Active Music and Young Adult (18-24) Wellbeing:

In-Person and Online Contexts in the Time of COVID-19

Colin Patrick Enright

Music Research Department

Schulich School of Music

McGill University, Montreal

August, 2021

A thesis submitted to McGill University

in partial fulfillment of the requirements

for the degree of Master of Arts in Music Education

Table of Contents

Abstract

This dual-case study takes an in-depth and detailed look at the experiences of young adults participating in in-person and online music ensembles during the COVID-19 pandemic. Recent reporting across North America has indicated that the mental wellbeing of young adults may be on a general decline, with symptoms related to depression and anxiety showing a stark increase, particularly over the past ten years (2009-2019). Isolation and other stressors imposed during the COVID-19 pandemic may have exacerbated the need for access to services and activities that support wellbeing. This case study focuses specifically on young adults' perceptions of how their participation in musical ensembles during the pandemic may have affected their quality of life and wellbeing. Participants aged 18-24 years (n=27) include members of the McGill Symphonic Band Club (an online extracurricular wind orchestra) and students of the Schulich School of Music large ensembles (in-person academic ensembles). A mixed-methods approach allowed for the collection of quantitative and qualitative data including demographic and stress/depression profiles (Perceived Stress Scale and Depression Scale from the Center for Epidemiologic Studies), musical history, as well as a quality-of-life score using the World Health Organization Quality of Life (Brief) tool. To determine how music engagement may promote mental wellbeing, data obtained through written responses (online survey) and semi-structured interviews were analyzed according to factors in Engel's (1977) biopsychosocial model and using thematic codes similar to those used by Perkins and colleagues (2020). While the results indicate that members of both groups place a high value on the social aspects of group music making, members of the McGill Symphonic Band Club place significantly greater importance on social aspects, while members of the Schulich School of Music Large Ensembles place greater importance on aspects of personal development and achievement. The results reflect the different nature of each group, whether they are extracurricular or academic groups, but also remain aligned with the findings of Perkins et al. (2020) that young adults can benefit from group music participation by engaging in aspects that best meet their individual needs and goals. Findings from this research help to guide educational and community-based music programming to support wellbeing, as well as guide future work in the fields of music and wellbeing research.

Résumé

Cette étude à double cas examine de façon approfondie et détaillée l'expérience de jeunes adultes participant à des activités musicales en personne et en ligne durant la pandémie de COVID-19. De récents rapports nord-américains indiquent que le bien-être mental des jeunes adultes pourrait être en déclin depuis 2009, avec des symptômes liés à la dépression et l'anxiété en forte augmentation. L'isolement et les autres facteurs de stress dus à la pandémie peuvent aussi avoir exacerbé le besoin d'accès à des services et des activités favorisant le bien-être. Cette étude de cas s'intéresse particulièrement aux perceptions de jeunes adultes sur la façon dont leur participation à des ensembles musicaux durant la pandémie a pu affecter leur qualité de vie et de bien-être. Les participants âgés de 18 à 24 ans (*n*=27) comprennent des membres du McGill Symphonic Band Club (un orchestre à vent parascolaire en ligne) et des étudiants des grands ensembles de l'École de musique Schulich (ensembles académiques en personne). L'approche de méthode mixte a permis la collecte de données quantitatives et qualitatives incluant les profils démographiques et de stress et dépression (échelle de stress perçu et échelle de dépression du Center for Epidemiologic Studies), les antécédents musicaux, ainsi qu'un score de la qualité de vie (Organisation mondiale de la santé). Afin de déterminer comment l'engagement musical peut favoriser le bien-être mental, les données obtenues par le biais de réponses écrites (enquête en ligne) et d'entretiens semi-structurés ont été analysé selon les facteurs du modèle biopsychosocial d'Engel (1977) et à l'aide de codes thématiques similaires à ceux de Perkins et ses collègues (2020). Bien que les résultats indiquent que les membres des deux groupes accordent une grande valeur aux aspects sociaux de la pratique musicale en groupe, les membres du McGill Symphonic Band Club accordent quant à eux une importance sensiblement plus grande aux aspects sociaux alors que ceux des grands ensembles de l'École de musique Schulich accordent une plus grande importance aux aspects de développement personnel et de réalisation. Les résultats reflètent la nature différente de chaque groupe, qu'il s'agisse de groupes parascolaires ou scolaires, mais ils restent alignés aux résultats de Perkins et coll. (2020) selon quoi les jeunes adultes peuvent bénéficier de la pratique musicale en groupe en s'engageant dans les aspects qui répondent le mieux à leurs besoins et objectifs individuels. Les résultats pourraient aider à soutenir le bien-être au sein de programmes musicaux éducatifs et communautaires, ainsi qu'à orienter les travaux futurs dans les domaines de la musique et de la recherche sur le bien-être.

Acknowledgements

Firstly, I would like to thank the student musicians of the McGill Symphonic Band Club and Schulich School of Music Large Ensembles who took part in this research during what was one of the most challenging periods any of us may see in our lifetimes; this study would not have been possible without their participation. My deepest gratitude and thanks to my supervisor, Isabelle Cossette, whose contributions, guidance, encouragement, and support during this project have been invaluable and have made this project possible. I would like to acknowledge and thank the Schulich School of Music for its support through the Graduate Excellence Fellowships and the Constance Hamilton Prize. Thank you to my dear friend and colleague, Mariane Generale who generously gave me her time to answer questions, rubber duck ideas, and give advice. Special thanks to Professor Andrea Creech for her expertise, advice, and support, and for the opportunity to participate in the Innovative Learning and Teaching in Music award program. My sincerest thanks to Yuki Landry for generously donating her time to help with this project.

A special thank you to my mom Caroline and dad Ron for their unending support and love. Thank you to my friends Eric, Jonathan, and Pierre-Nick for their advice, help, and for keeping me grounded during this journey. Thank you to Ryan for his expertise and support. Finally, thank you with all my heart to my partner Hugo who has been there to listen, guide, and support me through everything. Thank you all.

Contribution of Authors

This master's thesis and the research to which it refers is my own original work except for commonly understood and accepted ideas or where explicit reference to the work of other people, published, or otherwise, is made. I wrote the chapters of this work independently with the valuable guidance, support, suggestions, and feedback of Dr. Isabelle Cossette. In addition, Dr. Andrea Creech contributed to the case study design and to the creation of the analytic statements (Chapter 3), and provided feedback to the analysis of both quantitative and qualitative data (Chapter 4). Yuki Landry generously offered research assistant work to organize, calculate, and synthesize the numerical and percentage breakdown of results (Chapter 4).

List of Tables

List of Figures

Introduction

Background and Rationale

The mental wellbeing of young adults may be on a general decline, with symptoms related to depression and anxiety showing a stark increase, particularly over the past ten years (Keyes et al., 2019). A period that is characterised by a considerable amount of change and development, young adulthood has also been identified as a critical time to address issues related to mental health before they can develop into chronic illness (Blais-Rochette & Miranda, 2016; Carlson, et al., 2015; Leiphold & Loepthein, 2015). As the demand for mental health services and prevention tools has risen, the arts have increasingly found a role in addressing these needs in the form of non-clinical interventions. Research involving active music engagement among various populations has demonstrated benefits to overall quality of life, including mental wellbeing. Within the literature, research studies investigating the connections between active music and wellbeing have faced criticism for a lack of detail, a wide discrepancy in parameters, and a lack of attribution in neurological and psychological mechanisms. Imprecise definitions of music interventions, health, and wellbeing as well as deficit of standardized measures of wellbeing and objective indicators of health status have also been challenges to this area of research. The present case study research aims to address the general lack of detail and mapping of musical interaction mechanisms by adopting a biopsychosocial framework, using an understanding of mental wellbeing as provided by Perkins and colleagues (2020) and using both validated wellbeing measures and qualitative questioning to gain comprehensive understanding of how young adults perceive their wellbeing in relation to active group music engagement.

Depression, anxiety, and chronic stress weigh heavy as issues facing a wide section of the global population. Both commonplace and difficult to treat, symptoms related to mood and anxiety disorders are compounded even further by the fact that up to 50% of those with psychiatric illness worldwide do not receive adequate treatment (Demyttenaere et al., 2004). Young adulthood is widely considered to be an age group that is at particular risk for anxiety and mood disorders. Having been identified as a critical period of development, it is also a time where many see a first onset of mental disorders, ostensibly triggered by “changing life circumstances, critical life events, and other factors (e.g., decreased emotional responsiveness with age, increased emotional control)” (Leiphold & Loepthein, 2015, p.116). Recent reporting from North America has shown a sharp upward incline in the period between 2009 and 2019 for both adolescent girls and boys experiencing depressive symptoms (Keyes et al., 2019).

As the global focus on mental health and illness prevention has risen, so too has the body of research supporting the role of the arts in health and wellbeing (Coulton et al., 2015; Fancourt et al., 2014; Howarth, 2018). While active music participation has demonstrated significant effects on one's general state of wellbeing, active group music-making has been shown to have added benefits, primarily concerned with social factors tied to wellbeing and mental health, such as one's state of positive affect, concentration, social support, and cognitive stimulation (Clift et al., 2010a).

Owing to the current situation presented by the COVID-19 pandemic, the topic of online group music-making becomes a critical consideration. As stated by Fancourt and Steptoe (2019) in their study investigating virtual singing experiences, "what the psychological impact of the experience is on individuals and how this compares to the experience of singing in a live choir remains under-explored" (p. 2). Fancourt and Steptoe (2019) also note in their results that, contrary to their hypothesis, participants in virtual choirs felt a greater degree of social presence than participants in live choirs. Further investigation is thus required to better understand what differences, if any, exist between the psychological and social impacts of in-person and virtual music ensembles.

There exists a wide range of conceptual understandings of wellbeing, how it may be measured, and its connection to mental health. The present study will adopt a view similar to that presented by the World Health Organization (WHO) as encompassing a wide range of traits, as will be further explained in Chapter 1.

Despite the rising need for mental health services and the upsurge in research on the impact of music on wellbeing and health, the literature has generally been limited by the collection of insufficient intervention detail, results in the form of simple dichotomies (e.g., listening to music is good for one's health), conflicting delineation of terms, and a lack of specific causal analysis in relation to music's mechanisms of effect (Fancourt et al., 2014; Moore, 2013; Stuhlmiller et al., 2009). At the same time, music and health linked research literature has also received criticism for a lack or rarity of standardized measures of wellbeing and health, as well as objective indicators of health status (Clift et al., 2010a; Perkins & Williamon 2014). This study will aim to address these issues while examining how active group music may affect the wellbeing of young adults in order to further clarify what mechanisms of effect may exist between music and wellbeing.

Study Purpose

This dual-case study examines the perceived and measured effects of active group music-making on the wellbeing of young adults in both in-person and online contexts. Adopting a framework based on the biopsychosocial understanding of health and Perkins and colleagues' definition of mental wellbeing, this case study also explores mechanisms of interaction for music's effects on the wellbeing of young adults in four distinct areas outlined by the WHO Quality of Life instrument: physical health, psychological health, social relationships, and environmental wellbeing. These aspects are examined through a qualitative personal perspective and compared with quantitative wellbeing measures. The main research questions of the study will therefore be divided into one overarching question with two main sub-categories of inquiry: the quantitative measuring of quality of life through a validated measure, and the qualitative self-reporting of participants' own perceived wellbeing in relation to active music activities through open-ended questions and interviews.

Researcher Positionality Statement

The topics and focus of the present work have undoubtedly been greatly influenced by my own experiences and aims as an educator. As a person who has lived for most of my life with both chronic depression and anxiety, I feel compelled to investigate the challenges that face people living with mental health disorders. As an (admittedly) emotionally sensitive person and as an educator who believes strongly in the value of empathy in teaching, I am also acutely aware of when my own students have faced similar challenges related to mental health. Working as a music teacher at the secondary level, I was able to see firsthand how intensely mental illness is currently affecting younger populations and was deeply affected by seeing its effects. Upon learning from a student who was struggling with mental health that the only place they felt happy was during music class, I made it my mission to make sure every student who entered the music classroom felt safe, supported, and like they had the freedom to be and come as they are. I embarked on this present research project with the goal to understand how and why music could help to support the mental health of students and what I as an educator can do in the face of this growing issue.

Chapter 1
Definitions and Models

As it stands, arts-based research has undeniably identified data and patterns which indicate positive correlations between wellbeing and music-making (Creech et al., 2013; Howarth, 2018; Lomas, 2016). However, despite a notable level of increased research interest (Clift et al., 2010; Coulton et al., 2015; Tymoszuk et al., 2020), music's specific role in the health and wellbeing of young adults remains only vaguely understood (McFerran et al., 2016). One factor contributing to this issue is a lack of standard practice in regard to defining and describing musical interventions across individual studies. The key terms of this study are frequently seen within music, health, and wellbeing literature, but have amassed multiple working definitions. To that end, the following section serves to provide definitions of the following terms and how they may be understood in the context of the present work: *young adult, music therapy, active/passive music, wellbeing, subjective wellbeing, eudaimonic wellbeing, quality of life, in-person music,* and *online music*.

1.1 Definitions

1.1.1 Young Adult

Young adults, young people, adolescents, teens, and youth are terms that are often used interchangeably within the academic literature, covering a sizeable range of ages and developmental periods. The World Health Organization (WHO) has separately defined *adolescents* as 10 to 19 years of age, *youth* as 15 to 24 years, and *young people* as 10 to 24 years (WHO, *Adolescent health*, 2020). In the context of this research, the age range of the convenience sample used is university students age 18-24 which does not directly correspond to the WHO definitions. Nevertheless, because of the imposed ethical restrictions surrounding language involving minors, the term *young adult* will be used similarly to the WHO definition of *youth*. Young adults are the focus of the present study for three key reasons. Firstly, due to the restrictions and difficulty working with adolescent populations imposed during the COVID-19 pandemic, the population for this study is university students age 18-24.[1] Second, the rapid physical, cognitive, and psychosocial growth which young adults from age 15 to 24 undergo has a significant effect on how they individually feel, think, and make decisions (WHO, *Adolescent health*, 2020). Young adulthood is often characterized by a number of major developmental life changes directly related to wellbeing, which include an "increase in autonomy, identity

[1] The present study was originally set to use a sample of young adults (15-18) from a local high school. As the situation surrounding COVID-19 continued to evolve, working with minors (even with no contact involved) became impossible.

exploration, and an expansion of the social network" as well as an immersion in music that will define identity and preferences in later life (Blais-Rochette & Miranda, 2016, p. 28). Third, the changes experienced during this period of young adulthood are often accompanied by and related to emerging mental illness and the internalization of depressive symptoms. Young adulthood, being a time where issues related to mental illness first occur and which may lead to chronic issues of depression and anxiety in later life, requires consideration as a time to address treatment and prevention practices (Blais-Rochette & Miranda, 2016; Carlson, et al., 2015; Leiphold & Loepthein, 2015).

1.1.2 Music Therapy

A significant portion of studies into music, health, and wellbeing have been from the perspective of music therapy using the music therapy model (Fancourt et al., 2016). In relation to the present work, it is important to understand the basic tenets of this perspective and how it may be distinguished from music and health in the area of community music. The American Music Therapy Association has defined music therapy as "the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program" (American Music Therapy Association, 2021). Although music therapy has historically been centered around inpatient and outpatient care for those with emotional and psychological disorders, recent shifts in thinking about holistic health and wellbeing have prompted its use in treating cerebral palsy, muscular dystrophy, epilepsy, and cancer, among others (Bonny, 1986). Distinct from other forms of music-making as a practice for trained health professionals, music therapy can involve any combination of *passive* and *active* music treatments and has formed the basis of much of the music and health related literature. Music therapy can be further understood in its distinction from *community music*. As explained by Veblen (2008), community music includes a wide spectrum of definitions which encompass both formal and informal learning contexts. Common among all definitions is the notion that community music involves people making music (Veblen & Olsson, 2002). In general, community music involves a focus on active music-making, but is often differentiated by an individual program's intentions, kinds of music played, participants, the teaching and learning interactions that take place, and the interplay of both informal and formal contexts, and can generally be understood as separate from formal music education in learning institutions (Veblen, 2008). In the context of health and music literature, both music therapy and community music are frequently cited as contexts in which research takes place. For the purposes of this work, the most important distinction to make between music therapy and community music is

the clinical and non-clinical context, respectively. As the present study does not involve clinical intervention and is not being conducted by a credentialed music therapist, it is not considered music therapy even though the impact of music participation on wellbeing is being observed. One of the ensembles examined herein is part of formal music education at McGill University, and the other is a student club that may be understood as a community music group formed within the university's student population.

1.1.3 Active and Passive Music

Much of the literature examining mental health, wellbeing, and music can broadly be divided into two major categories: studies and papers reporting on active and passive music. Defined as any intervention or activity wherein an individual is actively involved in playing music using instruments and voice, active music includes activities such as singing, drum circles, choir, band, orchestra, composition, or instrumental playing.[2] In contrast, passive music participation can be understood as a musical activity that does not involve actively playing music, including listening, lyric writing, analysis, and appreciation (Choi et al., 2008). While these definitions are seemingly obvious on a surface level, a lack of intervention categorization can be problematic for those researchers wishing to emulate previous results or build upon existing data. Other important details identified by authors that are often missing include "the type of music used, the names of musical pieces, the structure and characteristics of the music stimulus, whether the music was original or improvised, or the instrument(s) that were used" (Moore, 2013, p. 236). Moore (2013) echoes previous calls in the literature for further specificity on the part of researchers in describing and detailing exactly what music interventions were used and why.

1.1.4 Wellbeing and Quality of Life

The following section introduces the definitions of wellbeing, three subcategories of wellbeing, quality of life, and how they may be quantified and measured. Subjective wellbeing, as its name suggests, is primarily to do with how people perceive or view their own experiences. Eudaimonic wellbeing, while in many ways similar to subjective wellbeing, is more focused on how an individual is able to flourish and pursue the goal of realizing their true potential. Finally, objective wellbeing considers a number of factors to be absolutely fundamental to one's wellbeing. Objective wellbeing,

[2] While there exists some disagreement over the categorization of listening as *passive music*, the definitions that are provided here are the ones most commonly employed in the field of music therapy and will be used to differentiate *passive* and *active music* in my work.

as opposed to subjective and eudaimonic, is generally used at a macro or national level using elements such as a nation's gross domestic product to determine the population's wellbeing. While the development and study of objective wellbeing theory has been influential, the present study is concerned primarily with individual states and individual perceptions of wellbeing, and thus measurements of objective wellbeing are not appropriate and will feature less prominently in the following explanations. The inclusion of objective wellbeing is purely contextual and will not figure into any theoretical approach.

The main theoretical underpinnings of the present work are based on the understandings of subjective and eudaimonic wellbeing and how they may be measured. As previously noted, wellbeing is a multidimensional concept that includes both individual perceptions of life state and the attainment of self-realization. Both of these aspects can have an influence over how one perceives and experiences their state of health. For this reason, it is important to distinguish what elements contribute to wellbeing and how they may be quantified and examined. Theories of wellbeing have seen contributions from the fields of psychology, medicine, sociology, political science, economics, and philosophy and thus encompass a wide set of central components and definitions.

In the present study, wellbeing may be broken down into two key parts: (1) subjective perceptions regarding one's life and happiness, and (2) flourishing in the form of positive functioning and self-realization (Perkins & Williamon, 2014). The traditional views of health and wellbeing have been primarily framed in the context of the biomedical model, which places focus on an absence of disease-related symptoms (Sheridan & Radmacher, 1992). Historical origins of the biomedical model can be traced to René Descartes, who believed that human bodies functioned similar to machines "but that our minds were a very different kind of spiritual entity" (Sheridan & Radmacher, 1992, p. 3). This dual-case study will incorporate an understanding of wellbeing as similar to the definition of health given by the WHO, which states that health should be considered "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (WHO, 1947, p. 100). This generally more inclusive perspective that combines *subjective* and *eudaimonic* (see below) conceptions of wellbeing has been adopted and recommended by a host of researchers in the area of wellbeing and positive psychology (Keyes, 2005; Perkins & Williamon, 2014; Seligman & Csikszentmihalyi, 2014). This is also a perspective that has been adopted among music-workers across a variety of disciplines. O'Grady and McFerran (2007) note that a continuum of wellbeing is particularly important in the context of both music therapy and community music which may affect different facets of wellbeing to different degrees.

1.1.4.1 Subjective Wellbeing. At its core, subjective wellbeing (also referred to as hedonic wellbeing) can be described as how people evaluate their lives through the lens of their personal (subjective) experiences. In his seminal work on developing the science of wellbeing, Diener (2009) notes that the question of *what is a good life?* may be answered by how individuals feel and think about their lives, regardless of how others may view it. Researchers of subjective wellbeing attempt to study and understand how individuals can evaluate their lives through cognitive and emotional experiences (Diener et al., 1997). Research in this field aims to observe what discernable differences exist between individuals experiencing positive long-term wellbeing and those experiencing lower levels of wellbeing, in addition to understanding and examining undesirable states of wellbeing.

Within the context of subjective wellbeing, emotional experiences are often divided into pleasant and unpleasant emotions, which are then further classified into desirable and undesirable clinical states. In examining the multitude of approaches that exist about subjective wellbeing, Diener (2009) identifies five dimensions by which they may be characterized: (1) the classification of happiness as dependent on internal (psychological) or external (sociological) factors; (2) the classification of factors affecting wellbeing being relative or absolute; (3) the degree to which influences are inborn or learned cultural values; (4) the definition of subjective wellbeing as global life judgements or momentary pleasures; (5) the classification of happy states as functional, dysfunctional, or neutral.

1.1.4.2 Eudaimonic Wellbeing. Originating from the Aristotelian philosophy of happiness and ethics, the concept of *eudaimonia* has developed into a major influence in the psychological study of wellbeing. Often translated as ‘happiness’, contemporary sources have used an alternate translation of ‘flourishing’. Regarding empirical instruments in the area of eudaimonic wellbeing, distinction is often drawn between eudaimonic and hedonic (subjective) conceptions. While the two have historically been held as separate views, modern philosophers and psychologists have suggested that both hedonic and eudaimonic wellbeing are two parts of a dual conceptualization of wellbeing (Heintzelman, 2018).

Although definitions are wide-ranging and span a host of disciplines, common to all is the notion that eudaimonia refers to “that which is worth pursuing in life—an objective standard of goodness” (Heintzelman, 2018, p. 2). Described by Waterman and colleagues (2008), eudaimonia may also be considered as “a subjective state” and “refers to the feelings present when one is moving toward self-realization in terms of the developing one’s unique individual potentials and furthering one’s purposes in living” (p. 2). However, because there has been limited agreement in academia on one

standard definition, there is also no common methodological approach for the study of eudaimonic wellbeing (Huta & Waterman, 2014).

1.1.4.3 Measuring Wellbeing. As the present work is focused on understanding how individuals perceive their experiences during ensemble engagement, subjective wellbeing will serve as a major element of measure in qualitative data collection. The three primary components of subjective wellbeing assessments are commonly held to be satisfaction, pleasant affect, and low levels of unpleasant affect—all interrelated variables which can be broken into subdivisions of various domains of life (Diener et al., 1997). In practice, this means that while some measures may include specific components examining, for example, work vs. home affect and satisfaction, the majority of measures ask for individuals to make an amalgamated or holistic assessment of their life. As such, the most common method of measuring subjective wellbeing is via self-report surveys. Concerns over the limitations of self-reported measures (e.g., response bias) have prompted the development of more quantitative measures, such as electromyographic facial recording and behavioural observation, which have tended to correlate and converge with self-report measures (Diener et al., 1997). Despite concerns however, self-report measures of subjective wellbeing have been found to be "reliable since they provide accuracy and temporal stability, they are valid for community surveys and cross-cultural comparisons, and they can capture happiness as life-as-a-whole, as well as domain satisfactions" (Voukelatou et al., 2020). Specific factors identified as influencing self-reported results of subjective wellbeing include types of questions asked prior to happiness or affect questions, an individual's current mood, and weather conditions. As sources of data on subjective wellbeing have evolved, so too have data collection methods, which now include social media, Google Trends, and Crowdsourcing, in addition to more traditional global surveys, such as the Positive and Negative Affect Scale, the Gallup World Poll, and the World Values survey (Voukelatou et al., 2020). Sources and methods of data collection are dependent on research goals, i.e., whether one is attempting to gain a long- or short-term assessment of wellbeing.

As with subjective wellbeing, eudaimonia can be measured via self-report scale, often at the trait level. For example, the *Questionnaire for Eudaimonic Well-Being* features six dimensions to be examined: self-discovery, perceived development of one's best potentials, sense of purpose and meaning in life, investment of effort in the pursuit of excellence, intense involvement in activities, and enjoyment of personally expressive activities (Waterman et al., 2010). Eudaimonia has also been measured at the state level using *Scales for Psychological Well-Being*, *Mental Health Continuum*, and

the *Personally Expressive Activities Questionnaire* (Heintzelman, 2018). Common among many instruments examining eudaimonia is the inclusion of dimensions relating to subjective wellbeing and the interactions between the two, as it has been theorized that the two are "strongly related, and experienced simultaneously" (Heintzelman, 2018, p. 3).

While multiple methodological instruments exist to measure and gauge one's wellbeing, the assessment of wellbeing as a continuum concept that will be used here necessitates the inclusion of both quantitative measures and qualitative personal reflections. Quantitative measures may be used to gain a general idea of an individual's state of wellbeing or flourishing in relation to their physical, social, or mental health. However, without a mixed methods approach including qualitative measures such as interviews or journaling, only a partial understanding is gained with no detailed knowledge of the individual's personal perceptions about their own state of wellbeing. In addition, as this study aims at reporting on the impact of participation in in-person and online music ensembles on wellbeing, interpretation of qualitative answers is important to provide a deeper understanding of participants' experiences.

1.1.4.4 Quality of Life. According to the WHO, one's quality of life can be defined of as "[a] person's perception of his/her position in life within the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns" (WHO, 1947, p. 100). This definition is both similar and intricately connected to the conception of wellbeing used herein. The quantitative measure used in the present study—the WHO Quality of Life Brief (WHOQOL-BREF)—examines four distinct facets of wellbeing to give an overall quality of life score. The WHOQOL-BREF was chosen for its multi-dimensional nature, examining both individual perceptions of wellbeing as well as physical, psychological, social, and environmental functioning. Further, the combination of separate domains contributing to wellbeing is in line with the theoretical framework of this study (see below), allowing for the examination of physical, psychological, and social factors and how they may collectively contribute to and affect wellbeing.

1.1.4.5 Summary. Although closely related, these definitions of wellbeing and quality of life remain distinct from one another. Table 1 is a summary of the defining qualities and distinguishing features of these concepts.

Table 1

Wellbeing and Quality of Life Concepts

Theory	Features
Subjective Wellbeing	• Based on personal experiences • Related to happiness and positive affect • Related to low levels of negative affect • Related to personal satisfaction • Influenced by both internal and external factors • Measured primarily via self-report surveys
Eudaimonic Wellbeing	• The degree to which an individual is flourishing • Ability to engage in and follow life pursuits • Development of one's potential and life purpose • Lacking consensus on methodological approach to study • Related deeply to subjective wellbeing • Measured primarily through self-report surveys
Objective Wellbeing	• Based on idea of hierarchy of objective human needs • Often includes elements such as health, safety, and job opportunities • Based in large part on social contracts of welfare states • Most often measured on a national or global scale • May be measured via survey or through crowdsourced data
Quality of Life	• Based on personal perceptions • Concerned with individual views in relation to culture and values • Related to individual goals and expectations • Measured primarily through self-report surveys

1.1.5 Music Learning Contexts

When considering music learning contexts, it is important to remain cognizant of the connections between how skills are developed from a theoretical standpoint and the broad types of learning and practices that are involved. In terms of theoretical understanding, one of the most widely accepted philosophies of education, *constructivism*, posits that:

> …people learn through engaging in experience, formulating understanding of that experience through the lens of their prior experience, and forming new understandings from the intersection of the new and the previously known. In essence, people come to understand new ideas through the context of what they already know, understanding one thing in terms of another. (Wiggins & Espeland, 2012, p. 342)

Relating to theories of psychological development from both Jean Piaget (1964) and Lev Vygotsky (1978), constructivism is based on the belief that the process of learning involves a knowledgeable guide who provides support in the form of 'scaffolding' (which may include assessment, framing, and planning) to build upon existing knowledge and form new understanding (Wiggins & Espeland, 2012). Accordingly, this means that a teacher or facilitator must be able to not only connect to a student's individual perspectives, but also be able to gauge when it is appropriate to make room for the learner to engage independently in the learning process; value is placed not only on the teacher's expertise, but also on the contributions of the student to their own learning, providing a sense of personal agency and identity (Wiggins & Espeland, 2012). Wiggins and Espeland (2012) note that because music (and arts education in general) is highly skill based and multi-dimensional (i.e., requires knowledge of a variety of elements such as pitch, beat, rhythm, melody, articulation, etc.), it necessitates "a high level of understanding of the art form and art activity being taught" and an "extensive and insightful understanding of both musical and learning processes" on the part of the teacher/facilitator (p. 343). According to the authors, scaffolding, when built effectively by a knowledgeable teacher, may then facilitate an environment that is

> …one in which learners have ample opportunity to engage with what is to be learned (in this case, music) to figure things out for themselves, drawing on prior experience to formulate understanding of new experience, in the context of a socially interactive environment that promotes learners' risk-taking, and personal agency. (Wiggins & Espeland, 2012, p. 343)

Music learning contexts are many and varied, with a myriad of different characteristics related to goals, objectives, locations, environment, philosophies, and pedagogical strategies. Because of this, it can be helpful to think of and categorize music learning contexts in terms of which party is in control of the learning process (student, teacher, both) and by what environment the learning takes place in (Mak, 2006). The terms *formal*, *non-formal*, and *informal* learning are often used in the field of education to help make these distinctions, to relate various types of academic and community learning to one another, and to distinguish between learning and teaching practices (Johnson & Hawley, 2017; Mak, 2006). Briefly, formal learning and education can be thought of as learning that happens within schools and training institutions, from primary to post-secondary education in university. Non-formal learning generally relates to community groups and organizations with highly contextualized educational activities. Informal learning then refers to all other types of learning that happen within the home and between colleagues at work (Mak, 2006). The learning that takes place within these contexts can be further characterized as purposeful intentional learning, or as a by-product of incidental

learning, with learning outcomes that are either *explicit* and can be verbalized or outcomes that are *implicit* and can be carried out without explanation of how or why (Mak, 2006).

Delving deeper and looking specifically to music contexts, formal learning can be characterized as structured, following an explicit curriculum, teacher driven (meaning learning tasks are teacher initiated and the student is regarded as an empty vessel to be filled with knowledge), emphasizing explicit and intentional learning, and is often credential-based leading to some kind of diploma or certificate (Mak, 2006). The learning is decontextualized and abstracted from real life contexts and results in skills that are meant to be applicable across any number of professional contexts (Mak, 2006). Formal music learning, as an example, happens within conservatoires, where students have specific curricular knowledge that they must be able to express and demonstrate in order to receive accreditation via grading and diplomas. Conversely, non-formal music learning happens as a result of activities that are not explicitly designed for the acquisition of skills but involve specific learning elements. Non-formal music learning may be characterized as any "educational activity that takes place outside the established formal education system," and is contextualized to serve a specific population, has a curriculum that is flexible and tailored to the needs of the learners, is driven by mentors guiding students to turn experiences into knowledge, has both intentional and incidental learning, and is often self- and peer-motivated (Mak, 2006, p. 5). An example of non-formal music learning may be a community band, where members meet in a community space, a director or facilitator chooses content appropriate for the population, skills may be acquired through musical experiences (performances) but are not explicit objectives, and members are motivated by their own desires and peer support. Finally, Mak (2006) specifies that informal music learning is "mostly embedded in a social context, meaning that social cues are highly relevant and that students engage in cooperative learning activities" distinguishing it from other types or learning (p. 4). Informal music learning is thought of as explorative, self-motivated, related to intrinsic motivation, using real life highly contextualized situations, is open ended without time constraints, is not curriculum-based, is without formal assessment, and is often directed and motivated by peers (Mak, 2006). A flute player who is hired by a professional orchestra would regularly be engaged in informal learning by talking to and working with other professionals in their field, picking up on established social cues and standards that may not be explicitly noted or expressed elsewhere.

From this perspective, one is able to understand how music learning may be highly contextualized in terms of both the teacher-learner relationship (formal, non-formal, or informal) as well as the agency and knowledgebase of both the teacher and learner (scaffolding).

1.1.6 In-Person Music

The many ways in which people meet and play music together are too immeasurably numerous to make a quantifiable or definitive summary of here. However, as the present research takes instrumental ensembles (wind band, orchestra) in academic and community settings as its focus, a brief overview of these musical contexts will be given using the previously noted terms (formal, non-formal, and informal learning) as a guide.

The social aspect of music learning can often necessitate togetherness in the form of settings such as private and group lessons, drumming circles, choirs, bands, orchestras or any other form of group music-making. In the American and Canadian traditions, choral singing and wind bands have taken a prominent place within formal academic training at both the elementary and secondary levels (Beynon & Veblen, 2012). Musicianship, music history, theory, and composition also figure into the types of formal music learning that occurs within educational institutions. Learning that happens in these in-person academic contexts is highly structured, teacher directed, intentional, based on a national or locally instituted curriculum, involves regular and rigorous assessment of explicit knowledge, and often does not account for or value a student's personal motivations and interests (Mak, 2006). As an example, a typical Montreal high school band class follows a provincially guided curriculum with general standardized goals and skills from grade to grade that all students must acquire. A grade 7 beginner band may be tested on a quarter note B-flat concert scale, requiring them to demonstrate acquisition of performance skills (posture, breath control, tone) as well as the ability to verbalize their understanding of time signatures and basic rhythm (common time, quarter note beat). Individual musical elements (quarter notes, pitches) are often abstracted from real life contexts (a song) so that they may be learned and applied in a variety of performance contexts.

Outside of the academic realm, in-person music learning also takes place in a large variety of extracurricular community contexts. As previously noted, community music includes a wide spectrum of definitions which encompass both formal and informal learning contexts but can generally be understood to be a collection of individuals engaged in making music. Unfortunately, this all-encompassing definition lacks the subtlety and nuance needed to characterize the many different types of community music and the motivations various groups and leaders may have. In *The Many Ways of Community Music*, Veblen (2008) suggests that community music be considered in relation to five specific issues:

> (a) the kinds of music and music making involved in a CM [Community Music] program; (b) the intentions of the leaders or participants in a program; (c) the characteristics of the participants; (d)

> the interactions among teaching-learning aims, knowledge, and strategies; and (e) interplays between informal and formal social-educational-cultural contexts. (p. 2)

Taking a local community music organization as an example and using the above criteria, the Montreal New Horizons Band can be described in the following way: (a) a wind and percussion ensemble that plays a variety of music, from classical standard wind repertoire to popular film and jazz music; (b) its vision is to "be the instigator of a social movement that integrates musical practice into a healthy lifestyle"; (c) is made up of 60 bilingual intergenerational participants looking to learn or relearn an instrument; (d) offers instruction in notation and sight-reading, theory, and instrumental technique, with members deciding what level of band they want to join (beginner, intermediate, advanced); (e) involves formal learning in the form of clinics and tutoring and informal learning between intergenerational members during rehearsals (Montreal New Horizons Band, 2021). The learning that happens in this context is active, voluntary, self-determined, self-paced, involves planned activities that contain important musical learning elements, takes place both inside and outside the formal education system, is adapted to the needs of the learner group, and offers explicit learning goals—in short, a combination of formal, non-formal, and informal learning contexts (Mak, 2006).

The two examples given here are in no way meant to be generalized but serve to highlight the highly individualistic nature of in-person music learning contexts, even when they exist in a comparable form (wind bands).

1.1.7 Online Music

Online learning can be defined as "learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students" (Dhawan, 2020, p. 7). Online music then can in this context be understood as any activity involving the learning or performance of music through devices with internet access, either synchronously or asynchronously. In the present case study, members of the McGill Symphonic Band Club engage in online music through the online conferencing software Zoom, playing music asynchronously with a broadcasted track.

1.2 Music, Health, and Wellbeing Models

The connections between music and health remain complex and nuanced. One of the main goals of this thesis is to contribute to the growing body of literature that attempts to understand and map how music influences humans on a physical and psychological level. The models listed here help to begin connecting and theorizing about the documented effects of music on health and the innate characteristics of music as well as help to understand the many factors that may influence health, including wellbeing and its various domains.

1.2.1 Quadrant Model

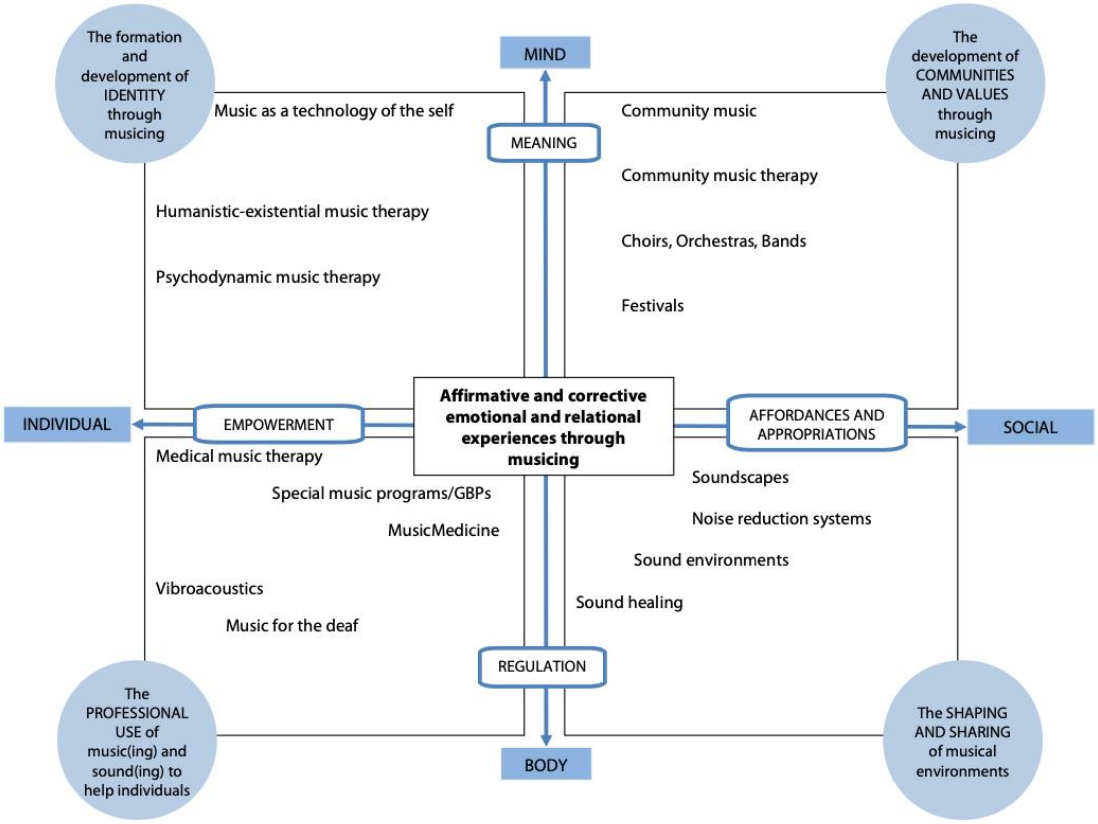
Aiming to help orient researchers concerned with the empirical and theoretical problems presented in the interdisciplinary fields of music and health, both in clinical and casual contexts, Bonde (2011) presents a quadrant model of the mind, body, social, and individual.

This model, as the author states, is not meant to draw strict lines between music therapy, community music, and music and health, nor to provide normative definitions of these concepts. Rather, it is meant to serve as a map or orientational tool in an interdisciplinary field as complex as music and health that is rapidly growing. In particular, this model helps to contextualize the use of music in relation to health outside of clinical settings where no professional, be they music therapist or educator, is present. In these cases, "a person will establish a physical, psychological or spiritual relationship with the music chosen or offered" where the music may act as a co-therapist (Bonde, 2011, pp. 133-134). According to the author, there exist four major purposes of health music-making, which can take place in any number of contexts: (1) the development of communities and values through musicing; (2) the shaping and sharing of musical environments; (3) the professional use of music(ing) and sound(ing) to help individuals; and (4) the formation and development of identity through musicing. Bonde's model situates these four goals in relation to both individual and community contexts.

In the context of the present research, the upper right quadrant of communities and values created through music will be the focus. As previously noted, much of the discussion around music and health has been based on the music therapy model (Fancourt et al., 2016). Bonde (2011) notes however that "health musicing [*sic*] is not limited to a professional therapeutic context. It can be observed in any social or individual practice where people use music experiences to create meaning and coherence in states and times of adversity" (p. 121). As the author explains, health music practices can encompass any use of music experiences to regulate emotional or relational states or to promote

Figure 1

Bonde's Health and Music Quadrant Model



Note. Image used with permission of the author, Lars Ole Bonde. Bonde, L. O. (2011). Health musicing: Music therapy or music and health? A model, empirical examples, and personal reflections. *Music and Arts in Action, 3* (2) 120-140.

wellbeing, including therapeutic or non-therapeutic practices, and professionally administered or self-made.

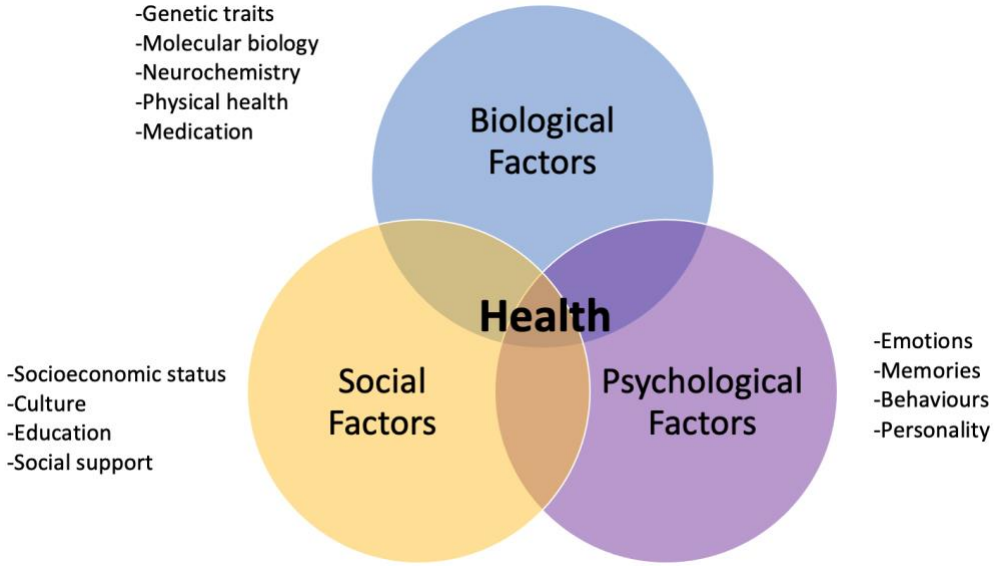
1.2.2 Engel's Biopsychosocial Model

In an effort to further clarify the complex relationship between music and wellbeing and its underlying mechanisms, a conceptual model that encompasses all elements of wellbeing (beyond simply the physical) is necessary. Engel's (1977) model proposes that health is a central variable that is affected by the collective interactions of biological, psychological, and social factors. Taking from the understanding of wellbeing used in the present work (including individual perceptions and ability to flourish), Engel's model helps to categorize and theorize about connections that may exist between

the biological, psychological, and social elements of wellbeing (which are varied, complex, and interconnected), be they individually perceived or otherwise.

Figure 2

Engel's Biopsychosocial Model



Note: Inspired by Engel (1977).

Engel's framework originally came as a critique of the contemporary biomedical model, which had historically created a disconnect between the body and mind within medicine and the wider scientific community. Examining the biomedical model, Engel (1977) notes that "[i]t assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables" (p. 130). In other words, according to Engel, the model is severely limited by its inability to account for the psychological and behavioural components that affect illness. Ultimately, the biomedical model "assumes that the language of chemistry and physics will ultimately suffice to explain biological phenomena" by separating somatic and psychological conditions (Engel, 1977, p. 130). This strict dichotomy of health influencers results in a culture of medicine and health that views the human body as a machine, disease as a breakdown of that machine, and the role of doctors to repair that machine (Engel, 1977). The biomedical model does not, for example, account for an individual's ability to cope, their socio-economic status, personality traits, social support systems, the satisfaction of daily needs, or even basic access to transportation, healthcare, and leisure activities—all of which can have a

significant impact on one's health. While Engel acknowledges that the biomedical model has undeniably led to important advances in medicine, he also pushes for a new, more holistic framework that examines human health according to the wider parameters that encompass the human experience: the biopsychosocial model.

Whereas the biomedical model has placed focus on biochemical deviation and discrepancy, Engel (1977) argues that any new health framework must "also take into account the patient, the social context in which he lives, and the complementary system devised by society to deal with the disruptive effects of illness, that is, the physician role and the health care system" (p. 132). Engel's model works to explain health in the context of environmental interactions as well as an individual's genetic and psychological traits (Zittel et al., 2002), and has been applied in a musical engagement context in research from Manchester (2011), Barbeau and Mantie (2018), and Steinhardt and Ghetti (2020) among others.

From the perspective of the present study, this model is relevant in connecting the dynamic factors of two major aspects of concern. Firstly, the framework is useful in understanding the multitude of factors affecting young adults during a major transitional period in their lives: bodily and hormonal changes (biological), shifting friend groups and identity (social), and stress from critical life changes like school and increased independence (psychological). Second, in addition to helping to contextualize the multitude of factors affecting young adults in transitionary periods of life, the biopsychosocial model may also be useful in building and understanding the connections between active music-making and its various effects on wellbeing. As Barbeau (2017) explains from the perspective of music performance anxiety:

> For instance, playing music is a social and cultural activity that requires psychological and physical engagement from the musicians. It may therefore have an impact on humans' health and wellbeing, as it involves an interaction between factors. When MPA is high, it may also negatively influence musicians, as it may generate biological symptoms (increased heart rate, hot flashes) and psychological symptoms (low concentration, memory lapses, worries) that may have detrimental consequences on performance quality, which in turn may affect social interactions. (p. 56)

Indeed, looking specifically at Engel's three domains in the context of the previously stated definitions of wellbeing, the model can be useful in the present research to contextualize individual perceptions and their theoretical relationship to one's wellbeing. Subjective and eudaimonic wellbeing are multidimensional concepts encompassing multiple facets of one's life and, similar to Engel's model of health, are shaped via interconnected influencers. As an example, the personal perceptions that

contribute to one's assessment of their own wellbeing can be based on their personal satisfaction and ability to flourish in relation to social pursuits, physical appearance and agency, general happiness, or state of mind. Looking to the literature, (see review below, p. 32), research into active musical engagement has also demonstrated a strong connection to these various physical, social, and psychological aspects of wellbeing. On a biological level, music has been found to affect the human stress response, as well as reaction time in older adults; psychologically, active music-making has been found to improve emotional wellbeing and cognitive function; socially, active music-making has been found to improve senses of community and belonging (Barbeau, 2017). Functions of music as examined by a host of evolutionary theorists have also included factors related to a diverse spread of domains found in the biopsychosocial model: social cohesion, emotional communication, biological fitness, a method of coping with anxiety, and of course pleasure (Schäfer et al., 2013). Empirical studies of how and why people use music have also indicated a range of psychological, social, and biological uses, such as arousal, emotional regulation, and identity expression (Schäfer et al., 2013; Walker Kennedy, 2010). The present research seeks to gain perspective on how individuals report and perceive their wellbeing in relation to their musical engagement. The definitions of wellbeing and quality of life used in this study are aligned closely with the theoretical underpinnings of Engel's model, and by adopting the biopsychosocial model as a foundational framework, the researcher aims to analyse, understand, and explain possible musical influencers of wellbeing from a holistic viewpoint.

1.2.3 Complete Mental Wellbeing

Themes and codes related to the disparate elements that comprise this understanding of mental health were organized and examined in order to present four possible pathways that may account for how participatory music engagement supports mental wellbeing. As the present study is similarly engaged with thematic coding of participant responses in relation to wellbeing and active music, this understanding of mental health will be used to inform upon the creation and organization of themes and codes during analysis.

1.2.4 Systems Interaction Model

While the biopsychosocial model provides a basis from which to identify, categorize, and understand a wide set of possible factors involved in music and wellbeing, a greater degree of specificity is required for a discussion on the specific biological and neurological mechanisms that

account for the effects of music. Part of a systematic review into the psychoneuroimmunological effects of music, the Systems Interaction model comes partially as a response to the "growing interest over the past decade into the health benefits of music, in particular examining its psychological and neurological effects" (Fancourt et al., 2014, p. 1).

Fancourt and colleagues (2014) have proposed the Systems Interaction model to "provide a framework for developing a taxonomy of musical and stress-related variables in research design, and tracing the broad pathways that are involved in its influence on the body" (p. 15). They posit that, while music and stress have been the subject of at least three other systematic reviews (Austin, 2010; Avers et al., 2007; Dileo, 2008), the connections between stress and health (i.e., immune function) have not been part of the wider conversation on music, stress, and health. As explained (Fancourt et al., 2014), on a physical level, an individual may be affected aurally by direct auditory perception, or through the movements and muscle engagement during playing, or through the sensory experience of vibrations; socially, many musical activities, especially those that include large ensembles, bring psychosocial experiences that may lead to increased self-esteem; on a personal and psychological level, an individual's relationship to the music (i.e. whether they are familiar or unfamiliar, whether they enjoy it or dislike it, whether they feel an emotional connection to it) can also have a significant effect.

The framework presented here considers influencers diverse and varied in nature with an emphasis on possible pathways that may explain and theorize about how exactly music is influencing the brain and body. Although it includes a greater degree of specificity than is required for this study, this model still relates to the models introduced above and helps set the basis from which to identify, categorize, and understand a wide set of possible factors involved in music and wellbeing.

1.2.5 Summary

Based on the definitions, theories, and models presented here, we may establish the basic conceptual outline of the present research. This work will examine how (1) *perceived/subjective wellbeing* among (2) *young adults* may be affected by (3) *active music* in the context of (4) current music and health models. The orientational nature of Bonde's (2011) model helps us to position the present work within the wider field of music and health: the upper right quadrant of communities and values created through music, including bands, choirs and orchestras. However, as the model is wider outcome-focused rather than context- and individual-focused, and whereas one of the goals of this research is to report on the effects of active music engagement on wellbeing in two distinct contexts, its further use here is limited. To that end, Engel's (1977) biopsychosocial model along with Perkins

and colleagues' (2020) understanding of mental wellbeing will act as the main theoretical framework for this project. Combined, the two models can aid in understanding how one can (a) identify musical phenomena as belonging to a set of possible influencers, and (b) connect those influencers to perceived and measured effects on overall health in order to help explain or theorize about music and wellbeing relationships.

Chapter 2
Review of Literature

The following review of literature reports findings on the topics of music and wellbeing as well as the potential impact of music on mental wellbeing. According to the biopsychosocial model that has been adopted in the present study, wellbeing should not be understood as simply the absence of illness, but as a multifaceted state influenced by a variety of factors related to one's own personal needs and perceptions; at the same time, mental illness may influence one's wellbeing in a significant manner. Given that the specific age population of focus in the present study is young adults and given that according to current research this population faces specific challenges related to mental wellbeing, data on mental health trends is of particular value in this work. Evidence of possible benefits to mental health and wellbeing through musical engagement appear promising in addressing some of the challenges the population is faced with. However, it remains important to contextualize findings relating to mental wellbeing and music's related impacts in relation to young adult populations. To that end, the present literature review presents findings on findings on (a) prevalence of common mental health disorders among general populations and young adults, (b) the topics of music and wellbeing, and (c) online and in-person music contexts.

2.1 Prevalence of Common Mental Health Disorders: An Overview

Understanding and interpreting mental health trends can be a challenging task for a multitude of reasons. In order to get the clearest picture of what the state of mental health is among young adults (both globally and locally), one must establish the parameters that are being examined and be cognizant of the limitations of the data in question. In general, much of the national and cross-national data regarding prevalence of mental health disorders and illness among all age groups has been focused on what the WHO has termed *common mental disorders* (Ferrari et al., 2013; WHO, 2017). Common mental disorders include those illnesses and disorders found within two major diagnostic categories of the DSM-5: depressive disorders and anxiety disorders.[3] Symptoms of these disorders can range both in terms of severity (mild to severe) as well as duration (acute to chronic) impacting one's mood, feelings, and perceptions (WHO, 2017). According to the WHO, these disorders "are diagnosable

[3] The DSM-5 is the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The manual is published by the American Psychiatric Association and serves as a tool in clinical diagnosis among mental health and medical professionals (Wakefield, 2013).

health conditions distinct from feelings of sadness, stress, or fear that are common to feel from time to time in life" (WHO, 2017, p. 5).

There exists some difficulty in tracking, diagnosing, and treating common mental disorders, as the origins, treatments, and determinants of mental health and illness are many and varied. While relatively little is known in terms of how and why individuals may develop mental disorders, it is generally accepted that a combination of social, psychological, and biological interactions contributes to their presence, with specific factors such as stress, nutrition, exposure to environmental hazards, and adverse life effects (e.g., unemployment or trauma) playing a significant role (Keyes et al., 2019; Weinberger et al., 2018; WHO, 2019a, 2020). The determinants of mental disorders in many surveys include both individual attributes (management of one's thoughts, emotions, and behaviours) and "social, cultural, economic, political and environmental factors such as national policies, social protection, standards of living, working conditions, and community support" (WHO, 2019a, para. 20).

Treatment of mental disorders has been a major point of interest in both national and global surveys of mental health status. Although those living with mental illness require social support and care in the form of access to education, employment, and housing, it has been found that most health care systems have not been able to address the burden of mental disorders (Kessler et al., 2007; Weinberger et al., 2018; WHO, 2019a). Due to the major gap that has been identified on a global scale between the need for mental health treatment and its availability, the WHO Director General has identified mental health as a major accelerated focus of its 13th General Programme of Work from 2019-2023 (WHO, 2019b). Current estimates indicate that between 76% to 85% of those suffering from mental disorders in low- and middle-income countries receive no treatment, and that quality of treatment for those who do receive treatment is often poor, despite the existence of effective evidence-based care (WHO, 2019a, 2019b). The most common identified barriers to accessing treatment include a lack of resources, a lack of trained healthcare providers, social stigma surrounding mental illness and disorders, and inaccurate assessment, especially among younger populations (WHO, 2020).

Data collected in low- to middle-income countries has supported the fact that mental health disorders are common among individuals affected by communicable (e.g., HIV) and non-communicable diseases (e.g., cancer and cardiovascular disease), and that they are especially prevalent in areas affected by humanitarian crises (WHO, 2019b). In high-income countries such as Canada, the United States, and Australia, depressive disorders have been linked to significant disability, comorbidity, and mortality (Weinberger et al., 2018). Worldwide, the burden of mental disorders is growing with major consequences on health, human rights, and economic conditions. In 2017 alone,

common mental disorders were the second leading cause of disease burden as calculated by years lived with disability (YLDs) as well as the sixth leading cause of disability-adjusted life-years (DALYs) (Sagar et al., 2020).[4]

In the context of young people, common mental disorders have been documented occurring as early as age 3 and across all world regions (Ferrari et al., 2013). Adolescence and young adulthood (~10 – 24 years of age) collectively have been identified within the medical and mental health professional world as a "unique and critical period of development during which unmet health needs and disparities in access to appropriate care, health status, and mortality rates are high" (Walker-Harding et al., 2017, p. 758). Young adulthood (18 – 24) in particular is a challenging period of transitionary phases, "from parental supervision to individual responsibility, from living with parents to starting families of their own, and from pediatric to adult health care systems" (Walker-Harding et al., 2017, p. 759). A multitude of publications have highlighted the specific high-risk status of young adults, including higher rates of mortality, unplanned pregnancy, chronic illness, unemployment, unstable housing, and lower access to health care (especially compared with those in immediately younger and immediately older age categories) (Walker-Harding et al., 2017). Consequently, it is of significant importance to health professionals and policy makers looking to address national mental health burdens that this age period be where purposeful prevention and intervention strategies are employed to have a major impact on future trajectories and adult health (Carlson et al., 2015; McFerran et al., 2016; Walker-Harding, 2017).

Current research suggests that, across the board of all demographic categories, lifetime prevalence of mental disorders is often under-reported due to a combination of factors. While it has been found that individuals with mental disorders are less likely to participate in surveys, other factors such as sample frame exclusions (such as not surveying homeless populations) and measures with less focus on differential mortality contribute to underreporting (Kessler et al., 2007). However, the principal limitation to mental health and illness surveys is that they are in large part reliant on self-report measures and there is a reluctance on the part of many respondents to admit mental illness (Kessler et al., 2007).[5] Finally, the cross-sectional nature of most mental health related surveys does not allow for examination of individuals and conditions over time, providing a limited snapshot of

[4] Both YLDs and DALYs are common measures in assessing health impacts and burden of disease on a national and international scale. YLDs are used in the calculation of DALYs which are "the total number of years of potential life lost due to premature mortality and the years of productive life lost due to disability" (WHO, 2012).

[5] This stigma related bias is thought to be more severe in low-income and underdeveloped nations where populations are already at higher risk for developing mental disorders. While reported prevalence among these populations is high, it is believed that these numbers are greatly under-estimated (Kessler et al., 2007).

current conditions only (Weinberger et al., 2018). For these reasons, careful consideration must be paid when analysing the data.

2.1.1 Global Mental Health Trends

The Institute for Health Metrics and Evaluation (IMHE) based in Seattle, Washington is a research institute working in the area of global health and is responsible for many of the figures and statistics used in policy making by international bodies such as the United Nations and WHO. Data in IHME publications come from a variety of sources, including archived surveys from the Global Health Data Exchange, such as demographic and health surveys, multiple indicator cluster surveys, living standards measurement surveys, as well as surveys identified in major multinational survey data catalogs, like the International Household Survey Network and the WHO Central Data Catalog, as well as through country Ministry of Health and Central Statistical Office websites (IMHE, 2021). As of the year 2015, it was estimated that approximately 264 million people (or 4.4% of the global population) worldwide suffer from depressive disorders, with current 2021 estimates being in excess of 300 million (WHO, 2017, 2020; IMHE, 2021). Similarly, the global estimate for those suffering from anxiety disorders in 2021 is at or slightly below 300 million people; however, as there is a high rate of comorbidity between these families of disorders the two numbers cannot be added together to make a total global estimate of common mental disorders (WHO, 2017).

Depressive disorders have been ranked as the single largest contributor to global disability, with anxiety disorders ranked closely behind at sixth (WHO, 2017). Accordingly, common mental disorders are among the greatest contributors to global disease burden, with some estimates indicating that by the year 2030 depressive disorders will have overtaken HIV/AIDS as the single greatest cause of illness worldwide (Weinberger et al., 2018). While the burden of common mental disorders is on the rise, prevalence varies significantly across geographic regions and demographic categories. In general, females are affected more by both depressive and anxiety disorders (5.1% and 4.6 % globally, respectively) than males (3.6 % and 2.6 %) (WHO, 2017). In terms of age, depressive disorders most commonly peak in prevalence in older adulthood (55-74) while anxiety disorders in general do not vary substantially by age group (WHO, 2017).[6] Estimates of the total number of people living with depressive disorders increased 18.4 % between 2005 and 2015 and similar estimates of people living

[6] There is however an observable trend of lower prevalence of anxiety disorders in older populations. More research is required to further understand this trend (WHO, 2017).

with anxiety disorders increased 14.9 % in the same time period (WHO, 2017). Both of these numbers are conjectured to be a reflection of a growing and aging global population.

Current data place the global number of young people (10-24) with common mental disorders at approximately 46 million (WHO, 2017). The global rate of depressive disorders among young people was 2.61 % in 2019, up from 2.58 % in 2010 (IMHE, 2021). Approximately 800,000 people globally (all ages) die from depression related suicide every year, with suicide being the third leading cause of death for those 15 to 19 years old (WHO, 2020, 2017). Mental health trends and data related to the specific demographic group of young adults are difficult to obtain at a global level as there is no national or international consensus on age designations for the group (Walker-Harding et al., 2017). However, survey and research work in the United States over the past two decades has provided a robust and rare glimpse of changes over time at the national level.

In a study by Weinberger and colleagues (2018) observing trends in the prevalence of depression in the United States from 2005 to 2015, it was found that prevalence had increased significantly for the oldest and youngest age groups. In comparison to all other age groups, the rate of increase of depression among youth (age 12-17 in the context of the study) was significantly more rapid (Weinberger et al., 2018). In a separate study from Mental Health America (2019) it was found that between 2012 and 2017 the prevalence of major depressive episodes increased from 8.66 % to 13.01 % (an increase of over one million individuals) among youth age 12 to 17. It was also found that between 2008 and 2017 "the proportion of adolescents that experienced serious psychological distress in the last 30 days increased by 71 % and the proportion that seriously considered attempting suicide increased by 47%" (Mental Health America, 2019, p. 8). In another study from Keyes and colleagues (2019) it was found that between 1991 and 2018 both mental health problems and mental health related mortality had increased significantly among adolescents in the United States, despite the fact that adolescent binge drinking is at a historic low. The same study also observed that the increases were across all adolescent age groups, indicating minimal cohort effects (Keyes et al., 2019).

Among most studies observing mental health trends of young people—globally and nationally—there is disagreement over whether the observed trends indicate rising rates of mental illness or a decrease in stigma which has prompted more young people to speak out about mental health, making the crisis more known to the world (D. L. Kestel, personal communication, March 2021; Wiens et al., 2020).[7] Indeed, even the literature on various national trends in mental disorders,

[7] Dr. Devora L. Kestel is the director of Mental Health and Substance Use at the World Health Organization. She kindly responded to an email correspondence providing the author with sources and her view of current trends in young adult mental health.

mental health, and mental illness have reported conflicting results, which may be a result of methodological differences (Wiens et al., 2020). However, a number of researchers have speculated on why the prevalence of common mental disorders may be so high among young people. Weinberger and colleagues (2018) note that in the United States adolescents report levels of stress comparable to adults, and that the mental health of this age group can also be impacted by financial stress. Financial stress for young people may come in the form of changes to family member employment, as well as their personal prospects for employment (Weinberger et al., 2018). In addition to increased levels of stress, "adolescents are increasingly exposed to risk factors such as those derived from the use of new technologies, such as cyberbullying […] and problematic social media use" (Weinberger et al., 2018, p. 1313). While more work is needed in order to understand and address these trends, it is well documented that school-based interventions are effective in helping to mitigate the effects and stigma surrounding mental illness, especially those interventions which enhance patterns of positive thinking in children and adolescents (WHO, 2020). Considering that those individuals who experience early onset of mental disorders often wait more than a decade to seek treatment, and as some effects of mental illness are easier to treat at early stages, early childhood intervention strategies may be of aid to public health policy makers (Kessler et al., 2007).

2.1.2 Mental Health Trends in Canada

Mental health trends among youth in Canada have somewhat mirrored those seen in the United States, though as Wiens and colleagues (2020) note, "The mental health of youth is continually changing and requires reliable monitoring to ensure that adequate social and economic resources are allocated" (p. 1). Similar to other authors, Wiens and colleagues (2020) explain that the transitionary period from adolescence to adulthood is a critical one owing to the long-term impacts of academic achievement and lost work productivity. Major stressors related to academics and social pressure are introduced during these years, putting strain on mental health which—if dealt with poorly—may lead to unhealthy behaviours that exacerbate poor mental health conditions (e.g., poor sleeping habits, poor diet, limited physical activity) (Wiens et al., 2020).

Among the sample of youth 12 to 24 in Wiens and colleagues' (2020) study, the prevalence of poor or fair perceived mental health increased from 4.2 % in 2011 to 9.9 % in 2019. Additionally, in the same time period, diagnosed mood disorders increased from 4.3 to 7.8 %, diagnosed anxiety disorders increased from 6.0 to 12.9 %, and the proportion of youth who visited a healthcare provider for at least one mental health condition in the past year rose from 11.7% to 17 %; common to all these

findings were trends that were more pronounced for females versus males (Wiens et al., 2020). Past-year suicidality rates in particular rose among young adult females (1.8 in 2011 to 7.4 % in 2016) with little to no observable change for other age and sex groups (Wiens et al., 2020).

Related trends can be seen on a local level in the Montreal area at McGill University. After increasing the availability of appointments at the beginning of the 2019-2020 academic year, the university's mental health services saw a 141% increase in students seeing a counsellor or local wellness advisor within the first 3 months (Hub by the Numbers, 2019). Additionally, internal school polling across Lest B. Pearson School Board schools in Montreal have also shown the same upward trend in depressive and anxious symptoms among adolescent populations.[8]

Reasons for these trends in Canada, as with global trends, are widely unknown. In high-income countries like Canada, the United Kingdom, Australia, and the United States, some researchers have suggested that a social change toward a delayed or slower maturation (i.e., lower level of activities associated with adulthood like working, dating, getting a driver's license) may be related to the trends (Keyes et al., 2018). Others contend that mental health literacy programs have helped to reduce stigma and enhance awareness around mental health, which has encouraged more young people to seek help (Wiens et al., 2020). Regardless of the reasons behind rising prevalence, the data among young adults in Canada suggests a greater demand and therefore a greater need for mental health services (Wiens et al., 2020).

2.1.3 The COVID-19 Effect

On March 11th of 2020, the WHO declared the novel coronavirus SARS-CoV-2 (cause of the COVID-19 respiratory disease) to be a global pandemic, shifting immeasurable dimensions of human life. In the beginning stages of quarantine and lockdown, many experts predicted a range of adverse emotional and psychological outcomes, based on previous pandemic circumstances such as the 2003 Severe Acute Respiratory Syndrome (SARS) quarantine in Toronto, Canada (Dozois, 2020; Pfefferbaum & North, 2020; Vindegaard & Benros, 2020). During the SARS outbreak, research that included samples of individuals in quarantine indicated a high rate of psychological distress and that self-isolation was associated with high levels of depression up to three years after the outbreak (Dozois, 2020). Indeed, some researchers are predicting that effects such as "stress, depression, irritability, insomnia, fear, confusion, anger, frustration, boredom, and stigma" will be prevalent as an echo

[8] This information is anecdotal and based on the author's experience as a secondary school teacher and assessment committee member in the Riverside and Lester B. Pearson School Boards in the Greater Montreal Area. Informal surveying done within schools and their respective boards has reflected larger trends across North America.

pandemic for three to five years after the end of the COVID-19 pandemic (Dozois, 2020; Pfefferbaum & North, 2020, p. 511).

Public health emergencies may affect the wellbeing of individuals on multiple levels. Pfefferbaum and North (2020) note that common to many health pandemics are conditions that may induce or exacerbate psychological distress:

> Uncertain prognoses, looming severe shortages of resources for testing and treatment and for protecting responders and health care providers from infection, imposition of unfamiliar public health measures that infringe on personal freedoms, large and growing financial losses, and conflicting messages from authorities are among the major stressors that undoubtedly will contribute to widespread emotional distress and increased risk for psychiatric illness associated with Covid-19 [sic]. (p. 510)

Further, although illness and the physiological health effects of infection do not meet current conditions for trauma associated with post-traumatic stress disorder (PTSD), depressive disorders, anxiety disorders, and post-traumatic symptoms (PTSS) are all a major concern during and after disaster situations (Pfefferbaum & North, 2020; Usher et al., 2020; Vindegaard & Benros, 2020). While longitudinal research involving mental health trends in the age of COVID-19 is forthcoming, there does exist some preliminary data.

In a systematic review of papers examining mental health consequences related to COVID-19, Vindegaard and Benros (2020) reviewed a total of 43 studies which focused on individuals with pre-existing psychiatric disorders, healthcare workers, and the general public, respectively. Studies published on the effects of mental health trends among the general public indicate "an increase in depressive and anxiety symptoms along with negative impact on general mental health, particularly among health care workers" (Vindegaard & Benros, p. 541). A number of sociodemographic factors were also found to be associated with higher risk of developing depressive or anxiety disorders, including living alone, lower educational level, higher educational level, student status, living in urban areas, living in rural areas, and female gender (Vindegaard & Benros, 2020).

In a national survey on anxiety and depression in Canada during COVID-19, Dozois (2020) found that the number of respondents who indicated their anxiety was high or extremely high had quadrupled (5% to 20 %) and that self-reported depression had more than doubled (4% to 10 %) since the beginning of the pandemic. Physical distancing measures contribute greatly to feelings of isolation which, without effective support, may in turn lead to greater levels of anxiety and depression. Indeed, according to Dozois' (2020) results, a large number of Canadians believe that the federal government

(55%) and the provincial governments (47%) should be doing more to support the public's mental health. These numbers were even higher for individuals diagnosed with anxiety and depressive disorders (66% and 69%, respectively) (Dozois, 2020). Dozois (2020) has identified three possible reasons for why depression levels will likely go up: (1) anxiety is often a precursor to depression and with factors such as job loss economic downturn looming, there is a strong likelihood for increased negative thinking; (2) depression is also associated with withdrawal, avoidance, and cycles of behaviour where the less one does, the less one feels like doing, which are more likely during quarantine and lockdown when engaging in regular activity is difficult; (3) the pandemic has drastically increased loneliness and isolation which research has shown can be harmful both physically and psychologically.[9]

Children and young adults may be at especially high risk for biopsychosocial stressors imposed by the pandemic (de Figueiredo et al., 2021). In an evaluation of 1036 children in China age 6 to 15 in quarantine, Chen and colleagues (2020) found elevated levels of depression (10.8%), anxiety (19%) and instances of comorbidity (6.6%). Similar results were found in a study examining children and adolescents in quarantine in India, with elevated levels of helplessness, worry, and fear (de Figueiredo et al., 2021). While the isolation and heightened stress imposed as a result of COVID-19 may present adverse mental health effects within adult populations, their effects on children and adolescents may be more severe. Persistent and chronic levels of stress in childhood and adolescence can increase risk of dysfunction to the hypothalamic-pituitary-adrenal axis (the set of systems and interactions involved in the stress response), leading to greater predisposition for psychopathology (de Figueiredo et al., 2021). More research is currently needed to better understand and treat these effects.

Although research into the impact of COVID-19 on musicians' and the general population's mental health is ongoing and not yet fully understood, early findings regarding professional performing artists suggest significant impact while presenting interesting alleviating factors. Spiro and colleagues (2021) surveyed 385 performing arts professionals in United Kingdom using standardized measures of wellbeing, loneliness and connectedness, as well as mental health. Authors report that the first lockdown has had a profound impact on five overarching life aspects of professional performing artists: lost or uncertain work and income, constraints of lockdown working, loss and vulnerability, detrimental effects on health and wellbeing, and professional and personal opportunities (Spiro et al., 2021). Nevertheless, the findings also suggest that:

[9] Holt-Lunstad and colleagues (2010) found that social connection may be a greater determinant to health than smoking, high blood pressure, or obesity.

> Higher-self-rated health was associated with higher wellbeing and lower depression scores. More physical activity before lockdown was associated with higher wellbeing and social connectedness scores, as well as lower loneliness scores, and an increase in physical activity during lockdown compared with before, as well as older age, were associated with higher wellbeing and social connectedness scores, and lower depression and loneliness scores. (p. 1)

It should be noted that only 9% (*n*=34) of the participants were 18-25 of age and that results are not discussed in respect to group age.

2.2 Music and Wellbeing

Systematic reviews, meta-analyses, and meta-ethnographies in the area of music and wellbeing have focused on a myriad of subjects, ranging in nature from general wellbeing outcomes of music and singing, to the specific psychoneuroimmunological effects of music within the human body. Findings across a significant portion of the literature indicate generally positive, or at least promising results. For example, in their systematic review of wellbeing outcomes and music, Daykin and colleagues (2018) combed through 5397 records retrieved in an initial literature search to identify 61 relevant articles. Results generally divided into studies focusing on healthy populations and studies on populations with health conditions with a wide range of outcomes, including reduced anxiety for young adults, enhanced mood and feelings of purpose among adults, and increased mental wellbeing, coping, and quality of life among populations with diagnosed health conditions (Daykin et al., 2018). In their systematic review of group singing's effects on wellbeing and health, Clift and colleagues (2010a) observed significant benefits for physiological wellbeing, mental wellbeing, and social wellbeing among both professional and community choirs. A meta-ethnography on the effects of participatory engagement in music on mental wellbeing performed by Perkins and colleagues (2020) indicated that active music "provides a means of emotional connection, expression, management, and release, as well as eliciting uplifting emotions and relaxation" in addition to other positive psychological and social outcomes (p. 1928). Silverman's (2003) meta-analysis of the influence of music on psychosis symptoms found that, although there were no differences in effect between active music therapy and listening, results indicated that music was significantly effective in suppressing symptoms of psychosis.

The depth of variety demonstrated in the literature is undoubtedly related to the interdisciplinary nature of music and wellbeing research, involving the work and input of musicians,

music therapists, health care professionals, psychologists, educators, and policy makers. For this reason too, the structure of studies, methods used, frameworks, definitional standards, and population foci have been widely varied. The large majority of research in music, health, and wellbeing has been done in the context of music therapy interventions in a clinical setting. These studies have typically focused on a particular population while targeting specific pathologies and their symptoms, such as the effectiveness of music therapy for adults with mental illness or the elderly (L'Etoile, 2002; Mohammadi et al., 2011). In their systematic review of studies investigating the effects of music therapy on serious mental disorders, Gold and colleagues (2009) note that there exists a number of other systematic reviews or meta-analyses on the subject, many of which have reported similar beneficial or positive results (Dileo & Bradt, 2005; Gold et al., 2004, 2005, 2006; Maratos et al., 2008; Pesek, 2007; Silverman, 2003; Vink et al., 2003).

Music, however, is often used outside of professional and clinical settings to support many facets of personal wellbeing. As Fancourt and colleagues (2016) note, "A much less researched area is whether general music making within community settings, not led by therapists, can still enhance the mental health and wellbeing of service users" (p. 2). Researching and understanding music's effects on wellbeing in non-clinical settings becomes more relevant as more and more community organizations around the world start to offer community music interventions targeting mental health (Crawford, 2013). Fancourt and colleagues (2016) explain that research into non-clinical contexts is vital "to support the design and implementation of future interventions" (p. 2). This sentiment is echoed by Crawford and colleagues (2013), who advocate for wider use of the arts for *mutual recovery* stating "It is time to extend beyond a reductive focus on recovery of particular patient groups and conditions and investigate ways that informal carers and health, social care and education personnel can also be supported to develop wellbeing and resilience" (pp. 5-6).[10] Community-based and non-clinical music interventions have seen increasing growth alongside the disability and civil rights movements, and the survivor movement, all of which have asserted and promoted the rights of all people to have full and meaningful lives of recovery, "even if their mental health problems cannot be eradicated" (Crawford et al., 2013, p. 3).

At the same time, the diversity and variety of music and wellbeing research has made interpreting the results and outcomes as a whole relatively difficult. Across the 61 studies reviewed by

[10] *Mutual recovery* in the context of work from Crawford et al. (2013) refers to a definition of recovery that extends beyond traditional understandings of symptom-related health and illness. This conception "refers to the possibility of achieving a meaningful and more resilient life irrespective of mental health 'symptoms' or disabilities" (Crawford et al., 2013, p.1).

Daykin and colleagues (2018) there was a large degree of inconsistency in terms of wellbeing measures used and duration of interventions. This methodological inconsistency is compounded by the fact that subjective wellbeing is in itself a complex and multi-faceted concept, with different individuals and groups placing greater importance in the aspects of wellbeing most personally relevant to them. For example, studies from Kokotsaki and Hallam (2011) and Perkins and colleagues (2020) both focused on the perceived benefits of musical engagement and what underlying processes may be involved. Kokotsaki and Hallam (2011) found that non-musician students (i.e., university students who participated in music ensembles but were not themselves training to become musicians) engaged in music-making placed more emphasis on the social engagement and fun they had when making music. This is contrasted with the musician group who placed higher value on their sense of importance within the group and feelings of personal achievement. Perkins and colleagues (2020) used thematic coding in participant responses to create four pathways explaining the effects of musical engagement on mental wellbeing: managing and expressing emotions, facilitating self-development, providing respite, and facilitating connections (p. 1924). However, the authors note that each pathway is comprised of multiple codes, containing distinct and overlapping processes, none of which are mutually exclusive. Thus, as the authors state

> […] the *specificity* and *multiplicity* of the processes appear to be determined by the *individual needs and circumstances* of participants. While the pathways themselves may appear relatively generic, the ways that individuals engage in them are highly idiosyncratic. (Perkins et al., 2020, p. 1934)

Moss and colleagues (2018) also found during a mixed-methods study analysing 2359 statements about perceived health benefits of choral singing that the results seem to indicate differences in perception between subgroups (e.g., higher perceptions of physical health benefits among women versus men). Indeed, it would seem that music and wellbeing research suggests a large degree of nuance beyond simplistic statements such as “Music is good for wellbeing.”

Extrapolating and summarizing results can also be difficult based not only on the wide variety of musical interventions used, but also because certain kinds of music interventions remain largely unexplored. Literature reviews from Hallam (2010), Clift and colleagues (2010a), Creech and colleagues (2013), Perkins and Williamon (2014), and Daykin and colleagues (2018) all note that music listening and singing are overwhelmingly the most common interventions used, while instrumental music-making and learning remain largely unexplored. Listening to music (passive music participation) requires very little on the part of a listener; no special training is needed, nor a facilitator to guide learning. Singing in a choir, while requiring perhaps some limited informal training, is a more

accessible activity than playing instrumental music which requires a significant degree of practical knowledge and/or time and dedication. Indeed, as Clift and colleagues (2010a) note, "Even the pinnacles of choral music in the Western classical tradition are not beyond an amateur choir given skilled direction and sufficient practice" (p. 3). Nevertheless, promising evidence exists to suggest that active music participation with instruments may be as equally beneficial as findings related to singing and listening (Creech et al., 2013; Daykin et al., 2018).

As music and wellbeing has become a burgeoning area of study with more and more attention placed on it, a number of general critiques and recommendations for future work have arisen. Firstly, Daykin and colleagues (2018) as well as Perkins and colleagues (2020) both note that there is a lack of research examining exactly what the processes through which music has an effect are—in other words, what change is happening and how? Perkins and colleagues report:

> In fact, in health research more widely, there is acknowledgment that pre/posttest designs such as randomized controlled trials (RCTs) need to be "combin[ed] with other methods, including conceptual and theoretical development, to discover not only 'what works,' but 'why things work.'"[…] With limited knowledge of the processes underpinning change, the field is limited in its ability to scale up and operationalize music as a mental well-being [sic] intervention. (Deaton & Cartwright, 2018, as cited in Perkins et al., 2020, p. 1925)

In a separate critique, Perkins and Williamon (2014) further note intervention-style studies on music and wellbeing have generally focused on using quantitative measures (e.g., physiological measures or psychological surveys) as opposed to mixed-methods designs that give a clearer picture through both qualitative and quantitative measures. Fancourt and colleagues (2014), in the context of the psychoneuroimmunological effects of music, have identified three general research concerns that are remarkably similar to critiques in the wider music and wellbeing literature: (1) identifying the mechanisms of music rather than simply the outcomes; (2) avoiding singular approaches that focus on biomarkers as indicators of stress rather than their deeper immunological significance; (3) using explicit definitions of terms so as to aid in the design of future work (e.g. defining stress as chronic or acute, or defining music interventions beyond simple terms such as "recorded music" or "music making"). Clift and colleagues (2010a, 2010b) also criticize the lack of detail surrounding interventions in the literature. The authors note that many of the studies done in this area have "been highly variable with respect to scope, design, methods, samples," making conclusion about results difficult (Clift et al., 2010a, p. 9). Recommendations from these authors have included the need for a systematic theoretical model linking music-making to health and wellbeing outcomes and the need for larger and

longitudinal experimental trials using validated measures (Clift et al., 2010a). To that end, as studies and focus have increased, the gaps and pitfalls within music and wellbeing research have become clearer and more defined.

2.2.1 Music and Young Adult Wellbeing

As some researchers have indicated, there are few reasons to believe why results and benefits from research done with a specific age group do not necessarily apply across all age groups (Hallam, 2010). However, research involving certain population subgroups can still help to illuminate specific challenges and needs for those groups (Creech et al., 2013; Fancourt et al., 2016).

Research related to music and its effects on the wellbeing of young adults is relatively sparse and has tended to focus on educational and developmental aspects of benefits. A literature review from Hallam (2010) on the impact of music on the intellectual, social, and personal development of children and young people notes that despite rising interest in music's effects on wellbeing, the majority of research has been carried out with adults. Examining what literature that does exist, Hallam's (2010) review covers a range of findings documenting effects and benefits of music interventions for children and young people, including "language development, literacy, numeracy, measures of intelligence, general attainment, creativity, fine motor co-ordination, concentration, self-confidence, emotional sensitivity, social skills, teamwork, self-discipline, and relaxation" (p. 269). Elaborating on the impact of music participation on social development, Hallam (2010) also notes that social development has received less attention than intellectual development and academic attainment, "despite the fact that the effects on achievement may in part be mediated by an increase in social and cultural capital" (p. 278). The importance of music in developing self-identity during teen and young adult years has been noted, as have other common uses for music among the age groups such as passing time, alleviating boredom, relief of tension, and distraction from worries and anxiety (Hallam, 2010). Music has also been found to provide a sense of support, a common method of emotional regulation, and a sense of community among teens and young adults (Hallam, 2010). In a separate review of music and wellbeing outcomes, Daykin and colleagues (2018) reported on 10 studies that took place in educational settings but noted that few of the studies used music interventions other than listening. There was however some evidence to support the claim that instrumental music participation may help with decreasing levels of depression and anxiety (Daykin et al., 2018).

In the context of young adults specifically, perceived benefits reported in studies focusing on this population have covered a wide spectrum of physiological, psychological, and social factors. In a

study examining the perceived benefits of music-making among non-music university students as compared with music students, Kokotsaki and Hallam (2011) surveyed 62 non-music students with a short questionnaire asking them how they perceive their involvement in music ensembles and what impact it may have on them.[11] The results indicated three main areas of impact: social, musical, and personal. When looking at specific social impacts, 52% of respondents (*n*=32) referred to social enjoyment and fun with other people. Two other social impacts that were emphasized by respondents were spending time with like-minded people (27%, *n*=17) and being a part of a team working toward a goal (24%, *n*=15). Subcategories of musical impact that were emphasized by respondents included the development of musical skills (45%, *n*= 28), improving specific technical abilities (13%, *n*=8), and developing musical tastes and abilities (11%, *n*=7). Personal impacts were categorized across short- and long-terms impacts, and included elements related to wellbeing such as a relaxation outlet (15%, *n*=9), developing a sense of self (18%, *n*=11), confidence (11%, *n*=7), and self-motivation (15%, *n*=9). As previously noted, the responses when contrasted with music students seemed to indicate that non-music students placed a higher emphasis on social aspects of music-making. In a separate study examining the perceived benefits of group singing, Clift and Hancox (2001) surveyed 84 university choir singers and found that participants put significant emphasis on the emotional and relaxation benefits of singing in a choir. In their results, the authors reported that 93 % of participants felt that singing helped to make their mood more positive, 89 % indicated they feel happier after singing, and 71 % reported feeling that singing improves their mental wellbeing (Clift & Hancox, 2001). In relation to relaxation, 80 % of participants in the study agreed that singing helps them to relax, and 79% indicated that singing reduces stress (Clift & Hancox, 2001). The authors also found that a large majority of members (87%) reported feeling they had benefited socially from their experiences in choir. Studies of music and wellbeing focusing on young adult populations demonstrate positive results, but have also been relatively small in sample size and lacking in objective and validated measures. To be sure, more work in music and wellbeing is needed for this age group.

2.2.2 General Findings in Music and Wellbeing

A large body of literature exists covering the domain of music and its connections to wellbeing, having seen particular interest and growth in the last 20 years (Clift et al., 2010a; Daykin et al., 2018). Researchers and authors have offered a number of explanations in terms of impetus for music and

[11] Findings were compared to those in a previous study (Kokotsaki & Hallam, 2007) which asked 78 music university students to respond to similar questions (Kokotsaki & Hallam, 2011).

wellbeing research, but have tended to focus on health, education, and public policy implications (Crawford et al, 2013; Daykin et al., 2018; Fancourt et al., 2014). Indeed, Daykin and colleagues indicate that while the role of arts in supporting wellbeing is widely recognized, "Robust evidence is needed to support policy and practice" (Daykin et al., 2018, p. 39).

The relationship between music and its impacts on wellbeing is a complex one, covering a wide variety of results. Using Engel's biopsychosocial model of health as a framework however, it can be assumed that there are three main areas of influence music may have over wellbeing: physical impacts, psychological impacts, and social impacts. Table 2 is a summary of results and findings from 21 studies into the topics of music, health, and wellbeing.[12] The table is organized by area of impact according to the biopsychosocial model.

Table 2

Music and Wellbeing Findings Summary

Physical	Psychological	Social	General
• Physiological wellbeing (**E**) • Dementia (**A, N, O**) • Respiratory management (**L**) • Decrease of blood pressure, heart rate, and respiration rate (**F, M, R**) • Perceived improvement in blood pressure and posture (**R**) • Skin conductance (**M**) • Reduction of inflammatory immune response (**N**) • Increase in leukocyte (white blood cell) production (**B**) • Renewed sense of vitality and rejuvenation (**J**) • Improved mobility (among older adults) (**J**)	• Mental wellbeing (**E, G, K, R,T**) • Reduction of anxiety, depressive symptoms (**F, H, K, N, R, U**) • Increased coping ability (**K, S**) • Cognitive stimulation (**R, J**) • Learning new skills and feeling achievement (**J, Q, R, S, T**) • Elevating or sustaining emotional states (**C, D, S**) • Improved concentration and memory (**J**) • Increases relaxation (**F, Q**) • Creates opportunities for expression (**S, T**)	• Social wellbeing (**E, G**) • Increase in social resilience (**N**) • Provides opportunities to increase general socialization and develop social skills (**I, Q, R, S, T**) • Provides opportunities to socialize with a diverse range of people (**R**) • Promoting social activity and involvement in community (**E, I, J)** • Building routine and structure (**J**) • Provides social support (**E**)	• Reduces chronic health problems (**A, N, O**) • Improves health status (**G**) • Reduces health service use (**G**) • Reduction in use of medication (**G**) • Reduction in cortisol levels (32 studies) (**N**) • Increase in quality of life (**K**) • Supports general wellbeing (**I**)

A: Beard, 2012; **B**: Bittman et al., 2001; **C**: Blais Rochette & Miranda 2016; **D**: Carlson et al., 2015; **E**: Clift et al., 2010a; **F**: Clift & Hancox, 2001; **G**: Cohen et al., 2007; **H**: Coulton et al., 2015; **I**: Crawford et al., 2013; **J**: Creech et al., 2013; **K**: Daykin et al., 2018; **L**: Eley & Gorman, 2010; **M**: Fancourt et al., 2014; **N**: Fancourt et al., 2016; **O**: Golden et al., 2017; **P**: Hammar et al., 2011; **Q**: Kokotsaki & Hallam, 2011; **R**: Moss et al., 2018; **S**: Perkins et al., 2016; **T**: Perkins et al., 2020; **U**: Silverman, 2003

Note. There is often a significant degree of overlap of impacts on outcomes, making categorization difficult (e.g., dementia being both physical and psychological). Impacts here have been categorized to reflect the characterizations made by the authors as closely as possible.

[12] Studies were chosen based on relevance and key words: music, wellbeing, health.

While the following section briefly includes findings on physical impacts, the main focus is of those studies most closely related to the present work and which report on findings that correlate to the model of complete mental wellbeing according to Perkins and colleagues (2020): emotional wellbeing, psychological wellbeing, and social wellbeing.

Physical impacts (meaning physiological effects or those most closely related to physical health), while not directly related to the present work, are often reported in the literature alongside both psychological and social ones. It is important to note when interpreting these findings that many of the physiological impacts that occur as a result of music engagement (active or passive) cannot and should not be viewed in insular terms (i.e., as solely physical in nature), but as interconnected processes that occur in relation to a host of possible physical, psychological, and social stimuli all influencing one another. To date, the literature has generally shown results that are promising yet inconclusive in relation to music engagement and physical health (Clift et al., 2010a). However, it is important to note that overall physical health and wellbeing as measures in relation to music participation are rarely employed; rather, much of the research has included physiological measures such as heart rate, blood pressure, and hormone activity—which in and of themselves are not necessarily indicators of positive or negative health or wellbeing—in tandem with other objective and qualitative measures.

Research regarding general health benefits has been somewhat developed in the area of singing, with noted impacts especially on the effects of dementia (Beard, 2012; Golden et al., 2017; Hammar et al., 2011). However, much of the literature that has examined the effects of music on specific health conditions like dementia and other chronic health problems is primarily focused on how patients' ability to cope with their illness is affected by music via measures of anxiety and depression (Moss et al, 2018; Perkins et al., 2020). Clift and colleagues (2010a) have described one study by Cohen and colleagues (2007) as one of the most substantial experimental studies regarding singing and health, where singing groups for older adults were established and monitored over a two-year period against a non-intervention control group. Cohen and colleagues (2007) employed a host of standardized measures for mental wellbeing, social wellbeing, health status, health service use, and medication. After one year, results indicated not only higher reports of health, but also fewer doctor visits, less medication, fewer falls, and fewer general health problems for the singing group when compared to the control group (Cohen et al., 2007).

The perception of music and its effects on one's physical health and wellbeing have been noted across the literature as valuable from the perspective of musically engaged individuals. Creech and

colleagues' (2013) case study of the role of music in the lives of older adults reported physical benefits including "a renewed sense of vitality and rejuvenation and improved mobility" (p. 96-97). Indeed, many subjective accounts on the health benefits of music engagement have suggested benefits beyond what any objective measurements have yet been able to demonstrate in the literature.[13] Whether the topic is perceived or measured physical benefits, common to all findings across the literature is the recommendation for more research to clarify the complex process underlying the documented result

Turning to music's effects on mental wellbeing, the role of music in affecting emotional, psychological, and social conditions in relation to wellbeing has been widely explored in a number of different contexts. Although plenty of research studies have examined how music interventions may benefit mental health service users (e.g; Choi et al., 2008; Perkins et al., 2016; Silverman, 2003), there exists a growing movement of research suggesting that the benefits of music on mental health should be viewed as extending beyond service users only. Specifically, Crawford and colleagues (2013) suggest that the use of music for general wellbeing purposes may have implications for "those with more general wellbeing needs, informal carers and health, social care and education personnel (who are often themselves subject to high stress, mental health problems and burnout)" (p. 4). Thus, as this area of study has continued to grow, studies have developed examining not only the implications for service users, but also how music interventions may be beneficial for the psychological wellbeing of general populations. In broad terms, studies examining psychological outcomes have tended to focus on the emotional effects of music, effects on mental disorder symptomology (i.e., increases or decreases in levels of depression or stress), and cognitive effects of music like motivation and stimulation.

2.2.2.1 Listening. As previously noted, the most accessible modes of musical engagement like listening have received increased focus from the field of music and wellbeing. Music listening in particular has been connected with emotional and mood related outcomes by either inducing emotions, or by elevating and sustaining current emotional states (Blais-Rochette & Miranda, 2016; Carlson et al., 2015; Perkins et al., 2016). As Carlson and colleagues (2015) note, music's ability to induce or change emotions through listening has important implications for mood disorders specifically, which are both widespread and largely untreated. Research has indicated that deficits in an individual's ability to emotionally regulate themselves may be linked to increased risk of both depression and anxiety

[13] For example, Clift and Hancox (2001) note that the notion of increased lung capacity reported among singers is widely considered a myth, citing the work of Schorr-Lesnick and colleagues (1985).

(Carlson et al., 2015; Moore, 2013; Moore & Hanson-Abromeit, 2015).[14] Music's use as an emotional regulator is common practice among music therapists, but as Carlson and colleagues (2015) note, "self-directed uses of music in affect regulation are not fully understood" (p. 2). In their study using functional magnetic resonance imaging (fMRI) to explore music listening strategies and mental health, the authors found that discharge (a strategy whereby one uses music to express negative emotions) was connected to increased anxiety and neuroticism, indicating that music listening interventions are not inherently connected to positive results or benefits (Carlson et al., 2015). It is important to note that work from multiple authors has indicated that music and emotional regulation results are highly dependent on how individuals choose to engage with music (Blais-Rochette & Miranda, 2016; Carlson et al., 2015; Moore & Hanson-Abromeit, 2015).

2.2.2.2 Perceived Benefits of Singing. In a study from Moss and colleagues (2018), the authors surveyed an international sample of choir singers about what benefits they perceived in relation to group singing. Similar to Clift and Hancox (2001), the participants reported a number of perceived psychological benefits, primarily helping to combat experiences of low mood and anxiety, and maintaining good mental health (Moss et al., 2018). In addition to reducing the effects of symptoms related to mental disorders and improving mood, research has also pointed to the cognitive benefits of active music participation. Moss and colleagues (2018) reported that cognitive stimulation was a significant factor in survey responses, relating to achievement, learning, and self-esteem. Specifically, respondents reported that engaging in music was beneficial in relation to "keeping the brain active, learning a new skill, being challenged mentally and technically and improving concentration and memory" (Moss et al., 2018, p. 164). Learning a new skill and the related sense of achievement was rated highly by respondents, reportedly leading to increased self-confidence and self-satisfaction (Moss et al., 2018). Moss and colleagues (2018) also saw social connection as a predominant theme in their analysis of 2359 qualitative responses. Not only did choristers report feeling that choir participation provided opportunities to increase general socialization and develop social skills, but also that it gave an opportunity to socialize with a diverse range of people from different age groups, genders, and races that may normally not be available in their local communities (Moss et al., 2018).

[14] *Emotional regulation* refers to "a process by which an individual maintains or modifies his internal emotional or mood state and includes behavioral and autonomic facets" (Carlson et al., 2015, p. 4).

2.2.2.3 Mental Health Related Outcomes. In their systematic review examining music and singing wellbeing outcomes for adults, Daykin and colleagues (2018) found that active music participation had benefits for reducing symptoms of anxiety and depression in multiple populations, including prisoners, patients with chronic obstructive pulmonary disease, palliative patients, and stroke patients. Not all interventions used in these studies were described in detail; singing was the most common intervention used, but little to no information regarding content was given. In a randomized control study examining the effectiveness of singing on mental health-related quality of life for older people, Coulton and colleagues (2015) found substantial benefits using the Short Form (12) Health Survey. After 3 months of regular group singing interventions, levels of anxiety and depression were significantly lower than the control group (who received no singing intervention), suggesting that providing opportunities to meet and sing together may help maintain and enhance the mental wellbeing of older people. In a separate study conducted by Fancourt and colleagues (2016) examining the effects of group drumming on anxiety, depression, social resilience, and inflammatory immune response among mental health service users, improvements were found after six weeks of intervention. During ten weeks of drumming, levels of anxiety fell by 9% by week six and 20% by week ten, while levels of depression fell by 24% by week six and 38% by week ten; overall wellbeing increased for the drumming group by 8% at week six and 16% by week ten (Fancourt et al., 2016). Results from the study also indicated that group music activities (group drumming) may improve individual social resilience (Fancourt et al., 2016). A systematic review from Clift and colleagues (2010a) on the health and wellbeing effects of group singing reported on studies that found active music engagement in the form of singing had benefits for post-operative patients experiencing depression and anxiety (in comparison to a control group who engaged in music discussions), as well as decreases in depression for residents of a long-term care facility. In a meta-ethnography on participatory music engagement's effects on mental wellbeing, Perkins and colleagues (2020) noted that their synthesis of research indicated engagement in music "provides a means of emotional connection, expression, management, and release, as well as eliciting uplifting emotions and relaxation" (p. 1928). Perkins and colleagues (2020) also reported that their synthesis of research indicated music participation "provides a sense of purpose, providing opportunities for participants to develop skills and supporting their accomplishment, agency, self-confidence, and identity formation" (p. 1929).

2.2.2.4 Social Outcomes. Social responses, outcomes, and benefits, such as community support, self-esteem, and a sense of belonging are regularly cited by research respondents as the most

important part of group music engagement, beyond any perceived or measured physical and psychological benefits. The participants of one randomized control study examining effects of singing groups decided, after the 6-month experiment had ended, to continue meeting via the support of a local charity (Coulton et al., 2015). As the authors note, "[t]he study adds weight to the notion that meaningful, social and pleasurable activities can confer mental health benefits to participants identified in other studies of music therapy" (Coulton et al., 2015, p. 8). It is important to note, however, that measurements of social wellbeing and social benefits are difficult to capture via objective means, and thus much of the information regarding these aspects comes from self-report and qualitative measures, or is instead interpreted as an emotional or psychological benefit.[15] Further, the question of whether these effects are unique to group music engagement or are the products of any type of leisure activity is a critical part of the discourse within music and wellbeing research (Lonsdale & Day, 2020; Moss et al., 2018). A recent study investigating if the benefits of choral singing were unique to choirs found that "participants who sang in a choir reported similar levels of psychological well-being [sic], happiness, anxiety, depression, and self-esteem to those who took part in the other five leisure activities" (Lonsdale & Day, 2020, p. 1).[16] Nevertheless, the prominence social benefits are so often given merits serious consideration when exploring the topics of music and wellbeing.

Examining the effects of active music engagement in the lives of older adults, Creech and colleagues (2013) reported on perceived cognitive and social benefits among participants. Cognitive benefits that were reported included meeting new challenges, acquiring new skills, improved concentration and memory, and a general sense of achievement. Creech and colleagues (2013) also noted that participants in both the music and non-music group of the study gave high ratings to statements relating to benefits of group participation; statements included "sustaining well-being, quality of life and reducing stress; acquiring new skills; providing opportunities for mental activity and intellectual stimulation; promoting social activity and involvement in the community; providing opportunities for demonstrating skills and helping others; and maintaining physical health" (p. 96). Other social-adjacent benefits noted by participants in the study included provision of a daily routine and structure which was connected to greater motivation for leaving home and engaging in practice, as well as feelings of playing a valued role and a sense of belonging (Creech et al., 2013).

---

[15] This is not to say quantitative measures for social wellbeing and sociability do not exist. However, there is no strong consensus on what variables factor into social wellbeing. Measures for social wellbeing employed within the music and wellbeing literature have included sociability scoring, mood behaviour assessment, the Bell and Smith check list, and the Behaviour Pathology in Alzheimer's Disease Rating Scale (Clift et al., 2010a).

[16] The five other activities that were compared to choral singing were solo singers, band/orchestra members, solo musicians, team sport players, and solo sport players (Lonsdale & Day, 2020, p. 1).

Social networks that are based in creative and social activities have previously been tied to other aspects of psychological wellbeing, such as recovery from depression (Creech et al., 2013), but have also been found to offer benefits directly related to social support and engagement. For example, evidence points to activities like group singing leading to increases in social behaviours, "springboard[ing] into other collective or 'community oriented' activities (Crawford et al., 2013, p. 8; Clift et al., 2010a). As previously noted, engaging in and maintaining regular social activity is an important part of achieving and maintaining overall wellbeing, and is particularly central in combatting illness and disorders related to loneliness and isolation (Dozois, 2020). For this reason, some have argued for an increased emphasis on music programming for recovery in community contexts over clinical contexts, which can lead to "forums of compassion, trust, and shared understanding in which people can find the opportunity to express and understand their experiences and rebuild identities" (Perkins et al., 2016, p. 2). Group or social activities help to build social connections which "create trust, networks and relationships" as well as cultural connections such as "shared understanding, experiences and ideas—or learning" (Crawford et al., p. 8). Examining the perceived benefits of music ensemble participation among non-music major university students, Kokotsaki and Hallam (2011) noted that while fun and enjoyment were repeatedly emphasised by a majority of participants (52%), the fun aspects were often closely tied with the social elements of ensembleship. For example, 27% of the 62 respondents indicated they enjoyed meeting like-minded people "who also enjoyed making music as part of the group" and developing friendships (Kokotsaki & Hallam, 2011, p. 154. Taken together, these accounts and reports build a picture of how important social aspects of music-making are in wellbeing and enjoyment.

A number of authors have proposed theories and possible mechanisms to explain how and why music participation may induce psychological, cognitive, and social effects. Reflecting on the results of their study examining the effects of group drumming on mental health, Perkins and colleagues (2016) note respondents reporting "the opportunity to communicate without needing to describe emotions, feelings or thoughts in words, or even to talk with other members of the group" as a major factor allowing expression and connectedness through a relatively safe medium (p. 13). Upon review of results from their survey study of group singing and mental wellbeing, Clift and colleagues (2010b) propose six generative mechanisms related to group singing that may aid in mental wellbeing: (1) choral singing engenders happiness and raised spirits, which counter- act feelings of sadness and depression; (2) singing involves focused concentration, which blocks preoccupation with sources of worry; (3) singing involves deep controlled breathing, which counteracts anxiety; (4) choral singing

offers a sense of social support and friendship, which ameliorate feelings of isolation and loneliness; (5) choral singing involves education and learning, which keeps the mind active and counteracts decline of cognitive functions; (6) choral singing involves a regular commitment to attend rehearsal, which motivates people to avoid being physically inactive (pp. 29-30). Perkins and colleagues (2020) also propose three categories of mechanisms and pathways that may help to explain music's effects on psychological wellbeing: (1) music participation allows for emotional connection, expression, and relaxation; (2) music participation allows for learning opportunities to encourage self-confidence and agency; (3) music participation creates an opportunity for distraction and absorption in a safe space (pp. 1928-1932). In relation to social impacts, Perkins and colleagues (2020) further indicated that "music participation facilitates connections with other people, with heritage, and with the past, providing opportunities to contribute to society, to feel togetherness and belonging, and to experience social support and enhanced social functioning" (p. 1932). According to the authors, the facilitation of connections is comprised of six individual and interconnected processes: (1) connection through music; (2) connection to heritage and past; (3) opportunities to give and contribute to society; (4) creating togetherness and belonging through shared experience; (5) providing social support through care for others and receiving care; (6) provision of social benefits and opportunities beyond immediate music-making contexts (Perkins et al., 2020). As with research covering other categories of wellbeing, more work is needed to clarify and expand on the existing body of literature to understand what the mechanisms of music's effects are.

2.3 In-Person and Online Music Contexts

The following sections offer brief overviews on the qualities and characteristics of in-person and online music learning, as well as challenges and findings from online learning instituted during the COVID-19 pandemic.

Humans are intrinsically social creatures, and as noted, learn by engaging with others in their community to build and acquire knowledge. Music learning, whether in a large group or one-on-one setting, is both social and cooperative, involving engagement on the part of the teacher and learner in a collaborative process (Joseph & Lennox, 2021). Wiggins and Espeland (2012) note that multiple aspects of music-making and learning are social, including listening and individual performance which involve engaging with content created by others and sharing one's own content with others, respectively. Music learning, even when done independently, is arguably also social in that it involves

"using processes, strategies, and information that we previously learned from others or products created by others" (Wiggins & Espeland, 2012, p. 343).

In-person academic ensembles (such as the ones featured in the present work) involve complex skill acquisition based in collaborative learning (Elliot & Silverman, 2015). As previously noted, the learning goals and objectives of ensembles in academic contexts are often dependent on explicit and well-established curricular aims. In a study examining the pedagogical and performative practice of both expert music teachers and amateurs at the Royal College of Music. Schiavio and colleagues (2020) found that the general goals included "the ability to 'listen and respond to others' as the most important ensemble skill, whereas 'time management,' 'comparing yourself to the class,' and the 'development of responsible ways of learning' emerged as main learning skills" (p. 1). As the authors note, the experiences of working and playing in such ensembles should be understood as something beyond a simple translation of music from paper: "It is an experience that also encourages open dialogues (i.e., with peers), as well as free musical explorations. As the focus is not only on instrumental technique, deeply emotional moments can be reached in the process" (p. 3). While these moments of deep emotional engagement may be related to impacts on mental wellbeing, they also importantly have an effect over skill acquisition and development (Borgo, 2005). Schiavio and colleagues (2020) highlight the fact that "Not only do affectivity and listening play an important role in ensuring that the group functions well as a whole, they also help enhance different learning modalities based on cooperation and finding a mutual interest" (p. 4). Dakon and Cloete (2018) similarly note that the formal and informal learning situations connected to social and emotional engagement that take place in music ensembles can promote peer learning among members.

It should be noted however that some evidence exists that collaborative learning may in some ways be detrimental in musical contexts. Examining the efficacy of collaborative and individual learning in ensemble rehearsal, Brandler and Peynircioglu (2015) observed vocalists who were studying pieces alone (with or without accompaniment) and collaboratively in groups of three. Using note correctness scoring (pitch and rhythmic accuracy) to quantify the learning, the researchers also administered an enjoyment-of-learning survey prior to and following each session. According to the authors, "[e]arlier observations related to the qualitative advantages for ensemble musicians to engage first in solo rehearsal or first in collaborative rehearsal had suggested that the communicative and interpersonal relations in a collaborating ensemble could lead to greater success" (Brandler & Peynircioglu, 2015, p. 291). Despite this, results indicated that collaboration had a detrimental effect on pitch and rhythmic accuracy.

Turning to online music, research from the past two decades has supported the effectiveness of online learning as compared to in-person formats, particularly when constructivist approaches (e.g., collaborative activities using technology such as blogs) are used (Adnan, 2020; Bowman, 2014). However, as Bowman (2014) notes, the data supporting the effectiveness of online learning does not "support simply putting an existing course online, but they do support redesigning instruction to incorporate additional learning opportunities online" (p. 4).

Advances in technology have allowed people to go beyond the bounds of geographical constraints in creating online music learning contexts. While research supporting the effectiveness of online music learning in particular is relatively limited, the increased development of general online learning has prompted music educators to rethink and redesign methods of curriculum delivery in recent years (Bowman, 2014; Ruthmann, 2007). Undoubtedly, the development of informal music learning online has become well established via blogs, websites, podcasts, and informational videos; Johnson and Hawley (2017) report a simple search on the video hosting website YouTube for videos categorized as "learn music course" identified over 1.5 million results in 2015 alone. Although the pedagogical effectiveness of music learning materials cannot be regulated on public websites, Johnson and Hawley (2017) note that the sheer glut of online music learning sources indicates a strong and widespread desire to engage in informal music learning outside of the traditional classroom boundaries. Informal online music learning sources, such as YouTube videos, allow for students to follow their personal motivations and unique learning objectives on their own time, while also providing a sense of community (Johnsons & Hawley, 2017).

In terms of formal learning, current research indicates academic music learning is increasing rapidly at an "exponential level" since 2007, providing unique opportunities to students in remote and rural geographical locations (Johnson & Hawley, 2017, p. 4). After the first accredited post-secondary course in music fundamentals was offered at Valley City State University in 2004, the prevalence of online music courses at the post-secondary level has continued to grow, with the Berklee College of Music offering their first fully online bachelor's degree program in music production in 2013 (Johnson & Hawley, 2017). It is important to note here that there has been a general resistance in this movement to bring music performance classes online; the vast majority of online classes and degree programs offered in music have been on the topics of music history, musicology, music appreciation, music education, music technology, and music theory (Bowman, 2014; Johnson & Hawley, 2017). In contemplating the resistance of moving music performance learning online, Johnson & Hawley (2017) note the complexity involved in such an endeavour:

> While music performance can be described as an artistic subject that is individual in expression, it has teaching components that require pedagogical strategies (i.e. scaffolding of technique proficiency, repertoire, artistic interpretation etc.), problem-solving skills (i.e. determining note choice in improvisation, instrument inventions etc.), language acquisition (i.e. understanding musical notation, transposition, orchestral arranging, etc.), and historical context (i.e. historical performance practices, instrument history, etc.). (p. 9)

This perspective mirrors the views of Wiggins and Espeland (2012) in describing the high degree of knowledge and skill required to facilitate effective scaffolding for music learning. Difficulties related to practical skill training (i.e., singing, instrument playing, etc.) have been noted in the few programs that have offered online instructions of music performance, leading researchers to the conclusion that music educators must take roles as leaders in the design and implementation of such courses in order to ensure effectiveness (Bowman, 2014).[17]

Similar to performance training online, non-formal music learning through community ensembles in online arenas is relatively rare, due in most part to challenges related to synchronous singing or playing. One form of online ensemble that has seen growth recently is the virtual choir (Fancourt & Steptoe, 2019). Research into these choirs has demonstrated effectiveness in enhancing singing education, enhancing complex musical performances, and increasing singing engagement (Fancourt & Steptoe, 2019). However, it should be noted that the format and goals of virtual choirs are inherently different from live ones. Participants are normally muted (providing little to no feedback for a conductor or director) and record their parts to make an asynchronous blended performance; in both these respects, virtual choirs can be considered low in interaction and low in sensory engagement (Fancourt & Steptoe, 2019).

A number of advantages have been found in relation to online music-making. Chief among these is the issue of accessibility, reaching individuals in remote locations and providing them with opportunities for education and engagement that might not otherwise be possible (Bowman, 2014; Dhawan, 2020). Cost effectiveness is also a benefit of online learning, both in terms of institution-based learning and from the perspective of transportation costs (Dhawan, 2020). Depending on the kind of online or blended learning experience offered, flexibility is also a major advantage of online learning (formal or informal), allowing a student to plan and decide when and where to engage in online content when content is asynchronous in nature (Dhawan, 2020; Hash, 2021). Additionally,

[17] Technologies addressing online music challenges have received increased attention during the COVID-19 pandemic. JackTrip software, developed by researchers at Stanford University, allows musicians to play together in real time over the internet (Hazhady, 2020).

some data suggests that certain students may feel safer in an online environment than a traditional classroom, facilitating more active engagement and greater feelings of agency on the part of the student (Hash, 2021). Moreover, although the data is limited, there may be benefits in regard to social wellbeing in the case of online music learning. Fancourt and Steptoe (2019) compared the experiences of 1158 singers in a virtual choir with the ones of 1158 singers in a live choir. Contrary to the authors' initial hypothesis, participants in the virtual choir reported feeling a slightly greater amount of social presence than their counterparts in live choirs (Fancourt & Steptoe, 2019). The social and psychological dynamics of online ensembles as compared to live ones remain largely unexplored, and thus require further investigation (Fancourt & Steptoe, 2019).

At the same time, online music learning faces some serious challenges. As previously noted, formal face-to-face courses cannot be moved online effectively without serious consideration and redesign, requiring a great deal of time and work on the part of instructors (Johnson & Hawley, 2017). Bowman (2014) notes that while online music learning shares the same difficulties as general online learning, it also has specific challenges related to its subdisciplines. The large variety of subdisciplines within music (performance, composition, education, history, theory, therapy, etc.) requires consideration of "appropriate representation of concepts, and the use of suitable pedagogies in those subdisciplines" (Bowman, 2014). Access to technology is a major barrier to online learning, especially in high poverty areas and school districts (Adnan, 2020; Hash, 2021). For this reason, Adnan (2020) warns that online learning (music or otherwise) is simply not effective in countries and locations that are not digitally advanced. Even for those areas that are considered digitally advanced, there remain issues related to maintaining privacy, audio quality, and stable internet connection (Hash, 2021). Both students and instructors surveyed on their experiences with online learning have reported issues related to lack of personal attention, mediocre class content, difficulties with instruction goals, and difficulty on the part of students with balancing their lives with online learning (Dhawan, 2020). In terms of online music specifically, Dhawan (2020) explains that the biggest challenge for music educators is not only finding new and effective technology and using it, but also reimagining and redesigning music education for online contexts. Common among studies in the area of online music learning is the recommendation for more work, including how constructivist approaches and critical pedagogy using repetition and embodied experiences may aid in engagement and effectiveness (Hash, 2021; He, 2020; Joseph & Lennox, 2021).

2.3.1 Online Music Contexts During COVID-19

The outbreak of COVID-19 and declaration of its status as a worldwide pandemic in March 2020 forced educators to shift their teaching delivery methods and pedagogical practices online almost overnight (Dhawan, 2020). Being a disease that is both airborne and highly contagious, COVID-19 containment has required governments to enforce widespread social distancing, isolation, and quarantine measures, which experts believe will have long-lasting effects on education and wellbeing (Dhawan, 2020; Pfefferbaum & North, 2020). Multiple authors have noted that this forced online migration can be more accurately described as crisis learning (Dhawan, 2020) or emergency teaching (Hash, 2021), as opposed to online implementation of teaching and learning services. As previously discussed, emergency disasters and crises tend to exacerbate problems related to psychological health, creating increased stress, depression, anxiety, and fear—which can all lead to decreased concentration and focus during the learning process (Dhawan, 2020). In the case of music education, teachers "had to find ways of providing meaningful instruction in a subject that typically depends on students interacting throughout the learning process" via platforms that inherently limit group interaction (Hash, 2021, p. 384). These issues have been further compounded by the fact that many governments (at a national and local level) have somewhat lacked in uniformity with regard to when it is safe and appropriate to recommence in-person teaching. Major concerns over how a lack of social interaction will affect the developmental growth of children and adolescents have prompted school reopenings that are quickly reversed due to outbreaks, and reversed again (Adnan, 2020; Vermund & Pitzer, 2020). To that end, the situation in many areas of the world has been unstable and subject to swift changes.

Preliminary research into how education has been affected during this time has generally highlighted challenges related to online technology, including downloading errors, installation difficulties, login issues, disturbances in audio and visual transmission, as well as massive costs to education systems and individual learners (Dhawan, 2020). A study from Adnan (2020) examining attitudes of university students in Pakistan toward their online learning found that lack of face-to-face interaction, delayed response time, and lack of traditional classroom socialization were some of the biggest issues identified by students. Approximately 67.5% of respondents in the study indicated that the new online learning method was immensely different from the learning that had taken place before the pandemic, and 71.4% of respondents reported feeling that the online learning was less motivating than conventional methods (Adnan, 2020). The findings also indicated that many higher institutions were more "focused on the transfer of educational content to the digital world and not specifically on online teaching and delivery methods," and highlighted the fact that online learning cannot produce

effective and desired results in underdeveloped countries (Adnan, 2020, p. 46). Ensuring digital equity should be a major concern for policy makers moving forward not only during the COVID-19 pandemic, but in planning for future events that may necessitate a similar online migration (Adnan, 2020; Dhawan, 2020).

In the advent of online learning during the pandemic, there has been a sharp increase in research examining the general learning situation, but focus on the specific effects on music learning has been somewhat slower (Price et al., 2021). Music teachers at the elementary, secondary, and post-secondary level engaged in formal teaching and learning have reported a need during the pandemic to "rapidly upskill" via professional development and mentoring in order to effectively use online platforms for teaching (Joseph & Lennox, 2021). Music teachers have had to learn for themselves that some online platforms may not be conducive to synchronous teaching online and are often hampered by differences in quality of internet connection in student and instructor homes (Joseph & Lennox, 2021). Hash (2021) has reported that many instrumental and band teachers at the elementary and secondary level have had to massively overhaul teaching methods and regular classroom activities, especially so in districts with high poverty levels where online schooling is simply not an option for many families. As a result, goals in many online music classrooms have shifted to focus on creating a positive and uplifting environment for students, rather than maintaining strict curricular objectives and standards (Joseph & Lennox, 2021; Hash, 2021). In a study surveying 462 band directors at the elementary and secondary level, Hash (2021) highlights this shift in priorities in the survey's results:

> Directors rated six priorities of RL [Remote Learning] on a scale of 1 to 4 (*nonpriority*, *low*, *medium*, or *high priority*). Items ranked as high or medium priorities by most respondents included "maintaining students' well-being" (n = 459, 99.4%), "maintaining motivation in music" (n = 440, 95.2%), "maintaining a sense of community" (n = 413, 89.2%), "developing individual musicianship" (n = 369, 79.9%), and "recruiting and retaining students" (n = 339, 73.4%). Almost all participants rated "preparing band repertoire" as a low priority or a nonpriority (n = 385, 83.3%) in this study. (p. 386)

Directors in the study indicated a number of advantages of the online format, including being able to check-in on students' wellbeing, maintaining student contact, and increased focus on individual musicality (Hash, 2021). Disadvantages identified were similar to those reported as general issues with online education, such as audio issues, visual issues, lack of eye contact, and delay (Hash, 2021).

Non-formal music learning in community organizations has been equally affected during this period, with some of the most strenuous effects being felt by choral groups who engage in singing for

wellbeing and to manage long-term health conditions (Price et al., 2021). A survey of 236 singing group leaders by Price and colleagues (2021) found that leaders reported advantages and disadvantages similar to those indicated by Hash (2021). Leaders reportedly valued being able to check on member's wellbeing, maintaining social contact (especially with vulnerable and housebound members), and increased musicality on the part of singers who are able to sing more freely when muted (Price et al., 2021). Audio issues (e.g., lag and lack of feedback), visual issues (e.g., eyestrain, lack of eye contact), and general technical difficulties were reported as major challenges to online music-making (Price et al., 2021). Price and colleagues (2021) note that many leaders reported shortening online rehearsals, as well as introducing games, quizzes, and other fun activities with member reportedly responding well. The authors also report that many leaders indicated feeling a heightened sense of responsibility toward their singing groups and feeling guilty about being unable to provide an authentic group singing experience, which may be connected to increased stress for those leaders (Price et al., 2021). Leaders and teachers in both formal and non-formal music learning environments have reported increased stress in terms of preparation, feeling that planning has become more comprehensive, often going beyond paid hours and salary, which has made sustainability of online activities throughout the remainder of the pandemic a major concern (Joseph & Lennox, 2021; Price et al., 2021).

Wiggins and Espeland (2012) describe successful music learning as involving a sense of personal agency and contribution on the part of students. Conversely, band directors and singing leaders have indicated that online rehearsals in the time of COVID-19 (if and when they take place) require members to be muted, resulting in less participation, less feedback, and an increased sense of insecurity (Hash, 2021; Price et al., 2021). The agency and social interaction that many students feel during the process of music learning has been greatly reduced, necessitating a shift in learning goals and objectives. Joseph and Lennox (2021) recommend that through this process, music teachers continue professional development in using online technology, work on creating blended modes of delivery for increased engagement, and suggest professional learning organizations should help to develop new tools to help in continuing to share music between home and school using technology. Although there are currently no clear answers to how we may rectify and mitigate challenges in online music learning, identifying challenges and sharing experiences during this global emergency are no doubt the first steps in moving forward.

Chapter 3
Methods

The goal of this dual-case study is to provide an in-depth and detailed examination of the experiences of young adults participating in both in-person and online music-making during the COVID-19 pandemic. The relationship between participants' measured quality of life and their perceptions of how ensemble participation may affect their wellbeing is a main focus of this examination. In order to explore this relationship, a combination of demographic survey, depression and mood scale, stress scale, wellbeing survey, open-ended questions, and interviews are used.

This chapter begins with a brief overview, the explicit research questions driving the project, an analytic statement, presentation of the population, and the musical contexts which were observed. The latter part of the chapter presents the measurements, a timeline of procedures, and ethical considerations.

3.1 Overview

Young adulthood is a critical period of development where individuals may be at higher risk of developing mental disorders (Walker-Harding et al., 2017). Young adults may be at particular risk for stressors imposed during the COVID-19 pandemic, increasing possibility of development of mental disorders (de Figueiredo et al., 2021). At the same time, the connection between music and wellbeing has become well established in the literature as the arts are increasingly taking a role in supporting wellbeing (Daykin et al., 2018). Similarly, while research regarding online learning has been well documented, online music-making has remained less investigated (Fancourt & Steptoe, 2019). Music and wellbeing research, however, has faced a number of specific critiques: (1) music for wellbeing outside of clinical settings is underrepresented in research (Fancourt et al., 2016); (2) instrumental music-making is underrepresented in music and wellbeing research (Clift et al., 2010a; Creech et al., 2013; Daykin et al., 2018; Hallam, 2010; Perkins & Williamon, 2014); (3) research examining what the processes behind music's effects is limited (Daykin et al., 2018; Perkins et al., 2020); (4) there is a lack of mixed methods research in the area of music and wellbeing research (Perkins & Williamon, 2014); and (5) music and wellbeing research has been plagued by a lack of detail in relation to interventions and definitions (Clift et al., 2010a; Fancourt et al., 2014).

Given the above, the question arises of what is the wellbeing status of students who take part in person and online active music-making during the pandemic and how do they relate their wellbeing to their music participation? The participation of members from two distinct contexts has been sought

through this project: the McGill Symphonic Band Club, an instrumental wind ensemble of university students that has shifted to an online format during the 2020-2021 academic year, and the Schulich School of Music Large Ensembles, a variety of academic music ensembles that students at the Schulich School of Music may be placed in as an ensemble course to fulfill their degree requirements. Ensembles from both contexts met in the 2021 winter semester, during the period of participation for this project. Participants from both contexts were recruited via email to complete an online survey, and a self-selecting group of those participants also participated in online interviews.

3.2 Research Questions

The biopsychosocial model used in this work indicates that health can be influenced by a range of social, psychological, and physical factors, and that music's effects can be theoretically charted according to a variety of social, psychological, and physical effects. In the process of analysing and interpreting data, the model will primarily be used as a way to organize factors and effects according to their realm of influence.. As such, this case study will examine two groups of young adults engaged in instrumental music-making and examine (a) what is the status of their individual general wellbeing, and (b) what perceptions they have about how music ensembles may affect their wellbeing. The research questions guiding this work are as follows:

1. What is the measured quality of life and perceived wellbeing of young adults enrolled in in-person and online active group music ensembles/classes?

    1.1 What is the measured quality of life and how does it vary between young adults who are enrolled in:
        I. in-person active group music-making?
        II. online active group music-making?

    1.2 In relation to active music engagement, what effects do young adults reportedly perceive on their physical, mental, and social wellbeing and how do they vary between young adults enrolled in:
        I. in-person active group music-making?
        II. online active group music-making?

3.3 Analytic Statements

As this research has taken place in the form of a dual-case study focusing on two disparate perspectives, it is primarily investigative in nature with the objective to gather rich, descriptive data. However, based on the review of literature, two analytic statements (working hypotheses) have been developed in relation to the research questions:

1. The perceived effects and value of musical engagement are varied, dynamic, fluid, and dependant on individual needs and goals.
    i. The biopsychosocial model (Engel, 1977) upon which the present study is based emphasizes the interconnected nature of factors related to wellbeing. According to Engel's (1977) model, physical, psychological, and social factors contribute to overall health, but individual factors from one domain may have a profound effect on another (e.g., isolation occurring as a result of a psychological disorder like depression will have an effect on social wellbeing and support, collectively affecting one's health).
    ii. Findings from both Perkins and colleagues (2020) and Moss and colleagues (2018) indicate that the effects individuals perceive in relation to music engagement, as well as the value that they attribute to these effects, are connected to a host of interrelated processes. To that end, perceptions regarding musical engagement and its effects are highly individualistic and are related to discrete needs and goals, which may result in a wide variety of responses.
2. The widespread and necessary imposition of social distancing measures result in a collective need and emphasis on social wellbeing, whereby other perceived physio- and psycho-musical effects and benefits become secondary or redundant.
    i. Isolation and lack of in-person socialization are necessary during a pandemic for public health reasons (Dozois, 2020). For this reason, participants from the in-person music-making group are returning to in-person rehearsals after nearly a full year of no ensembles and online-only classes. The opportunity to see and work with classmates after being apart may influence individual social wellbeing measures and perceptions.
    ii. Additionally, as has been reported (Fancourt & Steptoe, 2019; (Price et al., 2021), online rehearsals are normally completely lacking in musical feedback, with most or all members muted during music-making. Without musical feedback, musical motivations (e.g., attainment, self-esteem, self-regulation) may become secondary for online participants.

3.4 Population and Participants

The population for this project was young adults aged 18-24. No criteria beyond age were used for exclusion. Participants were drawn from one of two contexts:

1. The McGill Symphonic Band Club is a wind band open to all students at McGill University who play traditional wind band instruments. While the majority of students are from non-music programs, the band's rotating student conductors and a small number of members are enrolled in music programs.[18] The band does not require its members to audition, plays medium-difficulty to collegiate-level band pieces, and encourages and provides facilitation for members to set up their own small ensembles. The band meets twice weekly for rehearsals (150 minutes) and sectionals (60 minutes). Past repertoire has included videogame music from *World of Warcraft*, wind band arrangements of Holst's *The Planets*, as well as film and cinema scores such as *Spirited Away*. As the ensemble also functions as a social club, monthly social gatherings, activities, and events are also planned for members. Membership fluctuates from semester to semester from 30 to as many as 80 members. In addition to member fees ($20) that are collected to pay for repertoire purchases, instrument rentals, and instrument purchases, the band also organizes bake sales to help raise funds. Two concerts are organized per academic year with entry by donation.
2. The Schulich School of Music Large Ensembles (SSoMLE) include the McGill Symphony Orchestra, the McGill Wind Orchestra, the Contemporary Music Ensemble, the Baroque Orchestra, the McGill Schoenberg Ensemble and the Beethoven Orchestra. Large ensembles are classes worth 1-2 credits offered to instrumental music students at the Schulich School of Music and typically meet five days per week for between 2 and 2 and ½ hours in period blocks of two weeks. Students audition and are placed into one of the five ensembles based on program requirements and ability. Ensemble members are graded based on musical performances as well as preparation and participation in rehearsals, and ensemble specific goals. General objectives of these academic ensembles are to acquire knowledge of performance repertoire through concert preparation, as well as learning about the qualifications and attitudes required of professional musicians. Specific objectives include

[18] The author presently serves as one of the conductors and has had this position since 2015.

intonation, ensemble working, and tone quality. As the ensembles are courses, all students are required to attend all rehearsals, concerts, performances, and recordings.

3.5 Musical Conditions

Public health and safety measures imposed by the provincial government and university administration to help control the spread of COVID-19 greatly affected both ensembles in the 2020-2021 academic year. All McGill University clubs, groups, and social activities were required to cease in-person activities as of March 13, 2020. Similarly, all McGill University classes, teaching labs, exams, and assessments were suspended for two weeks following a mandate by the Quebec government. This suspension continued for the remainder of the 2019-2020 academic year for ensemble classes and in-person social activities. As this action was upheld into the Fall 2020 semester, the Symphonic Band Club's executive decided to conduct its rehearsals online until social distancing measures were lifted. In-person ensembles at the Schulich School of Music resumed in March 2021.

1. **McGill Symphonic Band Club**: The band's schedule was changed to a 1 hour once a week rehearsal via Zoom, with existing members being notified via email on September 13, 2020. All advertising for incoming students was changed to indicate that rehearsals for the band now took place online, and that no concerts would take place in the 2020-2021 academic year. Attendance of rehearsals dropped from a previous 40 regularly attending members to between 10 and 20 members per online rehearsal. Rehearsals typically involved an opening quiz or poll regarding a variety of topics for members to discuss, tuning (an oboe playing member would unmute and play a tuning concert B-flat note while other members tuned to it while still muted), a warm-up (typically involving a YouTube video broadcasted by the conductor that members would play along to while muted), a live poll to decide which pieces would be rehearsed that week, and rehearsal of whichever pieces were chosen (wherein a conductor would broadcast audio of the piece in question and give guided verbal instructions as muted members played along). Rehearsals were broken into 30-minute chunks which were facilitated by two of the band's three conductors who worked on a rotating weekly schedule. A total of 18 rehearsals took place in the 2020-2021 academic year. As no concerts were scheduled for the year, rehearsals ceased to focus on preparing a presentable musical product and became directed by member interests. Although participation for the club varied throughout the year, members were able to attend for a total of 18 hours.

2. **McGill Large Ensembles**: After a rigorous period of planning and updating the music faculty's concert halls to meet COVID-19 safety regulations, students were sent via email a written set of COVID-19 safety guidelines for large ensemble rehearsals and an updated syllabus. Students were to maintain social distancing with seating placements, were to wear masks at all times until directed to take them off for playing and were not permitted to gather or socialize before and after the rehearsal period. The length of rehearsals was changed to a maximum of 1 and ½ hour and the largest ensembles were split into two groups that alternated between two weeks of rehearsal and two weeks off (no rehearsal).

3.6 Measurements

A mixed-methods approach was used for this case study, employing both quantitative and qualitative measures.

Table 3

Methodology

	Methodology
Quantitative	• **Demographic Questionnaire**: Included as part of an online survey, participants were asked standard questions regarding age, sex, and ethnicity. • **Stress and Depression Questionnaire**: Included in the online survey, participants were asked a series of questions lifted from the Perceived Stress Scale (PSS) and the Center for Epidemiologic Studies Depression Scale (CES-D) in order to gauge the state of mental health of the participant population (young adults) in relation to results indicated in the wider literature. The PSS and CES-D were chosen for their high degree of reported validity. Items were chosen on the basis of accessibility of language and after discussion with the primary researcher's supervisor and colleagues. • **Musical History Questionnaire**: Included in the online survey, participants were asked a series of questions regarding their musical training and history of ensemble participation. • **World Health Organization Quality of Life- BREF (WHOQOL-BREF)**: Included in the online survey, the WHOQOL-BREF is a cross-culturally validated quality of life assessment developed by the WHOQOL Group from 15 international field centres (WHO, 2013). The 26 items are divided into four domains: physical health, psychological, social relationships, and environment. The survey has had widespread use, has demonstrated a high degree of internal consistency and validity, and has been used in similar studies examining musician wellbeing (Clift et al 2010a, 2010b).

	• See Appendix A for full questionnaire: Demographic, p. 129; Stress and Depression, pp. 129-130; Musical Background, pp. 131-133; WHOQOL, pp. 134-139.
Qualitative	• **Open-Ended Questions**: Included in the online survey, participants were asked to respond in writing to four questions: 1. Please explain how the COVID-19 pandemic has affected your engagement with music (included in Musical and Background questionnaire). 2. Do you feel that you have personally benefited in the following ways from being enrolled in a music ensemble? If yes, please explain how. -Physically -Emotionally -Socially-Spiritually 3. Are there any ways in which you think that being in a music ensemble could be good for your wellbeing? Please explain. 4. Do you feel that your experience of moving from an in-person to online/online to in-person rehearsal format has had any effect on your wellbeing? Please explain. • **Interviews**: Four audio-recorded interviews were conducted via Cisco WebEx Meetings software. Participants were asked to leave an email they could be contacted at if they were interested being interviewed for the project. Interviewees were initially chosen based on answers as indicated in the questionnaire, with those with higher indications of stress and depressive symptoms receiving higher preference. However, as responses to interviews were limited, those chosen did not necessarily fall into the pool of participants with the highest stress and depressive symptom levels. Two members of the McGill Symphonic Band Club, one member of the McGill Wind Orchestra, and one member who belonged to both the McGill Symphonic Band Club and McGill Wind Orchestra were interviewed. Interview transcripts ranged from 9 to 12 pages in length.[19]

Although one participant 1 was a member of both music contexts, their answers were counted among those belonging to the Schulich School of Music Large Ensembles. The reasoning for this decision was twofold. Firstly, participant 1 functioned as one of three rotating conductors and was therefore not present for a number of rehearsals with the Symphonic Band Club and did not play as a member of the band. Second, answers provided in the interview indicated that participant 1 viewed their own engagement with the Symphonic Band Club as minor.

3.7 Ethical Considerations

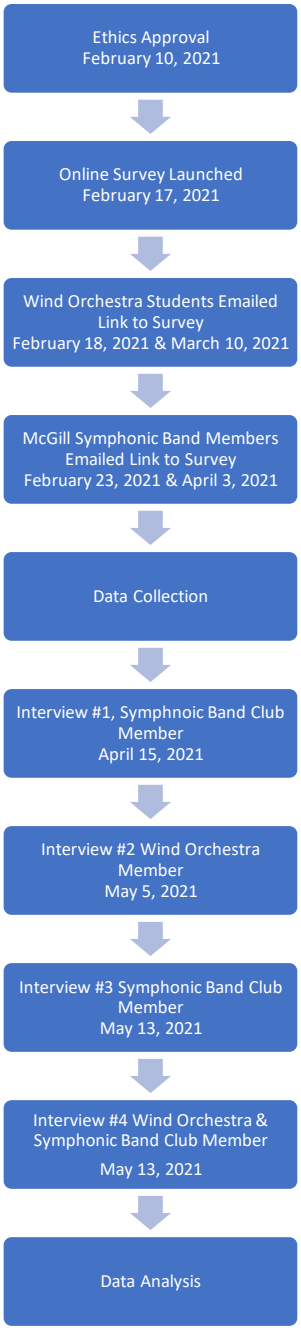
The Research Ethics Board Office of McGill University reviewed and approved this project (see Appendix C). All participants were required to indicate their agreement to an informed consent form via LimeSurvey. The consent form specified the project's aims and participant tasks to be completed (see Appendix B). The form also provided assurance of confidentiality and guarantee that participants who chose to leave an identifying email address could withdraw from the project at any

[19] For full interviews and other materials that could not be included within this study's appendices, please see the following supplementary material of anonymized study materials.

time should they so choose. The names and contact information of the principal investigator and supervisor were provided to participants. All data were kept confidential and stored in a secure location. Subject names were replaced by identification codes on documents whenever possible.

3.8 Procedures

Upon approval of the project and after minor edits to question placement and grouping, the online survey was launched via the LimeSurvey platform. First contact for this project with the McGill Symphonic Band Club was made via the group's president who emailed an invitation to participate that included a link to the survey to all members. First contact with the Schulich School of Music Large Ensembles was with the McGill Wind Orchestra and made via the ensemble's director, who similarly emailed an invitation to all members. A second invitation was sent via email to the Symphonic Band Club and all other Large Ensembles on April 3, 2021 and March 10, 2021 respectively (see recruitment emails in the supplementary material folder: Online Supplementary Material). After clicking on the link to the survey from the invitation, participants were presented with an informed consent agreement (see Appendix B). Upon indication of consent, participants were then prompted to leave an email address to potentially be contacted at should they be interested in participating in an interview. The survey contained a total of 32 questions and took approximately 30 minutes to complete. Of 27 participants, 17 individuals agreed to an interview and left email addresses to be contacted. Two members of the McGill Symphonic Band Club, one member of the McGill Wind Orchestra, and one participant who was a member of both groups were contacted and sat for interviews. Interviews were semi-structured, ranged in length from 23 to 47 minutes, were conducted between April 15, 2021 and May 13, 2021, and audio recorded via the Cisco WebEx



Meetings platform. Interview questions were designed to explore, expand upon, and contextualize the written answers given by interviewees in their survey responses (see Appendix E, Interview Question Model).

3.9 Analysis of Data

In order to understand the measured wellbeing and the perceived wellbeing of young adults enrolled in the two musical conditions, both the qualitative and quantitative data were analyzed. Qualitative data were analyzed via thematic coding analysis. Coding themes were originally created using a deductive approach once all qualitative data had been collected and initially reviewed. Both the author and supervisor (Dr. Cossette) independently reviewed written answers and the interview transcriptions to identify possible themes, discussed discrepancies and then came to a consensus on how to classify data per themes.

Five themes were created using this deductive approach in order to understand how young adults understood their wellbeing in relation to their music ensemble participation: Using music as a method of emotional/mood regulation; Opportunities for friendship/creating social circles/creating community; Creating space for attainment/accomplishment/growth/learning; Providing structure/breaking routine; Providing access to spirituality/culture. Similarities between these codes and those used by Perkins and colleagues (2020) in their meta-ethnography of how music engagement supports mental wellbeing were immediately identified. Due to these similarities, as well as added nuance from Perkins and colleagues' codes, and the possibility of data comparisons, it was determined that the codes from the meta-ethnography should be adopted for the present study with minor changes. However, not all codes and themes originally identified could be ascribed to those listed by the authors: providing structure, breaking routine, and connection to spirituality were all themes/codes that were found in the present work but not in those provided by Perkins and colleagues. Thus, it was necessary to adapt the codes, making direct comparisons to work Perkins and colleagues less accurate. The new themes and codes are as seen in Table 4.

Thematic analysis continued with these codes, with both the author and supervisor independently identifying themes and codes in the qualitative data and meeting to discuss discrepancies. Coding followed the above themes with occasional overlap of codes. For example, when an interviewee spoke at some length on the topic of social support with occasional reference to emotional expression, the entire section would be coded as providing social support with individual sentences being double or triple coded to other codes that were mentioned.

Due to the small sample size of each group, as well as the descriptive purpose of the current study, inferential statistical analyses were not applied to the quantitative data. Descriptive statistics were applied to the WHOQOL-BREF scores using Microsoft Excel.

Table 4

Themes and Codes Used for Thematic Analysis

Themes	Providing structure and breaking routine*	Providing respite	Managing and expressing emotions	Facilitating self-development	Facilitating connections
Codes	• Structure* • Routine*	• Providing distraction • Providing absorption • Creating me time • Creating a safe space • Access to spirituality*	• Providing relaxation • Eliciting uplifting emotions • Coping with emotions • Connecting to and expressing deep-seat emotions • Facilitating catharsis † • Perceiving the benefits of music †	• Supporting identity formation • Promoting self-confidence • Promoting agency • Giving a sense of purpose • Facilitating accomplishment • Developing skills	• Providing wider social benefits • Providing social support • Creating togetherness and belonging • Creating opportunities to give and contribute • Connecting to heritage and past • Connecting through music

*Themes/codes added to those originally reported by Perkins and colleagues (2020).
† Codes originally reported by Perkins and colleagues (2020) but removed due to lack of identification in data or inappropriateness for the present study
Themes/codes unmarked by special characters come directly from Perkins and colleagues (2020).

Chapter 4
Results

The research questions of the present work examine the online and in-person case groups on two fronts: (1) what the measured quality of life of members is, and (2) what effects are reportedly perceived on physical, mental, spiritual, and social wellbeing in relation to music engagement by members. The following demographic, mental health, and musical history results (sections 4.1 – 4.3) are presented in order to provide context and rich description of each group in this case study. In direct response to research questions 1.1 and 1.2, score results from the WHOQOL-BREF instrument as well as thematic coding analysis of qualitative responses are presented in sections 4.4 and 4.5.

4.1 Participant Demographic Characteristics

A total of 48 responses were submitted to the online survey. After removing duplicated and incomplete responses, a total of 27 responses remained with 14 attributed to McGill Symphonic Band members and 13 to the Schulich School of Music Large Ensembles. For the purposes of analysis, the one respondent who was a member of both groups was counted as a Schulich School of Music Large Ensembles member.

Results from members of the McGill Symphonic Band Club (SBC) indicated a median age of 20 and a majority of female respondents (57%, *n*=8). Of these members, 50% (*n*=7) indicated their sexual orientation as straight/heterosexual and 42% (*n*=6) indicated being somewhere on the LBTQIA+ spectrum. A majority (57%, *n*=8) of SBC members reported belonging to a visible minority group (Asian, Asian/Mixed Race, and Arab) with 42% (*n*=6) having lived in Canada for five years or less and 42% (*n*=6) having lived in Canada for nearly their entire life. For a full demographic profile of the SBC, see Table 5.

Results from the Schulich School of Music large Ensembles (SSoMLE) similarly indicated a median age of 20 and a majority of female respondents (69%, *n*=9). SSoMLE results indicated that 61% of respondents (*n*=8) identify as straight/heterosexual with 23% (*n*=3) identifying somewhere on the LGBTQIA+ spectrum, and two respondents choosing not to disclose their sexual orientation. A majority of SSoMLE respondents reported identifying as white (76%, *n*=10) and only three members (23%) identified as members of a visible minority. Only two respondents reported having been born in a country other than Canada, two members reported living in Canada for less than one year, and eight members for their entire life. For a full demographic profile of the SSoMLE, see Table 6.

Table 5

McGill Symphonic Band Club Demographic Profile

Participant	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Age	19	21	19	20	20	18	20	19	23	22	18	23	20	20
Sex Assigned at Birth	Female	Male	Female	Male	Male	Male	Female	Female	Prefer not to disclose	Male	Female	Female	Female	Male
Gender Identity	Female	Male	Female	Male	Male	Male	Female	Female	Female	Male	Female	Female	Female	Male
Sexual Orientation	Bisexual	Bisexual	Lesbian	Straight	Bisexual	Bisexual	Straight	Straight	Prefer not to disclose	Gay	Straight	Straight	Straight	Straight
Ethnicity	White	White	White	White	White	White	South-east Asian	Asian	East Asian	Chinese	Arab	Asian/Mixed race	Asian	Chinese
Country of Birth	Canada	Canada	Canada	France	France	Australia	Canada	Japan	United States	Canada	Egypt	United States	China	China
Years Lived in Canada	19	21	19	2	1	8	19	3	0	22	1.5	4	19	16

Table 6

Schulich School of Music Large Ensembles Demographic Profile

Participant	1	2	3	4	5	6	7	8	9	10	11	12	13
Age	21	21	19	20	21	22	19	18	19	19	23	22	18
Sex Assigned at Birth	Female	Male	Female	Male	Female	Prefer not to disclose	Female	Female	Female	Female	Female	Male	Female
Gender Identity	Female	Male	Female	Male	Female	Prefer not to disclose	Female	Female	Non-binary/Gender fluid	Female	Female	Male	Prefer not to disclose
Sexual Orientation	Straight	Straight	Straight	Straight	Straight	Prefer not to disclose	Straight	Straight	Lesbian	Prefer not to disclose	Straight	Bisexual	Bisexual
Ethnicity	White	White	White	Asian	White	Latino	White	White	White	Asian	White	White	White
Country of Birth	Canada	Canada	United States	Canada	Canada	Prefer not to disclose	Canada	United States	Canada	Canada	Canada	Canada	Canada
Years Lived in Canada	21	21	10	14	21	1	19	1	19	19	23	22	8

4.2 Musical History Profile

Musical training history for the SBC (Appendix A, p. 131-133) demonstrated somewhat similar backgrounds between members. All members (*n*=14) reported playing or singing in ensembles for 5+ years, while only five members (35%) reported having taken lessons for 5+ years on the instrument they primarily play in the ensemble (members with less than 5+ years of lessons: 21%, *n*=3 for 3 years; 21%, *n*=3 for 2 years; 7%, *n*=1 for 1 year; 14%, *n*=2 never). SBC members come from a variety of academic programs from faculties of Arts, Science, Engineering, Commerce,

and Education.

Results for the SSoMLE (see Appendix A) were slightly more homogeneous, with all members having played in ensembles and taken private lessons on their primary ensemble instrument for 5+ years. Programs of study included performance (69%, *n*=9), music education (23%, *n*=3), and general faculty program (8%, *n*=1).

4.3 Stress, Depression, and Mental Health Profile

Items from both the PSS and CES-D were included in the survey. These items were included not for the purpose of diagnosing or assessing participants, but to give a general impression of stress and depression levels at the time of response. Items lifted from the PSS focused on respondents' perceptions relating to the degree of control they have in their lives, levels of frustration, levels of stress, and ability to cope. Those items lifted from the CES-D focus on respondents' affect and attitudes toward the future, self-esteem, ability to focus, and sleep pattern. Participants were also asked if they had ever sought help over mental health concerns, if they had ever been diagnosed with a mental illness, what diagnoses they had received, and what treatments that had been received.

4.3.1 Symphonic Band Club

Results from the SBC indicated moderate to high levels of stress and moderate to low frequency of depressive symptoms. A summary of those results can be seen in Table 7, Table 8, and Table 9.

In the month prior to taking the survey, answers from members of the SBC indicated a relatively high level of stressors. Of significant note, no participant responded as never experiencing the conditions specified in Table 7. Although a majority of respondents (57%, *n*=8) indicated feeling that they were unable to control the important things in their life only some of the time or almost never, 7% (*n*=1) indicated that they had been unable to very often and 36% (*n*=5) indicated fairly often. A majority of SBC members (57%, *n*=8) also reported high levels of nervousness and stress, experiencing those feelings either very often or fairly often, with a similar pattern seen in regard to how well respondents felt they could not cope with all the things they had to do. Conversely, a majority of respondents (57%, *n*=8) reported feelings of anger related to loss of control only some of the time or almost never; 43% (*n*=6) indicated feeling nervous or stressed very often or fairly often. A large majority (72%, *n*=10) reported feeling only some of the time or almost never that difficulties were piling up so high that they could not be overcome; only 28% (*n*=4) reported feeling this way very often or fairly often.

Table 7

Symphonic Band Club Stress Profile

Response	Very Often	Fairly Often	Sometimes	Almost Never	Never
In the last month, how often have you felt/been:					
[You were unable to control the important things in your life?]	**7.12**% (*n*= 1) Participant: L	**35.72**% (*n*=5) Participant: A, B, G, M, N	**28.56**% (*n*=4) Participant: C, F, I, J	**28.56**% (*n*= 4) Participants: D, E, H, K	-
[Nervous and stressed?]	**35.72**% (*n*=5) Participant: A, B, C, G, L	**21.44**% (*n*= 3) Participant: I, J, M	**35.72**% (*n*=5) Participant: D, E, F, H, K	**7.12**% (n= 1) Participant: N	-
[That you could not cope with all the things that you had to do?]	**7.12**% (*n*= 1) Participant: C	**50.00**% (*n*= 7) Participant: A, B, F, G, I, J, L	**21.44**% (*n*= 3) Participant: D, E, M	**21.44**% (*n*= 3) Participant: H, K, N	-
[Angered because of things that were outside of your control?]	**21.44**% (*n*= 3) Participant: G, L, M	**21.44**% (*n*= 3) Participant: B, F, N	**28.56**% (*n*= 4) Participant: C, D, J, K	**28.56**% (*n*= 4) Participant: A, E, H, I	-
[Difficulties were piling up so high that you could not overcome them?]	**14.28**% (*n*=2) Participant: B, L	**14.28**% (*n*=2) Participant: C, J	**50.00**% (*n*= 7) Participant: A, D, E, F, G, I, M	**21.44**% (*n*= 3) Participant: H, K, N	-

In the week prior to taking the survey, responses from the SBC members (Table 8) showed moderate levels of depressive symptoms. While 43% (*n*=6) of respondents felt hopeful about the future either most of the time or a moderate amount, 57% (*n*=8) reported having those feelings only some of the time or rarely.

Table 8

Symphonic Band Club Depression Profile

Response	Most or all of the time (5-7 days)	Occasionally or a moderate amount of time (3-4 days)	Some or a little of the time (1-2 days)	Rarely or none of the time (less than 1 day)
Please indicate how often you have felt a particular way in the past week:				
[I felt hopeful about the future]	**14.28**% (*n*=2) Participant: H, K	**28.56**% (*n*=4) Participant: C, D, I, J	**42.86**% (*n*= 6) Participant: A, B, E, G, L, M	**14.28**% (*n*=2) Participant: F, N
[I enjoyed life]	**35.72**% (*n*= 5) Participant: D, E, F, H, K	**28.56**% (*n*= 4) Participant: A, I, J, L	**28.56**% (*n*= 4) Participant: C, G, M, N	**7.12**% (*n*= 1) Participant: B
[I felt I was just as good as other people]	**28.56**% (*n*= 4) Participant: D, H, I, K	**21.44**% (*n*= 3) Participant: A, J, L	**28.56**% (*n*= 4) Participant: E, F, M, N	**21.44**% (*n*= 3) Participant: B, C, G
[I felt that people dislike me]	**21.44**% (*n*= 3) Participant: B, G, K	**14.28**% (*n*=2) Participant: C, F	**42.86**% (*n*= 6) Participant: H, I, J, L, M, N	**21.44**% (*n*= 3) Participant: A, D, E
[I had trouble keeping my mind on what I was doing]	**14.28**% (*n*= 2) Participant: F, G	**42.86**% (*n*= 6) Participant: A, B, C, I, J, K	**28.56**% (*n*= 4) Participant: D, E, H, N	**14.28**% (*n*=2) Participant: L, M
[My sleep was restless]	-	**21.44**% (*n*= 3) Participant: C, F, G	**42.86**% (*n*= 6) Participant: A, B, I, J, L, N	**35.72**% (*n*=5) Participant: D, E, H, K, M

A majority of respondents (64%, *n*=9) indicated enjoying life most of the time or a moderate amount, while 36% (*n*=5) indicated enjoying life only some of the time or rarely. Respondents were split evenly (i.e., 50%, *n*=7) between feeling as good as other people most or a moderate amount of the time, and some of the time or rarely. A majority (64%, *n*=9) also felt disliked by other people sometimes or rarely, while 36% (*n*=5) felt so often or a moderate amount of the time. Focus was reported as an issue that occurred often or a moderate amount of time for 57% (*n*=8) of respondents, with 43% (*n*=6) indicating less so. Restless sleep was reported as less of an issue with a large majority (78%, *n*=11) indicating experiencing restless sleep only some of the time or rarely; 22% (*n*=3) experienced restless sleep a moderate amount of the time and no respondents experienced restless sleep most of the time.

Results from the SBC (Table 9) indicated that 43% (*n*= 6) of respondents had previously sought help over mental health concerns, with 28% (*n*=4) having been diagnosed with a mental illness. Diagnoses fell into two main categories with overlap: anxiety disorders and depressive disorders. Treatments included therapy and medication.

Table 9

Symphonic Band Club Mental Health Profile

Response	**Yes**	**No**	
Have you ever sought help (professional or otherwise) over personal mental health concerns?	42.86% (*n*= 6) Participant: A, C, F, K, L, M	57.14% (n= 8) Participant: B, D, E, G, H, I, J, N	
Response	**Yes**	**No**	
Have you ever been diagnosed with a mental illness (e.g. anxiety or depression)?	28.57% (*n*= 4) Participant: C, F, L, M	71.43% (*n*= 10) Participant: A, B, D, E, G, H, I, J, K, N	
Response	**Yes**	**No**	**Not Applicable**
Have you ever received treatment for a mental illness (e.g. medication, therapy, counselling, etc.)?	28.57% (*n*= 4) Participant: C, F, L, M	35.71% (*n*=5) Participant: B, E, H, I, K	35.71% (*n*= 5) Participant: A, D, G, J, N
Response	**Generalized Anxiety Disorder/Anxiety**	**Persistent Depressive Disorder/Depression**	
Which mental illness(es) have you been diagnosed with?	Participant: C(t); L(t&m); M(m); A, K	Participant: C(t); F(m); L(t&m)	

Participants in red have sought help but have not received a diagnosis.
Treatments received: Therapy (t), Medication (m)

4.3.2 Schulich School of Music Large Ensembles

Results from members of the SSoMLE also indicated relatively high levels of stress in the month prior to taking the survey. Similar to members of the SBC, no respondents responded as never experiencing the conditions specified in Table 10.

As seen in Table 10, a majority (62%, *n*=8) of respondents reported feeling a loss of control over important things in life almost never or only some of the time; 30% (*n*=4) felt they could not control the important things in life fairly often and 8% (*n*=1) responded very often. A large majority (77%, *n*=10) of respondents reported feeling nervous and stressed either very or fairly often, with 23% (*n*=3) feeling so sometimes and no respondents indicating almost never. Although 54% (*n*=7) felt they could not cope with all they had to do either fairly or very often, a close 46% (*n*=6) responded feeling this way some of the time or almost never. Respondents were split similarly in regard to feelings of anger related to loss of control, with 54% (*n*=7) feeling angered very or fairly often and 46% (*n*=6) feeling so some of the time or almost never. A majority of respondents (69%, *n*=9) felt difficulties were insurmountably high only sometimes or almost never with 31% (*n*=4) feeling this way more frequently.

Table 10

Schulich School of Music Large Ensembles Stress Profile

Response	Very Often	Fairly Often	Sometimes	Almost Never	Never
In the last month, how often have you felt/been:					
[You were unable to control the important things in your life?]	**7.69**% (*n*= 1) Participant: 13	**30.77**% (*n*= 4) Participant: 3, 6, 9, 11	**38.46**% (*n*= 5) Participant: 1, 2, 4, 5, 12	**23.08**% (*n*=3) Participant: 7, 8, 10	-
[Nervous and stressed?]	**46.15**% (*n*= 6) Participant: 2, 4, 5, 6, 9, 13	**30.77**% (*n*= 4) Participant: 1, 3, 7, 8	**23.08**% (*n*= 3) Participant: 10, 11, 12	-	-
[That you could not cope with all the things that you had to do?]	**30.77**% (*n*=4) Participant: 4, 6, 9, 13	**23.08**% (*n*= 3) Participant: 2, 5, 12	**38.46**% (*n*= 5) Participant: 1, 3, 7, 8, 11	**7.69**% (*n*= 1) Participant: 10	-
[Angered because of things that were outside of your control?]	**15.48**% (*n*= 2) Participant: 6, 13	**30.77**% (*n*= 4) Participant: 1, 2, 4, 9	**23.08**% (*n*= 3) Participant: 5, 10, 12	**15.38**% (*n*= 2) Participant: 3, 11	-
[Difficulties were piling up so high that you could not overcome them?]	**23.08**% (*n*= 3) Participant: 6, 9, 13	**7.69**% (*n*= 1) Participant: 12	**46.15**% (*n*= 6) Participant: 1, 2, 3, 4, 5, 8	**23.08**% (*n*= 3) Participant: 7, 10, 11	-

Moderate levels of depressive symptoms were reported by members of the SSoMLE (Table 11). A majority of respondents (54%, *n*=7) indicated they felt hopeful about the future most or a moderate amount of the time, with 46% (*n*=6) feeling so less frequently. A large majority (77%, *n*=10) reported enjoying life most or a moderate amount of the time, with 23% (*n*=3) indicating enjoying life only some of the time and no respondents indicating rarely or none of the time. When asked if they felt just as good as other people, no respondents indicated that they felt that way rarely or none of the time; 38% (*n*=5) indicated sometimes; 53% (*n*=7) reported feeling as good as other people most or a moderate amount of the time.

Table 11

Schulich School of Music Large Ensembles Depression Profile

Response	Most or all of the time (5-7 days)	Occasionally or a moderate amount of time (3-4 days)	Some or a little of the time (1-2 days)	Rarely or none of the time (less than 1 day)
Please indicate how often you have felt a particular way in the past week:				
[I felt hopeful about the future]	**30.77**% (*n*= 4) Participant: 4, 7, 8, 11	**23.08**% (*n*= 3) Participant: 1, 2, 3	**30.77**% (*n*= 4) Participant: 5, 9, 10, 13	**15.38**% (*n*= 2) Participant: 6, 12
[I enjoyed life]	**38.46**% (*n*= 5) Participant: 1, 4, 7, 8, 11	**38.46**% (*n*= 5) Participant: 2, 3, 9, 10, 12	**23.08**% (*n*= 3) Participant: 5, 6, 13	-
[I felt I was just as good as other people]*	**7.69**% (*n*= 1) Participant: 7	**46.15**% (*n*= 6) Participant: 1, 3, 5, 6, 8, 11	**38.46**% (*n*= 5) Participant: 2, 4, 9, 10, 12	-
[I felt that people dislike me]	**7.69**% (*n*= 1) Participant: 13	**30.77**% (*n*= 4) Participant: 4, 8, 9, 11	**23.08**% (*n*= 3) Participant: 2, 3, 7	**38.46**% (*n*= 5) Participant: 1, 5, 6, 10, 12
[I had trouble keeping my mind on what I was doing]	**46.15**% (*n*= 6) Participant: 1, 2, 6, 9, 12, 13	**38.46**% (*n*= 5) Participant: 4, 5, 7, 10, 11	**15.38**% (*n*= 2) Participant: 3, 8	-
[My sleep was restless]	**15.38**% (*n*= 2) Participant: 1, 13	**38.46**% (*n*= 5) Participant: 2, 5, 8, 9, 13	**23.08**% (*n*= 3) Participant: 6, 10, 11	**23.08**% (*n*= 3) Participant: 3, 4, 7

*One blank response from participant 13

Table 12

Schulich School of Music Large Ensembles Mental Health Profile

Response	**Yes**	**No**	
Have you ever sought help (professional or otherwise) over personal mental health concerns?	**53.85**% (*n*= 7) Participant: 3, 5, 6, 8, 9, 12, 13	**46.15**% (*n*= 6) Participant: 1, 2, 4, 7, 10, 11	
Response	**Yes**	**No**	**Prefer Not to Disclose**
Have you ever been diagnosed with a mental illness (e.g. anxiety or depression)?	**38.46**% (*n*= 5) Participant: 5, 8, 9, 12, 13	**53.85**% (*n*= 7) Participant: 1, 2, 3, 4, 7, 10, 11	**7.69**% (*n*= 1) Participant: 6
Response	**Yes**	**No**	**Not Applicable**
Have you ever received treatment for a mental illness (e.g. medication, therapy, counselling, etc.)?	**53.85**% (*n*= 7) Participant: 3, 5, 6, 8, 9, 12, 13	**23.08**% (*n*= 3) Participant: 4, 10, 11	**23.08**% (*n*= 3) Participant: 1, 2, 7

Response	**Generalized Anxiety Disorder/Anxiety**	**Anorexia**	**Autism**	**Persistent Depressive Disorder/Depression**	**Bipolar Disorder**	**Attention Deficit Disorder**
Which mental illness(es) have you been diagnosed with?	Participant: 5(t), 9(t&m), 12(m), 3, 6*	Participant: 8(t, m, op)	Participant: 9 (t&m)	Participant: 8 (t, m, op), 9 (t&m), 12 (m)	Participant: 13 (t, c, m)	Participant: 13 (t, c, m)

Treatments received: Therapy (t), Counselling (c), Medication (m), Outpatient program (op)
**Reasons for seeking help unknown*

Also noted in Table 11, a majority of respondents (62%, *n*=8) felt that people disliked them only some of the time or rarely; 38% (*n*=5) responded feeling this way more frequently. Focus seemed to be a major issue for SSoMLE members with 85% (*n*=11) reporting being unable to stay focused most or a moderate amount of the time, 15% (*n*=2) indicating trouble focusing sometimes, and no respondents having trouble focusing rarely or none of the time. Restless sleep was an issue

most or a moderate amount of the time for 54%, (*n*=7), with 46% (*n*=6) having issues with restless sleep less frequently.

Results from the SSoMLE members (Table 12) indicated that 54% (*n*=7) had previously sought help over mental health concerns, with 38% (*n*=5) having received a diagnosis. Diagnoses similarly included some overlap between anxiety and depressive disorders, but also included anorexia, autism spectrum disorder, bipolar disorder, and attention deficit disorder. Treatments included therapy, counselling, medication, and outpatient hospital programs.

4.4 Quality of Life Results

The WHOQOL-BREF instrument is a 26-item survey covering the four domains of overall quality of life, physical health, psychological wellbeing, social wellbeing, and environmental wellbeing. A table including all answers provided by each member can be found in Appendix A, pp. 134-139. Domain scoring for the WHOQOL-BREF suggests that if two or more items are missing from the Physical Health or Environment domains that scores not be calculated; likewise, if any items are missing from the other domains it is suggested that scores not be calculated (WHO, 2013). Although some scores for respondents D, G, 6, and 13 could not be calculated, their full response account can be found in Appendix A.

A profile of domain scores for the SBC can be found in Table 13.

Table 13

Symphonic Band Club Members WHOQOL-BREF Domain Score Profile

	Range	*n*	Mean	Standard Deviation	Minimum-Maximum	Confidence Interval
Overall	2-10	14	7.85	1.29	5-9	0.74
Physical	7-35	14	26.35	4.36	16-31	2.51
Psychological	6-30	14	17.42	4.36	9-25	2.51
Social	3-15	12	10.66	2.38	6-14	1.51
Environmental	8-40	14	31.78	4.40	20-37	2.54

With a possible score range of 2-10, the overall quality of life domain had an average score of 7.8, the median was calculated as 8, and 95% CI [7.11, 8.60]. Physical scores, having a possible range of 7-35, had an average of 26.3 with a median and mode of 28 indicating a slight skew toward positive scores, and 95% CI [23.83, 28.87]. The psychological domain had a possible range of 6-30, with a calculated average of 17.4 and median and mode of 18, again indicating a slight skew toward more

positive scores, and 95% CI [14.90, 19.94]. It should be noted though that the average for the psychological domain was relatively low (transformed score = 47.6/100, see Table 15).[20] The social domain had a possible range of 3-15, with an average score of 10.6, median of 10.5, mode of 10, and 95% CI [9.15, 12.18]. Finally, the environmental domain had a possible score range of 8-40, with an average of 31.7, median of 33, mode of 34, again indicating a slight skew toward positive scores, and 95% CI [29.24, 34.32]. Figure 3 presents the distribution and range of scores; median values are generally higher than the average of each domain, indicating a positive skew of scores.

Table 14 presents a profile of domain scores for the SSoMLE.

Table 14

Schulich School of Music Large Ensembles WHOQOL-BREF Domain Score Profile

	Range	*n*	Mean	Standard Deviation	Minimum-Maximum	Confidence Interval
Overall	2-10	13	8.30	1.54	5-10	0.93
Physical	7-35	12	25.41	4.52	16-32	2.87
Psychological	6-30	11	18.54	3.01	13-24	2.02
Social	3-15	12	10.75	1.60	8-13	1.01
Environmental	8-40	12	30	4.80	19-36	3.05

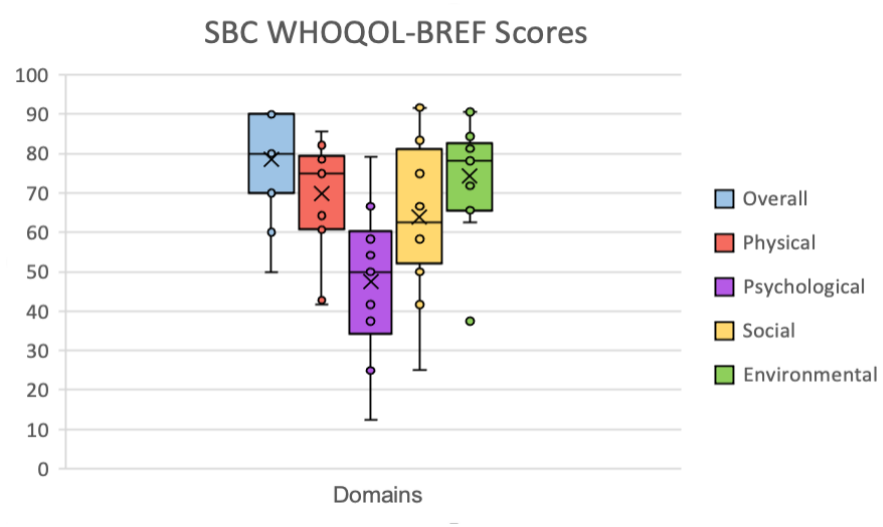
The overall quality of life domain had an average score of 8.3, with a median and mode of 8, and 95% CI [7.37, 9.24]. Physical scores had an average of 25.4 with a median of 26.5, mode of 27, and 95% CI [22.54, 28.28]. The psychological domain had an average of 18.5, with a median and mode of 19, and 95% CI [16.52, 20.56]. The social domain had an average score of 10.7, with a median and mode of 11, and 95% CI [9.73, 11.76]. Finally, the environmental domain had an average of 30, median of 31, and mode of 32, indicating a slight skew toward positive scores, and 95% CI [26.94, 33.05]. See Figure 4 for an overview of distribution and range. Figure 4 presents the distribution and range of scores; similar to the SBC, median values are generally higher than the average of each domain, indicating a positive skew of scores.

Transformed scores (out of 100) for the SSoMLE group can be seen in Table 16. The table also includes references to demographic and mental health information for each participant. Average domain scores for the SSoMLE were as follows: overall 83; physical 65.7; psychological 52.7; social 64.6; and environmental 68.8.

[20] Scores were transformed using the formula according to the WHOQOL-BREF instrument: transformed score = ((raw score – lowest possible score)/raw score range)*100.

Figure 3

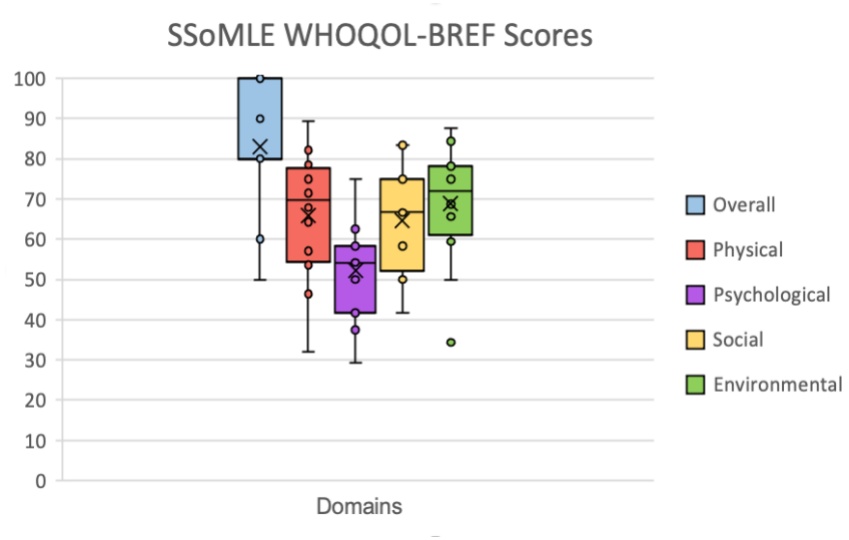
Symphonic Band Club WHOQOL-BREF Scores, Distribution & Range



Note: X indicates mean, – indicates median.

Figure 4

Schulich School of Music WHOQOL-BREF Scores, Distribution & Range



Note: X indicates mean, – indicates median.

Table 15

Symphonic Band Club Member WHOQOL-BREF Transformed Scores

	Details	Overall QOL	Physical	Psychological	Social	Environmental
A	FQWC	90	78.57	58.33	91.67	90.63
B	MQWC	50	41.67	12.5	50	37.5
C	FQWC	60	42.86	25	41.67	71.88
D	MSWI	90	85.71	79.17	-	71.88
E	MQWI	70	75	50	75	78.13
F	MQWC	70	60.71	50	58.33	65.63
G	FSBC	90	60.71	37.5	-	82.14
H	FSBI	80	82.14	66.67	66.67	65.63

Table 15 continued

I	PQBI	90	78.57	41.67	66.67	78.13
J	MQBC	80	75	50	58.33	81.25
K	FSBI	90	75	66.67	91.67	90.63
L	FSBI	80	82.14	50	83.33	81.25
M	FSBC	90	64.29	54.17	58.33	62.5
N	MSBC	70	75	25	25	84.38
Averages:		**78.5**	**69.8**	**47.6**	**63.9**	**74.3**

Note: Male: M; Female: F; Prefer not to disclose: P; Straight: S; Queer: Q White: W; BIPOC: B; Canadian: C; International: I; Participants in green have been diagnosed with a mental illness

Table 16

Schulich School of Music Large Ensembles Member WHOQOL-BREF Transformed Scores

	Details	Overall QOL	Physical	Psychological	Social	Environmental
1	FSWC	80	71.43	58.33	58.33	50
2	MSWC	80	64.29	41.67	66.67	75
3	FSWC	80	57.14	50	41.67	68.75
4	MSBC	90	67.86	54.17	66.67	68.75
5	FSWC	80	71.43	62.5	58.33	78.13
6	PPBC	100	-	-	-	-
7	FSWC	100	78.57	58.33	83.33	78.13
8	FSWI	80	75	75	50	84.38
9	FQWC	100	53.57	37.5	50	75
10	FPBC	80	82.14	54.17	75	65.63
11	FSWC	100	89.29	54.17	75	87.5
12	MQWC	60	46.43	29.17	83.33	59.38
13	FQWC	50	32.14	-	66.67	34.38
Averages		**83**	**65.7**	**52.7**	**64.6**	**68.8**

Note: Male: M; Female: F; Prefer not to disclose: P; Straight: S; Queer: Q White: W; BIPOC: B; Canadian: C; International: I; Participants in green have been diagnosed with a mental illness

4.5 Qualitative Analysis and Results.

The following section includes a guide on how codes were characterized, including examples from both survey and interview responses, numerical coding results from both the SBC and SSoMLE, as well as coding results from the top and bottom quartile of WHOQOL-BREF scores from each group (Table 17).

4.5.1 Coding Guide and Examples

A coding guide was kept, using codes provided by Perkins and colleagues (2020) with minor changes and additions. Interviewees providing examples have been bolded.

Table 17

Coding Definitions and Examples

Theme	Code	Description	Example
Facilitating Connections SBC (32); SSoMLE (25)	*Providing Wider Social Benefits* SBC (11); SSoMLE (11)	"Music participation supports social benefits beyond the immediate music-making context" (p. 1932)	"Playing in a music ensemble (pre-covid), I was able to meet and connect with like-minded individuals through the band's events while exploring the city Montreal like going to bars, restaurants and going to museums." -Participant J (22, male, SBC)
	Providing Social Support SBC (2); SSoMLE (0)	"Music participation provides social support and opportunities to support others" (p. 1932)	"And for me that really helped me emotionally to know that, like, no matter what happened I would always have like the same group of people, and this activity that I really enjoyed." – **Participant A (19, female SBC)**
	Creating Togetherness and Belonging SBC (12); SSoMLE (10)	"Music participation provides a sense of fellowship, bringing together people with shared experiences as well as differences" (p. 1932)	"I enjoyed making connections and friends through ensembles because I believe that collaborating musically encourages vulnerability towards others, which helps bring people together in an organic way." – Participant 10 (19, female, SSoMLE)
	Creating Opportunities to Give and Contribute SBC (0); SSoMLE (1)	"Music participation creates opportunities for people to contribute to society" (p. 1932)	"I think that it is a huge boost, to feel needed and wanted as a part of a music ensemble." - Participant 11 (19, female, SSoMLE)
	Connecting to Heritage and Past SBC (0); SSoMLE (0)	"Music participation creates a sense of connection to heritage, and allows people to reminisce and feel connected to past events" (p. 1932)	"…it's kind of hard to explain and that kind of fed into my enjoyment of it and like through all the ensembles and whatever, there'd be a song of like Eastern European origin, or like, Jewish

	Table 17 continued		origin in high school or middle school. It would really just, like, speak more personally to me and I'm sure that that's happened to other people with other songs…" – **Participant A (19, female SBC)**
	Connecting Through Music SBC (7); SSoMLE (3)	"Music participation creates connections between people through the music itself" (p.1932)	"It's also given me a deeper understanding of why I play music; even though I can enjoy playing music alone, I definitely feel happier when I'm playing with other people." – **Participant I (23, SBC)**
Facilitating Self-Development SBC (14); SSoMLE (27)	*Supporting Identity Formation* SBC (0); SSoMLE (2)	"Music participation supports self-discovery and identity formation and expression" (p. 1930).	"Music is the one thing in which I truly feel like myself." – Participant 12 (22, male, SSoMLE)
	Promoting Self-Confidence SBC (2); SSoMLE (3)	"Music participation helps to build confidence, particularly during times of challenge" (p. 1930).	"Whenever I can play with others in an ensemble, I am reminded why I love performing and playing my instrument, this thought brings me solace and confidence." - Participant 11 (19, female, SSoMLE)
	Promoting Agency SBC (0); SSoMLE (0)	"Music participation supports people to take the initiative and engage in new activities" (p. 1930).	"I was worried that other people hearing me be bad would I don't know like diminish their opinions of me or whatever. I don't know but. I guess it's like stage fright almost, but when you're on your own in a room alone where nobody else can hear you." – **Participant I (23, SBC)**
	Giving a Sense of Purpose SBC (3); SSoMLE (13)	"Music participation gives people a sense of meaning, hope, and resilience as well as structure in life" (p. 1930).	"Being around people and making music is one of the most enjoyable experiences for me. I honestly think this is what gives my life meaning." – Participant 4 (20, male, SSoMLE)
	Facilitating Accomplishment SBC (6); SSoMLE (5)	"Music participation requires effort, which grants a sense of achievement" (p. 1930).	"I am engaging in an activity that I enjoy which leaves me feeling happy that I spent time doing something fun and also proud of myself for learning new songs which helps with my self-esteem and self-satisfaction." – Participant K (18, female, SBC)
	Developing Skills SBC (3); SSoMLE (4)	"Music participation leads to the development of new skills" (p. 1930).	"I was looking forward to playing with people in person again. In part for the social aspect in part for the musical aspect, because I feel like I learn the most when I am playing with other people." – **Participant 1 (21, female, SSoMLE)**
Managing and Expressing	*Providing Relaxation* SBC (0); SSoMLE (0)	"Music participation makes people feel more relaxed" (p. 1928).	"I wouldn't say that it helps me calm down and de-stress as much as it helps me be calm and not feel as stressed—if, I don't know if there's even a distinction there." – **Participant I (23, SBC)**

Table 17 continued

Deep-Seated Emotions SBC (21); SSoMLE (11)	*Eliciting Uplifting Emotions* SBC (9); SSoMLE (9)	"Music participation elicits positive emotions" (p. 1928).	"I find myself leaving rehearsals feeling energized and positive, full of motivation and gratitude." - Participant 11 (19, female, SSoMLE)
	Coping with Emotions SBC (10); SSoMLE (2)	"Music participation helps people to cope with negative emotions" (p. 1928).	"Whenever I'm feeling down or going through a tough time, sometimes I find that performing within a music ensemble is an outlet for these emotions." – Participant G (20, female, SBC)
	Connecting to and Expressing Deep-Seated Emotions SBC (2); SSoMLE (0)	"Music participation allows people to explore and express deep-seated emotions" (p. 1928).	"Like, you're playing a really sad piece and you're like, oh what does this make me think of, what happened to me that I can kind of draw from and use to make the sound the way that is should." – **Participant A (19, female SBC)**
Providing Respite SBC (9); SSoMLE (3)	*Providing Distraction* SBC (4); SSoMLE (1)	"Music participation can distract from challenges or worries" (p. 1931).	"They provide an opportunity for me to relax and not have to think about all the work I need to do." – Participant G (20, female, SBC)
	Providing Absorption SBC (1); SSoMLE (1)	"Music participation can be absorbing, allowing people to lose themselves" (p. 1931).	"It is physical, it requires concentration, it clears the mind." – Participant 8 (18, female, SSoMLE)
	Creating Me Time SBC (1); SSoMLE (0)	"Music participation provides protected time for people, especially important for those with caring responsibilities" (p. 1931).	"So, for me, that ties back into the emotional response or the psychological response. It is kind of a nourishment for the soul." – **Participant 1 (21, female, SSoMLE)**
	Creating a Safe Space SBC (1); SSoMLE (0)	"Music participation provides a space of safety, both during and outside of structured engagement" (p. 1931).	"I also think that as my generation becomes less religious, alternatives to regular church/synagogue/mosque worship are super important. Ensembles provide community; a safe space to check-in with each other; an opportunity to socialize; and a spiritual connection to something greater than the individual. I miss all those things tremendously." – Participant L (23, female, SBC)
	Access to Spirituality SBC (2); SSoMLE (1)	Music participation provides a space for spiritual reflection.	"Spiritually, music is a way that I connect with God and often being surrounded by other people helps me do that too." – Participant 3 (19, female, SSoMLE)
Structure & Routine SBC (4); SSoMLE (7)	*Creating Structure* SBC (2); SSoMLE (2)	Music participation allows for the construction of a regular schedule or routine, providing structure.	"…something that I could really depend on every week that I was going to be consistent and stay the same." – **Participant A (19, female SBC)**
	Breaking Routine SBC (2); SSoMLE (5)	Music participation provides opportunities to leave home and experiment with people and places outside of ordinary habits.	"I think it also gets me out of my normal apartment/habitat, which is good for my mental health and breaks up my routine a bit." –

Table 17 continued

	Participant 7 (19, female, SSoMLE)

Note: Numbers do not include totals from interview responses.

4.5.2 Group Coding Results

A summary of coding references by individual participant for both the SBC and SSoMLE can be seen in Table 18 and Table 19, respectively. As qualitative data from both the online survey and interviews have been combined for coding, a total showing references both with and without the interview data has been included.

In order of frequency, codes relating to facilitating connections were referenced by SBC members a total of 32 times (85 times including interview data), managing and expressing emotions 21 times (38 times including interview data), those related to facilitating self-development were referenced 14 times (55 times including interview data), providing respite 9 times (20 times including interview data), and structure & routine 4 times (7 times including interview data).

In order of frequency, codes relating to facilitating self-development were referenced by SSoMLE members 27 times (53 times including interview data), facilitating connections were referenced a total of 25 times (64 times including interview data), managing and expressing emotions 11 times (18 times including interview data), structure & routine 7 times (13 times including interview data), and providing respite 3 times (6 times including interview data).

4.5.3 Top and Bottom Quartile Coding Trends

Qualitative responses were mapped to members of both groups who scored in the top 25% of combined WHOQOL-BREF results (participants K, A, L, 11, 7, and 8), as well as those in the bottom 25% of scores (participants G, C, B, 9, 3, and 12). Looking at the top scores from each group, five of six are straight (participants K, L, 11, 7, 8), all are female, and one has been diagnosed with a mental illness (participant 8). Two of the top scores are from members who were interviewed (participants A and 7). Looking at both groups combined, four out of six of the lowest scorers are queer (participants B, C, 12, 9), two are male (participants B and 12) and four are female (participants C, G, 3, and 9), and three have been diagnosed with a mental illness (participants C, 9, 12).

Table 18

Symphonic Band Club Coding References

Themes/ Codes		Participant	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Totals*	
	WHOQOL-BREF Scores	Overall	90	50	60	90	70	70	90	80	90	80	90	80	90	70		
		Physical	78.57	41.67	42.86	85.71	75	60.71	60.71	82.14	78.57	75	75	82.14	64.29	75		
		Psychological	58.33	12.5	25	79.17	50	50	37.5	66.67	41.67	50	66.67	50	54.17	25	*Totals in red include interviewee references	
		Social	91.67	50	41.67	-	75	58.33	-	66.67	66.67	58.33	91.67	83.33	58.33	25		
		Environmental	90.63	37.5	71.88	71.88	78.13	65.63	82.14	65.63	78.13	81.25	90.63	81.25	62.50	84.38		
	Facilitation Connections	Providing Wider Social Benefits	6	0	0	1	1	1	1	2	5	2	1	1	2	0	**11 - 23**	**32 - 85**
		Providing Social Support	7	0	1	0	0	0	0	0	5	0	0	1	0	0	**2 - 14**	
		Creating Togetherness and Belonging	11	2	0	0	3	0	2	0	11	2	0	2	1	0	**12 - 34**	
		Creating Opportunities to Give and Contribute	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**0-1**	
		Connecting to Heritage and Past	4	0	0	0	0	0	0	0	0	0	0	0	0	0	**0 - 4**	
		Connecting Through Music	0	0	0	1	1	0	2	1	2	0	0	2	0	0	**7 - 9**	
	Facilitating Self-Development	Supporting Identity Formation	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**0-1**	**14 - 55**
		Promoting Self Confidence	5	0	0	1	0	0	0	0	7	0	1	0	0	0	**2 - 14**	
		Promoting Agency	0	0	0	0	0	0	0	0	3	0	0	0	0	0	**0 - 3**	
		Giving a Sense of Purpose	5	0	1	0	1	0	0	0	2	0	0	1	0	0	**3 - 10**	
		Facilitating Accomplishment	3	0	0	0	1	0	0	1	3	0	2	1	1	0	**6 - 12**	
		Developing Skills	5	1	0	0	0	0	0	0	7	1	1	0	0	0	**3 – 15**	
	Managing and Expressing Emotions	Providing Relaxation	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**0 - 1**	**21 - 38**
		Eliciting Uplifting Emotions	4	0	0	1	1	1	0	1	3	0	3	1	1	0	**9 - 16**	
		Coping with Emotions	3	0	1	1	0	0	2	1	1	2	1	1	1	0	**10 - 14**	
		Connecting to and Expressing Deep-Seated Emotions	4	0	1	0	1	0	0	0	1	0	0	0	0	0	**2 - 7**	
	Providing Respite	Providing Distraction	1	0	0	0	0	0	2	0	0	1	0	0	1	0	**4 - 5**	**9 - 20**
		Providing Absorption	4	0	0	0	0	0	0	0	0	0	1	0	0	0	**1 - 5**	
		Creating Me Time	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**1**	
		Creating a Safe Space	2	0	0	0	0	0	0	0	1	0	0	1	0	0	**1 - 4**	
		Access to Spirituality	3	0	1	0	0	0	0	0	0	0	1	0	0	0	**2 - 5**	
	Structure & Routine	Providing Structure	1	0	0	0	1	1	0	0	1	0	0	0	0	0	**2 - 4**	**4 - 7**
		Breaking Routine	1	0	1	0	0	0	0	0	0	0	0	1	0	0	**2 - 3**	

Note. Interviewee scores and references have been highlighted.

Table 19

Schulich School of Music large Ensembles Coding References

Themes/ Codes		Participant	1	2	3	4	5	6	7	8	9	10	11	12	13	Totals*	
	WHOQOL-BREF Scores	Overall	80	80	80	90	80	100	100	80	100	80	100	60	50		
		Physical	71.43	64.29	57.14	67.86	71.43	-	78.57	75	53.57	82.14	89.29	46.43	32.14		
		Psychological	58.33	41.67	50	54.17	62.5	-	58.33	75	37.50	54.17	54.17	29.17	-		
		Social	58.33	66.67	41.67	66.67	58.33	-	83.33	50	50	75	75	83.33	66.67		
		Environmental	50	75	68.75	68.75	78.13	-	78.13	84.38	75	65.63	87.5	59.38	34.38		
	Facilitation Connections	Providing Wider Social Benefits	2	1	1	3	0	0	11	3	1	1	0	0	1	**11 - 24**	**25 - 64**
		Providing Social Support	4	0	0	0	0	0	2	0	0	0	0	0	0	**0 - 6**	
		Creating Togetherness and Belonging	5	1	4	0	2	0	9	1	1	1	0	0	0	**10 - 24**	
		Creating Opportunities to Give and Contribute	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**	
		Connecting to Heritage and Past	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	
		Connecting Through Music	2	1	0	0	1	0	4	0	0	0	1	0	0	**3 - 9**	
	Facilitating Self-Development	Supporting Identity Formation	0	0	0	0	0	0	0	0	0	0	0	2	0	**2**	**27 - 53**
		Promoting Self Confidence	0	0	0	0	0	0	2	0	0	0	3	0	0	**3 - 5**	
		Promoting Agency	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	
		Giving a Sense of Purpose	2	2	1	1	0	0	2	2	1	0	4	2	0	**13 - 17**	
		Facilitating Accomplishment	4	0	1	0	0	0	4	1	1	0	1	1	0	**5 - 13**	
		Developing Skills	4	0	1	0	1	0	8	2	0	0	0	0	0	**4 - 16**	
	Managing and Expressing Emotions	Providing Relaxation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**11- 18**
		Eliciting Uplifting Emotions	4	0	1	0	1	0	0	2	0	1	3	1	0	**9 - 13**	
		Coping with Emotions	1	1	0	0	0	0	0	1	0	0	0	0	0	**2 - 3**	
		Connecting to and Expressing Deep-Seated Emotions	2	0	0	0	0	0	0	0	0	0	0	0	0	**0 - 2**	
	Providing Respite	Providing Distraction	0	0	0	0	0	0	0	0	0	1	0	0	0	**1**	**3 - 6**
		Providing Absorption	0	0	0	0	0	0	0	1	0	0	0	0	0	**1**	
		Creating Me Time	2	0	0	0	0	0	0	0	0	0	0	0	0	**0 - 2**	
		Creating a Safe Space	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	
		Access to Spirituality	1	0	1	0	0	0	0	0	0	0	0	0	0	**1 - 2**	
	Structure & Routine	Providing Structure	0	1	0	1	0	0	0	0	0	0	0	0	0	**2**	**7 - 13**
		Breaking Routine	0	0	0	0	3	0	6	0	1	0	1	0	0	**5 - 11**	

Note. Interviewee scores and references have been highlighted

4.5.3.1 SBC Top Quartile Themes. Qualitative data from the top scorers in the SBC (K, A, L) emphasised the themes of facilitating connections and managing and expressing emotions (see Table 20). Under the theme of facilitating social connections, social benefits were discussed, including increased social development (A), making friends who become close outside of band (K, A), feeling less self-conscious while being in a group of people (L), and not feeling cut off from people during the pandemic (A).[21] Discussing the benefits of being able to connect with bandmates online, participant A said during their interview:

> And even band itself is really cut short. And you don't have a lot of time to like, talk inside it, it's mostly you're just playing on zoom. So, it's definitely another kind of isolating aspect of the pandemic but on the other hand, I'm very happy that it's still happening and that we like managed to do the online format, and we are trying to stay connected over zoom. I think that although it's definitely less than it was, it is still extremely valuable to me from a social perspective, and I'm very happy that it still exists.

Table 20

SBC Top Quartile Themes

Themes	Facilitating Connections	Managing and Expressing Emotions	Facilitating Self-Development	Providing Respite	Structure & Routine
Respondent L	5	2	1	1	1
Respondent A	3 (27)	0 (11)	0 (16)	0 (8)	0 (2)
Respondent K	1	4	3	1	0
Total	**9 (33)**	**6 (17)**	**4 (20)**	**2 (10)**	**1 (3)**

Note: Values in red include interview references.

In terms of managing and expressing emotions, the top scorers of the SBC referenced eliciting uplifting emotions, including feelings of happiness (K), feelings of comfort (A, L), and feelings of emotional fulfillment (L); discussing the happiness it brings them, participant K wrote “Being in a music ensemble is good for my well-being in that I am engaging in an activity that I enjoy which leaves me feeling happy that I spent time doing something fun…” Coping with emotions was also referenced, particularly in relation to sadness (A), stress from school (K, A, L), and as a way to cope with anxiety (L).

[21] This last element was mentioned in the specific context of the online rehearsals that the SBC was hosting.

4.5.3.2 SBC Bottom Quartile Themes. Themes emphasized by the lower 25% of scorers in the SBC (B, C, G) included facilitating connections and managing and expressing emotions (see Table 21). Responses were generally less developed and gave less information regarding wellbeing perceptions, but also provided more information in terms of the limitations and negative aspects of online music, which the top scorers did not. From the theme of facilitating connections, togetherness and belonging was emphasized in terms of feeling a sense of community (participant B), as well as feeling connected to people with common interests and a common goal (G); participant G commented "I've also enjoyed being able to interact with people who share a common interest in performing, I've been involved in music ensembles for a very long time, and most of my best memories come from these experiences." Wider social benefits were also cited, including making lasting friendships (G), as well as the benefit of becoming more comfortable in social settings, which participant C described in the following way: "Socially, band has also benefitted me because I am not nearly as socially anxious as I used to be because I've played in various different groups of strangers and just sort of got used to it."

Table 21

SBC Bottom Quartile Themes

Themes	Facilitating Connections	Managing and Expressing Emotions	Providing Respite	Facilitating Self-Development	Structure & Routine
Respondent G	3	2	2	0	0
Respondent C	1	2	1	1	1
Respondent B	2	0	0	1	0
Total	**6**	**4**	**3**	**2**	**1**

Relating to the theme of managing and expressing emotions, coping with emotions was highlighted, especially in terms of coping with stress and negative feelings (G, B), as well as the feeling that band provided a reason to live during difficult periods (B); in relation to the latter aspect, participant B wrote "Emotionally and I guess physically there were a few times where band and upcoming concerts were literally my only reasons to live." A common negative opinion among these members was that the online rehearsals for SBC were not engaging, specifically that they were not fulfilling and contribute to Zoom fatigue(G), difficult to enjoy (B), and were a source of stress (C). Comparing the online rehearsals to the in-person ones previously held, participant B wrote, "Online rehearsals

don't hold a candle to in-person rehearsals. I definitely miss being able to rehearse with everyone in the same room, being able to hear other people play and how I sound in relation to them."

4.5.3.3 SSoMLE Top Quartile Themes. Qualitative data from the top 25% of scorers within the SSoMLE (7, 8, 11) emphasized the themes of facilitating self-development and facilitating connections (see Table 22). Relating to facilitating self-development, answers emphasized accomplishment especially, citing feelings of satisfaction when playing well (11), seeing personal growth through technique development and ensemble placements (7), and a sense of productiveness (8). Discussing accomplishment, participant 7 indicated during their interview:

> I was talking about just like my instrumental growth and, like, […] in my 1st semester of wind orchestra I know I was like, last year, I was very anxious about the 16th note passages and now this last semester I was ranked first in the ensemble and I'm excited to see that progress because through the ensemble placements I can see where I've grown.

Giving a sense of purpose was also mentioned, relating to feelings of self-worth and perseverance (7), and motivation to strive for excellence (11, 8); regarding this motivation and purpose, participant 8 wrote "…it brings meaning to life, it is motivating to practice and wake up." In relation to developing skills, members discussed the opportunities for consistent feedback (7), and learning to work with other people (7, 8). On the subject of developing skills, participant 7 noted during their interview:

> Yeah, I think it, like, I know that in my career, I'm going to play with other people, so the quicker I can do that and the more often I can do that the like, that social playing aspect, I think is really important to large ensembles.

Table 22

SSoMLE Top Quartile Themes

Themes	Facilitating Self-Development	Facilitating Connections	Managing and Expressing Emotions	Structure & Routine	Providing Respite
Respondent 8	5	4	2	0	1
Respondent 7	1 (13)	1 (23)	0	1 (6)	0
Respondent 11	5	2	3	1	0
Total	**11 (23)**	**7 (29)**	**5**	**2 (7)**	**1**

Note: Values in red include interview references.

Referencing the theme of facilitating connections, members also discussed wider social benefits, including opportunities to meet new friends at university (7), and having ensembles as a main source of social interaction (7, 8). Connecting through music was referenced in relation to feelings of connectedness when the entire ensemble was running smoothly (7, 11). Managing and expressing emotions was referenced in the context of eliciting uplifting emotions, especially joy (8, 11), and gratitude (8, 11). While discussing the effects of the COVID-19 pandemic and social benefits of ensembles, participant 8 wrote, "My social life was almost 100% musical, with online that just went out the window." Two members also emphasized how ensemble participation benefited them in terms of breaking a regular routine up, especially for those who feel introverted and need help venturing outside their "comfort zone" (7, 11). In regard to breaking routine, participant 7 said during their interview:

> Yeah, I mean, I'm quite introverted. I don't seek out many social opportunities aside from my like, incidental, I guess, interactions with people every day. So having a way that I can like, kind of an excuse to go outside and talk to people is really important for me to get that social interaction with people that I wouldn't otherwise just like, go ahead and text.

4.5.3.4 SSoMLE Bottom Quartile Themes. Data from the lowest 25% of scores (see Table 23) within the SSoMLE (3, 9, 12) was, similar to data from the SBC, less developed and provided less information and tended to demonstrate a more negative outlook (see Table 23). Nevertheless, themes of facilitating self-development and facilitating connections were highlighted. In relation to facilitating self-development, members referenced facilitating accomplishment, referencing feelings of accomplishment specifically (3, 9, 12), and satisfaction (3). Discussing their participation in ensembles, participant 12 wrote "I stay focused, have more energy, have better sleep, have a strong feeling of accomplishment." Providing a sense of purpose was also referenced, relating to a sense of inner motivation (9, 12), and a literal sense of purpose in terms of playing well as a team (3); in relation to the latter statement, participant 3 wrote "You feel a sense of purpose when you sound good individually and as a group." The theme of facilitating connections was emphasized via references to creating togetherness and belonging, specifically feeling connected to like-minded peers at a new school (3, 9) as well as feelings of camaraderie (3), and feeling that one is a part of something bigger than oneself (3). On the topic of togetherness and belonging, participant 3 wrote, "Even though I am introverted, it is nice to have spontaneous social interactions with like-minded

people: joking around with other clarinetists, laughing about how the brass section is damaging our ears, etc."

Table 23

SSoMLE Bottom Quartile Themes

Themes	Facilitating Self-Development	Facilitating Connections	Managing and Expressing Emotions	Providing Respite	Structure & Routine
Respondent 9	2	2	0	0	1
Respondent 3	2	4	1	1	0
Respondent 12	4	0	1	0	0
Total	**8**	**6**	**2**	**1**	**1**

In summary, themes emphasized by the top 25% scoring members of the SBC included facilitating connections and facilitating self-development; those themes emphasized by the lower 25% of scorers in the SBC included facilitating connections and managing and expressing emotions. Those emphasized by the top 25% of the SSoMLE were facilitating self-development and facilitating connections; bottom scorers of the SSoMLE emphasized themes of facilitating self-development and facilitating connections.

4.5.4 Themes Found in Interview Coding

When isolated from the wider results of each group, interviewees show a slightly different emphasis. Within the SBC, looking at just the interviewees, coding results in order of references were facilitating connections (52 references), facilitating self-development (41 references), managing and expressing emotions (17 references), providing respite (11 references), and structure and routine (3 references). Likewise, interviewees from the SSoMLE emphasized the themes in order of references as facilitating connections (39 references), facilitating self-development (26 references), managing and expressing emotions (7 references), structure and routine (7 references), and providing respite (3 references). In contrast to the group results, the interviewees of the SBC tended to emphasize facilitating self-development over managing and expressing emotions; the interviewees of the SSoMLE emphasized facilitating connections over facilitating self-development. For a full transcript of interviews, please see the Online Supplementary Material.

On one hand, these results must be examined with caution, as interviewees were prompted to expand on the answers they previously gave. Thus, if an interviewee emphasized social aspects in

their written response, they were asked to speak more on those perceptions, increasing the number of references coded as facilitating connections. At the same time, while the interview references in terms of numbers are less representative of the group, they provide deeper insight into individual perceptions than was possible with the online survey. The differing results from the group coding seem to support the findings of Perkins and colleagues (2020) that individual goals and needs will influence engagement with music and perceptions regarding its effects (see Chapter 5, p. 97 for further discussion).

4.7 COVID-19 Effect on Music Engagement.

Although it remains beyond the scope of the present work to examine the specific effects of COVID-19 on music engagement, results from the online survey are briefly reported here.

When members of the SBC were asked if the COVID-19 pandemic affected their engagement with music, a majority (72%, *n*=10) answered either yes or significantly; 21% (*n*=3) answered only slightly; 7% (*n*=1) said not at all. Alternatively, when members of the SSoMLE were asked whether the COVID-19 pandemic affected their engagement with music, none of the members said not at all or slightly; 15% (*n*=2) answered yes, while 85% (*n*=11) indicated their engagement had been significantly affected.

In response to how the COVID-19 pandemic affected their engagement with music, members from both groups provided a variety of answers. Common to many responses, with more occurrences in the SSoMLE, was the statement that the lack of playing together in ensembles contributed to a lack of motivation in relation to individual practice (2, 3, 5, 9, 10, 11, L). Participant 11 wrote "I find myself with much less motivation to practice and I often question if all this work is worth it in the long run." Members from both groups also felt that not being able to play in large ensembles in-person contributed to a lack of social exposure and less social activity (participants A, H, 7, 8), with participant 8 writing "my social life was almost 100% musical, with online that just went out the window."[22] For members of the SBC who switched to an online format for rehearsals, musical experiences became less engaging due to a lack of feedback from peers (participants A, D, G, H, J). Participant G noted

> Band rehearsals are no longer held in person. While we have a zoom alternative, the duration is shorter compared to when we were in-person and there is less engagement as an ensemble overall as zoom rehearsals are isolating and we cannot hear each other play.

[22] Members of the SSoMLE were unable to play in large ensembles during the Fall semester of the 2020-2021 academic year.

Other effects noted by participants included feeling disconnected from peers (participant 10), a lack of feedback from peers and teachers contributing to uncertainty over whether improvement is being made (J, 12), a loss of paid gigs (12) and reduced playing time because of home constraints such as close living conditions with neighbours (L, 3). Two members of the SSoMLE (6, 11) noted that they felt their view of classical music had been negatively impacted by the pandemic, with participant 6 noting "[I] hate playing the trombone now because its [sic] a constant reminder that classical music will not do anything significant to change the world in a positive manner."

A small number of participants also found new avenues of musical expression and outlets during the pandemic (E, C, 8). Participant E wrote:

> I have not been able to fully devote myself to the instruments that I love (mallet percussion) as covid [sic] has taken away my ability to access it. In addition, with no more in person ensembles, it feels harder to connect musically with my fellow bandmates. Due to the inability to access practice rooms or percussion instruments, I have devoted more of my time during the pandemic to improving my drum kit technique (when at home) and getting better at playing guitar, as the instrument is quieter and more transportable.

Participant C also noted they had recently started to learn guitar as a musical outlet, and participant 8 started making YouTube music videos in order to stay musically motivated.

4.8 Summary

In answer to the first research question—what the measured quality of life of group members is—it was found that average scores of quality of life for the SBC were as follows: overall quality of life 78.5; physical quality of life 69.8; psychological quality of life 47.6; social quality of life 63.9; environmental quality of life 74.3. This is compared to the SSoMLE, which had the following average scores: overall quality of life 83; physical quality of life 65.7; psychological quality of life 52.7; social quality of life 64.6; environmental quality of life 68.8. While scores between the two groups varied only slightly, the distribution and range of scores within each domain varied between the groups (see Figures 3 and 4). Looking to the demographic data that was collected, results indicated that that two groups differed somewhat in terms of homogeneity, with the SBC having more international students, more male students, and a great diversity of sexual orientations (see Tables 5 and 6). The groups also differed in the area of mental health traits (see Tables 7, 8, 9, 10, 11, 12), including levels of stress, depression, and mental disorder diagnoses.

Looking to the second research question—what effects members reportedly perceive on their physical, mental, and social wellbeing in relation to their active music engagement—a wide variety of responses came in relation to what effects participants perceived their music participation to have upon their wellbeing. Looking to the overall themes that were emphasized by members of the SBC (excluding interview data), in ranked order those themes are: (1) facilitating connections, (2) managing and expressing emotions, (3) facilitating self-development, (4) providing respite, and (5) structure & routine. Within the SBC, differences were noted between the top 25% and lower 25% of WHOQOL-BREF scores, where higher scoring members placed greater emphasis on facilitating self-development and providing respite. Examining qualitative data from the SSoMLE, themes that were emphasized in ranked order (excluding interview data) were (1) facilitating self-development, (2) facilitating connections, (3) managing and expressing emotions, (4) structure & routine, and (5) providing respite. Within the SSoMLE, similarities were noted between the top 25% and lower 25% of WHOQOL-BREF scores, where both sets emphasized facilitating self-development, facilitating connections, and managing and expressing emotions. However, top scorers tended to put a slightly greater emphasis on breaking structure and routine.

While these results help to paint a detailed picture of the members of the two musical ensembles in question, further detail and comparisons will be discussed in the following chapter.

Chapter 5
Discussion

The goal of this thesis was to document a dual-case study that examined young adults in two active group music contexts and understand (a) what the measured quality of life of group members is, and (b) what effects do members reportedly perceive on their physical, mental, and social wellbeing in relation to their active music engagement. To answer what the measured quality of life of members is, the WHOQOL-BREF instrument was used, and scores were analysed using descriptive statistical data. To answer what effects members perceived on wellbeing in relation to their music engagement, written responses and recorded interviews were collected and analysed using thematic coding.

One of the critiques of research in the area of music, health, and wellbeing made by Fancourt and colleagues (2014), Daykin and colleagues (2018), as well as Perkins and colleagues (2020) is that research studies should aim to identify the mechanisms of music's effects, rather than solely the outcomes. Using Engel's biopsychosocial model (1977) and an understanding of mental wellbeing proposed by Perkins and colleagues (2020), the mechanisms for music's effects were found to be most related to the psychological and social aspects of music-making. These aspects were organized using themes and codes from Perkins and colleagues (2020) and were found to primarily be facilitating self-development, managing and expressing emotions, and facilitating connections.

Fancourt and colleagues (2014) also make the recommendation that research in music, health, and wellbeing use explicit definitions of terms so as to aid in the design of future work. The present work focused on young adults (18-24), engaged in active music-making through the use of traditional wind band and orchestral instruments, in both online and in-person contexts. The details of both of these contexts were provided in depth so as to address this recommendation and to provide a rich description of the two case studies at hand.

While the current work does not lie within the paradigm of experimental design and thus does not have the objective to draw direct comparison between the two sample groups, the distinctive differences between the two groups will be noted here. These distinctions are noted not to infer any significance in the possible benefits between musical contexts, but again to provide rich description and a better understanding of the individuals who make up these groups.

5.1 Demographic Profiles

The demographic profiles of the SBC and SSoMLE can be regarded as generally similar, with a few distinct differences. Both groups had an average age of 20 and a majority of female respondents (SBC: 57%, *n*=8; SSoMLE: 69%, *n*=9). Musical profiles were generally similar with the student musicians of the SSoMLE understandably having spent a greater length of time in private lessons for their primary instrument. Notably, the SBC sample had more respondents who identified as queer (43%, *n*=6 vs 23%, *n*=3), who identified as international students (43%, *n*=6 vs 15%, *n*=2), and who identified as belonging to a visually recognizable minority (57%, *n*=8 vs 23%, *n*=3). In examining these numbers, it should be noted that sexual orientation and ethnicity have been linked as social determinants of wellbeing, specifically mental health (Allen et al., 2014; Pega & Veale, 2015; Silva et al., 2016; ; WHO, 2014). It is possible that this fact is reflected in the WHOQOL-BREF scores for psychological quality of life, as the average psychological score for the SBC was 47.6% and the SSoMLE was 52.7%, a difference of 5 percentage points. This however can also be contrasted with the number of respondents in each group that reportedly have been diagnosed with a mental health disorder, where the numbers are somewhat opposite to the psychological scores: the SBC had a lower psychological score and less people diagnosed with a mental disorder (29%, *n*= 4) whereas the SSoMLE had a higher psychological score with more members diagnosed with a mental disorder (38%, *n*= 5). Also of note is the difference in reported stress level between the two sample groups. While a majority of SBC members (57%, *n*=8) reported feeling nervous and stressed very often or fairly often, 77% (*n*=10) of respondents from the SSoMLE reported feeling nervous and stressed either very often or fairly often. Given the higher rates of stress, mental disorder diagnoses, and higher psychological scores among SSoMLE members over SBC members, this raises questions about the kinds of learning environments for training musicians.

5.2 Measured Quality of Life

In order to answer the research question of what the measured quality of life of group members is, the WHOQOL-BREF instrument was used indicating an average score for the SBC of overall quality of life 78.5, physical quality of life 69.8, psychological quality of life 47.6, social quality of life 63.9, and environmental quality of life 74.3; for the SSoMLE, average scores were overall quality of life 83, physical quality of life 65.7, psychological quality of life 52.7, social quality of life 64.6, and environmental quality of life 68.8. Confidence interval overlap (see Appendix D) within each domain was, for the most part, relatively similar indicating minimal

difference between the two groups. The data indicates that the median score for overall quality of life was similar between the two groups, but the average and quartile medians (see Figures 3 and 4) were higher within the SSoMLE. Looking to the psychological scores, although the average and median between each group was similar, the interquartile range within the SSoMLE was smaller, indicating a greater degree of homogeneity within the group in terms of low scores (see Figure 4).

Of note is the particularly low psychological score for both the SBC and SSoMLE. Returning to the literature, it is widely accepted that young adulthood (18-24) is a particularly challenging period where individuals are at greater risk for poor mental health (Walker-Harding et al., 2017), and that the prevalence of depressive and anxiety-related symptoms among this age group is comparatively high (Mental Health America, 2019; Wiens et al., 2020). The results of the present work appear in line with these reports; however, the exacerbating conditions of the COVID-19 pandemic must also be considered. Young adults are at elevated risk for biopsychosocial stressors imposed by the pandemic (de Figueiredo et al., 2021), making it difficult to determine if the results are indicative of the age group, pandemic conditions or—in all likelihood—a combination of both factors. Future work could possibly benefit from including a third comparative musical context of adults or older adults in order to help clarify the relationships between age and psychological wellbeing. Although a direct comparison of results from the literature cannot be made, Clift and colleagues' (2010a), in their study examining the mental wellbeing of 600 choral singers (average age 61 years, with 77% females) using the WHOQOL-BREF instrument reported that a majority of participants scored well above 50% in the psychological domain, which would indicate good to excellent psychological wellbeing; conversely, 10% of respondents in the study had scores at or below 50% indicating borderline or mild mental health difficulties. In the present study, 64% (n=9) of SBC members and 36% (n=4) of SSoMLE members scored at or below 50%. Even comparing against a group similarly engaged in active music with a significantly difference in average age, it remains difficult to determine what degree of influence that the COVID-19 pandemic might have had over these scores. Of additional note was the finding by Clift and colleagues (2010a) that women scored slightly lower in the psychological domain than men (men 73% vs. women 70%). While this was also the case for scores among the SBC (men 50% vs. women 45%) the reverse was true for the SSoMLE (men 41% vs. women 50%). See Figure 5 and Figure 6 for a visual reference.

Figure 5

Symphonic Band Club Mean Psychological Score: Sex

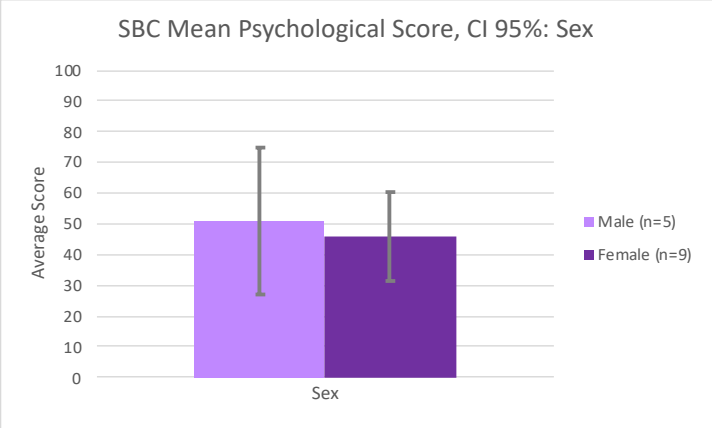
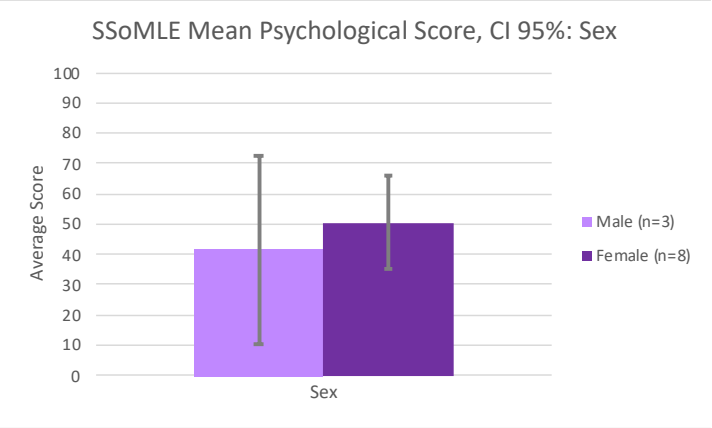


Figure 6

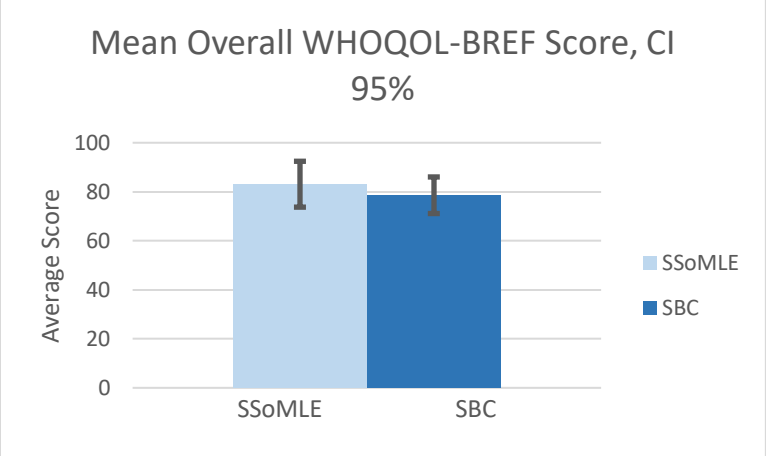
Schulich School of Music Mean Psychological Score: Sex



Data from Araújo and colleagues (2017) examining the wellbeing of university music students found that music students perceive themselves as psychologically well and more fully functioning than comparable general populations. Additionally, musicians, as reported by Ascenso and colleagues (2018), will typically score higher on overall scores of wellbeing than non-musicians, even with low psychological scores. Combined with results of overall wellbeing, the present study could potentially help to support this finding. Members of the SSoMLE had a higher average overall score (83 vs 78.5) and although this group had a relatively larger range, the distribution of scores was skewed high (see Figure 7; Figures 3 and 4). Approximately 85% (*n*=11) of SSoMLE members scored 80 or above in the overall category while approximately 64% (*n*=9) of SBC members scored 80 or above. While again it must be stated that small sample sizes make this data difficult to interpret, it is in line with the results from Ascenso and colleagues (2018) and Araújo and colleagues (2017), which also found that university student musicians have high levels of reported wellbeing compared with national data of a similar age group (age 16-24), despite scoring low in other areas such as physical health, sleep quality, fatigue, and coping. In the present study, student musicians of the SSoMLE scored higher in the categories of overall quality of life, psychological quality of life, and social quality of life, while scoring lower than SBC members on physical and environmental quality of life.

Figure 7

Mean Overall WHOQOL-BREF Score, SSoMLE & SBC



Examining the data within the two present groups, performing intra-analyses is difficult, particularly so for the SSoMLE as the group was relatively homogeneous. However, intra-analyses of scores from the SBC indicate somewhat of a divide between international and Canadian students within the group. While the majority of average scores were similar, the average psychological and social scores for international students within the SBC were respectively 20 percentage points higher and nearly 20 percentage points (59% vs. 39%; 72% vs. 53%) for international students compared to Canadian. See Figures 8 and 9 for a visual reference of average scores between Canadian and international students within the SBC. Reasons for this discrepancy between Canadian and international students in the domains of psychological and social quality of life are not entirely clear but may be partially explained in the context of qualitative responses (see below, p. 96).

Finally, it should also be noted that when examining scores within the sample groups, the psychological scores for respondents who identified as belonging somewhere on the LGBTQIA+ spectrum were significantly lower than their straight-identifying counterparts in both groups; in the SBC 41% versus 54% and in the SSoMLE 23% versus 57%. Although conditions of the pandemic may be responsible for the low psychological quality of life found within each group, it remains beyond the scope of the current case study to definitively determine what other contributing factors may or may not exist. This again is in line with data regarding which social determinants are most connected to poor mental health and wellbeing, including sexual orientation and identity (Allen et al., 2014; Pega & Veale, 2015; Silva et al., 2016; ; WHO, 2014). See Figures 10 and 11 for a visual reference of

average psychological scores of queer-identifying versus straight-identifying respondents within each group.

Figure 8

Symphonic Band Club Mean Psychological Score: Residency Status

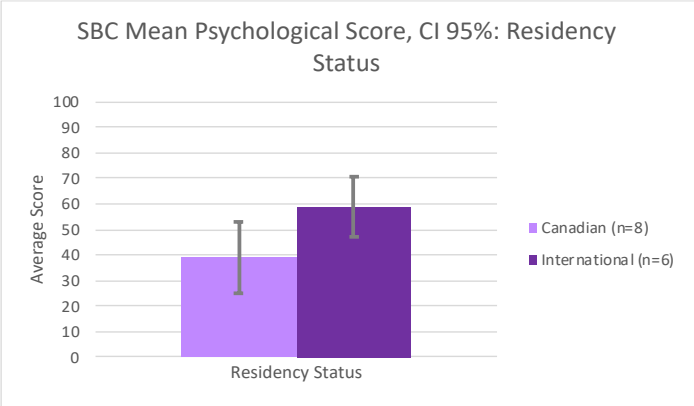


Figure 9

Symphonic Band Club Mean Social Score: Residency Status

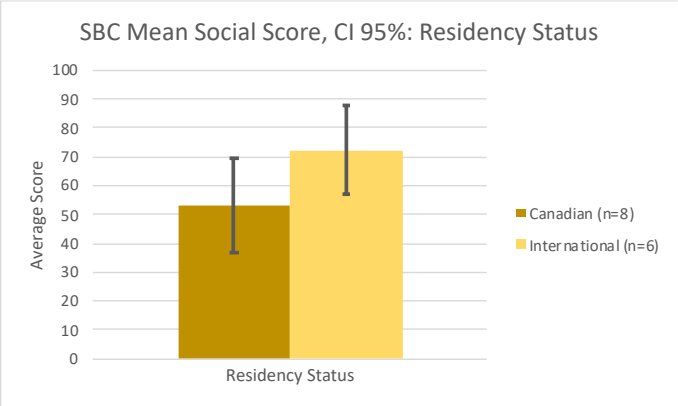


Figure 10

Symphonic Band Club Mean Psychological Score: Sexual Identity

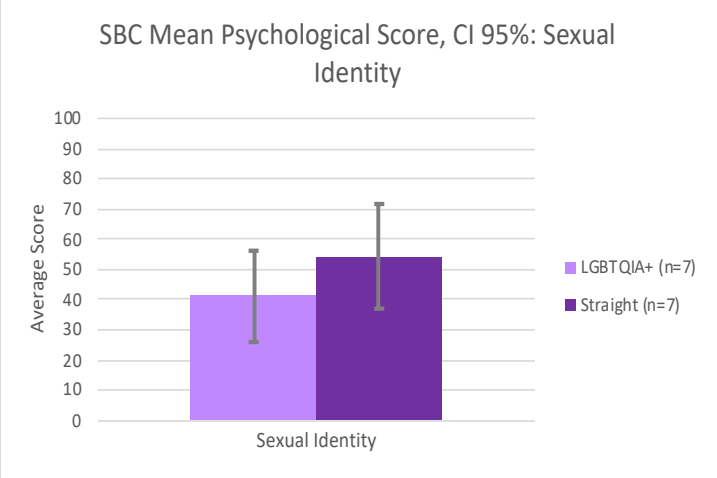
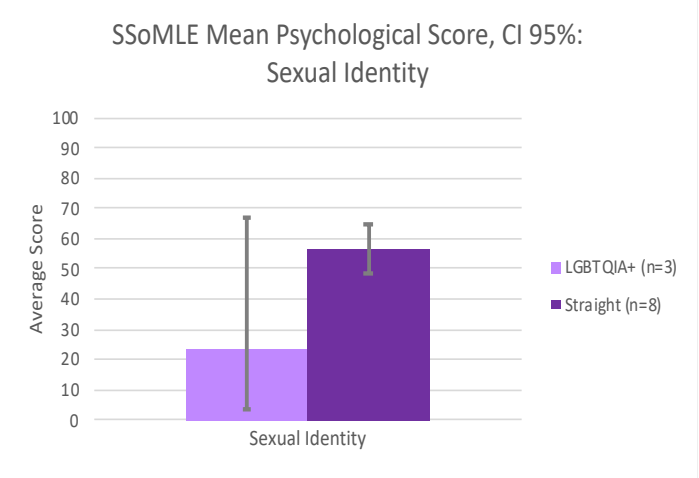


Figure 11

Schulich School of Music Mean Psychological Score: Sexual Identity



In sum, the measured quality of life for both the SBC and SSoMLE was generally positive in the domains of overall, physical, social, and environmental quality of life. Members of the SSoMLE scored particularly high in the domain of overall quality of life, correlating with findings from Araújo and colleagues (2017) and Ascenso and colleagues (2018) regarding how musicians perceive their own wellbeing. Looking to psychological quality of life, 64% (*n*=9) of SBC members and 36% (*n*=4)

of SSoMLE members scored at or below 50%, indicating the presence of borderline or mild mental health problems. Intra-group analysis indicated these numbers were particularly low in both groups for members who identified as part of the LGBTQIA+ spectrum, which may be related to the status sexual orientation and identity as social determinants of mental wellbeing (Figure 10 and 11). Finally, intra-analyses of scores from the SBC indicate a divide between international and Canadian students within the group, where the average psychological and social scores for international students within the SBC were approximately 20 percentage points higher compared to Canadians.

While the results of the measured quality of life for both groups provide some insight into the wellbeing of members of the two present musical contexts, it should ultimately be considered in relation to the qualitative data which offers a deeper understanding of how members view their wellbeing in relation to their active musical engagement.

5.3 Perceived Effects of Music Participation on Wellbeing

Looking to the thematic coding results in answer to the second research question—what effects members reportedly perceive on their physical, mental, spiritual, and social wellbeing in relation to their active music engagement—a number of distinctions can be drawn between the two present cases. Coding number results were considered without the references from interviews included for two main reasons. Firstly, written responses to the survey from each interviewee were still included, meaning their opinions and perceptions still form part of the numerical results. Second, while the interviews provide the current study with greater context for feelings and thoughts relating to individual codes and themes, the numerical coding results that exclude references from the interview are ultimately more representative of the overall group perceptions.

Looking first to the SBC (see Table 17, p. 75), results indicated a greater focus on wellbeing as it relates to facilitating connections and managing and expressing emotions (social and psychological aspects according to the biopsychosocial model). Looking further to the subcodes of each of these themes, members of the SBC put particular emphasis on creating togetherness and belonging and coping with emotions. In terms of creating togetherness and belonging, respondents of the SBC most commonly referred to a sense of community that was created by being in an ensemble; for example, respondent B wrote that during the pandemic “I believe that especially in these times it’s good to be there for the community.” Togetherness and belonging were also occasionally coded with elements of facilitating self-development, such as facilitating accomplishment and giving a sense of purpose; participant E noted “It provides a common goal to strive towards, a purpose that

you can work on with your friends, and for yourself […] and gives a place for many to belong." The greater emphasis on social aspects (in comparison to the SSoMLE) is in line with research from Kokotsaki and Hallam (2011), which found that non-musician students engaged in music-making (i.e., university students who participated in music ensembles but were not themselves training to become musicians) placed more emphasis on the social engagement and fun they had when making music. Coping with emotions was most often related to feelings of anxiety, stress, sadness; participant D sums this up in writing "Music can help manage stress, reduce anxiety, improve your mood, vent difficult thoughts and emotions, help build your self-esteem." Coping with emotions was also occasionally coded alongside the theme of providing respite, specifically providing distraction; participant G wrote:

> Whenever I'm feeling down or going through a tough time, sometimes I find that performing within a music ensemble is an outlet for these emotions. It distracts me from whatever it is that I'm dealing with, and if I'm feeling especially dramatic, it reflects in my playing.

Turning to the coding results from the SSoMLE (see Table 18, p. 76), in contrast to the SBC, members placed greater emphasis on facilitating self-development and facilitating connections (psychological and social elements according to the biopsychosocial model). Examining which subcodes were most often referenced, members of the SSoMLE gravitated toward giving a sense of purpose and providing wider social benefits. Looking specifically at giving a sense of purpose, these references were most often associated with feelings of motivation and drive; for example, participant 2 wrote "Yes, having in-person ensemble has helped so much. Seeing and playing with other players has given me a good boost of moral to keep on practicing and improving my playing." This emphasis on self-development is also in line with findings from Kokotsaki and Hallam (2011), which found that the musician sample group placed higher value on their sense of importance within the group and feelings of personal achievement than on social aspects. In terms of wider social benefits, these references were discussed primarily in the context of meeting like-minded people and the socialization that continues outside of ensemble settings; for example, participant 4 wrote "Yes, I think just talking and meeting people before and after concerts was very, very enjoyable. But now there is so little of that, and I definitely miss it." It should also be noted that while managing and expressing emotions was not strongly emphasized by SSoMLE members, when the theme was referenced, it was as eliciting uplifting emotions and very often coded alongside the theme of facilitating self-development; for example, participant 4 wrote in relation to giving purpose and

eliciting uplifting emotions “Being around people and making music is one of the most enjoyable experiences for me. I honestly think this is what gives my life meaning.”

Inter-quartile analysis from top and bottom WHOQOL-BREF scores among both groups (see Tables 20, 21, 22, 23) seemed to demonstrate that top scorers had more of their needs being met via ensemble participation, with a wider variety and greater number of codes per response. Reasons for this remain unknown but may have to do with attitudes and mental health status. Participants with lower psychological scores, greater stress, and greater depression will likely have a more negative outlook on their participation in music and how their needs are being met. Those members who are flourishing could potentially be more likely to relate their ensemble participation to a wider variety of aspects related to their wellbeing. Future work could potentially include measures and questions related to personal attitudes and outlooks on life to gain a better understanding of these results.

Intra-group qualitative analyses revealed that within the SBC, differences again occurred between Canadian and international students. Under the theme of facilitating connections, almost all references to connecting through music were made by international students (5 international references vs. 1 Canadian). These references were connected either to eliciting uplifting emotions, or to feelings of accomplishment. For example, participant H wrote “I feel I have also benefitted socially because I made many friends and I feel connected when I play the same music together with several different people and instruments”; conversely, participant F wrote about feeling accomplished and connected musically with the ensemble:

> Emotionally, there is little that can compare to hearing the culminations of everyone’s efforts collectively produce one of the most beautiful sounds you’ll ever experience. There is no greater joy to nailing a solo and hearing the band pic up and continue the energy while you can sit back and enjoy the ride.

Additionally, Canadian students exclusively referenced the subcode of providing distraction within the theme of providing respite. These references most often were connected to coping with emotions and related to mental health. Participant M wrote in relation to providing distraction “Emotionally it provides an escape from the complicated real world which is good for my mental health.” The reason for the differences seen here and in the WHOQOL-BREF results between international and Canadian students is not immediately clear, especially given that there were so few international students to compare against in the SSoMLE group. However, insight may be partially gained looking at the interview data collected from participant I, an international student. During their interview,

participant I spoke extensively on how the COVID-19 pandemic negatively affected the end of their high school experience and influenced them going into their first year of university at McGill:

> Well, that's I feel like that's why I brought up a lot of the high school stuff is to give a contrast almost or to give context for lack of a better word—is that with this feeling of incompleteness and this kind of unsureness of what was going to happen all year, because quite frankly, McGill was not great at communicating what was going to happen in the slightest. It was, I dunno, it felt. It felt what I would imagine would be more scary than normal to move to a different city in a different country to start a different, completely online set of social interactions. And the way I in particular navigated that was by doing kind of the same thing that I felt like I was missing a lot at the end of high school: being to find some ensembles of music wherein I could join and play music and make friends in whatever capacity I could at least over the Internet.

The response from participant I would seem to indicate that they had a specific strategy coming to university, which was to make friends through ensemble membership. While it cannot be inferred that all international participants in the SBC had this same strategy, it may lend some understanding to how and why international students seemed to have scored higher in the social and psychological domains. Those coming from outside of Canada would have had no immediate network of support in their new home and would have had a greater need at the beginning of the school year to actively create and pursue social connections, whether through ensemble participation or other means. Their Canadian counterparts on the other hand may have felt complacent with the social connections and networks already in place, negating the need to look for any extra support to combat isolation and other side-effects incurred during the pandemic. It should be noted as well that members of the SBC originated from 7 different countries (Canada, France, Australia, Japan, the United States, Egypt and China) where members of the SSoMLE reportedly originated from 2 different countries (Canada and the United States. It is possible that cultural difference (from outside of North America) may contribute to the differences in scores, but more work is needed to understand this data trend. Future work, while not able to recreate the current conditions of the pandemic, should focus on examining these differences and on what strategies, if any, international students may personally have when joining extracurricular music groups such as the SBC.

Taken as a whole and viewed in the context of Engel's (1977) biopsychosocial model, both groups related their participation in ensembles to the social and psychological aspects of health and wellbeing: both saw benefits to wellbeing from the social connections they made and engaged in through ensembles, and both highly valued either the emotional or cognitive aspects of music-

making. While similar studies (e.g., Clift et al., 2010a; Moss et al., 2018) have found that ensemble participants perceive benefits to physical wellbeing, the present study found little to no evidence of this. It should be noted though that these studies presented participants with statements relating to physical benefits which were then ranked on a Likert scale, whereas the present study prompted participants to use their own words to describe what benefits they may perceive. These results may have implications for how ensemble participation may be used as an intervention for those suffering in the areas of psychological and social wellbeing.

5.3.1 Analytic Statements

As noted, while both groups reported experiencing psychological benefits and influences in relation to their wellbeing, the influencers were thematically different. This key difference in the type of psychological influencers (relating to emotions or self-development) may be directly related to the nature of the ensembles and goals of individual members in joining them. In hypothesizing about what results may be found during the current study, analytic statement (1) was made: the perceived effects and value of musical engagement are varied, dynamic, fluid, and dependant on individual needs and goals. The statement seems to be supported by the idiosyncratic ways in which each of the groups appears to engage with music. The training musicians of the SSoMLE are learning about music performance at a high level, which may correspond to the fulfillment of specific and necessary needs. Indeed, SSoMLE members were much more likely to discuss their wellbeing in relation to the technical progress they make in their craft through such things as chair and ensemble placements. In relation to how COVID-19 had negatively impacted them, many of the SSoMLE participants reported that no longer having consistent feedback on their technical musical skills and progress was of great personal detriment and had at least some psychological effect on them. Ensembleship also seems to be at least one of the main methods of making friends for many respondents from the SSoMLE. As the SSoMLE are academic ensembles, they serve as a method for their members to gauge and hone their musical skills while also affording them the secondary opportunity of meeting like-minded peers and colleagues with whom they may create lasting relationships.

This is contrasted with the amateur musicians of SBC, who have joined a musical ensemble for their own personal enjoyment. We can see from the qualitative data that these members engage with music more so to create social connections and for the purpose of social enjoyment. Additionally, unlike their SSoMLE counterparts, these members place great value on the emotional management they are afforded by their engagement with music. The emphasis and value placed on

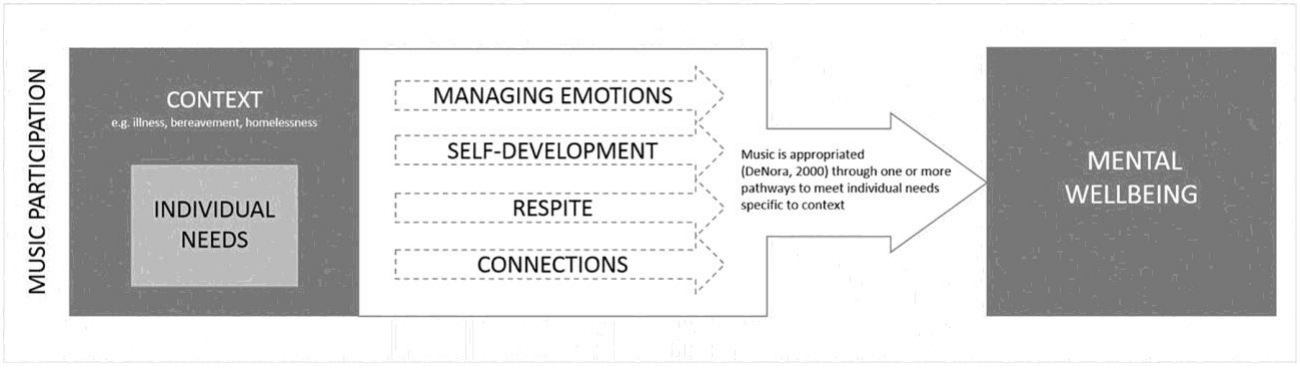
the social aspects of the ensemble is especially reflected in the statements of members who discuss missing the social activities that were scheduled by the band's executive, such as bar nights or laser tag. For example, in their interview, participant A said:

> It's really hard because you feel cut off from people who you feel became, like, very important to you in the previous years of you being in band—for me the one year. Because you don't get that same […] you don't have all the activities where you go and do things outside of band.

The multiplicity of processes in how members reportedly support their wellbeing through their music engagement depending on individual needs links with findings from Perkins and colleagues (2020) (see Figure 12).

Figure 12

Pathways of Mental Wellbeing via Music Engagement (Perkins et al., 2020)



Note. Image used with permission of primary author, Rosie Perkins. *Qualitative Health Research 2020*, *30*(12), 1924–1940 © Rosie Perkins, Adele Mason-Bertrand, Daisy Fancourt, Louise Baxter, and Aaron Williamon, 2020.

Although the researchers in that study considered a larger sample (drawing from 46 studies for their meta-ethnography) and thus were able to identify a greater spread of diversity in terms of the processes, a similar diversity has been identified in the present work. In the same way that "second-level interpretations were placed under multiple codes, when applicable, to reflect the dynamic relationship identified between the processes" by Perkins and colleagues (2020, p. 1934), many if not most statements from participants in the present study were placed under multiple codes. The perceived effects on wellbeing and value of musical engagement indeed were varied and dynamic across and within each group and can at least partially be attributed to the differences in individual needs and contexts across and within each group. The multiplicity and interconnected nature of these processes is also in line with the basic tenets of Engel's biopsychosocial model (1977), which emphasizes the interconnected nature of factors related to wellbeing. In the present study,

participants described how their perceptions of psychological and social factors related to music engagement contributed to their overall wellbeing, and how individual factors from one domain have an effect on another; explicitly, how a lack of social interaction through ensembles had negative effects on mental wellbeing. Indeed, looking at the differences across groups, as well as the intra-group analysis between Canadian and international students of the SBC, it becomes clear that "the needs of individuals—as shaped by their life circumstances and context—defines the ways in which they utilize the pathways to benefit their mental well-being," supporting analytic statement (1) (Perkins et al., 2020, p. 1934).

Analytic statement (2) was as follows: the widespread and necessary imposition of social distancing measures result in a collective need and emphasis on social wellbeing, whereby other perceived physio- and psycho-musical effects and benefits become secondary or redundant. This analytic statement was not fully supported by the findings. Although many respondents spoke about the difficulties of isolation imposed by COVID-19, it did not appear to result in a noticeable over-emphasis on social aspects, at least among members of the SSoMLE. Analytic statement (2) was based on the assumption that, because participants from the SSoMLE group were returning to in-person rehearsals after nearly a full year of no ensembles and online-only classes, the opportunity to see and work with classmates after being apart would influence individual social wellbeing measures and perceptions. However, results indicated that these members placed greater value on elements of self-development than on facilitation of connections. It was also assumed that, because online rehearsals are normally completely lacking in musical feedback, musical motivations (e.g., attainment, self-esteem, self-regulation) would become secondary for online participants of the SBC. Although social aspects were emphasized by this group, this fact would seem to be more related to the nature of the ensemble as a social club. Additionally, members of the SBC did report that they engaged in emotional self-regulation while online, referencing several of the codes under the theme of managing and expressing emotions. When adding the references of interviewees to the coding results, it is indeed true that both groups then seem to emphasize facilitating connections by a large degree over any other theme. However, as stated, this is less representative of each group as a whole. As it stands, more evidence would be needed to suggest that the pandemic contributed to the number of social references made by respondents.

Chapter 6
Limitations and Conclusion

6.1 Limitations

This thesis has a number of limitations that must be acknowledged. Firstly, the COVID-19 pandemic itself and the restrictions it imposed were a major limitation of the present study. Working with youth from the secondary system quickly became a non-starter, and most ensembles either stopped meeting or moved online, forcing a convenience sampling of young adult university students in the local community. Conditions of both the online and in-person ensembles were far from representing a normal, intended, and planned ensemble environment, which may have impacted perceptions of wellbeing and quality of life scores.

The collection of demographic information did not include information on which ensembles members of the SSoMLE belong to. While the largest of these ensembles have similar schedules and rehearsal procedures, there are slight differences among the others. It is impossible to say which ensembles the SSoMLE participants belong to, and thus it was not possible to perform significant intra-group analysis with this sample and draw conclusions regarding the differing nature of these ensembles.

Also regarding the SSoMLE, is the fact that the conditions under which these members played in person were vastly different from normal circumstances. Less social interaction occurred during these rehearsals as they were shortened, members were not permitted to talk with one another during rehearsal, and were required to leave the building immediately upon the end of rehearsal. As well, two of the largest ensembles (the McGill Wind Orchestra and the McGill Symphony Orchestra) were run this year by training student conductors, which according to participants changed how rehearsals normally ran and flowed. These factors may have influenced the social perceptions of SSoMLE respondents, and thus the results must be considered strictly in the context of when data was collected during the COVID-19 pandemic.

Regarding the sample procedures, the online survey was sent via email to students in both the SBC and SSoMLE. Although the goals of the present work did not include a wide generalizability of findings, the possibility of sample bias influencing the findings must still be considered. It is entirely possible that those who chose to participate in the study (and indeed in the interviews) differed from the members who chose not to participate. For example, those who chose to participate in the study on wellbeing may have chosen to do so because they perceived themselves to have a poor degree of wellbeing, or perceived music participation to be particularly rewarding. Screen fatigue was cited as

a side-effect of the pandemic by a number of participants, which may have resulted in fewer members wanting to participate. These influences may have affected the depression, stress, mental health, and WHOQOL-BREF results of the study.

Additionally, McGill University has a large native French-speaking population, and a sizeable international population whose first language is not English. The ability of all participants to fully understand the survey, which was distributed in English, may have also had an influence over the results.

Many of the lower scoring participants in both the SBC and SSoMLE had a more negative outlook and/or provided less information regarding their perceptions and thoughts regarding their music engagement, wellbeing, and the effects of COVID-19. Those with lower scores were also less likely to leave an email address to be interviewed. Of the low scoring participants who did leave an address at which to be contacted, nearly none responded to multiple interview requests. Interpreting and fully understanding the perceptions of these members is therefore difficult.

Small sample sizes also affected the analysis of quantitative data. None of the data could validly be examined or interpreted through use of inferential statistics, and thus no statistical conclusions could be drawn regarding differences within or between the two groups.

Incomplete responses also contribute to issues regarding sample size and interpretation. Although 49 separate responses were collected, the amount of information missing from many made their inclusion in results impossible. Additionally, a number of duplicate responses were made, likely in error, which were also inadmissible as part of the results.

Coding themes were not originally determined before analysis began. An inductive approach to thematic analysis was employed wherein the data was used to determine coding themes. However, once themes were created, it was determined that due to the similarity of themes in the work by Perkins and colleagues (2020), the same codes and themes would be used. One of the limitations of this though was that not all codes and themes could be ascribed to those listed by the authors: providing structure, breaking routine, and connection to spirituality were all themes/codes that were found in the present work but not in those provided by Perkins and colleagues. Thus, it was necessary to adapt the codes, making direct comparisons to work Perkins and colleagues less accurate.

The qualitative data that was analyzed came from two different sources: written survey responses and recorded interviews. Interviewees were pressed to explain and expand upon the answers that were given in their written survey responses. In attempting to create a qualitative

overview of each group, the interview responses somewhat skewed the data toward the themes and codes that each individual valued. Future work should attempt to gather data from more interviews in order maintain greater balance of opinion.

6.2 Future Work

Future work of this kind could look to address issues with sample size and how larger numbers of participants could be encouraged to participate in similar research. Additionally, a greater focus could be placed on demographic subcategories within groups. This would allow for the assessment of differences that exist between these subgroups and would also help to provide a richer description of who is in the group and why they joined. Similarly, including a greater number of interviews to gather this data would be recommended. Because the current work was focused on the specific age group of young adults, future work could also possibly include other age groups so as to provide insight into how different age groups perceive and experience effects on wellbeing in relation to active music engagement. Finally, future work could also include the use of additional quantitative measures, in particular biomarkers which can be used to gauge levels of stress, such as follicle or salivary cortisol testing.

6.3 Conclusion

Characterised by a considerable amount of change and development, young adulthood is a period that has been identified as a critical time to address issues related to mental health before they can develop into chronic illness. During the COVID-19 pandemic, the risk of poor mental wellbeing has greatly increased, in particular for young adults. As the demand for mental health services and prevention tools has risen, the arts have increasingly found a role in addressing these needs in the form of non-clinical interventions. The present dual-case study aimed to examine the measured quality of life of young adults enrolled in two different musical contexts: the SBC, an extracurricular symphonic band that has moved online during COVID-19, and the SSoMLE, academic ensembles that were able to meet in person during the pandemic. Additionally, the study aimed to gather insight into how members of these two contexts relate their wellbeing to their participation in their respective ensembles.

In response to the first research question, the WHOQOL-BREF measure was used, with results indicating relatively similar quality of life levels of five domains between the two groups. Members of the SBC had an average score for overall quality of life 78.5, physical quality of life

69.8, psychological quality of life 47.6, social quality of life 63.9, and environmental quality of life 74.3; for the SSoMLE, average scores were overall quality of life 83, physical quality of life 65.7, psychological quality of life 52.7, social quality of life 64.6, and environmental quality of life 68.8. Analysis of confidence intervals indicated that scores of the two groups were similar. Of note was the fact that psychological scores for both groups were particularly low, more so for members of the SBC. Within both groups, psychological scores were also lower for LGBTQIA+-identifying members as compared to their straight-identifying counterparts. Overall quality of life was found to be higher within the SSoMLE group, with the majority of scores skewed toward high overall quality of life. Within the SBC it was found that international students scored higher social and psychological scores than the Canadian members of the SBC, and that this may or may not be related to network creating strategies that international students made coming to a new country.

The second research question was answered using thematic coding analysis of written answers and interviews in Nvivo. A wide variety of responses indicated a multiplicity of mechanisms in relation to how wellbeing is potentially affected by ensemble participation, either in-person or online. Themes that were emphasized by members of the SBC (excluding interview data) in order were (1) facilitating connections, (2) managing and expressing emotions, (3) facilitating self-development, (4) providing respite, and (5) structure & routine. Within the SBC, differences were noted where higher scoring members placed greater emphasis on facilitating self-development and providing respite. Themes emphasized by the SSoMLE (excluding interview data) in order were (1) facilitating self-development, (2) facilitating connections, (3) managing and expressing emotions, (4) structure & routine, and (5) providing respite. Within the SSoMLE, similarities were noted between the top 25% and lower 25% of WHOQOL-BREF scores, where both sets emphasized facilitating self-development, facilitating connections, and managing and expressing emotions.

Two analytic statements were made, with one supported by the findings and one not supported. Analytic statement (1) was that the perceived effects and value of musical engagement are varied, dynamic, fluid, and dependant on individual needs and goals. The statement was supported by the idiosyncratic ways in which each of the groups appears to engage with music. The training musicians of the SSoMLE, who are learning about music performance at a high level, may have specific and necessary needs related to self-development that are fulfilled through their ensemble participation. The amateur musicians of SBC, however, joined a musical ensemble for their own personal enjoyment and those members engage with music more so to create social connections and for the purpose of social enjoyment. Analytic statement (2) assumed that both groups would place

greater emphasis on social aspects of music engagement as a result of isolation imposed by the COVID-19 pandemic. Although many respondents spoke about social difficulties related to COVID-19, self-development was emphasized over social connections by the SSoMLE group, and thus analytic statement (2) was not supported by the findings.

In conclusion, this study contributed to a better understanding of the impact participation in music ensembles has on wellbeing by highlighting the fact that the participants of both the online and in-person ensembles involved in this study perceived a wide variety of effects in relation to their active music engagement, which were found to be based in individual goals and needs. The wide variety of perceptions and values described by these young adults points to the fact that their individual contexts, goals, objectives, histories, and needs influence both how they engage with active music ensembles, what effects they perceive, and which effects they place greatest value on. This research helps to support the use of both academic and community ensembles in dealing with deficiencies in psychological and social wellbeing. Future work may help to support the use of ensembles as intervention tools in schools and community settings for young adults suffering from mental health disorders.

Bibliography

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission*, *2*(1), 45-51.

Adolescent Health. (2020). Retrieved September 16, 2020, from https://www.who.int/southeastasia/health-topics/adolescent-health

Allen, J., Balfour, R., Bell, R., & Marmot, M. (2014). Social determinants of mental health. *International Review of Psychiatry*, *26*(4), 392-407.

American Music Therapy Association. (2021). Retrieved January 27, 2021, from https://www.musictherapy.org/about/musictherapy/

Araújo, L. S., Wasley, D., Perkins, R., Atkins, L., Redding, E., Ginsborg, J., & Williamon, A. (2017). Fit to perform: An investigation of higher education music students' perceptions, attitudes, and behaviors toward health. *Frontiers in Psychology*, *8*, 1558.

Ascenso, S., Perkins, R., & Williamon, A. (2018). Resounding meaning: A PERMA wellbeing profile of classical musicians. *Frontiers in Psychology*, *9*, 1895.

Austin, D. (2010). The psychophysiological effects of music therapy in intensive care units. *Nursing Children and Young People*, *22*(3). https://www.musictherapy.org/about/musictherapy/

Avers, L., Mathur, A., & Kamat, D. (2007). Music therapy in pediatrics. *Clinical Pediatrics*, *46*(7), 575-579.

Barbeau, A. K. (2017). *Is performing music soothing or stressful? Two perspectives: Music performance anxiety among musicians and the effect of active music-making on seniors' health* (Doctoral dissertation, McGill University).

Beard, R. L. (2012). Art therapies and dementia care: A systematic review. *Dementia*, *11*(5), 633-656.

Beynon, C. A., & Veblen, K. K. (Eds.). (2012). *Critical perspectives in Canadian music education*. Wilfrid Laurier Univ. Press.

Bittman, B. B., Berk, L. S., Felten, D. L., & Westengard, J. (2001). Composite effects of group drumming music therapy on modulation of neuroendocrine-immune parameters in normal subjects. *Alternative Therapies in Health and Medicine*, *7*(1), 38.

Blais-Rochette, C., & Miranda, D. (2016). Music-evoked autobiographic memories, emotion regulation, time perspective, and mental health. *Musicae Scientiae 20*(1), 26-52. DOI: 10.1177/1029864915626967

Bonde, L. O. (2011). Health musicing-Music therapy or music and health? A model, empirical examples and personal reflections. *Music and Arts in Action, 3* (2) 120-140.

Bonny, H. L. (1986). Music and Healing. *Music Therapy, 6A*(1), 3-12.

Borgo, D. (2005). *Sync or swarm: Improvising music in a complex age.* New York, NY: Continuum.

Bowman, J. (2014). *Online learning in music: Foundations, frameworks, and practices*. Oxford University Press, USA.

Brandler, B. J., & Peynircioglu, Z. F. (2015). A comparison of the efficacy of individual and collaborative music learning in ensemble rehearsals. *Journal of Research in Music Education*, *63*(3), 281-297.

Caló, F., Steiner, A., Millar, S., & Teasdale, S. (2020). The impact of a community-based music intervention on the health and well-being of young people: A realist evaluation. *Health & Social Care in the Community*, *28*(3), 988-997.

Carlson, E., Saarikallio, S., Toiviainen, P., Bogert, B., Kliuchko, M., & Brattico, E. (2015). Maladaptive and adaptive emotion regulation through music: A behavioral and neuroimaging study of males and females. *Frontiers in Human Neuroscience*, *9*, 466.

Choi, A. N., Lee, M. S., & Lim, H. J. (2008). Effects of group music intervention on depression, anxiety, and relationships in psychiatric patients: A pilot study. *The Journal of Alternative and Complementary Medicine*, *14*(5), 567-570.

Clift, S. M., & Hancox, G. (2001). The perceived benefits of singing: Findings from preliminary surveys of a university college choral society. *The Journal of the Royal Society for the Promotion of Health*, *121*(4), 248-256.

Clift, S. M., Nicol, J., Raisbeck, M., Whitmore, C. & Morrison, I. (2010a) Group singing, wellbeing and health: A systematic mapping of research evidence. *UNESCO Observatory*, *2* (1). ISSN 1835-2776.

Clift, S., Hancox, G., Morrison, I., Hess, B., Kreutz, G., & Stewart, D. (2010b). Choral singing and psychological wellbeing: Quantitative and qualitative findings from English choirs in a cross-national survey. *Journal of Applied Arts & Health*, *1*(1), 19-34.

Cohen, G. D., Perlstein, S., Chapline, J., Kelly, J., Firth, K. M., & Simmens, S. (2007). The impact of professionally conducted cultural programs on the physical health, mental health, and social functioning of older adults—2-year results. *Journal of Aging, Humanities and the Arts*, *1*(1-2), 5-22.

Coulton, S., Clift, S., Skingley, A., & Rodriguez, J. (2015). Effectiveness and cost-effectiveness of community singing on mental health-related quality of life of older people: randomised controlled trial. *The British Journal of Psychiatry*, *207*(3), 250-255.

Crawford, P., Lewis, L., & Brown, B. Manning, Nick (2013) Creative practice as mutual recovery in mental health. *Mental Health Review Journal, 18* (2), pp. 55-64. ISSN 1361-9322.

Creech, A., Hallam, S., McQueen, H., & Varvarigou, M. (2013). The power of music in the lives of older adults. *Research Studies in Music Education*, 35(1), 87–102. https://doi.org/10.1177/1321103X13478862

Dakon, J. M., & Cloete, E. (2018). The Violet experience: Social interaction through eclectic music learning practices. *British Journal of Music Education*, *35*(1), 57-72.

Daykin, N., Mansfield, L., Meads, C., Julier, G., Tomlinson, A., Payne, A., ... & Victor, C. (2018). What works for wellbeing? A systematic review of wellbeing outcomes for music and singing in adults. *Perspectives in Public Health*, *138*(1), 39-46.

De Figueiredo, C. S., Sandre, P. C., Portugal, L. C. L., Mázala-de-Oliveira, T., da Silva Chagas, L., Raony, Í., ... & Bomfim, P. O. S. (2021). COVID-19 pandemic impact on children and adolescents' mental health: Biological, environmental, and social factors. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *106*, 110171.

Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, I., Kovess, V., Lepine, J., et al. (2004). Prevalence, severity and unmet need for treatment of mental disorders in the World Health Organization world mental health surveys. *JAMA* 291, 2581–2590. Doi: 10.1001/jama.291.21.2581

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5-22.

Diener, E. (2009). Subjective well-being. *The science of well-being*, 11-58.

Diener, E., Suh, E., & Oishi, S. (1997). Recent findings on subjective well-being. *Indian journal of clinical psychology*, *24*, 25-41.

Dileo, C., & Bradt, J. (2005). *Medical music therapy: A meta-analysis & agenda for future research*. Jeffrey Books.

Doyal, L., & Gough, I. (1984). A theory of human needs. *Critical Social Policy*, *4*(10), 6-38.

Dozois, D. J. (2020). Anxiety and depression in Canada during the COVID-19 pandemic: A national survey. *Canadian Psychology/Psychologie canadienne*.

Eley, R., & Gorman, D. (2010). Didgeridoo playing and singing to support asthma management in Aboriginal Australians. *The Journal of Rural Health, 26*(1), 100-104.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196*(4286), 129-136.

Fancourt, D., Ockelford, A., & Belai, A. (2014). The psychoneuroimmunological effects of music: A systematic review and a new model. *Brain, Behavior, and Immunity, 36*, 15–26. https://doi.org/10.1016/j.bbi.2013.10.014

Fancourt, D., Perkins, R., Ascenso, S., Carvalho, L. A., Steptoe, A., & Williamon, A. (2016). Effects of group drumming interventions on anxiety, depression, social resilience and inflammatory immune response among mental health service users. *Plos One, 11*(3). https://doi.org/10.1371/journal.pone.0151136

Fancourt, D., & Steptoe, A. (2019). Present in body or just in mind: Differences in social presence and emotion regulation in live vs. virtual singing experiences. *Frontiers in Psychology, 10*, 778.

Ferrari, A. J., Charlson, F. J., Norman, R. E., Patten, S. B., Freedman, G., Murray, C. J., ... & Whiteford, H. A. (2013). Burden of depressive disorders by country, sex, age, and year: findings from the global burden of disease study 2010. *PloS Medicine, 10*(11), e1001547.

Gold, C., Heldal, T. O., Dahle, T., & Wigram, T. (2005). Music therapy for schizophrenia or schizophrenia-like illnesses. *Cochrane Database of Systematic Reviews*, (2).

Gold, C., Solli, H. P., Krüger, V., & Lie, S. A. (2009). Dose–response relationship in music therapy for people with serious mental disorders: Systematic review and meta-analysis. *Clinical Psychology Review, 29*(3), 193-207.

Gold, C., Voracek, M., & Wigram, T. (2004). Effects of music therapy for children and adolescents with psychopathology: A meta-analysis. *Journal of Child Psychology and Psychiatry*, *45*(6), 1054-1063.

Gold, C., Wigram, T., & Elefant, C. (2006). Music therapy for autistic spectrum disorder. *Cochrane Database of Systematic Reviews*, (2).

Golden, A., Gammonley, D., Powell, G. H., & Wan, T. T. (2017). The challenges of developing a participatory arts intervention for caregivers of persons with dementia. *Cureus*, *9*(4).

Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. *International Journal of Music Education*, *28*(3), 269-289.

Hallam, S., Cross, I., & Thaut, M. (Eds.). (2011). *Oxford handbook of music psychology*. Oxford University Press.

Hammar, L. M., Götell, E., & Engström, G. (2011). Singing while caring for persons with dementia. *Arts & Health*, *3*(01), 39-50.

Hash, P. M. (2021). Remote learning in school bands during the COVID-19 shutdown. *Journal of Research in Music Education*, *68*(4), 381-397.

Hadhazy, A. (2020). *JackTrip software allows musicians to sync performances online*. Stanford News. https://news.stanford.edu/2020/09/18/jacktrip-software-allows-musicians-sync-performances-online/.

He, Y. (2020, April). Research on online teaching of music performance based on diversification and intelligence–take the online music teaching during the covid-19 as an example. In *2020 International Conference on E-Commerce and Internet Technology (ECIT)* (pp. 193-196). IEEE.

Heintzelman, S. J. (2018). Eudaimonia in the contemporary science of subjective well-being: Psychological well-being, self-determination, and meaning in life. *Handbook of Well-being.* Salt Lake City, UT: DEF Publishers.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PloS Medicine*, *7*(7), e1000316.

Howarth, L. (2018). Creative health: The arts for health and wellbeing. *Perspectives in Public Health*, *138*(1), 26-27.

Hub by the Numbers. (2019, December 03). Retrieved from https://www.mcgill.ca/wellness-hub/article/hub-numbers

Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, *15*, 1425-1456.

Johnson, C., & Hawley, S. H. (2017). Online music learning: Informal, formal, and steam contexts. *International Journal on Innovations in Online Education*, *1*(2).

Joseph, D., & Lennox, L. (2021). Twists, turns and thrills during COVID-19: Music teaching and practice in Australia. *Music Education Research*, 1-15.

Kessler, R. C., Angermeyer, M., Anthony, J. C., De Graaf, R. O. N., Demyttenaere, K., Gasquet, I., ... & Uestuen, T. B. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World Psychiatry*, *6*(3), 168.

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, *61*, 121–140. https://doi.org/10.2307/2787065

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, K. M., Gary, D., O'Malley, P. M., Hamilton, A., & Schulenberg, J. (2019). Recent increases in depressive symptoms among US adolescents: Trends from 1991 to 2018. *Social Psychiatry and Psychiatric Epidemiology, 54*(8), 987–996. Doi: 10.1007/s00127-019-01697-8

Kokotsaki, D., & Hallam, S. (2011). The perceived benefits of participative music making for non-music university students: A comparison with music students. *Music Education Research, 13*(2), 149-172.

Leiphold, B., & Loepthein, T. (2015). Music reception and emotional regulation in adolescence and adulthood. *Musicae Scientiae 19*(1): 111-128. DOI: 10.1177/1029864915570354

L'Etoile, S. k. D. (2002). The effectiveness of music therapy in group psychotherapy for adults with mental illness. *The Arts in Psychotherapy, 29*(2), 69-78. Doi: 10.1016/s0197-4556(02)00139-9

Lomas, T. (2016). Positive art: Artistic expression and appreciation as an exemplary vehicle for flourishing. *Review of General Psychology, 20*(2), 171-182.

Lonsdale, A. J., & Day, E. R. (2020). Are the psychological benefits of choral singing unique to choirs? A comparison of six activity groups. *Psychology of Music*, 0305735620940019.

MacDonald, R., Kreutz, G., & Mitchell, L. (Eds.). (2013). *Music, health, and wellbeing*. Oxford University Press.

Manchester, R. A. (2011). The biopsychosocial model and performing arts medicine. *Medical Problems of Performing Artists*, *26*(3), 121-122.

Maratos, A., Gold, C., Wang, X., & Crawford, M. (2008). Music therapy for depression. *Cochrane Database of Systematic Reviews*, (1).

Mak, P. (2006). Learning music in formal, non-formal and informal contexts. *Lectorate Lifelong Learning in Music* (North Netherlands Conservatoire—Groningen and Royal Conservatoire—The Hague).

McFerran, K. S., Garrido, S., & Saarikallio, S. (2016). A critical interpretive synthesis of the literature linking music and adolescent mental health. *Youth & Society, 48*(4), 521-538.

Moore, K. S. (2013). A systematic review on the neural effects of music on emotion regulation: Implications for music therapy practice. *Journal of Music Therapy*, *50*(3), 198–242. Doi: 10.1093/jmt/50.3.198

Moore, K. S., & Hanson-Abromeit, D. (2015). Theory-guided therapeutic function of music to facilitate emotion regulation development in preschool-aged children. *Frontiers in Human Neuroscience*, *9*. Doi: 10.3389/fnhum.2015.00572

Moss, H., Lynch, J., & O'Donoghue, J. (2018). Exploring the perceived health benefits of singing in a choir: An international cross-sectional mixed-methods study. *Perspectives in Public Health*, *138*(3), 160-168.

O'Grady, L., & McFerran, K. (2007). Community music therapy and its relationship to community music: Where does it end?. *Nordic Journal of Music Therapy, 16*(1), 14-26.

Pega, F., & Veale, J. F. (2015). The case for the World Health Organization's Commission on Social Determinants of Health to address gender identity. *American Journal of Public Health, 105*(3), e58-e62.

Peretz, I., & Zatorre, R. J. (Eds.). (2003). *The cognitive neuroscience of music*. OUP Oxford.

Perkins, R., & Williamon, A. (2014). Learning to make music in older adulthood: A mixed-methods exploration on impacts of well-being. *Psychology of Music, 42*(4), 550-567. DOI: 10.1177/0305735613483668

Perkins, R., Ascenso, S., Atkins, L., Fancourt, D., & Williamon, A. (2016). Making music for mental health: How group drumming mediates recovery. *Psychology of Well-being, 6*(1), 1-17.

Perkins, R., Mason-Bertrand, A., Fancourt, D., Baxter, L., & Williamon, A. (2020). How participatory music engagement supports mental well-being: A meta-ethnography. *Qualitative Health Research*, 1049732320944142.

Pfefferbaum, B., & North, C. S. (2020). Mental health and the COVID-19 pandemic. *New England Journal of Medicine, 383*(6), 510-512.

Piaget, J. (1964). Cognitive development in children: Piaget. *Journal of Research in Science Teaching, 2*(3), 176-186.

Price, S., Phillips, J., Tallent, J., & Clift, S. (2021). Singing group leaders' experience of online singing sessions during the COVID-19 pandemic: A rapid survey. *ResearchGate.*

Ruthmann, S. A. (2007). Strategies for supporting music learning through online collaborative technologies. *Music Education with Digital Technology*, 131-141.

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology , 52*, 141-166.

Ryff, C. D. (2017). Eudaimonic well-being, inequality, and health: Recent findings and future directions. *International Review of Economics*, *64*(2), 159–178. https://doi.org/10.1007/s12232-017-0277-4

Sagar, R., Dandona, R., Gururaj, G., Dhaliwal, R. S., Singh, A., Ferrari, A., ... & Dandona, L. (2020). The burden of mental disorders across the states of India: The global burden of disease study 1990–2017. *The Lancet Psychiatry*, *7*(2), 148-161.

Seligman, M. E. P., & Csikszentmihalyi, M. (2014). Positive psychology: An introduction. In M. Csikszentmihalyi (Ed.), *Flow and the Foundations of Positive Psychology* (pp. 279–298). Springer. https://doi.org/10.1007/978-94-017- 9088-8_18

Schäfer, T., Sedlmeier, P., Städtler, C., & Huron, D. (2013). The psychological functions of music listening. *Frontiers in psychology*, *4*, 511.

Schiavio, A., Küssner, M. B., & Williamon, A. (2020). Music teachers' perspectives and experiences of ensemble and learning skills. *Frontiers in Psychology*, *11*, 291.

Schorr-Lesnick, B., Teirstein, A. S., Brown, L. K., & Miller, A. (1985). Pulmonary function in singers and wind-instrument players. *Chest*, *88*(2), 201-205.

Sheridan, C. L., & Radmacher, S. A. (1992). *Health psychology: Challenging the biomedical model*. John Wiley & Sons.

Silva, M., Loureiro, A., & Cardoso, G. (2016). Social determinants of mental health: A review of the evidence. *The European Journal of Psychiatry*, *30*(4), 259-292.

Silverman, M. J. (2003). The influence of music on the symptoms of psychosis: A meta-analysis. *Journal of Music Therapy*, *40*(1), 27-40.

Spiro, N., Perkins, R., Kaye, S., Tymoszuk, U., Mason-Bertrand, A., Cossette, I., Glasser, S. & Williamon, A. (2021). The effects of COVID-19 lockdown 1.0 on working patterns, income, and wellbeing among performing arts professionals in the United Kingdom (April–June 2020). *Frontiers in Psychology*, *11*, 4105.

Steinhardt, T. L., & Ghetti, C. M. (2020). Resonance between theory and practice: Development of a theory-supported documentation tool for music therapy as procedural support within a biopsychosocial frame. *Music in Paediatric Hospitals – Nordic Perspectives*, 109-139.

Stuhlmiller, D. F., Lamba, S., Rooney, M., Chait, S., & Dolan, B. (2009). Music reduces patient anxiety during interfacility ground critical care transport. *Air Medical Journal*, *28*(2), 88-91.

Tymoszuk, U., Perkins, R., Spiro, N., Williamon, A., & Fancourt, D. (2020). Longitudinal associations between short-term, repeated, and sustained arts engagement and well-being outcomes in older adults. *The Journals of Gerontology: Series B*, *75*(7), 1609-1619.

Usher, K., Durkin, J., & Bhullar, N. (2020). The COVID-19 pandemic and mental health impacts. *International Journal of Mental Health Nursing*, *29*(3), 315.

Veblen, K. K. (2008). The many ways of community music. *International Journal of Community Music*, *1*(1).

Veblen, K., & Olsson, B. (2002). Community music: Toward an international overview. In Azzara, C. D. (Ed.), *The new handbook of research on music teaching and learning* (pp. 730-753). Oxford University Press

Vermund, S. H., & Pitzer, V. E. (2020). Asymptomatic transmission and the infection fatality risk for COVID-19: Implications for school reopening. *Clinical Infectious Diseases*.

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity*, *89*, 531-542.

Vink, A. C., Bruinsma, M. S., & Scholten, R. J. (2003). Music therapy for people with dementia. *Cochrane Database of Systematic Reviews*, (4).

Voukelatou, V., Gabrielli, L., Miliou, I., Cresci, S., Sharma, R., Tesconi, M., & Pappalardo, L. (2020). Measuring objective and subjective well-being: Dimensions and data sources. *International Journal of Data Science and Analytics*, 1-31.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wakefield, J. C. (2013). DSM-5: An overview of changes and controversies. *Clinical Social Work Journal*, *41*(2), 139-154.

Walker-Harding, L. R., Christie, D., Joffe, A., Lau, J. S., & Neinstein, L. (2017). Young adult health and well-being: A position statement of the Society for Adolescent Health and Medicine. *Journal of Adolescent Health*, *60*(6), 758-759.

Walker Kennedy, S. (2010). *An exploration of differences in response to music related to levels of psychological health in adolescents*. Toronto, ON: University of Toronto

Waterman, A. S., Schwartz, S. J., & Conti, R. (2008). The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation. *Journal of Happiness Studies*, *9*(1), 41-79.

Waterman, A. S., Schwartz, S. J., Zamboanga, B. L., Ravert, R. D., Williams, M. K., Bede Agocha, V., ... & Donnellan, B. M. (2010). The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity. *The Journal of Positive Psychology*, *5*, 41-61.

West, M. (2000). Music therapy in antiquity. *Music as medicine: The history of music therapy since antiquity*, 51-68.

Weinberger, A. H., Gbedemah, M., Martinez, A. M., Nash, D., Galea, S., & Goodwin, R. D. (2018). Trends in depression prevalence in the USA from 2005 to 2015: Widening disparities in vulnerable groups. *Psychological Medicine*, *48*(8), 1308–1315. https://doi.org/10.1017/S0033291717002781

Wiens, K., Bhattarai, A., Pedram, P., Dores, A., Williams, J., Bulloch, A., & Patten, S. (2020). A growing need for youth mental health services in Canada: Examining trends in youth mental health from 2011 to 2018. *Epidemiology and Psychiatric Sciences, 29*.

Wiggins, J., & Espeland, M. (2012). Creating in music learning contexts. *The Oxford Handbook of Music Education, 1*, 341-360.

World Health Organization. *Official records of the World Health Organization*. (1947). New York, Geneva: United Nations, World Health Organization.

World Health Organization. (2012). *DALYs / YLDs definition*. World Health Organization. https://www.who.int/mental_health/management/depression/daly/en/.

World Health Organization. (2014). Social determinants of mental health. https://apps.who.int/iris/bitstream/handle/10665/112828/9789?sequence=1.

World Health Organization. (2017). *Depression and other common mental disorders: Global health estimates* (No. WHO/MSD/MER/2017.2). World Health Organization.

World Health Organization. (2019a). Mental disorders. Retrieved March 10, 2021, from https://www.who.int/news-room/fact-sheets/detail/mental-disorders

World Health Organization. (2019b). *The WHO special initiative for mental health (2019-2023): Universal health coverage for mental health* (No. WHO/MSD/19.1). World Health Organization.

World Health Organization. *Depression*. (2020). World Health Organization. https://www.who.int/news-room/fact-sheets/detail/depression.

WHO Quality of Life-BREF (WHOQOL-BREF). (2013, October 15). Retrieved September 22, 2020, from https://www.who.int/substance_abuse/research_tools/whoqolbref/en/

Who we are, our history, and philosophy. Montreal New Horizons Band. (2021). https://nhmontreal-en.weebly.com/who-we-are-our-history-and-philosophy.html.

Zittel, K. M., Lawrence, S., & Wodarski, J. S. (2002). Biopsychosocial model of health and healing: Implications for health social work practice. *Journal of Human Behavior in the Social Environment, 5*(1), 19-33.

Appendix A

Online Survey Form (Demographics, Mental Health, Musical History, WHOQOL-BREF)

Demographic Survey

Would you like to be contacted for an interview?

a. Yes
b. No
i. Please leave an email address at which you can be contacted for an interview:

2. What is your age? _____

3. What is your sex as assigned at birth?
a. Female
b. Male
c. Other (please indicate): _____
d. Prefer not to disclose

4. What is your gender identity?
a. Female
b. Male
c. Non-binary/Gender Fluid
d. Other (please list): _____
e. Prefer not to respond

5. What is your sexual orientation?
a. Bisexual
b. Gay
c. Lesbian
d. Straight/Heterosexual
e. Other (please list): _____
f. Prefer not to respond

6. Do you identify yourself as belonging to a visible minority group (non-Caucasian/non-white)?
a. Yes
b. No
i. Which visible minority group to you identify as belonging to?: _____

7. In what country were you born?: _____

8. How many years have you lived in Canada?:_____

Mental Health Questionnaire

1. You were unable to control the important things in your life?
    a. Never
    b. Almost Never
    c. Sometimes
    d. Fairly Often
    e. Very Often
    f. No answer
2. Nervous and stressed?
    a. Never
    b. Almost Never

7. I enjoyed life
    a. Rarely or none of the time (less than 1 day)
    b. Some or a little of the time (1-2 days)
    c. Occasionally or a moderate amount of time (3-4 days)
    d. Most or all of the time (5-7 days)
    e. No answer
8. I felt I was just as good as other people
    a. Rarely or none of the time (less than 1 day)

c. Sometimes
d. Fairly Often
e. Very Often
f. No answer

3. Nervous and stressed?
    a. Never
    b. Almost Never
    c. Sometimes
    d. Fairly Often
    e. Very Often
    f. No answer
4. Angered because of things that were outside of your control?
    a. Never
    b. Almost Never
    c. Sometimes
    d. Fairly Often
    e. Very Often
    f. No answer
5. Difficulties were piling up so high that you could not over-come them?
    a. Never
    b. Almost Never
    c. Sometimes
    d. Fairly Often
    e. Very Often
    f. No answer

Please indicate how often you have felt a particular way in the past **week**:

6. I felt hopeful about the future
    a. Rarely or none of the time (less than 1 day)
    b. Some or a little of the time (1-2 days)
    c. Occasionally or a moderate amount of time (3-4 days)
    d. Most or all of the time (5-7 days)
    e. No answer

b. Some or a little of the time (1-2 days)
c. Occasionally or a moderate amount of time (3-4 days)
d. Most or all of the time (5-7 days)
e. No answer

9. I felt that people dislike me
    a. Rarely or none of the time (less than 1 day)
    b. Some or a little of the time (1-2 days)
    c. Occasionally or a moderate amount of time (3-4 days)
    d. Most or all of the time (5-7 days)
    e. No answer
10. I had trouble keeping my mind on what I was doing
    a. Rarely or none of the time (less than 1 day)
    b. Some or a little of the time (1-2 days)
    c. Occasionally or a moderate amount of time (3-4 days)
    d. Most or all of the time (5-7 days)
    e. No answer
11. My sleep was restless
    a. Rarely or none of the time (less than 1 day)
    b. Some or a little of the time (1-2 days)
    c. Occasionally or a moderate amount of time (3-4 days)
    d. Most or all of the time (5-7 days)
    e. No answer
12. Have you ever sought help (professional or otherwise) over personal mental health concerns?
    a. Yes
    b. No
    c. No answer
    f.

13. Can you please explain the circumstances behind when you have sought help (professional or otherwise) over mental health concerns?:

14. Have you ever been diagnosed with a mental illness (e.g., anxiety or depression?)
    a. Yes
    b. No
    c. Prefer not to answer
15. Which mental illness(es) have you been diagnosed with?

16. Have you ever received treatment for a mental illness (e.g., medication, therapy, counselling, etc.)?
    a. Yes
    b. No
    c. Prefer not to answer
17. What treatment(s) for mental illness have you received (e.g. medication, therapy, counselling, etc

Table A1

Symphonic Band Club Musical History Results

Participant	A(06)	B(09)	C(11)	D(13)	E(15)	F(16)	G(21)	H(31)	I(34)	J(37)	K(42)	L(44)	M(46)	N(48)
My musical training has included: [Playing/ singing in music ensembles]	5+ years	3 years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years
My musical training has included [Private lessons]	3 years	3 years	Never	5+ years	5+ years	5+ years	1 year	2 years	5+ years	2 years	2 years	5+ years	Never	3 years
My musical training has included: [Playing in music ensembles online]	Less than 1 year	1 year	Never	1 year	Less than 1 year	Never	Less than 1 year	Less than 1 year	Less than 1 year	Less than 1 year	Never	Less than 1 year	Less than 1 year	Less than 1 year
My musical training has included: [Private lessons online]	Never	Never	Never	Never	1 year	Never	Never	Never	Never	Never	-	Never	Never	Never
What instrument do you primarily play in your music ensemble?	Trombone	Baritone Saxophone	Baritone Saxophone	Clarinet	Percussion	Alto Saxophone	Flute	Clarinet	Horn	Trumpet	Trumpet	Flute	Flute	Alto Saxophone
What is your current area of study (degree level and subject)?	U1 (returning second year) in Microbiology & Immunology	B/Ed Kindergarten and Elementary Education	U1 BA&Sc. In software engineering and linguistics	Bachelor of Commerce, Major in Mathematics	U1 BA in Computer Science	BASc – Engineering	Bachelor's of Engineering, Chemical Engineering	Bachelor's Degree. Economics and Sociology	Bachelor of Arts in Computer Science, minor in Music	BSc in Honours Physiology (May 2019) BA in Psychology May 2021 projected	Psychology BA double minor in behavioral science and sociology. U1	Environment, graduated	Bachelor's degree in geography and environment	Bachelor of Arts U2 – History and Political Science
Did the COVID-19 pandemic have an influence on your engagement with music?	Yes	Yes	Significantly	Slightly	Significantly	Not at all	Yes	Significantly	Significantly	Yes	Slightly	Significantly	Slightly	Yes

Please explain how the COVID-19 pandemic has affected your engagement with music.

Participant	Answer
A	COVID-19 has prevented having Symphonic Band Club at McGill in-person, which has reduced my playing time & how much I improve from feedback from the conductors & my peers. I also couldn't meet with my brass quintet in Toronto to play & learn new music, and we're unfortunately not having online rehearsals.
B	Less interested in online rehearsal, unable to maintain attention.
C	Because of the pandemic we had to cancel our spring concert last year, which was particularly disappointing because I was excited for my sax quartet. I also couldn't play during the summer because I had to move to Alberta for work and left my sax in Montreal. I also play trumpet but, in my apartment, there were six of us, so I didn't play out of courtesy. I was still in Alberta until my job shut down and I got laid off in October so I couldn't do band at the beginning of the fall semester and was too anxious to join back after moving. I started playing guitar two weeks ago because I miss music so much.

D	-
E	I have not been able to fully devote myself to the instruments that I love (mallet percussion) as covid has taken away my ability to access it. In addition, with no more in person ensembles, it feels harder to connect musically with my fellow bandmates. Due to the inability to access practice rooms or percussion instruments, I have devoted more of my time during the pandemic to improving my drum kit technique (when at home) and getting better at playing guitar, as the instrument is quieter and more transportable.
F	-
G	Band rehearsals are no longer held in person. While we have a zoom alternative, the duration is shorter compared to when we were in-person and there is less engagement as an ensemble overall as zoom rehearsals are isolating and we cannot hear each other play. Admittedly, I am also in another performance club, where my friends and I have been arranging small ensemble pieces to be released on YouTube, but since we cannot record in-person, that takes away from the fun aspect of coming together and performing.
H	COVID made me difficult to recognize that I am making music with everyone in the band.
I	The sudden shift to completely online, completely isolated living came at a really weird time in my life. Throughout high school, the music programs at my school had been my main way of making friends, and where I was most involved. In the last couple months of my senior year, instead of having our final band concert, our last jazz band performance, playing music at our graduation, we instead had to stay home and not go outside at all. Honestly, before then, I didn't really get how much my engagement with music was defined by the group of people I was playing it with, but nowadays without those last closing experiences something still feels a bit incomplete. Not being able to really do much in person, even to this day, has really changed how I see music – I feel like I've found more confidence and personal fulfillment in playing by myself than I used to, but at the same time it really makes me appreciate being able to play in a group and hear the sounds of people around me. It's also given me a deeper understanding of why I play music; even though I can enjoy playing music alone, I definitely feel happier when I'm playing with other people.
J	Being a part of a student run wind symphony, we had to adapt to an online platform to conduct our rehearsals (zoom). This is not ideal as I can't hear other players, interact with other people as well but also cannot tell whether I'm improving or playing something right at times.
K	-
L	It has been difficult to play at all. I never felt comfortable playing in apartments where my neighbors could hear me. Sometimes playing was straight up not allowed. So band rehearsals were the only time I could play! Virtual rehearsals run into the same problem of instruments not being allowed.
M	-
N	I used to play regularly as part of the McGill symphonic band club, but now while I still attend some rehearsals online, it just doesn't have the same euphoric effect as playing in an ensemble in person.

Table A2

Schulich School of Music Large Ensembles Musical History Results

Participant	**1(03)**	**2(04)**	**3(07)**	**4(08)**	**5(14)**	**6(18)**	**7(22)**	**8(23)**	**9(24)**	**10(28)**	**11(38)**	**12(39)**	**13(41)**
My musical training has included: [Playing/ singing in music ensembles]	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years
My musical training has included [Private lessons]	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years	5+ years
My musical training has included: [Playing in music ensembles online]	1 year	Never	Less than 1 year	Never	1 year	Never	Less than 1 year	1 year	Never	Less than 1 year	Less than 1 year	1 year	1 year
My musical training has included: [Private lessons online]	1 year	Less than 1 year	Less than 1 year	1 year	1 year	1 year	Less than 1 year	1 year	Less than 1 year	1 year	Less than 1 year	1 year	1 year

What instrument do you primarily play in your music ensemble?	Trombone	Tuba	Clarinet	Oboe	Flute	Trombone	Flute	Flute	Violin	Flute	Viola	Trumpet	Flute
What is your current area of study (degree level and subject)?	Bachelor of music in Trombone performance, minor in music theory	Second year of a 3-year undergrad in tuba performance	Bachelor of Music in Clarinet Performance, Second Year	3rd year undergraduate in music performance	Music Education, Second Year	Mm. trombone performance	Bachelor of Music – Flute Performance	B. Mus/B. Ed. first year	Bmus faculty (violin)	U1 Music Education	Undergraduate Degree in Viola Performance	Third year early music major, baroque trumpet performance	Undergrad, M.Mus. Performance
Did the COVID-19 pandemic have an influence on your engagement with music?	Significantly	Significantly	Significantly	Significantly	Significantly	Significantly	Yes	Yes	Significantly	Significantly	Significantly	Significantly	Significantly

Please explain how the COVID-19 pandemic has affected your engagement with music.

Participant	Answer
1	It sucked all the fun out of playing. I live to play in ensembles, and it took that away.
2	No orchestra and a general lack of motivation to practice.
3	It can be very demotivating to be practicing all alone, for days on end. You lack the emotional benefits of making music with other people as well as the camaraderie that comes with being a part of a community who has similar musical ambitions. Also, from an acoustic perspective, you become attuned to your sound in the same small room (as opposed to a large, resonant hall).
4	Not playing with others, social distance, no audience to entertainment
5	There were times where I was trying to hang onto music as much as I could, and other times where I could not even bring myself to pick up my instrument. Nothing has been consistent, musically, since the start. Orchestra rehearsals were cancelled, then started, then cancelled again and moved to Zoom. No ensemble playing experience at McGill. In person private lessons moved to zoom, then in person, then to zoom again. It's a very "unstable" time.
6	Realized classical music is dogshit and dying, getting out once I graduate. Hate playing the trombone now because it's a constant reminder that classical music will not do anything significant to change the world in a positive manner.
7	All school musical engagements were disrupted, all concerts to attend were cancelled, my teacher has been unable to travel so I've had one in person lesson in the past year.
8	No more playing with people in person, had to adapt and find other areas to motivate, started YouTube music videos, feel very lacking socially because music was a huge part of my social life
9	It's very hard for me to play in a mask because it always ends up in my eye. But far more important than that, I haven't been able to do ensembles as I've wanted (I love chamber music) and I've been fully demotivated to practice.
10	I feel completely disconnected from my peers especially because this is my first year at McGill. I am definitely experiencing lower motivation when I try to practice.
11	I find myself with much less motivation to practice and I often question if all this work is worth it in the long run. I miss having peers to play with and inspire me. I find myself reflecting on all the injustice in classical music and the pandemic has made me re-evaluate my position within the industry. This past year has really made me consider why music is important to me and society. I still don't think I have come up with a concrete answer and have not arrived at the true meaning of performing music for me yet.
12	At the beginning I lost several paid gigs. I haven't been able to play in physical ensembles for a year now. I feel completely disconnected with the Schulich school of music curriculum and from the Montreal musical scene. I have no clues as to how my performance skills have evolved since the lack of performance opportunities.
13	It is impossible to play with people.

WHOQOL-BREF

Instructions

This assessment (question 24-39) asks how you feel about your quality of life, health, or other areas of your life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks. Please read each question, assess your feelings, and choose the number on the scale for each question that gives the best answer for you.

Quality of life as defined by the WHO is an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns How would you rate your quality of life?

Table A3

SBC Overall WHOQOL-BREF Responses

	Very Good	**Good**	**Neither good nor poor**	**Poor**	**Very poor**
How would you rate your quality of life?	50%, *n*=7 Participant: A, D, F, G, I, K, M	35.71%, *n*=5 Participant: C, E, H, J, L	14.28%, *n*= 2 Participant: B, N	-	-
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**
How satisfied are you with your health?	-	64.28%, *n*=9 Participant: A, D, G, H, I, J, K, L, M	7.14%, *n*=1 Participant: E	28.57%, *n*=4 Participant: B, C, F, N	-

SBC Physical Health

	An extreme amount	**Very much**	**A moderate amount**	**A little**	**Not at all**
To what extent do you feel that physical pain prevents you from doing what you need to do?	-	-	21.42%, *n*=3 Participant: B, D, F	28.57%, *n*=4 Participant: C, E, G, M	50%, *n*=7 Participant: A, H, I, J, K, L, N
How much do you need any medical treatment to function in your daily life?	-	-	14.28%, *n*= 2 Participant: B, C	28.57%, *n*=4 Participant: A, F, I, L	57.14%, *n*=8 Participant: D, E, G, H, J, K, M, N
	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**
Do you have enough energy for everyday life?	14.28%, *n*= 2 Participant: D, L	35.71%, *n*=5 Participant: A, E, H, I, K	21.42%, *n*=3 Participant: F, J, N	14.28%, *n*= 2 Participant: C, M	14.28%, *n*= 2 Participant: B, G

	Very well	Well	Neither poor nor well	Poor	Very Poor
How well are you able to get around?	50%, *n*=7 Participant: A, E, F, G, I, L, M	42.85%, *n*=6 Participant: B, C, D, H, J, K	7.14%, *n*=1 Participant: M	-	-
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**
How satisfied are you with your sleep?	14.28%, *n*= 2 Participant: D, K	28.57%, *n*=4 Participant: H, J, M, N	50%, *n*=7 Participant: A, C, E, F, G, I, L	7.14%, *n*=1 Participant: B	-
How satisfied are you with your ability to perform your daily living activities?	7.14%, *n*=1 Participant: D	50%, *n*=7 Participant: A, F, H, I, J, L, M	28.57%, *n*=4 Participant: E, G, K, N	14.28%, *n*= 2 Participant: B, C	-
How satisfied are you with your capacity for work?	-	42.85%, *n*=6 Participant: A, D, E, H, I, L	28.57%, *n*=4 Participant: G, J, M, N	21.42%, *n*=3 Participant: B, F, K	7.14%, *n*=1 Participant: C

SBC Psychological WHOQOL-BREF Responses

	An extreme amount	Very much	A moderate amount	A little	Not at all
How much do you enjoy life?	-	35.71%, *n*=5 Participant: A, D, E, H, K	50%, *n*=7 Participant: C, F, G, I, J, L, M	7.14%, *n*=1 Participant: N	7.14%, *n*=1 Participant: B
To what extent do you feel your life to be meaningful?	-	14.28%, *n*= 2 Participant: H, K	57.14%, *n*=8 Participant: A, D, F, G, I, J, L, M	7.14%, *n*=1 Participant: C	21.42%, *n*=3 Participant: B, E, N
	Extremely	**Very much**	**A moderate amount**	**A little**	**Not at all**
How well are you able to concentrate?	-	14.28%, *n*= 2 Participant: D, M	50%, *n*=7 Participant: A, E, G, H, K, L, N	21.42%, *n*=3 Participant: F, I, J	14.28%, *n*= 2 Participant: B, C
	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**
Are you able to accept your bodily appearance?	7.14%, *n*=1 Participant: D,	35.71%, *n*=5 Participant: A, F, J, K, L	21.42%, *n*=3 Participant: E, G, H	35.71%, *n*=5 Participant: B, C, I, M, N	-
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**
How satisfied are you with yourself?	-	35.71%, *n*=5 Participant: D, F, H, K, M	28.57%, *n*=4 Participant: A, E, J, L	28.57%, *n*=4 Participant: B, C, G, I	7.14%, *n*=1 Participant: N
	Always	**Very Often**	**Quite often**	**Seldom**	**Never**
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	7.14%, *n*=1 Participant: G	28.57%, *n*=4 Participant: B, C, F, L	35.71%, *n*=5 Participant: A, J, K, M, N	21.42%, *n*=3 Participant: E, H, I	7.14%, *n*=1 Participant: D

SBC Social WHOQOL-BREF Responses

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	No response
How satisfied are you with	14.28%, *n*= 2 Participant: A, E	35.71%, *n*=5 Participant: D, F, H, K, M	35.71%, *n*=5 Participant: B, C, G, I, L	14.28%, *n*= 2 Participant: J, N	-	-

your personal relationships?						
How satisfied are you with your sex life?	7.14%, *n*=1 Participant: K	21.42%, *n*=3 Participant: A, F, I	21.42%, *n*=3 Participant: H, J, M	21.42%, *n*=3 Participant: B, C, E	14.28%, *n*= 2 Participant: L, N	14.28%, *n*= 2 Participant: D, G
How satisfied are with the support you get from your friends?	50%, *n*=7 Participant: A, D, E, G, J, K, L	21.42%, *n*=3 Participant: B, H, I	21.42%, *n*=3 Participant: C, M, N	7.14%, *n*=1 Participant: F	-	-

SBC Environment WHOQOL-BREF Responses

	Extremely	**Very much**	**A moderate amount**	**Slightly**	**Not at all**	
How safe do you feel in your daily life?	35.71%, *n*=5 Participant: A, G, I, K, M	42.85%, *n*=6 Participant: C, D, E, F, J, N	14.28%, *n*= 2 Participant: H, L	7.14%, *n*=1 Participant: B	-	
How healthy is your physical environment?	14.28%, *n*= 2 Participant: A, G	35.71%, *n*=5 Participant: D, E, J, K, L	42.85%, *n*=6 Participant: C, F, H, I, M, N	7.14%, *n*=1 Participant: B	-	
	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**	
Have you enough money to meet your needs?	64.28%, *n*=9 Participant: A, D, E, F, I, J, K, L, N	21.42%, *n*=3 Participant: C, G, H	7.14%, *n*=1 Participant: M	7.14%, *n*=1 Participant: B	-	
How available to you is the information that you need in your daily-to-day life?	64.28%, *n*=9 Participant: A, C, G, I, J, K, L, M, N	28.57%, *n*=4 Participant: D, E, F, H	7.14%, *n*=1 Participant: B	-	-	
To what extent do you have the opportunity for leisure activities?	-	28.57%, *n*=4 Participant: D, E, L, N	50%, *n*=7 Participant: A, C, F, H, I, J, K	21.42%, *n*=3 Participant: B, G, M	-	
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**	**No response**
How satisfied are you with the condition of your living place?	28.57%, *n*=4 Participant: A, G, K, N	64.28%, *n*=9 Participant: C, D, E, F, H, I, J, L, M	7.14%, *n*=1 Participant: B	-	-	-
How satisfied are you with your access to health services?	14.28%, *n*= 2 Participant: J, K	57.14%, *n*=8 Participant: A, C, E, G, H, L, M, N	14.28%, *n*= 2 Participant: D, I	14.28%, *n*= 2 Participant: B, F	-	-
How satisfied are you with your transport?	35.71%, *n*=5 Participant: A, I, K, L, N	42.85%, *n*=6 Participant: B, C, E, F, H, J	7.14%, *n*=1 Participant: D	7.14%, *n*=1 Participant: M	-	7.14%, *n*=1 Participant: G

SSoMLE Overall WHOQOL-BREF Responses

Very Good	**Good**	**Neither good nor poor**	**Poor**	**Very poor**

How would you rate your quality of life?	53.84%, *n*=7 Participant: 2, 4, 6, 7, 8, 9, 11	30.76%, *n*=4 Participant: 1, 3, 5, 10	7.69%, *n*=1 Participant: 13	7.69%, *n*=1 Participant: 12	-
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**
How satisfied are you with your health?	30.76%, *n*=4 Participant: 6, 7, 9, 11	46.15%, *n*=6 Participant: 1, 3, 4, 5, 10, 12	14.28%, *n*=2 Participant: 2, 8	7.69%, *n*=1 Participant:13	-

SSoMLE Physical Health WHOQOL-BREF Responses

	An extreme amount	**Very much**	**A moderate amount**	**A little**	**Not at all**	
To what extent do you feel that physical pain prevents you from doing what you need to do?	-	15.38%, *n*=2 Participant: 4, 5	15.38%, *n*=2 Participant: 7, 13	30.76%, *n*=4 Participant: 2, 3, 8, 12	38.46%, *n*=5 Participant: 1, 6, 9, 10, 11	
How much do you need any medical treatment to function in your daily life?	-	7.69%, *n*=1 Participant: 12	7.69%, *n*=1 Participant: 13	15.38%, *n*=2 Participant: 3, 9	69.23%, *n*=9 Participant: 1, 2, 4, 5, 6, 7, 8, 10, 11	
	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**	
Do you have enough energy for everyday life?	15.38%, *n*=2 Participant: 6, 11	38.46%, *n*=5 Participant: 2, 3, 5, 7, 8	23.07%, *n*=3 Participant: 1, 10, 12	23.07%, *n*=3 Participant: 4, 9, 13	-	
	Very well	**Well**	**Neither poor nor well**	**Poor**	**Very Poor**	
How well are you able to get around?	61.53, *n*=8 Participant: 1, 4, 5, 7, 8, 9, 10, 11	15.38%, *n*=2 Participant: 2, 12	23.07%, *n*=3 Participant: 3, 6, 13	-	-	
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**	**No response**
How satisfied are you with your sleep?	-	30.76%, *n*=4 Participant: 4, 7, 10, 11	30.76%, *n*=4 Participant: 2, 3, 5, 12	15.38%, *n*=2 Participant: 8, 9	15.38%, *n*=2 Participant: 1, 13	7.69%, *n*=1 Participant: 6
How satisfied are you with your ability to perform your daily living activities?	-	53.84%, *n*=7 Participant: 1, 4, 5, 7, 8, 10, 11	15.38%, *n*=2 Participant: 2, 3	23.07%, *n*=3 Participant: 9, 12, 13	-	7.69%, *n*=1 Participant: 6
How satisfied are you with your capacity for work?	-	53.84%, *n*=7 Participant: 1, 4, 5, 7, 8, 10, 11	-	38.46%, *n*=5 Participant: 2, 3, 9, 12, 13	-	7.69%, *n*=1 Participant: 6

SSoMLE Psychological WHOQOL-BREF Score

	An extreme amount	**Very much**	**A moderate amount**	**A little**	**Not at all**	**No Response**
How much do you enjoy life?	15.38%, *n*=2	30.76%, *n*=4	38.46%, *n*=5	7.69%, *n*=1	-	7.69%, *n*=1

	Participant: 5, 8	Participant: 1, 4, 7, 11	Participant: 2, 3, 6, 9, 10	Participant: 12		Participant: 13
To what extent do you feel your life to be meaningful?	7.69%, *n*=1 Participant: 8	23.07%, *n*=3 Participant: 1, 3, 5	30.76%, *n*=4 Participant: 4, 7, 10, 11	23.07%, *n*=3 Participant: 2, 6, 9	15.38%, *n*=2 Participant: 12, 13	-
	Extremely	**Very much**	**A moderate amount**	**Slightly**	**Not at all**	
How well are you able to concentrate?	-	15.38%, *n*=2 Participant: 7, 8	53.84%, *n*=7 Participant: 1, 2, 3, 5, 9, 10, 11	15.38%, *n*=2 Participant: 4, 6	15.38%, *n*=2 Participant: 12, 13	
	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**	
Are you able to accept your bodily appearance?	7.69%, *n*=1 Participant: 6	23.07%, *n*=3 Participant: 4, 10, 12	23.07%, *n*=3 Participant: 3, 9, 11	38.46%, *n*=5 Participant: 1, 2, 5, 7, 8	7.69%, *n*=1 Participant: 13	
	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**	**No response**
How satisfied are you with yourself?	-	30.76%, *n*=4 Participant: 1, 5, 8, 10	15.38%, *n*=2 Participant: 7, 11	46.15%, *n*=6 Participant: 2, 3, 4, 9, 12, 13	-	7.69%, *n*=1 Participant: 6
	Always	**Very Often**	**Quite often**	**Seldom**	**Never**	**No response**
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	-	23.07%, *n*=3 Participant: 9, 10, 13	38.46%, *n*=5 Participant: 1, 3, 5, 11, 12	30.76%, *n*=4 Participant: 2, 4, 7, 8	-	7.69%, *n*=1 Participant: 6

SSoMLE Social WHOQOL-BREF Score

	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**	**No response**
How satisfied are you with your personal relationships?	15.38%, *n*=2 Participant: 2, 7	38.46%, *n*=5 Participant: 4, 5, 9, 10, 12	30.76%, *n*=4 Participant: 1, 8, 11, 13	7.69%, *n*=1 Participant: 3	-	7.69%, *n*=1 Participant: 6
How satisfied are you with your sex life?	7.69%, *n*=1 Participant: 12	23.07%, *n*=3 Participant: 7, 10, 11	38.46%, *n*=5 Participant: 2, 3, 4, 8, 13	7.69%, *n*=1 Participant: 5	15.38%, *n*=2 Participant: 1, 9	7.69%, *n*=1 Participant: 6
How satisfied are with the support you get from your friends?	15.38%, *n*=2 Participant: 11, 13	46.15%, *n*=6 Participant: 4, 5, 7, 9, 10, 12	23.07%, *n*=3 Participant: 2, 3, 8	7.69%, *n*=1 Participant: 1	-	7.69%, *n*=1 Participant: 6

SSoMLE Environmental WHOQOL-BREF Score

	Extremely	**Very much**	**A moderate amount**	**Slightly**	**Not at all**
How safe do you feel in your daily life?	23.07%, *n*=3 Participant: 5, 8, 9	46.15%, *n*=6 Participant: 1, 2, 3, 10, 11, 12	23.07%, *n*=3 Participant: 4, 6, 7	7.69%, *n*=1 Participant: 13	-
How healthy is your physical environment?	30.76%, *n*=4 Participant: 5, 7, 8, 9	46.15%, *n*=6 Participant: 2, 3, 4, 10, 11, 12	15.38%, *n*=2 Participant: 1, 6	7.69%, *n*=1 Participant:13	-

	Completely	**Mostly**	**Moderately**	**A little**	**Not at all**
Have you enough money to meet your needs?	46.15%, *n*=6 Participant: 2, 3, 4, 7, 8, 11	30.76%, *n*=4 Participant: 4, 6, 9, 10	7.69%, *n*=1 Participant: 1	7.69%, *n*=1 Participant: 5	7.69%, *n*=1 Participant: 13
How available to you is the information that you need in your daily-to-day life?	30.76%, *n*=4 Participant: 2, 5, 7, 11	53.84%, *n*=7 Participant: 3, 4, 6, 8, 9, 10, 12	7.69%, *n*=1 Participant: 1	7.69%, *n*=1 Participant: 13	-
To what extent do you have the opportunity for leisure activities?	15.38%, *n*=2 Participant: 6, 11	15.38%, *n*=2 Participant: 2, 7	38.46%, *n*=5 Participant: 1, 3, 4, 5, 13	30.76%, *n*=4 Participant: 8, 9, 10, 12	-

	Very satisfied	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very dissatisfied**	**No response**
How satisfied are you with the condition of your living place?	23.07%, *n*=3 Participant: 4, 9, 11	46.15%, *n*=6 Participant: 2, 3, 5, 8, 10, 12	15.38%, *n*=2 Participant: 7, 13	7.69%, *n*=1 Participant: 1	-	7.69%, *n*=1 Participant: 6
How satisfied are you with your access to health services?	7.69%, *n*=1 Participant: 8	53.84%, *n*=7 Participant: 2, 3, 4, 5, 7, 11, 12	-	30.76%, *n*=4 Participant: 1, 9, 10, 13	-	7.69%, *n*=1 Participant: 6
How satisfied are you with your transport?	30.76%, *n*=4 Participant: 5, 8, 9, 10	38.46%, *n*=5 Participant: 1, 4, 7, 11, 13	7.69%, *n*=1 Participant: 12	15.38%, *n*=2 Participant: 2, 3	-	7.69%, *n*=1 Participant: 6

Appendix B

Consent Form

Participant Consent Form

Researcher:
Mr. Colin Enright
Master's Student Music Education
McGill University
Schulich School of Music
514.701.8502
colin.enright@mail.mcgill.ca

Supervisor:
Dr. Isabelle Cossette
Music Research, Music Education
McGill University
Schulich School of Music
514.398.4535 ext. 089797
isabelle.cossette1@mcgill.ca

Active Music and Young Adult (18-24) Wellbeing

Please read this document carefully before proceeding. Your consent is required before continuing to the survey.

Purpose of Study

You are invited to participate in an online study on the effects of music participation on the wellbeing of young adults (18-24). This study will help us understand teaching methods, practices, and interventions that may aid in good overall mental health and wellbeing. In order for you to be a part of the study, it is required that you understand what will be included in the study and that you freely agree to take part. After reading and thoroughly reviewing this text, please give your consent if you agree to participate.

Study Procedures

This study will require you to respond to questions about your general wellbeing and your participation in music ensembles. You will be asked to complete a short survey of your demographic information, health, and musical background. After this, you will be asked to fill out a quality-of-life questionnaire and to answer three questions with written responses. The survey, questionnaire, and written responses should take approximately 30 minutes to complete. Your responses are confidential and will only be seen by myself and my supervisor. You may also be asked to voluntarily participate in a 45-minute audio recorded interview by leaving your email. It is not mandatory to participate by video and you can keep your camera function off. Although all precautions are taken, there is always the possibility of third party interception when using communications through the internet. If you choose to participate in an interview and are selected, your emails will be kept in a separate folder than the general survey data in order to maintain confidentiality.

Voluntary Participation & Potential Risks

There are no anticipated risks to you by participating in this study. The nature of the mental health related questions in the survey and interview may cause you some emotional distress. The McGill Student Wellness Hub provides resources and access to healthcare professionals in the area of counselling and therapy, should you at any point feel that you require those services as a result of your participation. Your support and participation in this study is voluntary. Should you choose to leave your email and participate in an interview, you may stop at any time prior to publication and have your responses removed from the study and all identifiable study materials, including email addresses and audio recordings, will be deleted. If you do not leave your email, your answers will remain unidentifiable and cannot be removed once submitted. Should you choose to withdraw after the point of publication, your data will be retained but shall be removed from further analysis and publication. You do not have to answer any question if you do not want to.

Confidentiality

In order to protect your privacy, your data will be kept confidential. If you agree to participate in an interview, you will be assigned an identification code to be used in any published results. All survey responses will be kept in a secure format on a password protected file on a password protected laptop, and only my supervisor and I will be able to access this information. All interview recordings will be kept in a separate password protected folder from survey

responses to maintain confidentiality. Interview recordings are for the sole use of the researcher and will not be disseminated to the public. Your data will be kept for a period of 7 years after first publication and then securely destroyed. We will be more than happy to share with you any general findings as presented in publication once the study is done. Your decision to participate will not have any impact on your status in the ensemble or on assessment in your participation of the McGill music program.

Please check the box below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. Please print and keep a copy of this document and information.

If you have any ethical concerns or complaints about your participation in this study and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or lynda.mcneil@mcgill.ca.

Appendix C

Research and Ethics Approval

McGill

Research Ethics Board Office
James Administration Bldg.
845 Sherbrooke Street West. Rm 325
Montreal, QC H3A 0G4

Tel: (514) 398-6831

Website: www.mcgill.ca/research/research/compliance/human/

Research Ethics Board 2
Certificate of Ethical Acceptability of Research Involving Humans

REB File #: 21-02-010
Project Title: Active Music and Wellbeing
Principal Investigator: Colin Enright **Department:** Music Research
Status: Master's Student **Supervisor:** Professor Isabelle Cossette

Approval Period: February 10, 2021 – February 9, 2022

The REB 2 reviewed and approved this project by delegated review in accordance with the requirements of the McGill University Policy on the Ethical Conduct of Research Involving Human Participants and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

Georgia Kalavritinos
Ethics Review Administrator

---

* Approval is granted only for the research and purposes described.
* Modifications to the approved research must be reviewed and approved by the REB before they can be implemented.
* A Request for Renewal form must be submitted before the above expiry date. Research cannot be conducted without a current ethics approval. Submit 2-3 weeks ahead of the expiry date.
* When a project has been completed or terminated, a Study Closure form must be submitted.
* Unanticipated issues that may increase the risk level to participants or that may have other ethical implications must be promptly reported to the REB. Serious adverse events experienced by a participant in conjunction with the research must be reported to the REB without delay.
* The REB must be promptly notified of any new information that may affect the welfare or consent of participants.
* The REB must be notified of any suspension or cancellation imposed by a funding agency or regulatory body that is related to this study.
* The REB must be notified of any findings that may have ethical implications or may affect the decision of the REB.

Appendix D

WHOQOL-BREF Score Averages, CI 95%

Figure D1

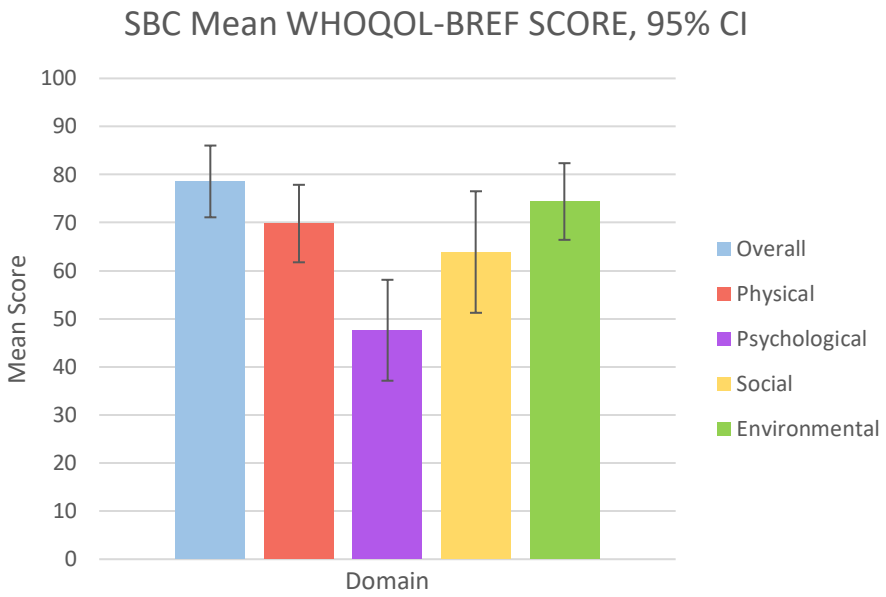
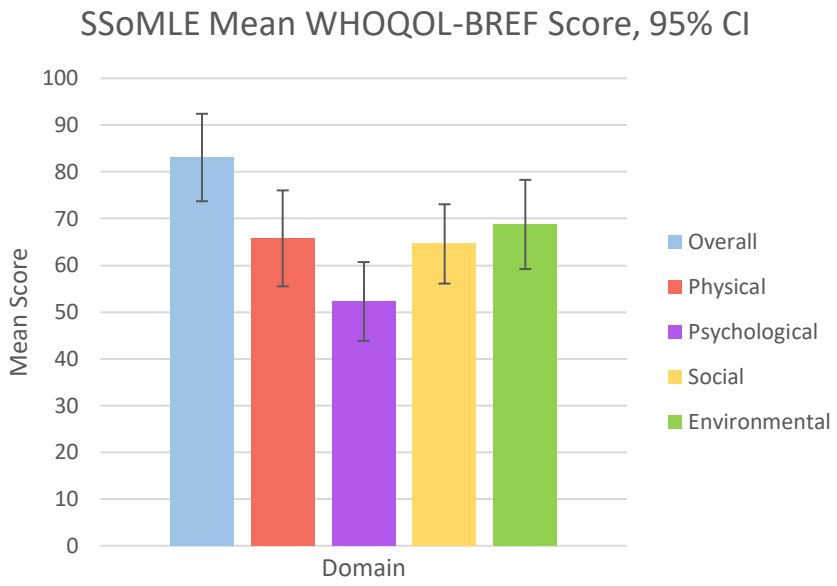


Figure D2



Appendix E

Interview Question Model

[Introductory Material]

Q1. For the record, you are a member of [ ]?

Q2. How many years have you been a part of the [ ]?

Q3. What kind of involvement have you had?

Q4. Could you in your own words describe what the [ ] does, what kind of music you've been playing and practicing this year?

Q5. Can I ask you to talk again generally about how you feel you have personally benefited from being in an ensemble? Physically, emotionally, socially, spiritually?

Q6. You mentioned [ ] in your written answer. Can you talk about how being in an ensemble factors into [ ]?

Q7. You said being in a music ensemble [ ]. Is that true of every rehearsal? Do you think the amount rehearsals [ ] has changed going to an online format?

Q8. You mentioned [ ], how that's where you met some of your closest friends. How does that compare with the present ensemble situation with [ ]?

Q9. Can you talk about the [ ] connection you have with music? Where did it start, how does it figure into your present ensemble participation?

Q10. Could you again in a general way, as if you were talking to someone thinking about joining [ ], describe the ways you feel being in an ensemble is good for your wellbeing?

Q 11. You mentioned the [ ] as an important part of [ ]. Can you speak more on that?

Q12. Do you feel that online band still allows you to explore emotions and friendship?

Q13. What would it mean for you if [ ] were to not continue into next year? What if it stayed online?

Q14. Is the effect on your mood comparable to the way you felt after in-person rehearsals?

Q15. I wonder could you get specific about what has worked or been successful about the online rehearsals as well as what has not worked for you?

Q16. Can you describe the online rehearsals?

Q17. How would you rate your ensemble participation in relation to your overall wellbeing?