *managing one's own emotions* are critical aspects of emotional intelligence; however, the *utilization of emotion* subscale (i.e., emotional problem solving) correlated highest in predicting music appreciation scores. Perhaps music is a tool for emotional problem solving? Understanding these connections could lead to future application of music in emotional intelligence skills and efficacy training. Specifically, this could better inform how music appreciation and emotional intelligence can foster authentic, engaging, and empowering relationships among individuals, thereby providing a novel tool for psychologists and other mental health professionals to aid clients in building and maintaining systems of support and self care.

The role of empathy should also be investigated in future music appreciation, emotional intelligence, and relational health research. Music, like empathy, is an affective-cognitive process with wide-ranging applications and implications for increasing emotional understanding and relational engagement within an individual's experience and between others. Future fMRI research, similar to what Wallmark et al., (2018) performed, could better tease out the role of empathy across music appreciation, emotional intelligence, and relational health. Future research may also explore other functions of music concerning differences between performers, composers, and listeners.

As with all research, limitations to the study should be carefully considered. First, this study was exploratory in nature and correlational by design, although it should be noted that it was guided by a theoretical framework, which increases the robustness of the model. However, reported results are associative, not causal. Second, despite not finding statistical effects from racial and ethnic identity, sexual orientation, or education on the preliminary analyses, the majority of participants were overwhelmingly white, heterosexual, and highly educated. This could potentially limit generalizability from the results, especially to a more diverse ethnic population. Third, self-report measures were utilized. These have a potential for inaccurate responses due to the nature of the participants' perceptions, beliefs, and attitudes. Fourth, while Mechanical Turk sampling appears to offer a greater degree of diversity in data collection, as it did in this study, than other traditional platforms, it does come with limitations since it is a newer research sampling technique in need of further examination. However, it does appear to be a useful method of data collection when used in conjunction with multiple types of sampling; as was done in this study through the additional use of snowball sampling. Finally, data collection was performed entirely through an electronic, web-based platform. This method creates a

technological barrier that may not allow for a truly representative community sample to be accessed.

Despite these limitations, the results of this study add to the growing body of literature by establishing a basis for future research. Furthermore, no other study to date has examined the relationship of music appreciation and emotional intelligence on relational health. Thus, the present study contributes to the current body of available research, while also providing information suggesting possible additional avenues of exploration.

Implications and Conclusions

As noted earlier, Schäfer et al. (2013) distilled 3 fundamental themes from over 500 proposed applications for music in the literature: (a) *enhancement of self-awareness*, (b) *fostering of social relatedness*, and (c) *regulation of mood and arousal*. These findings speak to several fundamental aspects of Relational-Cultural Theory (e.g., authenticity, growth-fostering relationships, increased relational competencies and capacities, etc.), and reflect the implications of this study that music is a potential mechanism to enhance relational health and development.

The results from the supplemental multiple regression investigating the predictive power of the emotional intelligence subscales on music appreciation offers support for utilizing music within emotional intelligence work. Tapping into these relationships would be a creative way for psychologists to facilitate client growth and self-awareness. For example, interventions might include instructing clients to identify what emotions the singer or artist is trying to relate or evoke through their music (i.e., emotional perception) and then having the client body-map (i.e., locate on their own body) where the emotions are felt in order to better understand how emotions are experienced on a physiological and affective level. This technique can offer a less intrusive introduction to emotional intelligence by reframing and restructuring thoughts, memories, and

emotions through the medium of music with another person (i.e., the therapist), and within a therapeutic relationship. Another intervention might include a lyric journal where the client transcribes and deconstructs the lyrics of a song from their choosing, interpreting the emotional meaning and relating back how it speaks to the client on an affective level.

Music can also serve as a self-care mechanism for emotional resiliency and grounding, especially with adolescents (Behne, 1997; Tarrant et al., 2000; Tarrant, North, & Hargreaves, 2001). Behne (1997) found that the intensity of music appreciation increases as an individual's personal and/or relational problems grow in number or magnitude, suggesting that a person learns to rely on music even more during times of distress. Psychologists could capitalize on this finding by exploring with the client what type of music may help soothe, calm, and enhance mindfulness during times of anxiety or distress, or stimulate, motivate, and refocus during times of depression or procrastination.

Music is meant to be felt and shared with others. Music offers a medium by which experiences unique to a person can evolve, and by which relationships can prosper. Wallmark et al. (2018) discussed how listening to music can act as a relationship in and of itself, because the listeners' experience can feel like a "virtual other," and in turn, may be capable of altering the listeners' views of real individuals and relationships (p. 16). As mentioned earlier, the affective-relational mechanism of experiencing music with a trusted friend or partner is associated with a more intense emotional experience than listening alone (Liljeström et al., 2013; Egermann et al., 2011). Thus, psychologists could use music to enhance relational health with clients by asking clients to share their favorite music, listen to the piece of music together, and then discuss the impact of the experience. This shared experience may help foster deeper meanings of social relatedness (i.e., degree of belongingness to a group), interpersonal trust, and a stronger

therapeutic alliance that contribute to constructing positive relational images in Relational-Cultural Theory.

Music is the language of emotions. Emotions are the language of relationships. Relationships are the language of life. The relationship between music appreciation, emotional intelligence, and relational health is a complex interlocution of affect, cognition, empathy, and language; a crossroads of individual and relational experiences from which growth and understanding bridge interpersonal social bonds and attachments with intrapersonal self-awareness and insight. This study explored the highly predictive power of emotional intelligence alongside the moderately predictive power of music appreciation on relational health scores, a relationship that is still in its infancy in terms of fully understanding potential clinical or educational applications. These findings can be applied by psychologists in building clients' relational health and are promising as a guide for future research.

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Table 1

Means, Standard Deviations, Alphas, and Intercorrelations among Measured Variables (Combined MTurk and SMedia Sample)

Variable	*M*	*SD*	*a*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Gender	--	--	--	--	.15***	.17***	.07*	.15***	-.05	.03	.20***	.20***
2. Education[a]	--	--	--		--	.44***	.17***	.21***	.13***	-.01	.12**	.16***
3. Income[a]	--	--	--			--	.24***	.30***	.01	.04	.18***	.16***
4. Relations	8.85	9.20	--				--	.25***	.05	.04	.20***	.22***
5. Age	38.30	12.71	--					--	-.09**	-.09*	.14***	.09*
6. MAB	30.37	13.18	.93						--	.34***	.09*	.11**
7. MA	101.74	18.43	.92							--	.43***	.36***
8. EI	125.81	18.89	.93								--	.68***
9. RHI	134.24	23.63	.94									--

Note. All correlations are Pearson except [a] indicating Spearman's ρ. Gender = Gender of participant (1 = Male, 2 = Female). Relations = Number of close relationships participant currently possesses. MAB = Musical-Ability Background; higher scores indicate an increased perceived ability to perform and understand music (range = 11-55). MA = Musikerleben Scale; higher scores indicate an increased musical appreciation when choosing to listen to music (range = 28-140). EI = Assessing Emotions Scale; higher scores indicate an increased perceived level of emotional intelligence (range = 33-165). RHI = Relational Health Inventory; higher scores indicate an increased level relational health quality (range 37-185).

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$

Table 2

Hierarchical Multiple Regression Analysis for Relational Health Indices (Combined MTurk and SMedia Sample)

Independent Variable	Step	R^2	ΔR^2	*F* Change	*df*	*B*	*SE B*	*ß*
Age	1	.10	.10***	14.31	(6,738)	-.06	.05	-.03
Education	1					.95	.50	.06
Gender	1					3.00	1.31	.06*
Income	1					.10	.28	.01
Relations	1					.22	.07	.09**
MAB	1					.02	.05	.01
EI	2	.48	.38***	530.78	(1,737)	.76	.04	.61***
MA	3	.49	.01**	7.74	(1,736)	.11	.04	.09**

Note. Gender = Gender of participant (1 = Male, 2 = Female). Relations = Number of close relationships participant currently possesses. MAB = Musical-Ability Background. MA = Musikerleben Scale (Music Appreciation). EI = Assessing Emotions Scale. RHI = Relational Health Inventory.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$

Appendix A

The Musikerleben Scale

Directions*: Please rate the extent to which you find the statements listed below to be "like" you when you choose to listen to music.*

1=Not at all like me 2=Somewhat not like me 3=Neutral 4=Somewhat like me 5=Like me

---

When I listen to music…

…it changes my mood.	**1**	**2**	**3**	**4**	**5**
…it really calms me down, if I was excited before.	**1**	**2**	**3**	**4**	**5**
…it is possible that I can find my own moods and feelings in the music.	**1**	**2**	**3**	**4**	**5**
…I feel less lonely.	**1**	**2**	**3**	**4**	**5**
…it makes me feel better.	**1**	**2**	**3**	**4**	**5**
…I like to close my eyes.	**1**	**2**	**3**	**4**	**5**
…I like to follow the various themes.	**1**	**2**	**3**	**4**	**5**
…I pay attention to what types of feelings are expressed through the music.	**1**	**2**	**3**	**4**	**5**
…it is for me above all a matter of sentiment.	**1**	**2**	**3**	**4**	**5**
…I like to identify the musical style (e.g., Folk, Jazz, Rock).	**1**	**2**	**3**	**4**	**5**
…I try to understand the words of the vocal part.	**1**	**2**	**3**	**4**	**5**
…I follow the musical lines of a special instrumental part.	**1**	**2**	**3**	**4**	**5**
…I try to grasp the structure of a piece of music (e.g., repetitions, variations).	**1**	**2**	**3**	**4**	**5**
…it really gets under my skin.	**1**	**2**	**3**	**4**	**5**
…I assume a different body position.	**1**	**2**	**3**	**4**	**5**
…it can happen that I am captivated by the rhythm.	**1**	**2**	**3**	**4**	**5**

Directions: *Please rate the extent to which you find the statements listed below to be "like" you when you choose to listen to music.*

1=Not at all like me 2=Somewhat not like me 3=Neutral 4=Somewhat like me 5=Like me

---

When I listen to music…

…I sometimes feel my heart beat faster, my skin prickling, butterflies in my stomach.	**1**	**2**	**3**	**4**	**5**
…I like to dream.	**1**	**2**	**3**	**4**	**5**
…I remember things of the past.	**1**	**2**	**3**	**4**	**5**
…it makes me think about myself.	**1**	**2**	**3**	**4**	**5**
…I sometimes want to cry.	**1**	**2**	**3**	**4**	**5**
…I'd like to be far, far away.	**1**	**2**	**3**	**4**	**5**
…I have pictural images.	**1**	**2**	**3**	**4**	**5**
…I invent a story, as if I were watching a movie.	**1**	**2**	**3**	**4**	**5**
…I like to play it very loud.	**1**	**2**	**3**	**4**	**5**
…it makes me feel excited, even aggressive.	**1**	**2**	**3**	**4**	**5**
…my attention is divided.	**1**	**2**	**3**	**4**	**5**
…I like to do other things besides just listening.	**1**	**2**	**3**	**4**	**5**

Appendix B

Assessing Emotions Scale

Directions*: Please rate the following statements according to how much you agree with them.*

1=strongly disagree 2=somewhat disagree 3=neutral 4=somewhat agree 5=strongly agree

1. I know when to speak about my personal problems to others.	**1**	**2**	**3**	**4**	**5**
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	**1**	**2**	**3**	**4**	**5**
3. I expect that I will do well on most things I try.	**1**	**2**	**3**	**4**	**5**
4. Other people find it easy to confide in me.	**1**	**2**	**3**	**4**	**5**
5. I find it hard to understand the non-verbal messages of other people.	**1**	**2**	**3**	**4**	**5**
6. Some of the major events of my life have led me to re-evaluate what is important and not important.	**1**	**2**	**3**	**4**	**5**
7. When my mood changes, I see new possibilities.	**1**	**2**	**3**	**4**	**5**
8. Emotions are one of the things that make my life worth living.	**1**	**2**	**3**	**4**	**5**
9. I am aware of my emotions as I experience them.	**1**	**2**	**3**	**4**	**5**
10. I expect good things to happen.	**1**	**2**	**3**	**4**	**5**
11. I like to share my emotions with others	**1**	**2**	**3**	**4**	**5**
12. When I experience a positive emotion, I know how to make it last.	**1**	**2**	**3**	**4**	**5**
13. I arrange events others enjoy.	**1**	**2**	**3**	**4**	**5**
14. I seek out activities that make me happy.	**1**	**2**	**3**	**4**	**5**
15. I am aware of the non-verbal messages I send to others.	**1**	**2**	**3**	**4**	**5**
16. I present myself in a way that makes a good impression on others.	**1**	**2**	**3**	**4**	**5**
17. When I am in a positive mood, solving problems is easy for me.	**1**	**2**	**3**	**4**	**5**
18. By looking at their facial expression, I recognize the emotions people are experiencing.	**1**	**2**	**3**	**4**	**5**

Directions: *Please rate the following statements according to how much you agree with them.*

1=strongly disagree 2=somewhat disagree 3=neutral 4=somewhat agree 5=strongly agree

19. I know why my emotions change.	**1**	**2**	**3**	**4**	**5**
20. When I am in a positive mood, I am able to come up with new ideas.	**1**	**2**	**3**	**4**	**5**
21. I have control over my emotions.	**1**	**2**	**3**	**4**	**5**
22. I easily recognize my emotions as I experience them.	**1**	**2**	**3**	**4**	**5**
23. I motivate myself by imagining a good outcome to tasks I take on.	**1**	**2**	**3**	**4**	**5**
24. I compliment others when they have done something well.	**1**	**2**	**3**	**4**	**5**
25. I am aware of the non-verbal messages other people send.	**1**	**2**	**3**	**4**	**5**
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself.	**1**	**2**	**3**	**4**	**5**
27. When I feel a change in emotion, I tend to come up with new ideas.	**1**	**2**	**3**	**4**	**5**
28. When I am faced with a challenge, I give up because I believe I will fail.	**1**	**2**	**3**	**4**	**5**
29. I know what other people are feeling just by looking at them.	**1**	**2**	**3**	**4**	**5**
30. I help other people feel better when they are down.	**1**	**2**	**3**	**4**	**5**
31. I use good moods to help myself keep trying in the face of obstacles.	**1**	**2**	**3**	**4**	**5**
32. I can tell how people are feeling by listening to the tone of their voice.	**1**	**2**	**3**	**4**	**5**
33. It is difficult for me to understand why people feel the way they do.	**1**	**2**	**3**	**4**	**5**

Appendix C

The Relational Health Indices

PEER (RHI-P)

Directions: *Next to each statement below, please indicate the number that best applies to your relationship with a close friend.*

1 = Never 2 = Seldom 3 = Sometimes 4 = Often 5 = Always

1. Even when I have difficult things to share, I can be honest and real with my friend.	**1**	**2**	**3**	**4**	**5**
2. After a conversation with my friend, I feel uplifted.	**1**	**2**	**3**	**4**	**5**
3. The more time I spend with my friend, the closer I feel to him/her.	**1**	**2**	**3**	**4**	**5**
4. I feel understood by my friend.	**1**	**2**	**3**	**4**	**5**
5. It is important to us to make our friendship grow.	**1**	**2**	**3**	**4**	**5**
6. I can talk to my friend about our disagreements without feeling judged.	**1**	**2**	**3**	**4**	**5**
7. My friendship inspires me to seek other friendships like this one.	**1**	**2**	**3**	**4**	**5**
8. I am uncomfortable sharing my deepest feelings and thoughts with my friend.	**1**	**2**	**3**	**4**	**5**
9. I have a greater sense of self-worth through my relationship with my friend.	**1**	**2**	**3**	**4**	**5**
10. I feel positively changed by my friend.	**1**	**2**	**3**	**4**	**5**
11. I can tell my friend when he/she has hurt my feelings.	**1**	**2**	**3**	**4**	**5**
12. My friendship causes me to grow in important ways.	**1**	**2**	**3**	**4**	**5**

MENTOR (RHI-M)

Directions*:* *Next to each statement below, please indicate the number that best applies to your relationship with your most important mentor.*

1 = Never 2 = Seldom 3 = Sometimes 4 = Often 5 = Always

1. I can be genuinely myself with my mentor.	**1**	**2**	**3**	**4**	**5**
2. I believe my mentor values me as a whole person (e.g., professionally/academically and personally).	**1**	**2**	**3**	**4**	**5**

3. My mentor's commitment to and involvement in our relationship exceeds that required by his/her social/professional role.	**1**	**2**	**3**	**4**	**5**
4. My mentor shares stories about his/her own experiences with me in a way that enhances my life.	**1**	**2**	**3**	**4**	**5**
5. I feel as though I know myself better because of my mentor.	**1**	**2**	**3**	**4**	**5**
6. My mentor gives me emotional support and encouragement.	**1**	**2**	**3**	**4**	**5**
7. I try to emulate the values of my mentor (such as social, academic, religious, physical/athletic).	**1**	**2**	**3**	**4**	**5**
8. I feel uplifted and energized by interactions with my mentor.	**1**	**2**	**3**	**4**	**5**
9. My mentor tries hard to understand my feelings and goals (academic, personal, or whatever is relevant).	**1**	**2**	**3**	**4**	**5**
10. My relationship with my mentor inspires me to seek other relationships like this one.	**1**	**2**	**3**	**4**	**5**
11. I feel comfortable expressing my deepest concerns to my mentor.	**1**	**2**	**3**	**4**	**5**

COMMUNITY (RHI-C)

Directions*: Next to each statement below, please indicate the number that best applies to your relationship with or involvement in this community (i.e., the group you consider to be your community).*

1 = Never **2 = Seldom** **3 = Sometimes** **4 = Often** **5 = Always**

1. I feel a sense of belonging to this community.	**1**	**2**	**3**	**4**	**5**
2. I feel better about myself after my interactions with this community.	**1**	**2**	**3**	**4**	**5**
3. If members of this community know something is bothering me, they ask me about it.	**1**	**2**	**3**	**4**	**5**
4. Members of this community are not free to just be themselves.	**1**	**2**	**3**	**4**	**5**
5. I feel understood by members of this community.	**1**	**2**	**3**	**4**	**5**
6. I feel mobilized to personal action after meetings within this community.	**1**	**2**	**3**	**4**	**5**
7. There are parts of myself I feel I must hide from this community.	**1**	**2**	**3**	**4**	**5**

8. It seems as if people in this community really like me as a person.	**1**	**2**	**3**	**4**	**5**
9. There is a lot of backbiting and gossiping in this community.	**1**	**2**	**3**	**4**	**5**
10. Members of this community are very competitive with each other.	**1**	**2**	**3**	**4**	**5**
11. I have a greater sense of self-worth through my connection with this community.	**1**	**2**	**3**	**4**	**5**
12. My connections with this community are so inspiring that they motivate me to pursue relationships with other people outside this community.	**1**	**2**	**3**	**4**	**5**
13. This community has shaped my identity in many ways.	**1**	**2**	**3**	**4**	**5**
14. This community provides me with emotional support.	**1**	**2**	**3**	**4**	**5**

Appendix D

Music Ability-Background Scale-Revised

Directions: *Please rate the extent to which you find the statements listed below to be "like" you.*

1=Not at all like me 2=Somewhat not like me 3=Neutral 4=Somewhat like me 5=Like me

1. I sing or play a musical instrument proficiently.	**1**	**2**	**3**	**4**	**5**
2. I sing or play multiple musical instruments proficiently.	**1**	**2**	**3**	**4**	**5**
3. I attempt to sing or play a musical instrument.	**1**	**2**	**3**	**4**	**5**
4. I am able to read sheet music (e.g., treble clef, bass clef, etc.).	**1**	**2**	**3**	**4**	**5**
5. I am able to compose music proficiently.	**1**	**2**	**3**	**4**	**5**
6. I am able to sing or play music "by ear."	**1**	**2**	**3**	**4**	**5**
7. I am able to improvise while singing or playing music.	**1**	**2**	**3**	**4**	**5**
8. I possess "perfect pitch."	**1**	**2**	**3**	**4**	**5**
9. I have taken formal lessons for learning or playing music.	**1**	**2**	**3**	**4**	**5**
10. I have performed music with others in a band or group.	**1**	**2**	**3**	**4**	**5**
11. I have performed in concerts for the public.	**1**	**2**	**3**	**4**	**5**

Appendix E

Demographic Information

1. What is your age? _____

2. What state or province do you live in? _____

3. *Growing up*, how many siblings (whole, half, step, etc.) were in your household(s)? ____

4. How many close relationships (family, friends, and partner(s)), do you *currently* have? ____

5. Which of the following best describes your gender?
    a. Male
    b. Female
    c. Transgender Female/Woman
    d. Transgender Male/Man
    e. Genderqueer
    f. Gender Fluid
    g. Intersex
    h. Gender nonconforming
    i. Gender, please specify: _____

6. What is your race?
    a. Asian or Asian American
    b. Black or African American
    c. Caucasian or White
    d. Hispanic or Latino/Latina
    e. Native American or American Indian
    f. Biracial
    g. Multiracial
    h. Race/ethnicity, please specify: _____

7. What is your relationship status?
    a. Single
    b. In a Relationship
    c. Married
    d. Divorced
    e. Separated
    f. Widowed

8. Which of the following best describe your sexual identity?
    a. Heterosexual or straight

b. Bisexual
c. Gay
d. Lesbian
e. Queer
f. Asexual
g. Pansexual
h. Questioning
i. Sexual identity, please specify: _____

9. *Growing up*, how would you describe your place in the birth order?
    a. Only Child
    b. Oldest Child
    c. Older-Middle Child
    d. Middle Child
    e. Middle-Younger Child
    f. Youngest Child

10. *Growing up*, were your parent(s) or caregiver(s):
    a. Single
    b. Married
    c. Divorced
    d. Separated
    e. Never married
    f. Widowed
    g. Other, please specify: _____

11. What is the highest level of education you have *completed*?
    a. Some High School
    b. High School Graduate or equivalent (i.e., GED)
    c. Some College
    d. Associate's Degree or Trade School
    e. Bachelor's Degree
    f. Master's Degree
    g. Professional or Doctoral Degree

12. What is your approximate yearly *household* income?
    a. Less than $25,000
    b. $25,000 - $35,000
    c. $36,000 - $45,000
    d. $46,000 - $55,000
    e. $56,000 - $65,000
    f. $66,000 - $75,000

g. $76,000 - $85,000
h. Over $85,000

13. What is your employment status?
    a. Employed full-time (35-40+ hours a week)
    b. Employed half-time (20-34 hours a week)
    c. Employed part-time (Less than 20 hours a week)
    d. Not employed
    e. Student

14. If employed, what is your employment type? (Check all that apply.)

__Athletics (Coaching/Teaching)
__Computer Hardware & Electronics
__Counseling & Helping
__Culinary Arts
__Entrepreneurship
__Finance & Investing
__Healthcare Services
__Human Resources & Training
__Law
__Management
__Marketing & Advertising
__Mathematics
__Mechanics & Construction
__Medical Science
__Military
__Nature & Agriculture
__Office Management
__Performing Arts (Music, Dance, Acting)
__Politics & Public Speaking
__Programming & Information Systems
__Protective Services (Police, Fire, EMT)
__Religion & Spirituality
__Research
__Sales
__Science
__Social Sciences
__Taxes & Accounting
__Teaching & Education
__Visual Arts & Design
__Writing & Mass Communication