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Developing Music Literacy Skills and Virtual Communities Through the Online Secondary Ensemble Rehearsals

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
2024

Abstract

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MPhil, Walden University, 2021

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

In secondary ensembles, teachers navigate the demanding balance of developing music literacy skills while preparing for concerts. This challenge intensifies in online learning environments due to limited opportunities for instant feedback, ensemble synchronization, and fostering a sense of community. The problem was the lack of understanding of how secondary teachers develop music literacy skills and virtual communities through online secondary ensemble rehearsals, a new phenomenon born during the COVID-19 school shutdown. The purpose of this qualitative study was to explore how secondary ensemble teachers develop music literacy skills and virtual communities through online band, choir, and orchestra rehearsals. The community of inquiry by Garrison and the T3 framework by Magana were used as the conceptual framework. Data from the verbatim interview transcripts of 11 secondary ensemble teachers recruited from professional networks were analyzed using open coding. The key findings were that teachers made adaptations in online rehearsals, focused on independent learning, and cultivated student passion by providing opportunities for creative expression. They fostered a safe and inclusive online community where students engaged in more exploratory and individualized ways. The results of this study may contribute to positive social change by influencing in-person pedagogical practice to include adaptive, holistic instructional approaches and inspiring teachers to leverage technology in ways that might empower independent learning to teach performance and music literacy skills, cultivate student passion, and develop virtual communities.

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Dedication

This challenging journey came with many life changes. Through it all, my family's unwavering support was my constant. I dedicate this work to them.

To my husband Tig, the love of my life. You were patient when I was overwhelmed, happy when I succeeded, and supportive when things got tough. You took on the daily rhythms of our home and gave me the space to create. Your multitasking magic and relentless encouragement made it all possible. Thank you (and Miishka) for entertaining me with endless laughs and making sure I got my daily dose or walking and hiking! I couldn't have made it here without you.

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Chapter 1: Introduction to the Study

In this study, I explored how ensemble teachers develop music literacy skills and virtual communities through the online secondary band, choir, and orchestra rehearsals. During the COVID-19 pandemic school closures, music teachers around the world had to switch to online teaching within a matter of days. The use of online technology to support learning is not a new concept and has been used widely within music education (Bauer, 2013; Burrack, 2012; Enbuska, Rimppi, et al., 2018; N. Kruse & Veblen, 2012; P. Riley, 2013; Ruokonen et al., 2019; van Gammeren & Szram, 2019; Waldron, 2009a; Ward, 2019; Yungul & Can, 2018). However, virtual ensemble rehearsals and performances during the pandemic became a new phenomenon that has developed out of necessity and often resulted in stressful and "musically dissatisfying" experiences (Datta, 2020, p. 249). Hence, teaching large ensembles online has not been studied prior to the COVID-19 pandemic.

The unexpected shift to online teaching during COVID-19 created unique challenges for ensemble music teachers needing to find different instructional approaches through innovative uses of technology (C. Johnson & Merrick, 2020). Ensemble teachers had to learn new ways to provide rehearsing and performing opportunities to every member of their ensemble, regardless of their level of technology use, age, comfort level of studying online, skills, or even their access to technology, putting the issues of equity in education at the center (Nichols, 2020). While online teaching was challenging for many teachers (Xie & Yang, 2020), it also presented opportunities for developing new forms of teacher knowledge (Chrysostomou, 2020; Chrysostomou & Triantafyllaki,

2020; Thorgersen & Mars, 2021), even inspiring some teachers to create new chamber music curricula for developing independent musicianship (Yackley, 2021). Because interruptions caused by the COVID-19 will most likely have an impact on the future of education (Kaschub, 2020), educators around the world are rethinking teaching and teacher education in postpandemic times (Ali & Nath, 2023; D. Pendergast & O'Brien, 2023). Understanding what instructional approaches were used while moving performance ensembles online is important to improve professional development (Chrysostomou & Triantafyllaki, 2020) and to better understand how technology in online music education can best support online learning for future students (C. Johnson & Merrick, 2020). My study will contribute to the gap in the field of fully online music education programs (see Groulx & Hernly, 2010; C. Johnson, 2017) by addressing a topic that has not been studied before.

In addition to investigating online ensemble instructional and learning practices, I explored the learning in context of how teachers develop virtual communities. The COVID-19 pandemic school closures have not only resulted in worse learning outcomes, especially for low- and middle-income countries (Sultana et al., 2022), but also created social isolation (Hammond et al., 2020). Both teachers and students faced a drastically reduced sense of community (Cumberledge, 2021). Because sense of community is vital for student engagement and satisfaction (Berry, 2019), investigating ways of connecting students and teachers through virtual communities is critical for better understanding of student learning experiences (Hammond et al., 2020). Virtual group music-making became a meaningful way to help students and teachers preserve social connections that

were suddenly lost (Levstek et al., 2021). This study adds a unique contribution to the gap in literature by gathering perspectives of secondary ensemble teachers on how they developed virtual communities in a fully online ensemble teaching environment. The potential social implications of the study may include better understanding of online instructional approaches to improve learning experiences and provide sense of community so that every student, regardless of their background and abilities, can engage in the exciting and fulfilling process of ensemble music making.

In this chapter, I provide information about my study. I begin with a summary of recent empirical literature that situates this study, including background information on online music education and challenges associated with synchronous online ensemble instruction. I describe the problem and the purpose of the study, followed by the research questions and a description of the conceptual framework that informed my study. Additionally, I discuss the nature of the study which includes a description of the basic qualitative methodology used to guide the study, as well as definitions of key terms, assumptions, scope and delimitations, and limitations. This chapter concludes with a statement justifying the significance of this study and the implications it may have for social change.

Background of the Study

The most common music course offerings in the United States are the traditional ensembles, which include band, choir (or chorus), orchestra, and their variations, such as marching band or show choir (Elpus, 2017b). An “ensemble” is a group of musicians who perform together (Merriam-Webster, n.d.-a). The word ensemble comes from the

French language and means “together”. Music ensembles should be varied both in size and nature (National Association of School of Music, 2021), composition, and musical style, and they can encompass a wide range of genres and traditions, as well as include singers alone, instruments alone, or singers and instruments together (Allen et al., 2020). A few examples of music ensembles include band, big band, choir, chamber ensemble, jazz combo, marching band, orchestra, percussion ensemble, string quartet, wind ensemble, and much more. In this study, I will focus on secondary traditional large instrumental and vocal ensembles, such as those listed in the secondary curricula as band, choir, and orchestra, regardless of the number of students enrolled in the ensemble.

Bands, choirs, and orchestras have been in existence for centuries, and the tradition of rehearsing and performing together has always placed an emphasis on the collective and unified nature of the ensembles (Sutherland & Cartwright, 2022). Music ensembles represent a shared activity (Ma & Hall, 2018) and possess a unique social element that cannot be found in any other group (Young & Colman, 1979). This social element was suddenly lost when all instruction switched to online format. The need to use online space for rehearsing or instructing performing ensembles has forced music teachers from all levels to reimagine and redesign their instruction (Altena, 2020; Goodman, 2020; Sharp, 2020). While teaching individual online music lessons can be challenging because of technical issues related to sound, connections, and video quality (King et al., 2019b), facilitating group virtual instruction presents additional challenges because it requires students to be performing synchronously together (Ayyıldız & Zahal,

2023). Hence, alternative forms of choir, band, and orchestra instruction were born (Enright, 2020; Kaschub, 2020; Martinec, 2020).

Remote teaching created many challenges for ensemble teachers (Hash, 2021b). Because online ensemble rehearsals have not been in existence prior to the COVID-19 shutdown, no studies related to this new phenomenon have been conducted, with most of the literature about online teaching not being related to ensemble instruction. Hence, some of the challenges that ensemble teachers faced have never been examined. In particular, the time lag that exists in online video conferencing programs such as Zoom made it nearly impossible to produce group performances (National Federation of State High School Associations & National Association for Music & Education, 2020). As a result, there was lack of music collaboration in online ensemble settings (Chrysostomou & Triantafyllaki, 2020). There was a need to investigate this problem further because of the collaborative nature of music ensemble education (see Galvan & Clauhs, 2020).

Though studies about online music ensemble pedagogy are extremely limited, the pandemic lockdown gave birth to robust online music education research that focused on some of the aspects of online education that have not been studied before. For example, some authors investigated how exactly the technology was used in a fully online music education setting (Christensen, 2020), while others focused on the challenges and obstacles, raising questions about ways to move forward (Crich, 2020). Several researchers compared face-to-face instruction with online lessons and found teaching online to be more challenging. Such was the case in King et al. (2019b) study, in which the results indicated that digital delivery has the potential to provide greater access to

instrumental lessons for children in rural communities. Other authors found that the combination of aural (listening/singing), observational, and written notation in both online and offline contexts, to be more successful (Bayley & Waldron, 2020).

There were new opportunities to amplify student voices to an extent not possible before the pandemic (Beirnes & Randles, 2022). Many teachers realized the importance of adopting technological skills (S. Pendergast & Robinson, 2020; Schons & Jones, 2020), and ensemble teachers perceived that online music pedagogy could produce high quality virtual performances (Datta, 2020; Galvan & Clauhs, 2020; Levstek et al., 2021). Teachers became resilient (Beirnes & Randles, 2022) and collaborated to develop new strategies and practices to deliver meaningful online music lessons (Biasutti et al., 2021, 2022). Researchers also took a deeper look at the issues of equity in online music education (Greenhow et al., 2022; Nichols, 2020).

Along with the necessary preparations for school online concerts and events during the COVID-19 pandemic, ensemble teachers continued teaching music literacy skills, and online teaching created new opportunities for developing these skills. In particular, it allowed for more individualized approach that would benefit all learners, providing video demonstrations and lessons with high quality performance examples for students to emulate, using video modeling techniques to help students build skills while engaging in guided practice, or developing aural and critical skills by hosting virtual discussions on music related topics, recordings, or performances (National Association for Music Education, 2014; National Federation of State High School Associations & National Association for Music & Education, 2020). Hence, during the COVID-19 virtual

learning, many teachers found that incorporating music literacy skills, including lessons in music theory, history, and culture, has become less inconvenient than before (Hash, 2021b). However, most of the skills were centered on performing, listening, and music theory and did not incorporate composing and responding, which are a part of the NAfME standards (Hash, 2021b; National Association for Music Education, 2014). Considering lack of objectives that address listening or composing skills in many high schools (Abrahams, 2015), understanding how ensemble teachers teach music literacy skills online became an important topic of research.

In conclusion, understanding the literature involving online music education helped me address literature gaps to explore in my study. Even though there has been research done related to online music education, studies about teaching music literacy skills in secondary online ensemble classes are practically non-existent. More research is needed to understand the phenomenon of teaching music literacy in an online ensemble setting as well as teacher presence and the social element in this learning process. Through my study, I hope to contribute to filling this gap in literature.

Problem Statement

The social problem on which this study was based is the potential loss of quality music education and sense of community in secondary ensembles due to the limitations of the online learning format, which has increased since the pandemic. Therefore, the research problem of this study is the lack of understanding of how secondary teachers develop music literacy skills and virtual communities through the online secondary ensemble rehearsals. A literature gap exists regarding teaching secondary ensembles in a

fully online environment, and research about music literacy development in secondary online ensembles. Music performance courses such as band, choirs, and orchestra present a unique challenge that is different from providing individual online music lessons (King et al., 2019b), posting instructional videos (Bautista et al., 2019; N. Kruse & Veblen, 2012; Mustofa et al., 2018), or facilitating synchronous group virtual instruction (Burrack, 2012), because they require students to be performing synchronously together. Although the use of online technology to support learning is not a new concept and has been used widely within music education (Bauer, 2013; Burrack, 2012; Enbuska, Rimppi, et al., 2018; P. Riley, 2013; Ruokonen et al., 2019), limited studies have explored how secondary music teachers teach performance and how music literacy skills are developed in online large ensemble courses. The interruptions caused by COVID-19 will most likely have an impact on the future of education (Kaschub, 2020). Understanding the experiences of music teachers moving performance ensembles online is important in order to improve professional development (Chrysostomou & Triantafyllaki, 2020) and to understand how technology in online music education can better support online learning for future students in a post pandemic world (C. Johnson & Merrick, 2020).

Additionally, while some studies revealed the importance of virtual communities in music ensemble rehearsals (Cumberledge, 2021) and the need to pay attention to music education students' well-being (C. Johnson & Merrick, 2020), there is a gap in literature related to the development of virtual communities in online secondary music ensembles. Filling this gap is especially important because secondary online ensemble instruction has become a reality. Understanding the changing pedagogies will help improve learning

experiences of future students, potentially expanding the number of students from different backgrounds and geographical areas who will be able to take online ensemble classes and enjoy making music together. This study is significant to the music education discipline because it addresses a meaningful gap in the literature by providing teachers with pedagogical guidance to meet these new challenges. The present study will extend the literature and help expand what is understood about students' learning needs and their overall well-being while studying music in an online environment.

Purpose of the Study

The purpose of this basic qualitative study was to explore how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals. To fulfill this purpose, I interviewed band, choir, and orchestra music teachers from secondary schools in the United States to explore what instructional practices they used for developing literacy skills and virtual communities through the online secondary rehearsals.

Research Questions

To address how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals, the following two research questions (RQs) were used to guide the study.

RQ1: How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals?

RQ2*:* How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals?

Conceptual Framework

The conceptual framework that grounded this qualitative study is the combination of community of inquiry (CoI) framework and the T3 (translational, transformational, and transcendent technology) framework.

The CoI framework represents a process of creating meaningful learning experiences through the development of three independent elements: social, cognitive, and teaching presence (Garrison, 2016). This framework helped me understand the online ensemble learning space and the teacher presence as the "binding element in creating a community of inquiry" (see Garrison et al., 2000, p. 96). The use of the CoI framework grounded this study because it provided an understanding of the complexity of the online learning experience and highlighted the social element, which is an integral part of online experience, particularly where students perform in ensembles together.

The T3 framework involves three different domains of educational technology use: translational, transformational, and transcendent (Magana, 2017). While translational technology involves the use of technology in completing the day-to-day operations, the transformational use of technology brings in substantial changes to teaching and learning, and the transcendent experiences go "above and beyond the normal range of expectations and expertise" (Magana, 2017, p. 21). The T3 framework helped me describe how technology was used in accomplishing the CoI goals and developing best practices in online teaching. My RQs were directly related to the constructs of both frameworks and guided data collection and analysis. More detail about the conceptual framework is discussed in Chapter 2.

Nature of the Study

To accomplish the purpose of this study, I selected a basic qualitative approach. Qualitative approach was appropriate because I was seeking a practical understanding of teacher experiences to inform the field of education and provide pedagogical direction will help answer my RQs (see Patton, 2015), and not focusing on statistics or relationships between variables. Because qualitative data analysis is multifaceted and iterative at the same time (Patton, 2015), this approach helped me identify and describe the problem. Even though I considered several approaches to qualitative research, I decided to use a basic qualitative approach because I was interested in exploring subjective opinions of my participants, as well as their reflections on their experiences (see Percy et al., 2015).

Eleven participants were recruited from my professional learning network, as well as from a broader professional network of National Association for Music Education (NAfME), who have had experience teaching band, choir, or orchestra in a fully online environment. I chose my participants from those teachers who indicated that they met inclusion criteria, and I conducted semistructured interviews to answer my RQs in depth (see Rubin & Rubin, 2012). I conducted data analysis of interviews through iterative open coding (see Patton, 2015; Ravitch & Carl, 2021). I also used Dedoose, a qualitative data management program, to assist me in the coding process. Chapter 3 provides more details about my study's methodology.

Definitions

This list of definitions guided my study:

Audiation: The ability to think music in the mind with understanding (Gordon, 1989).

Ensemble: An ensemble is a group of musicians who perform together (Merriam-Webster, n.d.-a). The word ensemble comes from the French language and means together. Music ensembles vary in size, composition, and musical style, and they can encompass a wide range of genres and traditions, as well as include singers alone, instruments alone, or singers and instruments together (Allen et al., 2020).

Online learning: Learning that involves interactions that are mediated through the use of digital technology (Greenhow et al., 2022). For the purposes of this study, I used the terms *online learning* and *online instruction* interchangeably.

Secondary school: A school intermediate between elementary school and college and usually offering general, technical, vocational, or college-preparatory courses (Merriam-Webster, n.d.-b).

Secondary teacher: More commonly called a high school teacher, a secondary teacher instructs students in ninth through 12th grade in both public and private educational institutions (Stoffle, 2023).

Secondary students: Students attending secondary school (Stoffle, 2023).

Assumptions

This study was based on several assumptions. First, I assumed that the conceptual framework that I chose for my study was appropriate to address this study's methods and findings. I assumed that all participants would answer the preliminary participant selection questions truthfully. I assumed that all interview participants would be honest in

their descriptions of their online instructional practices as well as their general face-to-face instructional practices. These assumptions were necessary for the context of my study because I needed to rely on my participants' honest descriptions of their experiences.

Scope and Delimitations

This basic qualitative study involved exploring how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals. I chose this focus because online music ensembles are growing phenomena, yet there is a gap in the literature regarding how secondary teachers approach teaching music literacy skills online and developing virtual communities. This research is important because it has a potential to improve the online music education and, consequently, provide students with better learning opportunities.

Participant selection helped define the scope of the study, as I did not explore primary or elementary educators, nor did I explore higher education faculty. The scope of this study was also based on certain boundaries related to the purpose, methodology, framework, and rationale. I made sure that all these aspects remained aligned. To achieve my goal of obtaining necessary data, I needed rich, thick descriptions of participant experiences. For that reason, I chose semistructured interviews with questions I have developed, which aligned with the CoI and T3 frameworks. This approach allowed me to focus on intersection between technology and online education, with the emphasis on all three elements of CoI: cognitive presence, social presence, and teacher presence. As a result, I had certain boundaries of the participant selection that included the following.

First, participants were limited to secondary music teachers who taught band, choir, or orchestra online during the COVID-19 school closings so that richer data could be obtained, including challenges associated with choosing best instructional methods during the transition process (see Koner & Weaver, 2021; Martinec, 2020). Second, I first recruited my participants by directly reaching out to contacts I had in my extended online professional learning network. This delimitation of online recruitment was justified to avoid potential imposter participants (see Roehl & Harland, 2022). Only when I was unable to recruit the necessary number of participants, I opened the search to a wider pool of candidates. Third, for data collection, I limited my participants to 12 secondary teachers. This number came from Guest et al. (2006), who recommended that most interview-based studies reach saturation with between 8-12 participants. My final number of participants was 11 because I reached data saturation.

In my study, I chose purposive sampling strategy because my goal was to interview participants who were knowledgeable and experienced about the topic of study (see Ravitch & Carl, 2021). A purposive sampling strategy helps increase trustworthiness and transferability of findings (Lincoln & Guba, 1985; Ravitch & Carl, 2021). I also made sure that participants were accessible to me as a researcher (see Rubin & Rubin, 2012). To keep the transferability of my study, I included thick descriptions to support themes and describe participant context (see Anney, 2014; Houghton et al., 2013; Lincoln & Guba, 1985).

Limitations

This study had a few limitations. Because I used a basic qualitative research approach, one limitation was my perspectives and biases as a researcher (see S. B. Merriam & Tisdell, 2015). In Chapter 3, I describe some of the ways that I increased the trustworthiness of the study, including being transparent about the research findings, the recruitment process of the participants, and my personal and professional connections to the research study. To minimize my bias in this study, I kept a researcher reflective journal (see Slevin & Sines, 1999), conducted member checks (see Carlson, 2010), and provided summaries for review by participants.

Another limitation was the recruitment of qualified participants, which could have become a potential barrier. Because not all schools had equal access to technology during the COVID-19 pandemic, many music teachers with limited access to technological tools had to come up with creative ways of teaching that did not necessarily involve technological tools. Until very recently, the future of music education did not involve teaching performing ensembles online (McNeill & McPhail, 2020). However, the COVID-19 pandemic experience has certainly altered the future of music education landscape, and technology became a necessary component of music education, which is why this study included the T3 framework in addition to the CoI, consequently limiting the pool of participants to those who had access to advanced technology and music education software programs that helped enhance student learning experiences. I was also careful about the possibility of encountering "imposter participants," or dishonest participants who fake or exaggerate their identities in order to participate in the study to

receive some compensation (see Roehl & Harland, 2022). For these reasons, I recruited my participants from various professional networks of music teachers. The gift card that I offered for their time was from an online sheet music store, JWPepper, utilized by music educators around the world.

The time I had to conduct the study presented another limitation to my study. Educators worldwide are facing an increased workload and high stress levels because the implementation of distance learning during COVID-19 (Creagh et al., 2023; Klusmann et al., 2023; Marshall et al., 2022; Nwoko et al., 2023). Taking this into consideration, interviews were the only data I collected. I limited my interviews to 45-60 minutes and the review of the summaries afterwards should not have taken more than an additional 15 minutes of the participants' time. Finally, because transferability of findings from qualitative studies are limited (see Lincoln & Guba, 1985; Ravitch & Carl, 2021), to improve transferability, I provided think descriptions of interview data and participant context, in addition to other approaches discussed in more detail in Chapter 3.

Significance

This study can shed light on the specific benefits and challenges of online ensemble rehearsals. This study is significant because it may provide valuable insight into some creative ways of using technology to teach music literacy skills and develop virtual communities in online performing ensembles. The results of this study may contribute to the advancement of teaching practice. Examining music teacher experiences related to new teaching methods during the fully online teaching experience will stimulate discussions on how to foster best innovative instructional methods, promoting

better professional development, which may lead to improved learning experiences for secondary students.

Lastly, this study has potential implications for positive social change. The results of the study may help inform policy makers about the unique music learning opportunities that are available to students of all backgrounds and in all geographical areas. This may help advocate for improved internet access, high-quality audio and video equipment, and reliable software platforms in schools and music education institutions. Moreover, the results of this study may draw attention to equity and access issues related to online music education. This can include identifying barriers faced by underserved communities, highlighting the importance of providing resources, and support to ensure equitable access to online ensemble rehearsals. These discussions may encourage policy makers to invest in professional development programs, workshops, and resources to equip teachers with more advanced skills and knowledge, consequently, helping to improve our students' learning, collaborative music making, their well-being, and their sense of belonging.

Summary

In this chapter, I introduced my study and situated the research in a background of recent literature. I have shown that online teaching of large ensembles such as band, choir, or orchestra in the secondary schools has become a new phenomenon in the lives of educators and students during the COVID-19 pandemic school closures. While the traditional in-person learning may become more predominant again, studying online ensemble teaching can contribute to the ongoing evolution of teaching practices and

educational approaches. I have demonstrated that the educational implications and lessons of this growing phenomenon that extend beyond the pandemic have not yet been fully explored. Yet, understanding how to effectively integrate online components into traditional ensemble education can enhance the overall learning experience. The new creative approaches that teachers developed to keep students motivated and engaged in an online environment need to be explored further to help improve teaching practices in both online and in-person settings. Secondary teachers have begun teaching large ensembles online using translational, transformational, and transcendent ways, but the use of technology has been limited to what was available and the level of previous technological training that teachers had. I have shown that there is a need to further study this phenomenon because no studies exist that explore online secondary ensemble instruction focusing on literacy skills and virtual communities. Additionally, this research can add to the literature on more inclusive teaching practices that focuses on accommodating different learning styles and abilities.

In this chapter, I also defined the problem statement and purpose of the study, which is to explore how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals. I listed RQs that are designed to discover a broad range of teacher descriptions regarding online music literacy teaching strategies and virtual communities' developments. I showed the connection between the RQs and the chosen conceptual framework that I described in detail. I explained the nature of the study and defined key

terms. I also explained the assumptions and limitations, discussed the scope and delimitations of the study, and provided a justification of the significance of the study.

In Chapter 2, I provide detailed description of the literature search strategy and a discussion for the conceptual framework of the study. I provide a thorough examination of the related literature to situate key concepts in the study.

Chapter 2: Literature Review

The research problem in this study was the lack of understanding of how secondary teachers develop music literacy skills and virtual communities through the online secondary ensemble rehearsals. The purpose of this basic qualitative study was to explore how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals. To fulfill this purpose, I explored ensemble music teachers' perspectives to gather an insight on what instructional practices were used for developing literacy skills and virtual communities through the online secondary rehearsals.

To demonstrate gap in literature, I have conducted a review of current literature on related topics. This thorough review revealed no studies related to the online secondary ensemble instruction that focused on teaching music literacy skills. Additionally, no research exists on developing virtual communities through the online secondary ensembles. In the first part of my literature review, I discuss the conceptual framework that grounds this qualitative study: the combination of CoI and the T3 framework, focusing on components most relevant to my study's RQs. Next, I discuss the literature related to teaching music literacy such as music notation and sight-reading in a face-to-face instructional setting, how these skills are viewed by the 2014 NAfME standards, and what the broader approaches to national music standards are. I review the main approaches to teaching music literacy – note teaching vs. rote approach – and the implications that these approaches have on performance and musicianship. Overall, my literature review and study contribute to the field of educational technology, specifically

online music education, as well as provide insights for secondary educators who teach in a hybrid setting or those wish to incorporate online instructional approaches in their face-to-face classes as part of learning, instruction, and innovation.

Literature Search Strategy

In this literature review, I used various scholarly resources. These resources included peer-reviewed and empirical research articles, reports, publications, books, and dissertations. I began my literature search through the online Walden University Library's Thoreau Multi-Database in March 2020. After consulting with the Walden librarian, the Education Research page became my starting point, and I expanded my search to other databases such as Academic Search Complete, COVID-19 resources, Dissertations and Theses at Walden University, ERIC, Education Source, EBSCO ebooks, ProQuest Central, SAGE journals, ScholarWorks, Taylor and Francis Online. I also consistently visited the research tab on NAfME website to access the latest research conducted in music education and published in *Journal of Research in Music Education*, among others. Several search terms and keywords were used to focus on the relevant themes, including *audiation, aural skills, band, best practices, choir, chorus, collaboration, COVID-19 shutdown, chamber music, creativity, composition, community of inquiry, distance instruction, distance teaching, ensemble, ensemble performance, face-to-face instruction, Gordon music literacy, Gordon's theory, hybrid instruction, improvisation, informal learning, instrumental, jazz, Kodály, large ensemble, mental practice, music, music dictation, musical pitch, music theory, music e-learning, music reading, music technology, online community, online learning, online music education,*

online instruction, orchestra, performance, performing, performing arts education, popular music, private lessons, remote instruction, repertoire, rhythm, rote instruction, secondary, sight-reading, sight-singing, solfege, sound, sound before sight, synchronous lessons, teaching online, teaching remote, time delay, virtual choir, virtual community, virtual rehearsal, vocal, web-based instruction, and *web-based teaching.* When searching in the databases, I limited to one concept per line, separating synonyms with the word OR within each line. Additionally, filters were used to limit the relevant literature to the past 5 years. Zotero was used to keep all research articles organized and categorized. As the literature review continued, I used the author names to expand the relevant research. Eventually, my search strategies allowed me to reach saturation when the same authors and studies began showing up repeatedly.

Conceptual Framework

The conceptual framework grounding this study included two parts, each that focused on different aspects of online learning and technology integration: the CoI framework (Garrison et al., 2000) and the T3 framework (Magana, 2017). Each part provided a structure to help better understand online learning and teaching experiences and to provide a foundation for exploring the online learning community and educational technology. Collectively, the use of both the CoI and the T3 frameworks provided a comprehensive lens that I used to explore the online music ensemble pedagogical practices. Focusing on valuable cognitive, social, and teaching presences provided a way to explore the best practices in online spaces and interactions that teachers create and

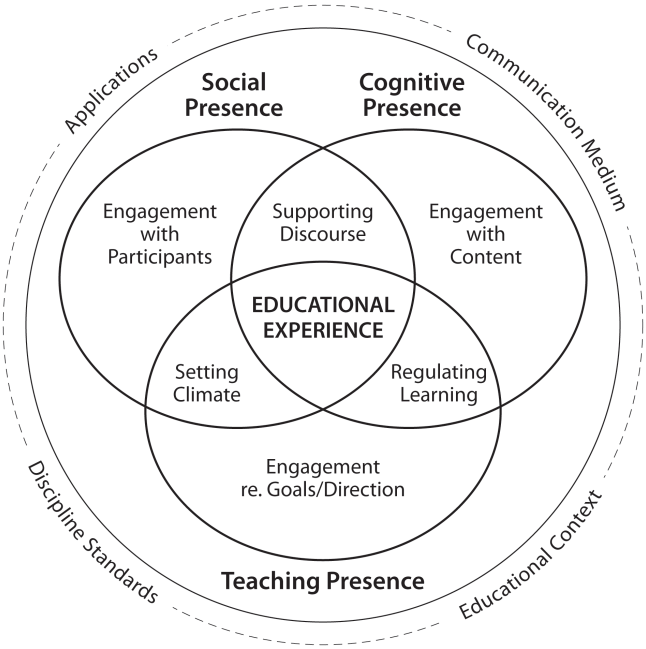
facilitate. Then, the T3 model provided understanding of how technology was used by ensemble teachers.

CoI Framework

I selected the CoI model as one of the parts of the conceptual framework for my study because each of the elements of CoI help provide operational language around complex online learning dynamics. CoI is a framework that focuses on three independent factors that influence student success in online space: cognitive presence, social presence, and teaching presence, it was first introduced by Garrison et al. (2000) in their seminal paper. The CoI framework highlights the value of collaborative learning and thinking in online learning environment and is composed of teachers and students as key participants in the educational process (Garrison & Akyol, 2015). All three elements interact dynamically within the larger context of online learning and collaborative communities, each of them being critical for a successful online educational experience (Garrison, 2007a, 2016). These elements also assume a central role in the various stages of the learning progress (Garrison, 2016). Even though not all three elements occur at the same time, they all support each other in various ways (Garrison et al., 2000). Figure 1 shows the three presences and their overlap. In the rest of this section, I describe the parts of the model and a rationale for the use of this model for my study.

Figure 1

Community of Inquiry



Note. This figure shows elements of educational experience. Adapted from "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education," by D. R. Garrison, T. Anderson, and W. Archer, 2000, *The Internet and Higher Education*, *2*(2), p. 88 (https://doi:10.1016/S1096-7516(00)00016-6). Used with permission from the CoI website and licensed under the CC-BY-SA International 4.0 license (https://creativecommons.org/licenses/by-sa/4.0/). The original image is located at https://www.thecommunityofinquiry.org/framework.

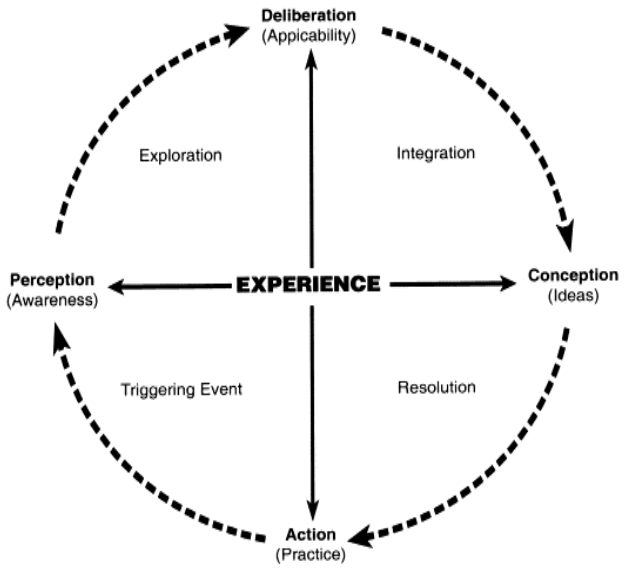
Parts of CoI

The CoI model assumes that all online learning happens within a larger community where there is an interaction of three essential core elements. Among the

presences, the cognitive presence is the most basic to the success in higher education (Garrison, 2007a). The cognitive presence refers to the content, relevancy, and critical thinking that occurs within an online learning environment and is vital to critical thinking as it focuses on thinking and applying concepts, leading learners to explore higher order thinking (Garrison et al., 2000). The cognitive presence explores the construction of meaning by the learner (S. Merriam et al., 2007). The practical inquiry model that guided the idea of cognitive presence comes from Dewey (1933) who put reflection at the heart of the thinking process that emerged through practice and shaped through practice (Garrison et al., 2000). Dewey's concept of practical inquiry was grounded in prereflection, postreflection, and postreflection and was the result of the dilemma or problem and knowledge (Garrison et al., 2000). Thinking is seen by Garrison et al. as a "holistic multi-phased process," which includes four categories: triggering event, exploration, integration, and resolution (2000, p. 98). The indicator of the triggering event is a sense of puzzlement, "a state of dissonance or feeling of unease resulting from an experience" (Garrison et al., 2000, p. 98). The second category, exploration, is associated with information exchange, or a search for clarification. The third category, integration, integrates the information and knowledge into a concept. Finally, the fourth category is the resolution of the issue or problem. Figure 2 shows cognitive presence and its categories.

Figure 2

Practical Inquiry



Note. This practical inquiry model is reprinted from "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education," by D. R. Garrison, T. Anderson, and W. Archer, 2000, *The Internet and Higher Education*, *2*(2), p. 99 (https://doi:10.1016/S1096-7516(00)00016-6). Used with permission (see Appendix A).

In relation to this study, the cognitive presence included how teachers taught some of the important musical concepts in their online music ensemble classes. I examined the pedagogical approaches in teaching the repertoire and in developing music literacy skills in online band, choir, and orchestra rehearsals. I analyzed different musicianship levels with relation to the categories of cognitive presence. How did teachers help students improve their vocal or instrumental technique such as tone quality, rhythm, intonation, dynamics, phrasing, articulation, breath control, expression, musical interpretation, and more, in an online space? What approaches did teachers use to

develop musical concepts and music literacy online? What online instructional practices helped develop higher-level performances and led to effective musical expression?

The social presence, another element of the CoI model, focuses on the depth of interaction between students and faculty, helping build meaningful learning experiences by supporting cognitive presence and effective communication within the collaborative learning environment (Garrison et al., 2000). Social presence is the ability of the participants to "project themselves socially and emotionally" through the medium of communication used (Garrison et al., 2000, p. 94). This can be observed as participants' share their personal experiences and exchange ideas in open communication. The social presence plays an indirect role in the critical thinking process and contributes to the successful educational experience by allowing participants to bring their personal traits into the community (Garrison et al., 2000). When social presence is established, then cognitive presence can be sustained more easily (Garrison et al., 2000). In other words, socio-emotional interaction and support are often "essential in realizing meaningful and worthwhile educational outcomes" (Garrison et al., 2000, p. 95). Social presence is divided into three categories: emotional expression, open communication, and group cohesion, each of which contribute to the overall social-emotional well-being (Garrison et al., 2000).

In relation to this study, the social component included how ensemble teachers helped develop positive relationships within their groups, and how they cultivated collaborative skills that supported student learning through developing self-awareness, self-management, independence, and social awareness. Band, choirs, and orchestras are,

by their nature, creative collaborative learning spaces (Galvan & Clauhs, 2020). To be successful, creative process requires perseverance and strategies to overcome obstacles. Social presence is a valuable concept on how students may become a vital factor in their online learning (Weidlich & Bastiaens, 2019). Participation in a virtual ensemble can help students overcome the feelings of loneliness (French, 2019), as this is where strong and meaningful communities are built (Kumara, 2020), and where a lot of creative processes are taking place (Debrot, 2019). Examining best teaching practices on how to manage emotions, thoughts, and behaviors may help uncover how to generate, refine, and complete creative ideas in virtual ensembles. I examined best instructional practices used to help students recognize their personal traits, learn to take charge of their own learning, and build perseverance and self-confidence.

The last factor of CoI is the teaching presence. Garrison et al. (2000) defined teaching presence as "the binding element in creating a community of inquiry for educational purposes" and emphasized the importance of instructor presence and facilitation in online course design (Garrison et al., 2000, p. 96) Teaching presence consists of two general functions: the design of the educational experience and facilitation or learning (Garrison et al., 2000). This CoI factor examines the pedagogical practices used in the learning environment that support and enhance social and cognitive presence for the purpose of realizing educational outcomes. Teaching presence is divided into three categories: instructional management, building understanding, and direct instruction (Garrison et al., 2000).

In relation to this study, teaching presence was examined from various angles that provided a fuller understanding of the teacher involvement in the online learning process. An attempt was made to understand the distinction between direct instruction and facilitation (Garrison, 2007b) and the effectiveness of each approach, from teachers' perspective. Specifically, how involved should the instructor be in the process of guiding music students in the process of learning their respective parts in the ensemble setting? What are some of the best practices in facilitating music learning in online learning? Because strong online teaching presence helps build a sense of community and improves student learning (Garrison et al., 2000), does this imply that some of the best practices would involve instructor's use of his or her singing voice or instrument in the process of guiding the music learning process?

The essence of a CoI is in the overlap of the three presences, each of which contributes to the online learning environment (Garrison, 2009). With relation to this study, this overlap presented a significant interest because of the collaborative and social nature of music. Music performance is a social phenomenon: even in solo performances, the real or imaginary audience's influence is significant (Bishop, 2018). However, this is particularly true of ensemble music such as band, choir, or orchestra. In ensembles, the social aspect is significant as creativity is distributed among the members of the ensembles as they perform together (Bishop, 2018). The communicative behavior between the members of the ensemble has been a subject for research as music has been viewed as the result of social relations between a group of people who are creating music together (Aucouturier & Canonne, 2017). This study examined the overlap of the three

presences with a particular emphasis on meaningful collaborations that occurred in the online learning community between students in the ensembles as well as their interactions with their instructor.

The Rationale for Selecting the CoI Framework and Relationship to Current Study

Researchers often refer to the CoI framework when exploring contributing factors to the online learning and teaching experiences. CoI framework has been successfully used to research student teachers' music education in the blended learning environment (Enbuska, Tuisku, et al., 2018). CoI has been found to have connections with the pedagogical elements of teaching music online. For example, the results of the study by Johnson (2017) indicated a connection between the pedagogical elements of teaching music online and the elements of CoI framework, such as teaching presence, cognitive presence and social presence. Enbuska et al. (2018) used the CoI framework (Garrison, 2016) in their study about student teachers' music education in the blended learning environment. Though some limitations were revealed in applying the CoI principles to study learning and teaching music, the authors argued that if students had the opportunity to study music with the resources presented in the study, students' music learning could be viewed from a CoI perspective. Hence, the study provides basis for using the CoI model when investigating online music learning in my own study.

Previous research has emphasized an important relationship between online learning community and teaching presence, indicating that the community plays a significant role in building effective online learning experiences, and highlighting the significant role of teaching presence, recognized by students as playing one of the most

important roles in developing online learning community (Jan & Vlachopoulos, 2019; Kovanović et al., 2019; Kozan & Caskurlu, 2018; Shea et al., 2019; Swan et al., 2020). The CoI framework has been widely used in educational research to examine ways to improve the online learning experiences (Stodel et al., 2006), analyze blended learning (Stodel et al., 2006), or study how to stimulate learners' interests and encourage critical and creative thinking (Zhang, 2020). Even though significant research has already been conducted that assumed the positive results of the CoI framework approach (Akyol et al., 2009), there is a need to understand the interactions of the three presences and their impact on learning outcomes and the impact of specific indicators on learning outcomes. Heilporn and Lakhlal (2020), who studied the categories within each of the CoI presences, demonstrated that the interrelation of teaching, social, and cognitive presences creates meaningful educational experience. Hence, further study in this area would highlight areas of improvement in online and blended courses (Heilporn & Lakhal, 2020).

The CoI framework has been validated by research which has shown that all the elements of this framework contribute to the success of online courses (Heilporn & Lakhal, 2020). For example, effective communication can foster a supportive environment (Boston & Ice, 2011). There is a correlation between teacher's engagement in online learning and the relationship between teaching presence and students' persistence. Specifically, students consider teacher feedback to be the largest factor influencing the success of the course – namely, 38.96% (Kupczynski et al., 2010). Other studies established that the relationship between social and cognitive presences does not stay the same and changes during the time of the online course. In my study, I analyzed

the components of the CoI framework as they related to online instruction in performing ensemble classes and further explored social presence as an aspect of community interaction.

The use of the CoI framework is justified for this study for various reasons. Each component of this framework allowed for a more in-depth analysis of online learning experiences of music ensemble teachers. Specifically, I explored how the three presences were used by online ensemble teachers to describe instructional practices focusing on the understanding of musical concepts and music literacy within their applications in performing ensembles. I investigated teacher perceptions of a collaborative and student-directed music learning approach within the context of online music ensembles' teaching. I analyzed teachers' experiences conducting online rehearsals using a social presence lens, which allowed for a more thorough understanding of the interactions between students and teachers. This was especially important because during online rehearsals, ensemble members had to mute themselves due to the sound delay and had to rely on assessing their own progress (Goodman, 2020). Finally, I investigated the role of teacher presence in online spaces during ensemble instruction and identified best practices of music educators who transitioned their performing ensemble courses online.

The T3 Framework

The second part of the conceptual framework that grounded my study was the T3 framework (Magana, 2017, 2019). Magana gave credit to his friend and mentor, Dr. Robert J. Manzano, for inspiring him to write his book (Magana, 2017) and admitted that his look at the innovative teaching and learning practices with the use of technology is

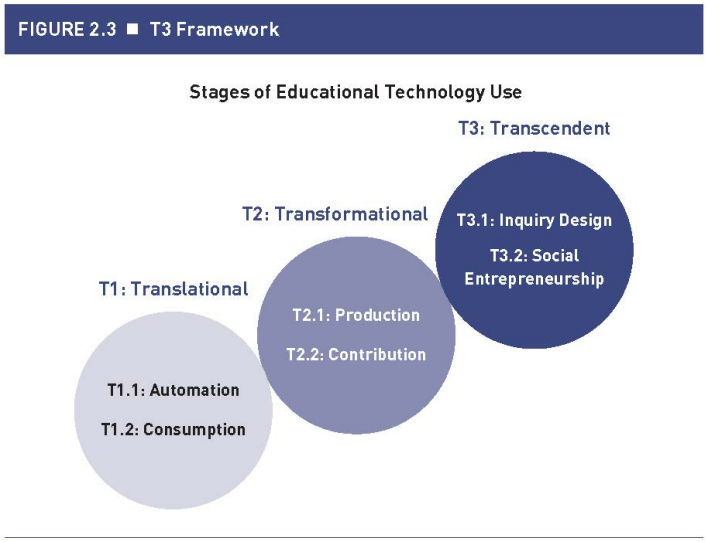
not a new concept but is based on two other models that have been used in education to frame the use of technology: technology, pedagogy, and content knowledge, or TPACK model (Koehler & Mishra, 2009; Mishra & Koehler, 1998), and substitution, augmentation, modification, redefinition, or SAMR model (Puentedura, 2014).

T3 framework is the extension of the TPACK model, which is based on three primary forms of knowledge: technological, pedagogical, and content knowledge. TPACK raises the significance of educational technological knowledge and sets the teacher's knowledge of technology to be as equally important as the content and pedagogical knowledge (Mishra & Koehler, 1998). However, Magana (2017) argued that this model "lacks a thorough elucidation of the steps one might reasonably follow to develop technological knowledge" and points out the importance of setting up the "incremental stages" (p. 17). The SAMR model uses the TPACK model but adds more hierarchy to categorize the use of technology tools in more depth (Magana, 2017). The four stages of the SAMR model define the use of technology, focusing on how technology tools change the essence of tasks (Magana, 2017). This model can be transferred to any purpose, including noneducational, and is considered to be technology-centric (Magana, 2017). Both TPACK and SAMR models have been widely used to study technology use in the music classroom (Bauer, 2010; King et al., 2019a; Tejada & Morel, 2019; Weiger, 2020), highlighting the importance of teachers' technological knowledge and providing a framework to study technology integration in the classroom. While both TPACK and SAMR place an equal value on technological, pedagogical, and content knowledge, neither one of them provides clear steps to follow or reasonable

standards that are needed to develop technological knowledge (Magana, 2017). In the search for measurable standards to help teachers attain the necessary knowledge of technology to successfully integrate innovative learning experiences, Magana placed a specific emphasis on the value of technology in innovative teaching and learning and suggested three domains of technology use in education: translational, transformational, and transcendent. Within each of these domains of the T3 framework, technology has different educational values. Figure 3 shows the T3 framework (Magana, 2017).

Figure 3

Stages of Educational Technology Use



Note. This figure represents the three stages of educational technology. From *Disruptive Classroom Technologies: A Framework for Innovation in Education,* by S. Magana, 2017, Corwin Press (https://maganaeducation.com/what-is-the-t3-framework-for-innovation/), p. 21). Used with permission (see Appendix B).

Using the T3 framework allows researchers to categorize different educational technologies into separate stages. As the educational technology moves up from translational to transcendent, the value of each technology use increases (Magana, 2017). The analysis of each level will help understand the educational technology use.

The Lowest Level: Translational Technology

The lowest level of the T3 framework is T1: translational technology (Magana, 2017). In this level, educators use technology to complete old tasks in a new way. Some examples include using Google forms instead of pencil-and-paper to conduct surveys (Magana, 2017). Most of today's education uses technology in the translational way, and this form of technology use has a limited impact on teaching and learning. Magana (2017) referred to this level as "doing old tasks in new ways" (p. 21). The translational integration level is made of two parts: T1.1: automation and T1.2: consumption. Automation can save time, improve accuracy and simplify actions, but it is considered a first, entry-level step (Magana, 2017). To improve the use of technology in classroom, teachers must move to the next step of the T3 framework: consumption. This step of the translational integration uses technology to consume information and is more valuable than automation because digital media represents knowledge using multiple means. With so much digital information available, a lot of the content-related text is presented online, and textbooks no longer need to be the primary source of information (Magana, 2017). Both levels, automation, and consumption, can be used as a guide to utilize educational technology tool in administrative, instructional, or learning tasks. Although both levels of the translational step are useful in increasing speed and accuracy of administrative tasks,

these levels of technology do not directly affect the process of learning and teaching (Magana, 2017). Examples of translational technology in relation to online music education might include exchanging instructional materials and assignments via digital format, such as Google Drive, Dropbox, or other forms of cloud storage. These materials may include sheet music, worksheets, audio recordings, instructional videos, instructor feedback, and more.

The Second Level: Transformational Technology

The second level of the T3 framework is, T2: transformational technology (Magana, 2017). This level includes two parts: T2.1: production and T2.2: contribution. Both of these parts reflect on ways technology can bring transformational technology to a higher level by "disrupting" it (Magana, 2017, p. 41). To be considered transformational, technology use must move beyond the translational level and help achieve higher levels of knowledge. For learners, this is a transformational experience because after the completion of this level, higher levels of mastery should be achieved, and the learners are no longer the same. At the center of this transformational experience are the students' learning capacities that would not be possible without the use of technology (Magana, 2017). At this stage of technology use, it is implied that technology is used to enhance student learning. Using technology to merely obtain or consume knowledge is not what this level implies; the focus should be on improving the learning experiences and using creative ways to enhance learning as well as to provide interactive ways to give instruction. The first level of the transformational technology, T2.1: production, includes three student production strategies where students produce quality digital evidence of

their work that demonstrates their growth, knowledge, and thinking process (Magana, 2017). The three strategies are: producing personal mastery goals, tracking and visualizing their growth and mastery, and producing and archiving authentic knowledge and thought artifacts, involving digital tools (Magana, 2017). The second level of the transformational technology, T2.2, is called contribution, and it incorporates all three previous levels of the framework. At this stage, learners apply all the qualities of the production phase and extend their knowledge to others, changing their roles from that of a student to teacher; an example of a transformational experience is a global exchange project (Magana, 2017). In online music education, some examples might include virtual collaborative projects such as virtual choir, orchestra, band. At this level, performing ensembles can even collaborate globally using online recording platforms for audio and video conferencing tools for visuals.

The Highest Level: Transcendent Technology

Finally, the highest level of the T3 framework is T3, broken into two parts: T3:1, inquiry design, and T3:2, social entrepreneurship. At the center of the transcendent technology use is student passion. At this level, the technology use "results in authentically original and unprecedented growth in knowledge, contribution, and value-generating performance" (Magana, 2017, p. 65). Transcendent way of using technology makes students direct their own learning. At the T3:1 level, inquiry design, students become owners of their own curriculum, engaged in the learning process in the most profound ways. At the heart of this stage is students' curiosity and passion to investigate real-life problems that matter to them. They design original inquiry, generate resolutions,

defend their unique knowledge contributions, and more (Magana, 2017, pp. 68–75). At the T3:2 level, social entrepreneurship, students imagine, design, and create new tools of platforms to solve real-life problems that matter to them. They beta test, iterate, and generate robust versions of their digital solutions, and scale the implementation of their robust digital solutions (Magana, 2017). In short, transcendent use of educational technology goes above and beyond the current expectations and experiences with technology, even though these types of learning experiences are within the reach of students and teachers. Magana's (2017) framework is created to inspire educators to provide their students with opportunities to become problem solvers, inquirers, and change agents.

Transcendent learning experiences are exceptional because students must formulate the problem that matters to them but that also would make a difference for others. Magana brings up several examples that include young learners creating their own companies using social media and software tools or developing apps that would bring in social change. Similar examples can be applied to online music education – for example, participating in an online music platform that would connect people across the globe in collaborating and creating original musicals and shows that would address some important social justice issues.

The Rationale for Selecting the T3 Framework and Relationship to Current Study

The T3 is relatively new and has not been used as the framework of much empirical research, but I chose this framework because it focuses on learning and is research-based rather than the SAMR model, which is not (Magana, 2017). One of the

few studies available on T3 framework justifies its use because T3 can be "articulated into the teacher education curriculum" and "prepare preservice teachers for the challenges in classrooms of the 21st Century" (Anyanwu, 2019, p. 545). In my study, the T3 framework served as an innovative lens for understanding the stages of technology that music ensemble teachers use when teaching online, a phenomenon that has become a reality only recently. I chose Magana's framework because it gives a deeper look at the use of educational technology. For example, similar models that focus on technology, such as TPACK or SAMR, focus on technology as a teaching tool, while Magana's T3 framework puts student skills at the center. T3 framework provided me with an opportunity to describe the ways ensemble teachers used technology for the purposes of teaching, rehearsing, and performing, and how students learned or improved their skills. It is my hope that this study will help discover new possibilities of using technology at the transcendent stage, and that my research can inspire future teachers to be more creative and innovative, moving education forward.

Music Education and Technology

Music education has traditionally been viewed as a hands-on, in-person activity. The process of learning to play an instrument or to sing has historically been done through private or group in-person music lessons. However, music is a subject that relates well to technology. In particular, music teachers have been advocating for MIDI (musical instrument digital interface) sequencing which stimulated a musical revolution (Gall & Breeze, 2007). For decades, both private and classroom music teachers have been using technology and digital tools to improve face-to-face instruction, to make the process of

teaching and learning music more attractive, or to teach how to write original music to students of varying backgrounds, including those with very limited musical experience (Franceschini et al., 2020). Acknowledging the trailblazing nature of technology integration in music classrooms, Johnson (2021) suggested that music education has utilized aspects of technology even before they were commonly used in academic teaching. Music notation applications such as Finale (www.finalemusic.com), Sibelius (www.avid.com/sibelius) or Noteflight (www.noteflight.com), music creation programs such as GarageBand (www.apple.com/mac/garageband) or Soundtrap (www.soundtrap.com), and learning software programs to practice music and track progress such as SmartMusic (www.smartmusic.com), have been used by music educators to enhance student learning, deepen students' skills and knowledge, and help with skills assessment. Numerous online learning programs offered by MusicFirst (www.musicfirst.com), a comprehensive learning management system (LMS) for K-12 music education, have become more and more popular among classroom music teachers. Music teachers have even utilized some unique methods of blended learning noted by Weiger (2020), including the flipped classroom model, which has even been shown to be effective in cello education, according to semistructured interviews obtained from students and instructors (Akbel, 2018).

Rapid advances in the technological industry brought extensive digital growth to the music field -- from the development of instruments such as synthesizers, to advanced forms of recording, processing and distribution of music, such as YouTube (Upitis et al., 2015). Online tools such as the Digital Resource Exchange About Music (DREAM)

helped improve the process of learning to play a musical instrument, among other things (Byungwan Koh et al., 2019). Music streaming brought dramatic changes to the way music industry operates, raising concerns about digital copyright, music piracy, and the decline of industry revenue (Koh et al., 2019). Today, anyone, from accomplished musicians to those with minimal musical training, can create their own music and share it worldwide (Franceschini et al., 2020; Kim-Boyle, 2019; Laato et al., 2020). Technology has forever changed the way music is distributed and consumed and, subsequently, altered the ways that teachers engage their students in the music learning, both within the regular classrooms (Alekseenko & Rakich, 2020) as well as through social media, blogs, and other creative activities, allowing teachers to also reach out to learners in rural and remote areas who would not otherwise have an opportunity to learn music (Larasati & Sukmayadi, 2021).

The use of current music technology allowed teachers to engage non-traditional students, or those who do not participate in traditional music ensembles such as band, choir or orchestra, in performing, recording, and composing (Williams, 2012). The increase of digital audio workstations allowed for many ways of using them, including composing, and recording original student work (Demski, 2011). Teachers used iPads in general classrooms to help with general music instruction or organization of the rehearsals as well as a rehearsal tool in band (Hamel, 2014b) and in chorus (L. Martin, 2014). The use of iPads was found to be beneficial in the mixed-method study by Danso et al. (2021), which provided insights into the usage and development of embodied music

technology in the music classroom. The iPads have even been used as alternative musical instruments with possibilities for ensemble playing and music learning (Williams, 2014).

While the use of many new, technology-based instructional approached has been significantly increasing in K-12 music classrooms (Bauer, 2020; Dammers, 2012; Dorfman, 2016), the shift from the traditional face-to-face music pedagogy to online music course offerings prior to the COVID-19 has been happening primarily at the college level (C. Johnson, 2021), leaving the majority of K-12 music school programs unprepared for the sudden "digital turn" (Camlin & Lisboa, 2021). This switch has created many challenges for teachers, especially in schools with higher poverty levels or those that were in rural locations, but has also opened opportunities to renew instructional practices to better support students by incorporating more technology, improving individual musicianship, and developing students creativity even further (Hash, 2021b; Joseph & Lennox, 2021). Reflecting on the educational experiences from the pandemic shutdown in 2020 and considering the gap in literature, there is urgency in studying the instructional approaches in K-12 online music education, specifically, at the secondary level. In my study, I focus on teaching large performing ensembles such as band, choir and orchestra at the secondary level.

Online Music Education

Rapid technological changes brought by the 21st century made the computers and internet an integral part of people's everyday lives. Many universities worldwide began offering fully online degrees, without any requirement for face-to-face learning. Prior to COVID-19, the bachelor music programs in the U.S. schools had been gradually shifting

from traditional face-to-face learning to embrace more online music courses. Data have indicated that online music courses in the U.S. higher education institutions have been offered since 2007 (C. Johnson, 2021). By 2016, approximately 40% of National Association of Schools of Music (NASM) institutions offered online music courses (C. Johnson, 2021). The transition to online learning happened very rapidly (Koutsoupidou, 2014), and even though there has been a substantial amount of research for online learning in general (J. Bowman, 2014), researchers pointed out a need for additional research of online learning in music (Rucsanda et al., 2021), particularly in K-12 education.

The research related to online learning in K-12 music is still in infancy. Although digital technology has been used in music education in various contexts (Calderón-Garrido et al., 2020), its use has mostly been viewed by some as limited in terms of possibilities and contents, and not essential in teaching and learning in the contemporary music curricula by others (Crawford & Southcott, 2017). Even though reports and reviews of online learning research support the effectiveness of online music learning (Scheid, 2014), questions regarding the quality of online education persist because the traditional education is placed in the forefront and the unique characteristics of the online environment are not being considered (Crawford & Southcott, 2017). Online learning in the arts is still viewed as "inferior to on-campus" (Burke, 2021, p. 349), primarily because of the perceptions of eLearning and teaching in the arts academics (Baker et al., 2016). Consequently, researchers suggest making adjustments to the online learning in the arts, in both higher education as well as at the K-12 level. For example, Burke (2021)

examined the perspectives and experiences of eight academics in Australian higher education who teach creative arts courses to pre-service teachers in an online format. Through in-depth interviews and thematic analysis, the author examined best approaches to deliver creative arts learning in teacher education online and concluded that arts learning must be re-imagined for an online learner. Additionally, the author determined that continuous additional support is needed to make the online arts education a consistent reality (Burke, 2021). Similar study was conducted by Kim (2021) with elementary school teachers. Kim used a multiple case study method to examine ways that four South Korean elementary music teachers in different schools utilized blended learning in their music classes. The results of the study showed that even though the teachers acknowledged educational effects of blended learning, they also shared concerns about teacher education for blended learning. Kim sconcluded that continuous professional development is needed to increase the use of blended learning in Korean elementary music classes.

Despite numerous technological advances and new, creative approaches to teaching music, the abrupt switch from face-to-face to online instruction due to the COVID-19 pandemic shutdown has not only revealed challenges and obstacles in online music education but also offered some valuable lessons while illuminating a substantial gap in research. Although there has been a considerable amount of research done for online learning in general, studies about online music learning, pedagogy, and course design have been scarce, with the majority of the articles referring to private instrumental lessons or college-level online courses (Bauer, 2020; J. Bowman, 2014; Burke, 2021;

Dammers & LoPresti, 2020; Kim, 2021; King et al., 2019b; Koutsoupidou, 2014; J. Liu & Liang, 2021; Mustofa et al., 2018; Norman, 2021). Research on online secondary music performing ensemble instruction is practically nonexistent as this phenomenon did not exist prior to the COVID-19 pandemic shutdown.

In this section, I briefly discuss the history of online music education beginning with the first examples of distant learning and leading up to the fully online music courses during the COVID-19 schools' shutdown. I review the literature available on the related topic and discuss the gap in the literature that exists.

Online Music Education Before COVID-19

Distance learning in music has been in existence since the late 19th century when professional artists began offering lessons though the mail. In 1903, after the Chicago Segel-Myers School of Music was established, correspondence schools have become a popular means of instruction (Upitis et al., 2015). While the technological revolution of the mid-1980s brought encouraging hopes for both teaching and learning, computers were not intended to replace the teacher but were viewed as a way to enhance learning and improve pedagogy (Crawford, 2014).

Several institutions experimented with distance learning for decades. The students at the Department of Education at the University of Oulu in Northern Finland, for example, have been completing their studies using technology since 1991, which has solved many educational problems in this rural area by giving future teachers to practice their teaching skills using videoconferencing (Maki, 2001). In the early stages of online teaching in higher education in Australia, most communication took place

asynchronously through discussion boards (Postle et al., 2003). The first online class at a higher institution in the United States was delivered in 1994 (Levy, 2003). The same year, violinist Pinchas Zukerman started teaching online lessons at Manhattan School of Music (Brändström et al., 2012). Since then, many developments have been made to implement distance music learning courses in colleges and universities around the world. In Sweden, teachers in compulsory schools have been using online resources to create their own digital teaching materials since the mid-1990s, while their students in Grades 4-9 have been required to use digital media to compose their own music (Scheid, 2014).

Online music instruction began gaining popularity rapidly since the beginning of the 21st century when more technological reforms have taken place and opened the possibility of teaching musical skills through online formats (Hanrahan et al., 2019). The 21st century music classrooms include a variety of online resources, digital learning, online workshops, virtual collaborations, and much more (Koutsoupidou, 2014). Along with these resources, smartphones and iPads found their way in music and theater arts classrooms as well (Hamel, 2014b, 2014a; Li, 2017; L. Martin, 2014; Williams, 2014). Conducting synchronous music lessons using videoconferencing or artificial intelligence became more common and sparked a conversation about the benefits and drawbacks of teaching and learning in the videoconference environment (P. Riley, 2013). The inventions such as Skype in 2003 and YouTube in 2005 have forever changed the way people communicated with each other or shared music, hence influencing the field of music education as well (Brändström et al., 2012; Burns, 2018; Dammers, 2009; Denis, 2016; Waldron, 2013).

Even though online videos shared via YouTube became an alternative media used for education in various ways (Mustofa et al., 2018), YouTube has mostly been used to supplement face-to-face instruction. Music teachers used tutorial videos to help students learn how to play musical instruments, improve their musical skills, or to find valuable resources (N. Kruse & Veblen, 2012; Waldron, 2013). Bitter (2018) examined how performance videos were used in to illustrate musical elements and to prompt discussions about their function in a piece. Cayari (2018) analyzed how music produced by arrangers or performers helped create digital music within the classroom and beyond. Some teachers also used YouTube videos to diversify the music repertoire and to increase student interest in traditional music, as demonstrated in studies by Kruse and Hills (2019) and Mustofa et al. (2018). YouTube was also utilized by some teachers to interact with certain celebrities while also learning from them (Marone & Rodriguez, 2019), or to help students take charge of their own learning (Parrish, 2016).

Unlike YouTube, which was primarily used to improve the traditional face-to-face instruction, Skype offered an opportunity to teach synchronous (real-time facilitated) lessons online. This has completely changed the landscape of music education by expanding the possibilities of long-distance learning (N. Kruse et al., 2013) and providing accessibility. Suddenly, it became possible to teach students in remote areas who would otherwise not have this chance. Skype has also opened opportunities for active performing musicians to continue teaching while touring. Despite some technological challenges, music teachers took advantage of online lessons and even began enjoying them. For example, in their qualitative case study, King et al. (2019a) observed and

interviewed several primary school music teachers in North Yorkshire who delivered their instrumental lessons using Skype and other technologies to primary schools in England by bringing lessons to schools with little or no music instrumental lessons. Even though digital teaching turned out to be more challenging than usual face-to-face teaching, all teacher participants expressed an interest to continue teaching online, acknowledging that digital delivery has the potential to provide greater access to instrumental lessons for children in rural communities who otherwise would not have access to study music (King et al., 2019b).

Several studies explored the benefits and challenges of using Skype in music education. In a multiple-case qualitative study that compared online teaching with face-to-face teaching, a jazz guitar teacher introduced Skype lessons to three of his students (Case 1) and 11 distant master classes were also conducted (Case 2) using a video-conference system. Overall, both teachers and students had a positive experience but the study revealed the challenges of playing together or marking the rhythm while online, because of the time delay (Brändström et al., 2012). Dammers (2009) found the same challenges with Skype online lessons when he explored online applied music lessons between a college trumpet professor and an eighth-grade trumpet player, concluding that online lessons can only be used to supplement face-to-face lessons. Similarly, Riley (2009) found that online connection negatively impacted synchronous instruction of preservice teachers teaching song and movement. Similar technological issues such as time lag, initial technical problems, and background noise in the teaching environment created some challenges that needed further investigation (King et al., 2019b).

Despite the popularity of music lessons via Skype, both as asynchronous (prerecorded) video tutorials, performance videos, and informal synchronous (in real time) music-learning communities (Pike, 2020), online music courses in music have not been as widely offered because music training has always been seen as a practical activity. A common approach in music education has been to use in-person instruction as the main learning format and supplement it with the computer to support individual practice (Biasutti, 2015). Some of the first online music courses at an undergraduate level were offered in 2004 and included courses in music theory, conducting, aural skills, music appreciation. This explains the limited research on online music education and learning, as most relevant studies came out after 2000 (Koutsoupidou, 2014), and even those have mostly been related to undergraduate or graduate levels, not secondary levels.

Even though some collaborative music making opportunities have been explored and encouraged (H. Riley et al., 2016), the concept of online music instruction focused primarily on teaching private instrument, voice, or basic music theory skills (Brändström et al., 2012; Dammers, 2009; Dumlavwalla, 2017). One study that included a high school instrumental music teacher in a one-to-one computing environment indicated that the use of technology was only for a short activity, after which students put their devices away and rehearsed their music on their instruments as the teacher was still working on finding the best ways of integrating one-to-one devices into learning music performance (Dorfman, 2016). Because synchronous online ensemble instruction presented the most challenge, it has been rarely used. One of the first studies of online ensemble instruction has been done by Denis (2016), whose quantitative research focused on 134 middle

school band students from five different schools in the Southwest United States who engaged in a Skype ensemble lesson with a guest teacher. Though most of the responses from students were positive, teachers noted that time delay and frame rate created difficulties in assessing student technique. Additional challenges were revealed such as the limited view and quality of the camera which prevented teachers from assessing finger positions or embouchure (Denis, 2016). Denis's study, along with other research, revealed that online music instruction, especially ensemble music instruction, requires detailed planning, clear quality instruction, prior understanding of students' learning styles, less teacher-centered instruction, and more teacher effort to engage students on a deeper level (Dammers, 2009; Denis, 2016; Pike, 2015; Pike & Shoemaker, 2013; H. Riley et al., 2016).

Researchers have studied different aspects of online education. In addition to blended learning, the two forms of online instruction that provide different instructional and learning experiences, synchronous and asynchronous, presented a special interest. For example, in a case study to investigate the effectiveness of combining synchronous and asynchronous piano instruction, Shoemaker, a teacher in suburban North America, alternated two forms of piano instruction for two students in rural Zambia (Shoemaker & van Stam, 2010). While the researchers faced some challenges when conducting this study as the internet connection on the students' end turned out to be unreliable, the results of the study have indicated that the most effective learning, as well as a better quality of student-teacher communication, was achieved through blending real-time and time-shifted (self-directed) forms of communication (Shoemaker & van Stam, 2010).

Enbuska et al. (2018) conducted a study on blended learning in piano education in two Finnish universities. Authors determined that to fully benefit from these environments, students need to possess some musical skills prior to their blended learning experience. Pike (2017) conducted a study to explore the potential for using a synchronous online piano teaching internship as a service project for graduate pedagogy interns. Pike's study was designed as a case study in which three music pedagogy interns taught beginning piano to underprivileged teenaged students for eight weeks, using Facetime for video and verbal communication. The results of the study indicated that it might be feasible to provide piano lessons to underserved populations in remote locations while offering meaningful internship experiences to pedagogy students through distance service-learning projects (Pike, 2017). Overall, these studies revealed the need to explore more the aspects of synchronous, asynchronous, and blended online music teaching so that the potential of online music teaching technology can be developed further, and teaching techniques can be improved.

With a growing need to understand collaborative learning in an online environment, the focus on value of collaborative learning in an online learning environment has been increasingly gaining more interest. The use of online platforms highlights the student-centered learning and creates a community of learners that is enhanced in online collaborations (Cremata & Powell, 2017; Garrison, 2016). The benefits of online music education have been noted in numerous studies. For example, online environment generally helps to empower students (Singh & Hurley, 2017) by developing student independence (Berkova & Nemec, 2020; Vahrusheva et al., 2020) and

self-regulation (Lock et al., 2017). In a multiple case study conducted by Dorfman (2016), four music teachers with different backgrounds who taught various music courses in one-to-one computing environments noted the benefits of technology integration in their music classes, such as digitizing sheet music for choral ensembles or using video applications to capture performances. However, teacher participants also admitted that it was still a challenge to integrate technology into their performance programs (Dorfman, 2016). A general pedagogy for teaching music online has not been established yet (Adileh, 2012; J. Bowman, 2014). Overall, the review of literature revealed the need for further study of online ensemble education.

Online Music Education During the COVID-19 Shutdown

The COVID-19 outbreak challenged music educators to change the ways they taught and interacted with students across online platforms (de Bruin, 2021) and heightened the demand for adaptive teaching designs. Music education includes two categories of disciplines: theoretical lessons and performance lessons, which include individual or ensemble/group lessons. Prior to the COVID-19 shutdown, most of the online instruction included theoretical lessons, with some individual performance lessons available via Skype or other videoconferencing tools. Music teachers considered subjects such as music theory, composition or music history to be more adaptable to online education (Biasutti, 2018). Norman (2021) found creative ways of teaching how to play a song on a recorder by recording video lessons and using Microsoft PowerPoint presentations. However, for the most part, teaching an instrument or conducting an orchestra online has been considered to have limitations because of the lack of technical

skills in both the teacher and the student, and physical interaction that is necessary to teach performing skills (Rucsanda et al., 2021).

Several authors highlighted challenges and opportunities of teaching and learning music during COVID-19. Martinec (2020) found the only positive of online performing ensembles to be the convenience, pointing out that while technology brings us together, it also keeps us isolated, as it is not equipped to replace human connections and does not provide with an opportunity to breathe and feel together, thus taking away the magic of making music together. Similar results were obtained by Salvador et al. (2021) whose instrumental case study reflected on the experiences of students, parents, music therapists and administration on their online interactions during the COVID-19 early childhood music or music therapy classes and concluded that, while participants recognized positive aspects of online instruction, they preferred in-person instruction. Goodman (2020) shared ideas and provided information on how to rehearse ensembles online, hoping to inspire colleagues to keep making music online despite the difficult circumstances. Positive online or blended ensemble learning experiences have been discussed by Pulham (2019). Joseph and Lennox (2021) focused on the importance of changing the traditional ways of instruction and making connections, arguing that the "digital turn has opened opportunities to refresh, reset, and renew our ways of practice which may resonate with other educators across educational settings" (2021b, p. 241). Finally, numerous questions have been raised about the lessons learned and the future of music education (Crich, 2020).

As teachers changed their instructional approaches, they rediscovered new ways of communicating and connecting with their students. Communication and collaboration in online communities are essential for student learning (Croom, 2015), and interpersonal teacher-student relationships play a powerful role in students' experiences in learning musical instruments (Blackwell et al., 2020; Creech & Hallam, 2011). As online music instruction during the COVID-19 outbreak became the only way to deliver instruction, these relationships changed. To make sure that the quality of instruction was not affected, music teachers developed and preserved relationships with their students that would mimic face-to-face relationships while interacting across online platforms. In September 2020, Bruin conducted a qualitative study, interviewing 15 music teachers across five diverse urban and regional school settings via Zoom. The study highlighted the importance of student-teacher connections and emphasized the need to build an online environment in which students felt competent and involved in their learning experiences (de Bruin, 2021). While many schools and universities found it difficult, if not impossible, to continue music instruction during the COVID-19 pandemic, there were schools that took advantage of this opportunity and redesigned their curriculum to address student needs. The Melbourne Conservatorium of Music in Australia, for example, created an inventory of core pedagogical components called the adaptive teaching framework (ATF), for use in online undergraduate teaching during the first semester of 2020 (Merrick, 2020). Within this framework, the instructors acted as the facilitators for student learning, allowing for graduate music teaching program students to take charge of their own learning. This approach also allowed for growth mindset, the

concept introduced and developed by Carol Dweck (2008). These inclusive online communities highlighted students' well-being and placed student engagement at the center of the learning process. All these studies demonstrated a shift in music pedagogy during the COVID-19 shutdown that emphasized deeper learner-centered approaches, promoted interpersonal connections, and reinforced student autonomy that valued personal commitment to music making.

Student-teacher relationships during the COVID-19 online instruction has been studied by several other researchers. Student engagement was considered to be crucial in learning success (de Bruin, 2021; C. Johnson & Merrick, 2020; Shaheen, 2021). As the need to find new ways of communicating with students became obvious, teachers faced the challenge of learning new technological skills to use innovative solutions to improve the quality of music education – a worthy goal that justifies the efforts (Parkita, 2021). In a multiple case study from South Korea about music teachers' experiences and perceptions of blended learning in elementary music classes, Kim (2021) concluded that even though music teachers supported online tools and were willing to employ blended learning, they had difficulties adopting newer technologies because of lack of skills and knowledge. This conclusion supported other studies on the role of music teachers in the new, fully online learning environment, that acknowledged the need for constant improvement and expansion of teachers' technological skills (Dorfman, 2016; Parkita, 2021).

Teaching Performing Ensembles During the COVID-19 Shutdown

The sudden switch to online instruction and the need to use online space became especially challenging for the ensemble teachers who were expected to rehearse or instruct their bands, choirs, or orchestras online. This was something that has never been done before (Altena, 2020; Goodman, 2020; Sharp, 2020). In response to music teachers' needs to learn new ways of teaching, Cayari (2021) provided a practical guide for teachers who were looking to record virtual ensembles in music education courses and classrooms, as well as shared some ideas on how to select repertoire, choose the recording methods and software, or edit the videos. Even though online ensemble instruction was new, the concept of virtual ensembles was not new.

Virtual group performances have been in existence since the early 2000s when individual singers began uploading their performances on YouTube, performing two or more parts and combining them together for the final performance (Cayari, 2020b). A virtual ensemble is a digital musical product that uses multiple recordings edited together to form a musical ensemble (Cayari, 2021, p. 39). The first significant virtual ensemble performance was *Lux Aurumque* (Light and Gold) by a contemporary American composer Eric Whitacre, produced in 2010. Choral participants watched the video of Whitacre conducting the piece and recorded their voices (soprano, alto, tenor, and bass) along with the provided audio tracks (Tjan, 2011). The final YouTube video included 185 selected voices from 12 different countries and was featured in a viral 2011 TED Talk.

The success of the first virtual choir inspired Whitacre to create his second virtual performance of *Sleep*, with over 2000 videos from 58 countries, which was produced in

2011 (Tjan, 2011). Other virtual performances followed, and the artists ranged from Miley Cyrus and Jimmy Fallon to Pentatonix, Sam Tsui and Nick Pitera, to name a few (Cayari, 2020b). However, prior to the COVID-19 pandemic, no significant virtual instrumental ensemble recordings were made, and virtual vocal ensemble performances were limited to independent singers combining their voices in a virtual format. Most of the choral and instrumental virtual ensemble performances, such as the Chicago's Children Choir, were created as the result of the COVID-19 pandemic shutdown (Cayari, 2020b). Hence, the review of studies addressing music literacy in large ensembles such as band, choir, or orchestra, revealed a considerable gap in literature, with most of the existing limited literature focusing on the logistics of recording or performing together online, rather than on teaching ensembles online.

Despite the existence of virtual choirs prior to the COVID-19 pandemic, online rehearsals and online ensemble instruction or performances have not been commonly used until the COVID-19 shutdown. With all instruction moving from face-to-face to an online format, schools around the world had to change their curriculum design and find creative ways to continue music instruction and assessment. In their quantitative study focusing on the Romanian university students' attitudes toward online education during the COVID-19 lockdown, Rucsanda et al. (2021) concluded that for courses such as choir or orchestra, online education can only be an additional form of instruction and cannot replace the in-person instruction, with its biggest benefit of collective musical activity. However, the authors also acknowledged the benefits of online group lessons, such as the accessibility from anywhere, more individual work, absence of stage fright, and more.

The COVID crisis has forced the music teachers to reevaluate their teaching strategies (Draper, 2021). Teachers had to learn new ways of providing rehearsing and performing opportunities to every member of their ensemble, regardless of their level of technology use, age, comfort level of studying online, skills, or even their access to technology, putting the issues of equity in education at the center (Nichols, 2020). Some teachers developed methods and content that would fulfill the requirements of their syllabus (Yackley, 2021); others turned to various social media platforms such as Facebook or Twitter, to find collegial support on how to best support their students' learning experiences (Thorgersen & Mars, 2021). Alternative forms of choir, band, or orchestra instruction became a reality as music teachers around the world began exploring different online technologies (Enright, 2020; Kaschub, 2020; Martinec, 2020). Recognizing the need to sharpen their technological skills (Christensen, 2020), teachers created various ways to support their students (Radcliffe, 2020; Schons & Jones, 2020) and became aware of the strengths and limitations of e-learning (Biasutti et al., 2021).

One of the biggest challenges for ensemble teachers in remote environment became simultaneous music making (Hash, 2021b). Shaheen (2021) called the context of group performances "the biggest dilemma for distance music educators" as "the limitations of technology created frustration and disappointment and compromised the sense of belonging and relatedness common in musical groups" (Shaheen, 2021, p. 9). The time lag that exists in online videoconferencing programs such as Zoom made it nearly impossible to produce group performances (National Federation of State High School Associations & National Association for Music & Education, 2020). As a result,

there has been lack of music collaboration in online ensemble settings. However, the ensemble participants were thankful for the opportunity to continue music making, despite the existing challenges. In a later study, the members of Whitacre's virtual choir shared that they gained a personal satisfaction from being able to participate in such a project despite their distant geographic locations, while also acknowledging the lack of musical and social interaction between the conductor and the ensemble members (Paparo, 2021). Similar conclusions were found in an online collaborative experience between a university virtual choir and students in a music technology class (Galvan & Clauhs, 2020).

Despite the challenges, music teachers continued teaching their ensembles online and produced numerous virtual performances, many of which are now available on YouTube. Even when group rehearsals were presenting challenges, ensemble members still met virtually to share their progress and challenges (Altena, 2020), often focusing more on the social aspect of the rehearsals and the group dynamics rather than the quality of the performances. Determined to continue making and performing music, teachers found that when it was not possible to do, shifting the focus from producing high-quality performances to creating a shared musicianship space instead helped them to continue provide meaningful music learning experiences (Shaheen, 2021).

Consequently, teaching musicality during online instruction became one of the biggest concerns. Mansfield cautioned that "'being musical' and the protection of musicality become critical issues" and they should not be lost to new technologies (2004, p. 42). However, while online environment limited the opportunities for teaching

musicality, it opened opportunities to teach other music literacy skills such as sight-reading, theory or history (Rucsanda et al., 2021). Additionally, online environment allowed for more individualized approach that would benefit all learners, providing video demonstrations and lessons with high quality performance examples for students to emulate, using video modeling techniques to help students build skills while engaging in guided practice, or developing aural and critical skills by hosting virtual discussions on music related topics, recordings, or performances (NAfME, 2014; National Federation of State High School Associations & National Association for Music & Education, 2020). Hence, during the COVID-19 virtual learning, many teachers incorporated music literacy skills such as music theory, history, and culture, into the ensemble courses, focusing more on individual musicianship than they did in a face-to-face environment (Hash, 2021b). Most of the skills were centered on performing, listening, and music theory and did not incorporate composing and responding, which are a part of the NAfME standards (Hash, 2021b; NAfME, 2014). This should not be surprising though, considering lack of objectives that address listening or composing skills in many high schools (Abrahams, 2015). Reasons for not composing or arranging during online instruction might also relate to instructors' lack of technology comfort or teacher preparation in teaching these activities (Cremata & Powell, 2017; Menard, 2015), or the perception that creating music is not part of the ensemble curriculum.

In conclusion, the limited research available on online music education during the COVID-19 shutdown has shown that teachers faced tremendous challenges adjusting to fully online instruction. Challenges were related to lack of technological skills and

understanding of application of different forms of online pedagogy, limited access to technological tools, resources and support, student motivation and collaboration, outdated curriculum, and more. Most research was focused on individual music lessons via Skype or other videoconferencing tools. These studies have also shown that time lag was one of the biggest obstacles to successful teaching and learning. Most importantly, substantial gap in literature has been revealed that is related to secondary music ensemble instruction such as band, choir or orchestra. Because of the collaborative nature of these courses and the time lag issues in online teaching, online music ensemble instruction has never been done prior to the COVID-19 shutdown, resulting in lack of research in this area of music education. The biggest gap in literature was related to teaching music literacy skills in online (virtual) ensemble setting. The current study addresses some of the issues related to online music ensemble pedagogy in secondary, specifically music literacy skills.

Developing Music Literacy Skills in Ensemble Rehearsals

Teaching large performing ensembles such as band, choir, or orchestra, often presents different kinds of challenges compared to teaching general music classes. In addition to common teaching practices in general music classrooms, ensemble teachers have developed pedagogical practices that are unique for successful performing ensembles. In this section, I describe common pedagogy practices, in both face-to-face and online secondary performing ensemble classes. First, I briefly discuss the 2014 National Music Standards and the adjustments that were made since the 1994 Music Standards. Then, I discuss common teaching practices in teaching music literacy skills – in particular, music reading, or sight-reading, and aural skills (cognitive presence). Then,

I examine common practices in teaching performing and ensemble skills (cognitive presence), focusing on teaching and learning new repertoire, student practice habits, assessments, sound, intonation, phrasing, blend, interpretation, and performance. Finally, I explore building virtual communities (social presence) which will include student connections and engagement, inclusivity and equity, and social-emotional skills. While examining these instructional practices, I analyze the teacher's role in each of the forms of instruction and how it has been transformed as the instruction moved from one format to another. I discuss the literature related to modification that teachers made to teach in a fully online format, and the gap in the literature related to the online band, choir, and orchestra instruction.

The National Music Standards and Music Literacy

Music literacy has long been primarily associated with the ability to read and write music scores. In fact, the terms "music literacy" and "music reading" have often been used interchangeably, emphasizing the reading skill as one of the most important factors in determining the level of music literacy (Gudmundsdottir, 2010; Kumtepe, 2022). The skill of music reading has been in demand from Middle Ages and Renaissance until the 19th or even the early 20th century, the periods in history when general literacy was limited (Bowring, 2019). However, the 21st century brought new expectations from musicians and consequently, music educators. Specifically, music education critics argue that music literacy should include a lot more than just reading and writing. Hence, various updated definitions of music literacy were developed, contributing to the expectations of broader and deeper musical experiences. In 1994, the

United States' Music Educators National Conference (MENC) published the music standards that described the following musical activities and skills:

1. Singing, alone and with others, a varied repertoire of music.
2. Performing on instruments, alone and with others, a varied repertoire or music.
3. Improvising melodies, variations, and accompaniments.
4. Composing and arranging music within specified guidelines.
5. Reading and notating music.
6. Listening to, analyzing, and describing music.
7. Evaluating music and music performances.
8. Understanding relationship between music, the other arts, and disciplines outside the arts.
9. Understanding music in relation to history and culture. (*Music Educators National Conference*, 1994)

As it is seen here, reading and notating music, though present, was only one of the nine standards that were developed by the MENC. Overall, the skills that were listed in music standards fell into the following types of "orientations": creator, performer, listener, and thinker (Broomhead, 2018). Subsequently, in 2014, the National Music Standards were updated to meet specific needs of students and teachers in specialized subjects of K-12 music education, such as PK-8 General Music, Composition/Theory, Music Technology, Guitar/Keyboard/Harmonizing Instruments, and Ensemble. Most importantly, the new standards emphasized the process of student learning rather than the

final product (Gilbert, 2016). The updated standards put the emphasis on music literacy skills to a greater degree, incorporating four orientations that characterize human's interactions with music: those of creator, performer, responder, and connector (Shuler et al., 2014).

For ensembles, some of these 1994 content standards fit into the traditional view of teaching – for example, singing, playing, reading, writing, listening, and analyzing. However, other standards, such as improvising, composing, arranging, and relating fall outside the range of what the typical ensemble experience has been. Specific orientations in these new standards include imagining, planning, evaluating, presenting, selecting, analyzing, interpreting, rehearsing, synthesizing, and relating, among others. The emphasis is on cultivating conceptual understanding in areas that reflect the actual three artistic processes in which musicians engage: creating, performing, and responding. Such a wide variety of orientations point to the need to teach deeper concepts in music, with an aim to develop higher level thinking and analyzing skills in students. The open-ended essential questions, such as "How Do Musicians Generate Creative Ideas?" or "How Do Musicians Improve the Quality of Their Performance?" (NAfME, 2014) are stimulating and challenging.

To better understand the direction that the music education standards have been heading, it is helpful to refer to Figure 4, which demonstrates the movement towards higher learning expectations, with an inclusion of more challenging higher-level thinking skills such as improvising, analyzing, or generating creative ideas.

Figure 4

The National Standards Comparison Chart: 1994 Versus 2014

Music National Standards Comparison: 1994 versus 2014

	1994 Standards	2014 NCCAS Standards
Focus	Skills and Knowledge	Understanding / Independence ↓ Music Literacy
Overarching Structure	9 Content Standards	Three Artistic Processes (Creating, Performing, Responding) Process Components / Enduring Understandings / Essential Questions
Outcomes	Achievement Standards (25–34 per level)	Performance Standards (13–19 per level)
Elementary/Middle	Kindergarten–Grade 8 Two grade clusters (K–4 and 5–8)	Prekindergarten–Grade 8 Grade-by-Grade (i.e., 10 levels)
High School	One set to cover all course types	Customized sets for four strands
	Two Levels Advanced Proficient	

	Ensemble	Guitar/ Keyboard	Comp/ Theory	Music Tech
Advanced	☑	☑	☑	☑
Accomplished	☑	☑	☑	☑
Proficient	☑	☑	☑	☑
Intermediate	☑	☑	(level ≈ grade 8)	
Novice	☑	☑	(level ≈ grade 5)	

Connections	To the other arts:	Content Standard 8	11 Common Anchors
	To other content:	Content Standard 9	Embedded within 3 Artistic Processes
Assessment Tools	Separate Publications		Model Cornerstone Assessments Benchmark Student Work
Format	Hard Copy		Online and Customizable[1]

Educator-Developed
Method-Neutral
Voluntary

WHAT IS SIMILAR

Philosophical Foundations
Goals
Assessable Outcomes
Opportunity-to-Learn Expectations
Glossary

[1] Music educators will generally find more useful the format of the music standards available at National Association for Music Education website, www.NAfME.org/standards, where members will eventually be able to access or order additional helpful resources such as knowledge and skills charts, additional assessments, and illustrative student work. Those interested in connections among the arts will find useful content at the National Coalition for Core Arts Standards website, www.NationalArtsStandards.org, which also enables users to create and save customized formats for viewing and printing standards.

Note. This chart represents the differences and similarities between the 1994 and 2014 Music National Standards. Adapted from "The New National Standards for Music Educators," by S. C. Shuler, M. Norgaard, and M. J. Blakeslee, 2014, *Music Educators Journal*, *101*(1), p. 41 (https://doi.org/10.1177/0027432114540120). Reprinted with permission (see Appendix C).

Many of the components from the 1994 standards are still present in the current standards. However, while the 1994 standards focused more on what students should know and be able to do, the new standards represent concepts that are beyond teaching or learning skills and knowledge. The focus of the new standards is on music literacy, which is clearly stated in the opening statement of the NAfME's website where the standards are listed. Compared to the 1994 standards, the new standards shift from content standards to artistic processes, emphasizing students' ability to carry out the three artistic processes of creating, performing, and responding. According to NAfME (2014), for students to become successful musicians, they must demonstrate competence in these three artistic processes. Hence, the three artistic processes of creating, performing, and responding serve as an overarching structure in my study for analyzing the development of music literacy skills in ensemble rehearsals.

Music Literacy in Performing Ensembles

Traditional large performing ensembles such as band, choir, and orchestra are the most common curricular offerings in music programs in the United States, especially at the secondary level (Goolsby, 1996; Mark & Gary, 2007). Although the growing body of research has supported the benefits of popular music education and the inclusion of nontraditional ensembles in the music curricula (Abeles et al., 2021; Burstein & Powell, 2019; Byo, 2018; Cremata, 2019; Green, 2002; Leonhard, 1999; Miksza, 2013; Nichols, 2021; S. Pendergast & Robinson, 2020; Powell, 2021; Rolandson, 2020; Rolandson & Conn, 2022; Tobias, 2013; Vasil, 2019), nontraditional courses and modern band ensembles are only offered in 25% of schools nationally (Elpus, 2017a; May et al., 2020).

While popular music, defined by Rodriguez (2004) as music widely consumed by a large portion of the population, dominates secondary music classrooms in the United Kingdom or Nordic countries (Kallio, 2017; Koskela et al., 2021; Westerlund, 2006), the majority of the secondary students in the United States receive music instruction in large performing ensemble courses, focusing mostly on traditional repertoire. Therefore, the teaching of music literacy skills in secondary schools becomes a part of the responsibility of music teachers who conduct performing ensembles (Wagoner, 2020). Despite the significance of this phenomenon, a thorough review of the current research has revealed a considerable gap in literature related to the in-person teaching of music literacy in large performing ensembles, requiring further investigation. Literature related to teaching literacy skills in online large music ensembles is practically nonexistent.

Challenges of Teaching Music Literacy in Performing Ensembles

The performance-based large model, the primary design of music education programs in the United States (Draisey-Collishaw, 2007), has been the subject of intense conversations among music education researchers. Draisey-Collishaw (2007) called this system "an activity for the elite" and believed that music educators need to expand their audience and include students who might not necessarily have performing skills. The stress on "doing" music rather than appreciating or understanding it, limits the musical knowledge to performance only, restricts the ability to promote continued music-making after graduation, and creates an "unmusical lay person," amongst other things (Draisey-Collishaw, 2007, p. 31). Another form of criticism came from Bucura (2021), who discussed large ensemble music education traditions, focusing on its competitive nature,

and questioned an educational ideology of musical excellence. Of those who have supported this model (see Jellison, 2004; Miksza, 2013; Trollinger, 2006), some recognized that changes should be made to the ensemble music education by increasing the comprehensive musicianship experiences, collaborative music-making, and including innovative approaches to curricula with more inclusive repertoire (Miksza, 2013). The opponents of the performance-based model also argued that the strong focus on performance in music programs created challenges to providing a comprehensive musical education for students (Bucura, 2021; Eyerly, 2007; Gilbert, 2016).

The teaching of music literacy has been called a "neglected area of music education" (Reifinger, 2020, p. 21). This is particularly true about the music ensemble classes because of the focus on the performing aspect of music. Though ensemble teachers want to include in their curricula a lot more than just repertoire preparation—for example, the background about composers, music analysis, composing, improvising — time is not on their side (Weiger, 2020). Most of the limited ensemble rehearsal time is spent addressing repertoire performing issues, hence prioritizing performing processes over others (Broomhead, 2018). As a consequence, as ensemble teachers feel the pressure to produce high-level performances, there exists a gap between a well-rounded music education and a program with a strong focus on performance (Edwards, 2010). Even though these two goals—providing a quality of musical performance and providing a quality music education—are competing, ensemble music teachers should continue to deliver strong music education to offer more comprehensive learning experiences and to meet the new standards (Freer, 2011).

Broader Approaches to Music Literacy

Barrett (1998) discussed the importance of expanding the existing definitions of literacy even prior to the updated music standards which broadened the definition of music literacy (NAfME, 2014). The 1994 music standards captured the general direction in music education with the inclusion of a wide range of musical experiences and skills (Lehman, 1994). Consequently, the updated 2014 music education standards in secondary ensembles continued the focus on larger music concepts and broader expectations of music literacy (NAfME, 2014). As a result of the expansion of the music literacy vocabulary, the very meaning of the term "music literacy" presented disagreements among scholars.

Traditionally, the term "music literacy" put an emphasis on music notation. Music teachers referring to literacy really meant "reading music notation" (Broomhead, 2021, p. 17). This approach is the result of the Western musicological tradition in which musical works were "'defined' via the score" (Barrett, 1998, p. 61). Hence, the teaching of the basic notation skills and the ability to perform from notation have been the necessary components of music education (Bernhard, 2004; Bernhard II, 2006; Juntunen & Westerlund, 2011). Consequently, music teachers have always been expected to teach skills such as reading music or singing basic tonal patterns (Pomerleau-Turcotte et al., 2022).

However, scholars have argued that these basic skills are not enough: notation is simply not self-sufficient at all (Randel, 1992). As a result, a broader approach to music literacy has emerged, reassuring that music notation is no longer the main concept in

music literacy. The new standards' emphasis is on conceptual understanding in areas that reflect the actual processes that musicians engage in, including creating, performing, and responding (NAfME, 2014). Music literacy such as notation skills of tonal and rhythmic literacy or aural skills, the ability to identify basic elements of music solely by hearing, has moved beyond its traditional meaning toward the broader components of artistic process.

Among the supporters of this broader approach to music literacy is Barrett, who believed that music notation is merely a tool, and argued that the "narrow 'score-based' definitions of music literacy" do not take into consideration musical practices that branch from oral traditions and "ignore the contextual aspect of the 'musical work'" (1998, p. 62). Barrett (1998) included abilities such as composing and arranging, conducting, improvising, and performing, as equally important components of music literacy. Similar to Barrett, Abrahams believed in a broader approach to music literacy, including in its definition "the ability not only to decode notation but also to make sophisticated decisions about what to listen to and how to sort and categorize those choices" (2015, p. 97). In similar fashion, May et. al. (2020) believed in a broader application of music literacy, including "the ability to negotiate and create music texts in ways that music experts would recognize as 'correct,' or 'viable,' in order to create meaning" (2020, p. 475). Likewise, Leonhard (1999) expanded the definition of music literacy to include performing, listening, composing, and improvising. In his philosophical article about the future of music education, he criticized putting an emphasis on performances of difficult music at music contests and called this attitude a "virus," which contributed "to the

development of students who learn only to perform and rarely develop the broad understanding of music that constitutes music literacy" (Leonhard, 1999, p. 41).

Even though there is strong opposition to putting an emphasis on the performing aspect of music education, different authors consider different aspects of music literacy to be more important than others. For instance, Gordon (1989), who has profoundly influenced the world of music education with his theory of audiation, believed the skill of listening to be one of the most important components of music literacy. Gordon's theory will be discussed in more detail in the following section of this study, so for now, I will summarize that audiation teaches students to hear music without the help of notation, which leads to improved listening and audiation skills, as well as better literacy skills (see Gordon, 1989).

In line with a broader approach to music literacy proposed by the 2014 National Music Standards, Beach and Bolden (2018) advocated for the inclusion of critical literacy practices when listening and responding to music to help students develop deeper understanding of the musical text. The authors referred to Luke's definition of critical literacy with its "explicit aim of the critique and transformation of dominant ideologies, cultures and economies, institutions and political systems" (Luke, 2012, p. 3). They identified specific critical literacy strategies to be used in a music classroom to create open spaces where students are guided in reading between the lines and listening to music (Beach & Bolden, 2018).

The belief that critical progressive literacy practices should be an integral part of music education is not new. The philosopher Charles Fowler (1931-1995), known for his

reconstructionist philosophy of music education, suggested that music teachers should look at the larger communities. Music teachers, according to Fowler, should encourage students to think about life and not simply about the academics (Resta, 2021). However, addressing critical literacy in ensemble classes is approached differently by scholars. Some authors believe that even in large ensembles, music teachers can and should enhance general literacy for all students. To demonstrate, Wagoner (2020) believed that the inclusion of broader language literacy skills should be the focus of any music ensemble curriculum. Wagoner supported the modern definitions of language literacy incorporated 21st-century skills, and considered including oral communication, collaboration, critical thinking, and the ability to learn as essential to literacy.

Several authors studied the connection between the knowledge of music concepts and literacy. For example, Broomhead (2021) placed a significant emphasis on literacy instruction in music classroom, seeing music instruction to be the same as literacy instruction. Similarly, Weidner (2018) considered the inclusion of the content area literacy to be an important aspect of music ensemble literacy. Weidner argued that the Before-During-After (B-D-A) instructional framework, which is commonly used in the content area literacy, should be adopted into music ensemble methods coursework. This approach can benefit the learning, while supporting cross-curricular collaboration and professional development, and promoting overall student literacy (Weidner, 2018). Furthermore, Cogo-Moreira et al. (2012) studied the effects of musical training on skills needed in the development of language and literacy of dyslexic students. The authors concluded that there is no evidence from randomized controlled trials to demonstrate that

music education improves reading skills, academic achievement, or self-esteem in children with adolescents with dyslexia. Authors discussed potential advantages (or even disadvantages) of music education for improving reading skills, academic achievement, or self-esteem in children and adolescents with dyslexia (Cogo-Moreira et al., 2012). Hence, despite the presence of some literature, further studies are needed to examine the relationship between teaching of the music concepts and the academic achievement of students with different learning abilities.

Similar research was conducted by Bolden and Beach (2021). The authors shared practical activities to help learners apply music concepts and tools to express themselves, as well as to understand literary texts in more powerful ways, through music. Taking this approach ever further, Ahmad et al. (2020) used classroom action research approach to study the effect of Baroque music listening during students' study of literary text. Students were asked to read a text and answer questions in an oral or written form, listening to Baroque music from the beginning to the end. The results of the study demonstrated an improvement in students' reading comprehension skills and showed positive effect of Baroque music on students. Recognizing the importance of traditional music literacy, Abrahams (2015) pointed out that music lessons should include more than that and address issues of contemporary society such as social justice, globalization, personal identity, and more. Though some of these studies did not directly address music learning or music appreciation, all this research provided further evidence of the importance of music literacy in broader terms.

Even though teaching of music literacy and main musical concepts have long been considered to be a part of core teaching practices to help nurture well-rounded musicians (Millican & Forrester, 2018), some research questioned whether there is direct correlation between strong music reading skills and the level of performance. For example, Gudmundsdottir (2010) found significant discrepancy between students' music reading skills and their performance abilities and no indication of a strong relationship between performance abilities and music-reading achievement. Consequently, studies have been conducted to demystify the essence of music literacy and how it affects performing abilities.

Later, Haning (2021) analyzed how the performances might interact with other elements of the music teaching and learning process. In a grounded theory research, Haning investigated music teachers' perceptions of the role and influence of performances in K–12 music programs on music teaching and learning. Haning recruited one high school teacher, one middle school teacher, and one elementary teacher from three public school districts and conducted data collection over the course of 3 months, interviewing and observing participants. The results indicated that the instructional approaches were strongly influenced by the proximity to the performance and the need to focus more on preparing repertoire for the upcoming performance. Feeling stressed for time, teachers did not focus on teaching literacy basics and acted more like "directors" rather than "teachers." Most of them expressed a desire to have more time to teach musical concepts. Haning suggested that the only way to be able to include more concept

teaching into the performing ensemble classes might be to reduce the amount of time spent on rehearsing for the upcoming performances.

To summarize, the current literature related to teaching music literacy in secondary performing ensembles reveals that ensemble teachers face numerous challenges. As the primary design of music education in the United States, the performance-based large model requires teachers to mount quality performances, thus limiting the time available to teach music concepts during the rehearsals when most of the time is dedicated to working on the performance repertoire. Students in those performing ensembles that participate in festivals and competitions have even less rehearsal time to improve their literacy skills. The adoption of the 2014 National Music Standards (NAfME, 2014) created even more challenges by defining music literacy in considerably broader terms and placing the focus on the artistic processes rather than the basic skills such as music notation or performance. Music ensemble teachers are now expected to produce high quality performances while also targeting broader music literacy skills. Despite the presence of considerable literature about the importance of teaching music literacy, research related to teaching music literacy in secondary music ensemble classes is limited. Literature related to teaching music literacy skills in online secondary large music ensembles is practically nonexistent.

The National Standards and Their Application in Music Ensemble Classes

The existing research that has supported the expansion of the music literacy skills provided the foundation for the updated 2014 National Standards requirements for secondary ensembles. Included, among other elements, are the development of skills such

as composition and improvisation, interpretation of musical ideas, understanding of the music forms and the variety of cultures, and the evaluation and refinement of selected musical ideas, to name a few (NAfME, 2014). As a result of these heightened music literacy expectations, the ensemble teachers are challenged to produce high-quality performances while meeting the broad spectrum of music education standards (Price, 2006).

According to these standards, music education in large ensembles must incorporate a broader approach to music literacy. The definition of music literacy by the NAfME expanded beyond teaching or learning skills and included the ability of students to independently carry out the artistic processes of creating, preforming, and responding so that students can participate in music authentically ("2014 Music Standards," 2014) Therefore, the focus is now placed on the artistic processes, and not the basic skills that are necessary to accomplish the new goals. The expectations are to highlight the process such as rehearsals or learning of the music skills along the way, instead of the final product such as performance at the concert or the festival (Shuler et al., 2014). It could be assumed that these theories and definitions place a stronger importance on teaching music concepts in secondary large ensemble classes. However, this doesn't seem to be the case. Williams (2007) argued that teachers do not really follow the standards, especially at the secondary level, adding that there seems to be lack of respect for the National Standards. Some researchers have supported this argument (Orman, 2002) and have raised questions about the level of importance placed on teaching music concepts in secondary large

ensemble classes. It seems that the strong focus on performances creates difficulties to providing comprehensive musical education for students.

Because the focus in the performing ensembles is on the performance aspect, the instruction has mostly been driven by the festival requirements (Abril & Gault, 2008; Matthews & Koner, 2017). This is not surprising, also because most secondary music programs have been evaluated by the performance component (Price, 2006). However, Boyle (1992) believed that the success of the performing groups should not be the way music programs are evaluated. Despite the time constraints teachers face trying to teach new repertoire and making sure their ensembles are ready to perform at the school concerts and festivals, Asmus (2004) argued that the secondary schools' ensemble directors must place more emphasis on teaching students how to read music. Similarly, Tan's (2017) review of research literature revealed that the teaching of music concepts in school ensembles can produce positive outcomes, including improving students' music understanding, improved motivation, and enhanced performance.

Sight-Reading Skills

In this section, I define the skill of music reading, or sight-reading, and the pedagogical practices used in face-to-face secondary ensemble classrooms to later examine whether similar methods were shown to be successful in an online teaching format. I review the limited recent research on sight-reading skills, as well as some of the significant literature on the topic that is older than 5 years.

Reifinger (2020) defined music reading as the process of translating notation into sounds. The skill of music reading is often referred to as "sight-reading," or the reading

or singing of music while seeing it for the first time (M. Kennedy & Kennedy, 2013). Music reading is one of the most important components of music literacy (Asmus, 2004; Broomhead, 2021). The NAfME (2014) lists reading and notating music as one of the national standards for K-12 music education. Numerous band, choral, and orchestra method books (Bartle, 2003; Brinson & Demorest, 2012; Sheldon et al., 2010) include music reading instruction as part of the curriculum and provide various teaching strategies to help students develop their reading skills successfully. Several studies have been dedicated to examining sight-reading skills and teaching methods, both in-person and online (Henry, 2011, 2015; Pike & Shoemaker, 2013; Russell, 2019; Sullivan & Sullivan Mileski, 2019). Some authors have focused on the relationship between the sight-reading and technical proficiency, among other things (Hayward & Eastlund Gromko, 2009), while others have placed more importance on developing aural skills in order to improve sight-reading (Grey, 2021).

Music reading skills are highly valued by the honors instrumental and vocal ensembles across the nation, such as the All-State bands, choirs, or orchestras, as the sight-reading assessments are included as part of their audition process. Many states even provide sight-reading examples and practice materials for those auditioning. For example, Florida Bandmasters Association lists state sight-reading requirements for its ninth-10th grade concert band (*All-State Sight-Reading Standards: 9th & 10th Grade Winds*, n.d.) or 11-12th grade symphonic band (*All-State Sight Reading Standard: 11/12 Grade Auditions*, n.d.); Texas Music Educators Association provides sight-reading criteria for its All-State choir auditions (*All-State Choir Audition Material*, n.d.), to name a few. To

summarize, students enrolled in band, choirs, or orchestras are expected to develop a certain level of music reading skills by the time they graduate from high school. However, some researchers have argued that these expectations are not met.

Notwithstanding its complexity, historically, scholars believed that sight-reading should be taught in school. For example, Ralph L. Baldwin (1872-1943), an influential music educator and researcher, believed that teaching music reading to children should be the public school music teachers' primary task, and he advocated teaching sight-reading as the "language" of music (Baldwin, 1923). Likewise, Sullivan and Sullivan Mileski (2019) stated that the development of sight-reading skills should be a part of any classroom experience. Atterbury and Richardson (1995) believed that developing music reading skills from an early age is important because without music reading skills, children will not be able to become independent musicians. Henry (2015) and Nichols (2013) concluded in their studies that sight-reading not only helps improve music literacy, but it is also a fundamental skill in developing musical independence. Musical independence means the ability to engage in musical activity on one's own and make musical decisions (Yackley, 2021). Weidner (2020) conducted a yearlong study using constructivist grounded theory, to investigate musical independence within concert bands in three high schools that varied in their curriculum, demographics, and rehearsal structure. The study revealed that the directors considered the reading skills to be the foundation of musical independence.

Sight-reading is a complex process that presents a challenge for some students. It requires performance of the visual information from a musical score by including

immediate motor and auditory responses to sing or play (Drai-Zerbib & Baccino, 2018). Sight-reading involves several skills for all musicians, such as visual reading (scanning printed music to process it) or aural-spatial skills, or pattern recognition and harmonic prediction abilities (Fine et al., 2006), but instrumentalists and singers face different kinds of challenges. For example, instrumentalists must also possess mechanical skills when placing fingers in the right places on the instrument at the right time. Technical proficiency on the instrument is also necessary (Hayward & Eastlund Gromko, 2009; Wolf, 1976). Additionally, visual shape processing, or the ability to perceive, analyze, synthesize, and think with visual patterns (O'Carroll, 1993), is also important. According to Fan et al. (2022) who recruited 160 piano playing college students for their quantitative study focusing on the role of visual and visual association skills in sight-reading, the visual shape processing ability is significant in the process of sight-reading. On the other hand, for singers, it is necessary to be able to create mental images of the sounds prior to singing, as well as during singing (Pomerleau-Turcotte et al., 2022; Reifinger, 2020). An auditory stimulus is also essential for singers to be able to know which sounds to produce (Drai-Zerbib et al., 2012). Although absolute pitch is not required to sight-sing, singers require a starting note, while instrumentalists do not. It is necessary to have relative pitch, or the ability to understand the relationship between notes, so these skills require ear training (Zatorre et al., 1998, p. 3172).

Sight-reading skills are often taught and assessed using a sight-singing task. Sight-singing, as it is often called in a choral setting (Gudmundsdottir, 2010; Wolf, 1976), is the skill of reading music while singing, or an ability to produce the notated

sounds by singing (Reifinger, 2020). Research has shown that most choral teachers teach sight-singing during their rehearsals as part of the curriculum. Nichols (2013) conducted a study to determine middle school choral teachers' commitment to teaching music literacy, specifically, their attitudes towards sight-singing and the instructional choices they made. The results of the online questionnaire filled out by 95 middle school choral teachers showed that 89.5% of these teachers taught sight-singing in their classes, and most of them used the movable Do method developed by the Hungarian educator Zoltan Kodály. In this method, each syllable corresponds to a scale degree (for example, the first or the second note of the scale) and not to a pitch (for example, C or D). Teachers found this method to be very effective and spent between 5-15 minutes during each class on sight-singing activities. Another benefit of incorporating sight-singing activities in choral ensembles is the improvement of ear training skills, an important musicianship component. Wang (2022) who conducted a study about integrating new media in a classroom to teach sight-singing and ear training skills, argued that it is critical to improve the education of sight-singing and ear training to "cultivate more music talents" (p. 1).

Singing and solfege as instructional tools are beneficial in both choral and instrumental classes and have been studied by researchers for decades, with most of the foundational research being conducted by earlier authors. For example, earlier studies showed that singing may help with comprehension and performance of instrumental music (Gordon, 2007) and improve instrumentalists play with more musicality and a better tone, phrasing (Dalby, 1999) and intonation (Jordan, 2022). Playing by ear is

another skill that can be improved by incorporating singing. According to Bernhard (2004) who conducted a quantitative study with 42 sixth-grade band players, beginning instrumental students who sing solfege and tonal patterns improved their ability to play by ear. Still, despite the proven advantages of incorporating singing as an instructional tool, singing and ear training are not commonly used in instrumental ensembles. To illustrate, Singletary (2018) conducted a survey of 187 band directors who taught beginning band, asking for some of the common instructional concepts that band teachers address with their musicians. The results of the survey showed that the most fundamental concepts included posture/instrument carriage, tone quality, and breathing, while ear training and singing were listed low in their rankings, along with other music literacy skills. Likewise, music teachers who teach music-reading skills often initially teach pitch reading and rhythm reading separately and not sight-singing or ear training (Choksy, 1999; Gordon, 2013; Houlahan & Tacka, 2015).

Despite the rigorous ensemble audition requirements at the junior and secondary levels and the acknowledged importance of sight-reading, there is a concern that teaching of the music reading skill has been neglected by music educators. In the commentary about music teaching and music literacy, Asmus (2004) discussed lack of music reading skills by an increasing number of undergraduate music program applicants, even though their performance levels were sufficient for the admission. Gudmundsdottir (2010) conducted a comprehensive review of the research literature related to music reading, and the results showed that even after years of studying music, many musicians still did not achieve proficiency in music reading. This could be partially because of a comparatively

limited understanding of the complex skill of sight-reading, or how to effectively teach students to become proficient sight-readers (Russell, 2019).

Whether in an ensemble setting or in individual music instruction, sight-singing skills can help improve singing performance. Pfordresher and Demorest (2021) analyzed whether musical training predicted singing accuracy. They compared two large groups of general population: 292 without any private lesson training and 340 with previous training, asking them to match the pitch and sing a song. Using the Seattle Singing Accuracy Protocol (SSAP), a standardized measure of singing accuracy, the researchers determined the singing accuracy of the subjects. The results indicated that though multiple factors contribute to singing accuracy, including age and musical training, participants with primary group experience in choir exceeded pitch-imitation accuracy of those participants who reported band to be their primary group experience (Pfordresher & Demorest, 2021). Additionally, individual sight-reading performance has been shown to improve when individual testing was conducted, supporting the argument that sight-reading should be taught in group instructional settings. In a quasi-experimental study, Demorest (1998) investigated the effects of individual testing on sight-singing skills in a choral ensemble and concluded that conducting evaluation improved individual technique, hence supporting the idea that group instruction should incorporate assessment to benefit individual students.

Studying sight-singing in secondary schools can also help improve students' sight-singing performance in postsecondary years. In their quantitative study, Pomerleau-Turcotte et al. (2022) investigated whether the level of study and sight-singing experience

in secondary schools could predict sight-singing performance in higher education. The authors surveyed 56 subjects about their experience with music, assessed their working memory capacity, and evaluated their performance on a short sight-singing task. After a thorough examination of the relationship between the participants' musical experience, level of study, working memory capacity, and the level of sight-singing performance, authors concluded that less experienced and less proficient sight-singers demonstrated lower level of performance (Pomerleau-Turcotte et al., 2022). The results of this study support the argument in favor of teaching music reading skills in secondary ensembles.

To summarize, all related literature suggests that teachers should provide targeted instruction to their students to help develop stronger skills in reading music, singing basic tonal patterns, or ear training. Sight-reading is embedded into many musical activities, including local, regional, state, or national ensemble festival auditions. The music field expects musicians to be able to fill in for each other at the last minute, if needed, which requires musicianship skills, including sight-reading or an ability to play by ear. Because the majority of secondary students receive their music education in large ensembles (Elpus & Abril, 2019), it is important to investigate ways to develop such independence in these ensembles. Thus, ensemble teachers should develop effective methods to help their students become better musicians by teaching them musicianship skills such as ear training or sight-reading.

Note Teaching vs. Rote Approach

The development of music literacy skills takes considerable effort and time. It is not surprising, then, that best music literacy pedagogy has been an active topic of

discussion in music research. There are those who believe that developing music reading skills from an early age is important and that the focus should be on music literacy skills (Juntunen & Westerlund, 2011; Sullivan & Sullivan Mileski, 2019; Y. Wang et al., 2022). Traditional instrumental instruction books that follow this idea include a section on music reading which is expected to be incorporated into teaching as students learn to play an instrument. Although most music educators would agree that note reading skills are important (Ahmad et al., 2020; Baldwin, 1923; Bolden & Beach, 2021; Cara, 2022; Gudmundsdottir, 2010; L. Wang, 2022), this approach to teaching music literacy has not been the only one. In contrast to note reading approach, the rote approach advocates for learning before reading notation, or sound before sight. Both of these approaches have been prevalent throughout the history of music education, but as early as 1721 in New England, educators have been in disagreement as to which method should be used (Grey, 2020).

Scholars supporting rote teaching have argued that throughout the history, many musicians had relied on the oral culture, especially those in folk music. For example, some adult learners in a study by Bayley and Waldron (2020) preferred to learn music aurally and found the notation to only confuse them, claiming that continuous listening of the tune and then playing it was a better way to learn music. They also shared that they understood the musical style better by learning music by ear first, which helped them get the feeling of what the musical style should be. These findings support the previous argument by Gudmundsdottir (2010) that research does not support strong relationship between performance abilities and reading skills. Similarly, Grey's research (2020)

indicated that learning music via the rote approach enhances contextual knowledge, which will eventually help to better learn to read notation. Additionally, Grey found that learning to play an instrument by rote can help beginning instrumentalists improve their technical skills such as embouchure, fingerings, and producing a characteristic tone. The same results were obtained by Burton (2017), whose study showed that children improve their ability to read and write musical notation when they experience music aurally first. Liperote (2006) pointed out that students today have fewer aural skills than before and argued that the development of true musicianship happens when students first learn to play or sing by ear. Strong listening and playing also help students improve their improvisation skills, supporting the rote approach to music literacy.

Researchers who have agreed that students should experience sound before sight, or music notation, have argued that students benefit from the developing aural understanding before learning the music symbols (Burton, 2017; Gromko & Russell, 2002; Hurley et al., 2018). Rote teaching is also supported by researchers who have argued that all forms of these teaching methods improve early literacy abilities of students, as well as their phonological awareness, or PA (Eccles et al., 2021). In early music education, there should be emphasis on active listening to songs in various modes and meters to ensure that students develop their aural skills in music to reach the same level of proficiency they have in language (Gordon, 2013). To examine this phenomenon further, Burton (2017) conducted a qualitative study in which 39 students in kindergarten through eighth grades were immersed in music, as they would be in language acquisition, for one school year. They were provided with aural, oral, and visual experiences with a

repertoire of rhythmic chants and patterns that increased in difficulty. The results indicated that musical meaning mostly formed through the audiation and sound of notated music.

Those teachers who prefer teaching via rote select one of the five more frequently used approaches to rote teaching: Dalcroze, Orff, Suzuki, Kodály, or Gordon, with movable solfege being the most frequently cited primary method (Nichols, 2013). The Kodály approach focuses on music literacy and incorporates moveable-do solfa tonic, hand signs, rhythmic syllables, and singing (Hanson, 2003). While Dalcroze, Orff, Suzuki, Kodály, or Gordon methods of teaching are similar in their rote approach, they are different in their forms. For example, the Kodály method focuses on singing and is based on systematic sequences with songs and games, while Dalcroze is based on movement (Nichols, 2013).

Often, teachers also combine different methods together (Grey, 2020), following the suggestions by scholars who advocated for combined teaching methods. For example, according to Bayley and Waldron's (2020) qualitative field study, students benefit from learning music through a combination of aural (listening/singing), observational, and written notation in both online and offline contexts. Baldwin (1923), who emphasized music reading and music literacy, believed that the effective instructional teaching method would have to blend sight-reading with rote singing, which is based on imitation or repetition. This approach, according to Baldwin, created a more balanced approach to music literacy (Gerber, 2021). Another important figure in music education history who supported a combined approach to music education was Frank William Westhoff (1863-

1938). As music supervisor in Illinois public schools, Westhoff was particularly influential in standardizing curriculum that included systematic development of students' aural skills and note reading ability, hence improving efficiency in many rural schools (Hash, 2021a). Westhoff believed in a combined approach and utilized both simultaneously in the curriculum, requiring young students to learn at least two rote songs per month. Teachers were expected to "sing for and not with the class" and conduct "much individual work" (Hash, 2021a). Westhoff's highly successful music curriculum combined teaching reading skills with learning music by rote.

Gordon's Theory of Audiation

Perhaps the most well-known approach to learning by rote was developed by Edwin E. Gordon who advocated for teaching audiation, or the ability to think music in the mind with understanding.

In addition to the complicated processes involved in sight-singing activity discussed previously, sight-singing also requires audiation, which is the ability to "think" musically. This ability usually takes years to develop, most of the time after studying music from a very early age. Gordon studied the process of learning by rote, or audiation -- the phenomena of hearing, comprehending, and generalizing musical sounds regardless of the presence of the actual sounds or notation (Gordon, 1989). To explain, audiation is an ability to hear and comprehend music in the mind without the sounds physically present, and to understand the relationships of the sounds. Gordon emphasized the importance of building students' capacity to audiate music. Gordon stressed that audiation is not imitation. In other words, when teachers sing short songs without words

and the students sing them back to the teacher. Neither is audiation a recognition: recognizing a piece of music played does not necessarily mean that the student can sing it back (Gordon, 1989).

Gordon's followers are aware of the audiation processes happening in their ensembles, and they structure the learning process around the listening and audiating. For example, Dalby discussed the inclusion of audiation in instrumental classes as "an extension of the minds inner audiation instrument" (1999, p. 22). Even in instrumental classes, Dalby (1999) argued, singing can be extremely beneficial as a way to improve melodic and harmonic intonation. Humphreys (1986) argued that Gordon's theory of audiation provides an enhanced foundation of harmonic awareness which can help develop harmonic ear as students learn to think and act harmonically, also helping them to anticipate and even predict the harmonic and melodic structure of the piece, even if the piece is unfamiliar (Gordon, 2007).

Gordon's theory of audiation is also widely used in popular music instruction. Green (2008), who studied popular musicians and their way of informal music learning, argued that the informal learning engages musicians in a holistic process of listening, performing, improvising, and composing. Through numerous interviews with musicians of different ages, Green (2002) studied teaching of aural imitation, improvisation and experimentation, and the level of motivation that the inclusion of these components in music classrooms might bring to those studying music. However, despite all these discussions about the importance of music literacy, the emphasis on music reading skills

and audiation, Green argued that the ability to achieve fluent music literacy is rarely found in our western culture.

Several authors have written about incorporating the methodologies of Edwin Gordon, Zoltán Kodály, and others into music classrooms. However, these articles are mostly discussing various music literacy teaching tools, such as hand signs, solfege, rhythm syllables, or audiation (Çoban & Soykunt, 2021, 2021; Dunbar & Cooper, 2020; Sullivan & Sullivan Mileski, 2019; Turman, 2021; Y. Wang et al., 2022; Yackley, 2021). For example, Edwin Gordon applied the so-called "whole-part-whole" model where students are first introduced to a topic which is then broken into smaller parts. Such curriculum framework offered overall introduction to work and then focused on detailed practice strategies, culminating on synthesizing the skills (Yackley, 2021).

In conclusion, the review of the current body of literature revealed that research related to aural skills and audiation in secondary ensemble settings is limited. One of the articles, for example, is by Wilson (2018), who wrote about the benefits of audiation in instrumental ensembles and the importance of teaching singing to instrumentalists. The majority of the studies about aural skills and audiation, however, addressed the predominant music education approaches, such as Orff, Kodály, Suzuki and Dalcroze, in the early grades (Burton, 2017; Liperote, 2006; Y. Wang et al., 2022). Audiation studies focusing on secondary levels mostly center around general music classes such as music theory (dos Santos & dos Santos, 2021). Hence, there is a gap in literature related to music literacy skills, such as aural skills, and audiation in secondary performing ensembles.

The debate between music educators as to what should come first when teaching a new piece of music – notation or auditory introduction – continues to take place. While some researchers have focused on the benefits to a sound-before-sight approach (Burton, 2017; Gerber, 2021; Gordon, 1989; Liperote, 2006), others have argued that reading notation should come before anything else because without music reading skills, children will not be able to become independent musicians (Asmus, 2004; Atterbury & Richardson, 1995). With the introduction of nontraditional courses and ensembles such as music technology, guitar, or rock band, whether to teach children by rote singing first or reading notation, demonstrates the disagreements that prevail in today's music education world.

Music Literacy in Online Ensembles

Online synchronous instruction became the only form of education for secondary large ensembles such as band, choir, or orchestra when schools closed during the COVID-19 pandemic. However, research on online ensemble instruction prior to the COVID-19 shutdown was virtually nonexistent. Although some literature on online ensembles emerged during the time of my study, none specifically addressed the focus of my research. For instance, Evison (2023) explored online music-making in community groups, while MacRitchie et al. (2023) studied group instruction for older adults. Stapleton (2023) focused on undergraduate music studies in Ontario, and Tsugawa (2023) examined the experiences of older adult musicians. MacDonald and Zumbansen (2023) researched online experiences of adult choir members with dementia, and Vietti and Menchaca (2024) investigated how community college instrumental ensemble faculty

used technology to teach online. Longlong and Luen (2023) pointed out the significance of reforming college-level vocal music education, and Pattananon et al. (2024) explored pedagogical innovations in advanced music education, focusing on technological tools.

Other researchers examined adjacent topics. For example, Barbeau et al. (2022) discussed the perspectives of conductors and older amateur community band members during the COVID-19 online music-making in Canada, while Knapp et al. (2023) studied the growth of Soundtrap's usage during the COVID-19 shutdown. Additionally, Meng et al. (2024) investigated human experiences during online concerts, and designed and developed Deck 10 Intermedia, an online music event platform, to replicate human connections during online music events. The studies closest to my topic included three dissertations: Bowman (2022), who examined secondary school music teachers' perceptions of music technology integration during the pandemic; Skinner (2023), who studied challenges and advantages of virtual teaching and explored pedagogical changes among urban music educators teaching Grades 4-12; and Davis (2024), who investigated middle and high school band teachers' experiences during COVID-19.

Several authors studied children's psychological personal development. For example, Cheng (2023) assessed the development of musical competency in a laptop ensemble in two undergraduate music education programs in Hong Kong. Laptop ensemble is a platform that provides an opportunity to perform music collaboratively using computer technology. Cheng used a mixed method that included a questionnaire survey and semistructured interviews to examine the learning experiences of 80 participants from laptop ensembles who performed music collaboratively using a laptop

and compared them with the experiences of 80 participants from an acoustic orchestra. The results indicated that the laptop ensemble fostered students' ability to develop both musical and technological skills.

While some researchers have focused on the social collaboration involved in ensemble music-making online (Galvan & Clauhs, 2020), no studies were done that focused on teaching of musical ensemble skills online. In some earlier research about online learning in higher education, Sleator (2010) identified three different approaches to online education: asynchronous learning activities, synchronous learning activities, and blended learning. In previous sections of this chapter, I discussed the literature related to each of these three online approaches in before and during the COVID-19 shutdown. However, despite the relevance of the abovementioned studies, none of them investigated the topics that my study undertakes. As a result, there is a significant gap in literature related to online secondary large ensemble instruction.

In an earlier study, Kuzmich (2010) wrote about three schools that were successful in virtual instruction - the Virtual High School Consortium, Insight School of Colorado, and the Pennsylvania Distance Learning Charter School – and highlighted the commonalities and differences between them. The online courses that these schools offered, however, were all taught asynchronously and included general music courses such as AP music theory, composition, music history, ear training, or keyboard, and no ensembles. Similarly, almost all of the later studies related to this topic examined either general music classes (Norman, 2021), college music electives (Adileh, 2012), world music (Edward et al., 2018), music technology courses (Galvan & Clauhs, 2020),

collaborative online compositions (Biasutti, 2015, 2018), or individual lessons (Biasutti, 2018; Dammers, 2009; Seddon & Biasutti, 2009), because synchronous private music lessons have been in existence since 2004 (Crawford & Jenkins, 2015), shortly after Skype was first invented in 2003. The research related to teaching large ensembles online is mostly limited to the creation of virtual performance videos and recordings, namely virtual choirs (Beirnes, 2022; Cayari, 2018, 2020a, 2021; Datta, 2020; French, 2019; Galvan & Clauhs, 2020), or the creation of online communities (Levstek et al., 2021). Additionally, most studies examined either asynchronous/hybrid approaches or focused on courses other than large ensemble classes or rehearsals.

The 2014 National Music Standards put the emphasis on music literacy skills to a greater degree than in the past. The expectations are to highlight the process such as rehearsals or learning of the music skills along the way, instead of the final product such as performance at the concert or the festival (Shuler et al., 2014). Even in large ensembles, music teachers can and should enhance music literacy for all students (Wagoner, 2020). According to Bayley and Waldron's qualitative field study (2020), students benefit from learning music through a combination of aural (listening/singing), observational, and written notation in both online and offline contexts. However, limited research exists regarding the development of music literacy skills online in courses other than music theory, general music, composition, or individual lessons. Studies on music literacy skills in online large ensembles is nonexistent.

The available literature relates mostly to general synchronous music education. These studies can be divided into three categories. In the first category, there are studies

focusing on teaching composition or music theory online (Adileh, 2012; Biasutti, 2018; Bitter, 2018; J. Bowman, 2014; Crawford, 2017; Cremata & Powell, 2017). For example, in their quantitative study of music students from Romanian university who studied remotely in lockdown context, Rucsanda et al. (2021) concluded that online teaching and learning methods can be more efficient for the theoretical and individual studies than for teaching ensembles. In chamber and choral ensembles, as well as orchestras, online education should only supplement the in-person form of education because of the lack of interpersonal experiences in an online setting. Hence, Ruscanda et al. (2021) suggested that teachers should utilize online platforms more when teaching theoretical subjects. Buonviri and Paney (2020) investigated the use of digital technology for aural skills instruction in Advanced Placement Music Theory (APMT) classes in the United States. The majority (93%) of the 317 music teachers who responded to the online survey used digital technologies for teaching aural skills and noted the benefits of technology in that it provided extra practice for students and customization for their needs (Buonviri & Paney, 2020).

Focusing on composition of new beats rather than recreating the existing material, helped provide original material for teachers to use in their efforts to expose their students to musical material that goes beyond the traditional resources, hence helping diversify scholarship related to online music learning. Teachers used YouTube in their online music classroom instruction to provide practical demonstrations on how to play instruments, as many celebrities started their own channels offering instructional videos. The integration of instructional content with references to the authors' personal lives

generates a unique teaching and learning environment and certainly challenges traditional approaches to music education (Marone & Rodriguez, 2019).

In the second category, there are studies that examined online synchronous practices for individual or small group instrumental lessons (Brändström et al., 2012; Dumlavwalla, 2017; Yungul & Can, 2018). Most of this research has focused on private instrumental lessons. For example, Dammers (2009) examined online synchronous trumpet lessons with a 13-year old, and Shoemaker and van Stam (2010) studied online piano lessons with a 9-year-old and a 10-year-ord. Daugvilaite's (2021) holistic multiple-case study explored the students' sight-reading, aural skills, lesson engagement, and motivation to practice in online instrumental lessons in a one-to-one setting. Pike (2020) examined how piano students of all ages are comfortable using asynchronous video materials such as performance videos or tutorials, in order to improve their technique. Researchers explored how students' music literacy skills such as sight-reading or aural skills, have been affected by an online environment. Pike and Shoemaker (2013) analyzed the development of sight-reading skills using online methods, and included a control group of students who were participating in face-to-face lessons. The results indicated that the online approach was a feasible alternative to face-to-face lessons, as well as an option to use while teaching in a blended environment.

Yackley (2021) wrote an article on the development of musicianship in ensembles, after transitioning his middle school string chamber ensembles to an online format. Yackley realized that one of the most important skills that he could focus on during the online teaching was the development of independent musicianship. Using

some foundational ideas developed by Kodály and Gordon (2013) and taking a sequential approach, Yackley constructed a curriculum for developing independent student musicianship in chamber music. Yackley focused on the following skills: intonation, rhythm and tempo, ensemble, fluency, and musicality. Some of the tools that Yackley used were online apps such as a free metronome app (Tempo Lite) and a free tuning app (Piano Tuner). Overall, as this experiment proved to be very successful, Yackley recommended using the same curriculum for larger ensembles and at a secondary level (Yackley, 2021).

Finally, in the third category of studies, researchers focused on the use of online/mobile platforms or tools that could supplement formal classroom experiences. For example, Larasati and Sukmayadi (2021) conducted a study using developmental research method to examine the capabilities of teaching sight-reading skills by using MuseScore, a web-based notation program that can be accessed on smartphones. Strong believers in the importance of teaching music literacy skills, authors focused on sight-reading as a basis of understanding music on a deeper level, as well to improve aural skills. The results of the study indicated that MuseScore on mobile devices can be an efficient and easy-to-use tool for teaching and learning sight reading skills, helping increase music literacy, aural skills, and even self-confidence (Larasati & Sukmayadi, 2021).

One of the first studies on synchronous ensemble online instruction was done by Denis (2016), who conducted a study in which 134 seventh and eighth grade band members were engaged in a videoconferencing lesson with a guest teacher. The purpose

of this study was to examine potential perceptual differences between urbanicity groupings after ensemble instruction using videoconferencing. Results indicated that ensemble instruction using videoconferencing may be more positively perceived by rural students, particularly because of the novelty effect: access to guest teachers. Hanrahan et al. (2019) conducted a mixed study in which they analyzed responses from primary school children who participated in a voluntary young orchestra for students 9-11 years old. The project was to explore whether the traditional networked music notation tablets used by a primary school orchestra would enhance the experience of ensemble music. The results indicated that the use of technology helped the young orchestra participants to overcome practical problems associated with ensemble playing, hence leading to better engagement with the music and enhancing the likelihood of feelings of enjoyment and belonging. Children also reported that their instrumental playing was enhanced by the involvement of the digital sight-reading tool (Hanrahan et al., 2019).

In a later study, Hash (2021b) investigated the results of teaching elementary and high school band classes in online setting during COVID-19 shutdown. Four-hundred sixty-two band directors completed surveys that included various questions about the use of technology, access to resources, professional development, and lessons learned during online teaching. The findings indicated that despite the many challenges that the COVID-19 created, the online setting also forced teachers to put more emphasis on aspects of teaching that were often neglected in ensemble classes, such as technology incorporation, individual musicianship, lessons in music theory history, and culture. The results of this study could be used in face-to-face settings to promote broader approaches to teaching

ensembles such as developing music literacy skills and appreciation of music history or culture.

Several studies conducted after the COVID-19 school shutdown focused on the positive aspects of teaching music virtually. For example, Kao (2021) viewed the online instruction during the COVID-19 as an opportunity for teachers to innovate music teaching students and for students to create virtual performances. Taking a similar, positive approach, Liu and Liang (2021) wrote about the advantages of computer music technology, pointing out the benefits of using technological tools to teach sight-singing and ear training, similar to Larasati and Sukmayadi (2021). Enright (2020) focused more on the advantages of students working on their recording skills, including playing with a click track.

While some of the music literacy skills such as blend, tone, dynamics, intonation, were impossible to address in an online setting, other aspects of musicianship were easier to tackle in an online setting. For example, Bruin's (2021) study revealed, among other things, that teachers were able to work on aspects of music that they had no time for in a face-to-face setting. One of the participants in Bruin's study shared that they were able to concentrate on exploring a piece in more detail, which led to fruitful discussions, while the time would typically be spent working on the technical aspects of the piece. Teachers were able to combine freedom with flexible structures which noticeably improved the learning environment (de Bruin, 2021). Biasutti (2018) addressed technological challenges related to online synchronous activities – in particular, delay and audio quality.

The method of developing music literacy skills using videoconferencing tools online has been very popular among those teachers who have been using YouTube ever since it first launched in 2005. YouTube has been used as an education tool for online, offline, and hybrid musical instruction. In one study, YouTube was shown to help teach children music literary skills, such as rhythm or melody, as well as a medium for social interaction (Veblen et al., 2018). In another study, the authors analyzed how YouTube helped include nontraditional musical material in the curriculum, as an important repository of hip hop beat production instructional material (A. J. Kruse & Hill, 2019).

In a holistic multiple case study, Daugvilaite (2021) examined the changes in students' learning when transitioning from face-to-face to online instrumental lessons. While most of the students became more independent learners in online environment, both the students and the parents reported that the lessons would have been more beneficial if they were conducted in person, and that the absence of nonverbal communication and scaffolding has affected the students' levels of engagement and motivation. When students were enabled by social connectedness to teachers in their activities, increased motivation, well-being, and learning were observed (Daugvilaite, 2021).

Online ensemble rehearsals during COVID-19 often meant that participants had to learn their music independently, hence developing their independent skills. Haning (2020) conducted a project with a beginning high school choir in which he asked his students to independently choose and learn one piece of repertoire from a given list by their instructor to be performed at the final concert. The study concluded that students are

capable of independently learning and performing pieces of music when given an opportunity (Haning, 2020).

In their study, Karkina et al. (2022) focused on the new method developed for practicing ensembles online during the COVID-19 shutdown. First tested at Kazan Federal University in Russian Federation, this experimental work showed a high degree of success, including improved individual student scores. While studies that came before the COVID-19 pandemic focused on the performance aspects of music ensembles, even when digital tools were involved, this new method focused on a new type of student-teacher interaction, called e-tivity (Karkina et al., 2022). E-tivity includes the use of several online tools, such as Aiseesoft Video Converter Ultimate, which creates a video with a split-screen effect. For the study, 114 students from both instrumental and vocal ensembles first created their videos separately, following teacher's instructions, and then put them together in one video with a split-screen effect. While the results of the study demonstrated that the online musical ensemble training was weaker than the face-to-face approach, mostly because of interactions between the students and teachers, there were benefits found in the possibilities that the online activities offered. Specifically, it was suggested that future music teacher training should include digitalization and social networking.

With more digitalization came more student independence, making student self-directed learning a hot topic of conversation after the COVID-19 shutdown (Schatt, 2021). Some studies have focused on demonstrating the need for students to use self-directed approaches and to take ownership of their learning in online ensembles, as well

as to learn at the pace that worked best for their personal needs. For example, in her qualitative study, Mok (2020) used semistructured individual interviews to examine how 15 amateur adult choir members from Hong Kong used self-directed informal learning strategies to learn their concert repertoires. The author concluded that choristers used several approaches, including the most important one--aural strategies. They either followed others or listened to a recording several times, using technology or a keyboard. Several choristers marked the score with sol-fa names or sight reading, and as a result, were able to succeed in their task of reading (Mok, 2020).

In conclusion, there is a gap in literature related to music literacy in secondary online ensemble rehearsals. Because people spent more time in music-related activities during COVID-19 lockdown than they had before the pandemic (Ferreri et al., 2021), it could be assumed that the lockdown has positively affected students' individual musical growth. However, the question remains as to how much emphasis was placed on teaching music literacy skills during the large ensembles' online instruction, considering that teachers were under pressure of producing virtual recordings. While there are numerous studies related to synchronous music education, most of these studies are related to general music courses and only a few of them relate to secondary level. Further research is needed to determine best practices in development of music literacy skills in secondary online ensembles.

Building Virtual Communities in Ensemble Rehearsals

Music ensembles are communities of performers who share the same passion for music and who practice together to improve their skills. In choir, the process of learning

happens within the community of singers, and in band or orchestra, it takes place within the community of musicians. The members of this community learn from one another and work together as a group, exemplifying community of practice (CoP) in which groups of people "share a concern of a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2011, p. 1). The learning experiences in music ensembles are collaborative in their nature, and the inclusion of different genres and styles, including jazz and modern techniques, in addition to the more traditional repertoire, enrich the learning and the level of musicianship in students (Wenger, 2011). Learning is a social phenomenon because the individuals in the communities of practice learn through interacting with each other and learn through social participation (Wenger, 2011).

One of the significant challenges that COVID-19 created was isolation. Large ensemble classes have always provided students with a safe space where they were free to interact with their own emotions, as well as connect with their classmates and their communities at large (Brennan, 2018; Cumberledge, 2017; Kumara, 2020; M. D. Martin, 1999; McNickle & Morris, 2022; Moder, 2018). With the COVID-19 school closings, students found themselves locked in their rooms without an opportunity to perform live together. A common experience across the globe, this phenomenon inspired numerous researchers to explore it further. For example, Liu (2021b) discussed the necessity of applying strategies that would support students as they return to school after the lockdown. Teachers should continue involving their students in creating engaging learning experiences so that students feel supported and valued. The student-teacher and

student-peer relationships became the center of creating supportive learning environment for students (C.-W. Liu, 2021a). Gautam and Sharma (2020) explored how COVID-19 affected the humanity and how big of an impact it had on people's lifestyle, daily routine, businesses, education, and more. The subject of the study was the Indian academic fraternity which has been badly affected by this pandemic. Authors have raised a concern that as a result of the pandemic, there may be consequences, such as different types of psychological disorders among teachers and students (Gautam & Sharma, 2020).

Cumberledge (2021) studied how college band students perceived community during COVID-19. Surveys indicated that while band students placed a high value on social interaction during normal school year, they did not feel the same level of support when rehearsing virtually. Similarly, Francese's et al. (2021) study aimed to understand how technology could help enhance virtual choir students' experiences. The results revealed that students were engaged in three types of interactions: asynchronous audio/Video muti tracking recording, synchronous teleconferencing, and social gaming. Though the technology helped keep the connections and build community, this experience was not the same as real synchronous interaction (Francese et al., 2021). In contrast, French's study (2019) conducted prior to the COVID-19 pandemic concluded that virtual choirs are creative outlets that can be beneficial to those students who suffer from isolation.

In their naturalistic pilot within-subject study, Grebosz-Haring et al. (2022) compared the psychobiological effects of in-person choral singing for a period of seven weeks before the COVID-19 outbreak with the effects of virtual choral singing for seven

weeks after school partly reopened. The subjects were five students between the ages of 10-13 in Salzburg, Austria. The results of the study concluded that both virtual and in-person singing showed an improvement in students' psychological state, and group singing has shown to be beneficial for children and adolescents. However, the in-person singing had a stronger positive psychobiological effect than virtual singing.

For example, Martinec (2020) interviewed nine choral music educators from Canada, in an effort to determine, among other things, what they thought of making connections with their singers during the time of rehearsing in isolation. The conductors included elementary, secondary music teachers, as well as community choral directors and university educators. The important rehearsal details that contribute to the experience of performing together and to the quality performance, such as intonation, blend, vocal technique, balance, phrasing, focused sound, and much more, became impossible in online setting (Martinec, 2020). Some of the musical issues that online rehearsals could not address that were mentioned by the participating choral directors, for example, were fine tuning, vowel shapes, matching certain intervals, dynamics, phrasing, and more. Overall, choral directors shared that the experience of rehearsing online was not an "uplifting" experience and "the joy and shared experiences were lost" (Martinec, 2020, p. 43).

Despite the demonstrated benefits of online singing, the in-person singing had a stronger positive psychobiological effect than virtual singing. In their mixed-methods study, Levstek et al. (2021) examined 13 virtual music groups in the UK to learn more about the psychological experiences of children and young people who have participated

in virtual group music-making during the COVID-19 pandemic. The groups included both mainstream ensembles as well some inclusive ensembles which targeted students with disabilities as well as those from lower socio-economic backgrounds. Combining the results from both the online observations of 12 staff members and the 240 qualitative and 96 quantitative survey results, authors concluded that the online context limits the interpersonal experiences leading to a sense of loss of social connections due to the lack of socializing opportunities and joint music-making (Levstek et al., 2021).

Notwithstanding the challenges, many authors acknowledged some of the benefits of online ensemble rehearsals. For example, new communities were formed, and teachers were forced to find new creative options to support their students in their studies as well as their social-emotional needs (Martinec, 2020). Online rehearsals brought new self-directed practices that helped students with their anxiety and stress. For example, during the first months of COVID-19 school closures, Koner et al. (2021) conducted a study to explore the effects of mindfulness practices on high school band students. Along with their instrumental music director, four students practiced mindfulness during their virtual rehearsals. The results of the study showed improved focus and improved stress management, among other benefits. More importantly, three of the four student participants continued to practice mindfulness techniques on their own even after the data collection were complete, which helped students with their anxiety and stress. This study supports the findings from a similar earlier study by Langer (2009) and Czajkowski (2022), both advocating for the inclusion of mindfulness and concentration techniques in large ensemble rehearsals.

Acknowledging that many musical elements were lost, conductors still believed that online rehearsals were important because they gave them a sense of connection and helped to lessen the feelings of loneliness. For some ensemble members, this was helpful for their mental health (Martinec, 2020). The most challenging aspect of conducting online rehearsals was the inability to have all musicians perform at once. Working on balance, blend, dynamics, and other important musical aspects became impossible (Martinec, 2020).

While various aspects of online music communities have been explored in music education studies, research related to online music ensemble communities is limited. This is largely due to the fact that online music ensemble courses such as choir, band, or orchestra, have been practically non-existent prior to the COVID-19 pandemic, and even then, the online learning was considered to be mostly an emergency measure (Hodges et al., 2020). There is a considerable difference between online education and emergency remote teaching as a result of school closures during COVID-19 (Hodges et al., 2020; Shohel et al., 2022). In online education, teachers utilize the technological tools to enhance their instruction (Crawford, 2017), while in emergency remote teaching, teachers are forced to reinvent their instructional approaches within a short period of time and without previous preparation. Even though the switch to online education demonstrated music teachers' ability to adapt and continue teaching (Biasutti et al., 2021), teachers were limited in their ability the online music education heavily depends on digital technology (Calderón-Garrido & Gustems-Carnicer, 2021). This is particularly true in the

case of choir, band, or orchestra because of the sound lag issues in video platforms used for online rehearsals and courses.

Teacher presence and teaching styles play a big role in building community and in helping students improve their well-being. To demonstrate, Bonneville-Roussy et al. (2020) conducted a mixed study in which 190 students and 35 music performance teachers from higher music education institutions in UK completed questionnaires to examine how music performance teachers' teaching styles influence their students' well-being. The results indicated that when teachers provided autonomy to their students, the well-being of students has increased. Additionally, it was concluded that the transmission of passion toward music and the opportunity for students to choose their own repertoire support students' well-being. The findings of this study can be beneficial for secondary music ensembles, and in an online environment, this study supports the previous research which values student independence that improves student well-being.

Though most of the students became more independent learners in online environment, some studies showed that in-person studies were still more beneficial. For example, in a holistic multiple-case Daugvilaite (2021) examined the changes in students' learning when transitioning from face-to-face to online instrumental lessons. Acknowledging the benefits of online learning such as improved independence, both the students and the parents reported that the lessons would have been more beneficial if they were conducted in-person, and that the absence of non-verbal communication and scaffolding has affected the students' levels of engagement and motivation. When

students were enabled by social connectedness to teachers in their activities, increased motivation, well-being, and learning were observed (Daugvilaite, 2021).

Numerous authors conducted studies to examine psychological effects of the pandemic on young people and the role that music or online music classes played in coping with stress and isolation. For example, Levsteck et al. (2021) conducted a mixed-methods study to examine the psychological experiences of children and young people in 13 virtual music groups in the UK during the COVID-19 pandemic. Findings indicated that virtual group music-making activities helped young people preserve their social connections and helped them with their self-expression and emotion management, among other things. To a certain degree, these virtual groups helped young people restore their sense of belongingness (Levstek et al., 2021).

Similarly, de Bruin (2021) conducted a qualitative study investigating the secondary instrumental teachers' practices in an online setting and the ways to promote supportive online communities in online music classes. Bruin conducted interviews with 15 instrumental music teachers across diverse school settings in Australia. The results of the study reinforced the importance of interpersonal connectedness through musical experiences and revealed various approaches to build connections between students and teachers to develop a supportive community and a healthy learning environment. One of the themes that emerged was the collaborative nature of online lessons that supported humanistic qualities and emphasized shared spaces, while helping develop mutual support and understanding between teachers and students. Another important finding was that in a synchronous online environment, teachers began trusting students more and

provided them with more support to make their own learning decisions. However, the most important aspect of the study, according to the author, involved the relationship development between the teacher and the student, which highlighted the importance of student-teacher interactions, indicating that the instrumental classroom fosters students' general and emotional engagement (de Bruin, 2021).

In conclusion, teachers found creative ways to build virtual communities that supported their students in their learning as well as their personal needs, focusing on their well-being. Music ensembles have always been strong, supportive communities for students, where they were valued and respected by their peers who shared the same talents and interests. Both teachers and students shared that even though in-person rehearsals and performances can never be replaced, the newly formed virtual communities helped them get through some of the most challenging times during the COVID-19 pandemic. While online ensemble rehearsals may become a thing of the past, it is most likely that the remote instruction will stay, so the research related to psychological effects of virtual communities stays relevant (Draper, 2021).

Summary and Conclusions

The research problem of my study was the lack of understanding how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble band, choir, and orchestra rehearsals. In Chapter 2, I conducted a literature review to determine the gap in the literature that identified the need for the current study. The existing body of research that I analyzed related to online music education topics ranging from the professional development for teachers (C. Johnson,

2017), digital tools and challenges in their implementation (Koutsoupidou, 2014), including new platforms such as e-tivity (Karkina et al., 2022), blended teaching (He, 2020), the use of YouTube instructional videos (N. Kruse & Veblen, 2012), student motivation (Fiock, 2020), and more (Martinec, 2020; Merrick, 2020; Mustofa et al., 2018; Norman, 2021; Park, 2021; Parkita, 2021; P. Pike, 2015; Shaheen, 2021; Cronenberg, 2020; Upitis et al., 2015; Waldron, 2009b). The majority of such studies referred to private instrumental lessons or college-level online courses (Bauer, 2020; J. Bowman, 2014; Burke, 2021; Dammers & LoPresti, 2020; Kim, 2021; King et al., 2019b; Koutsoupidou, 2014; J. Liu & Liang, 2021; Mustofa et al., 2018; Norman, 2021). The studies related to online ensemble education are limited, with a focus on technological and emotional challenges associated with producing virtual performances rather than teaching music literacy skills (Altena, 2020; Ang et al., 2022; Datta, 2020; French, 2019; Galvan & Clauhs, 2020; Grebosz-Haring et al., 2022; Martinec, 2020; van Gammeren & Szram, 2019).

Some research is related to the shift to online musical practice due to COVID-19 pandemic restrictions and how it has impacted music teaching and learning. For example, in their study, Rucsanda et al. (2021) concluded that fully online learning in large ensembles is not an option, and Gibson (2021) suggested that pedagogical approaches need to change because of the shift from an offline to online context. Other researchers have focused on the emotional aspects of teaching and learning online, and studied teacher-student relationship in an online music environment (de Bruin, 2021), specifically during private lessons offered via Skype (Brändström et al., 2012; Considine, 2020;

Dumlavwalla, 2017; C. Johnson & Merrick, 2020; N. Kruse et al., 2013; Pike & Shoemaker, 2013). Several articles assessed collaborative music making through distance learning (H. Riley et al., 2016) or the development of musical competency through participation in a laptop ensemble (Cheng, 2019). However, as this literature review revealed, researchers have not developed a complete picture of the experiences of music educators who teach music literacy through their band, choir, or orchestra rehearsals conducted online.

Even though several studies have examined online ensemble learning experiences, they mostly focused on the technological challenges of simultaneous music making (Galvan & Clauhs, 2020; Hash, 2021b; Paparo, 2021; Shaheen, 2021). Studies related to teaching literacy skills such as note reading, sight-reading or sight-singing, theory or history, as well aural skills in general, in online large ensemble rehearsals are extremely limited, and they mostly focused on technological challenges of online synchronous group music-making, with several authors offering suggestions on how to rehearse ensembles online (Goodman, 2020; Pulham, 2019) or produce virtual performances (Cayari, 2021). Additionally, most of these studies focused on teaching at a collegiate level rather than at a secondary level (Broomhead, 2021; Buonviri & Paney, 2020; Gordon, 2004; Pomerleau-Turcotte et al., 2022; Wilson, 2018).

Music literacy skills are an important foundation for students' music education. Some researchers have investigated the positive relationships between sight-singing performance in secondary schools and the level of performance in postsecondary years (Pomerleau-Turcotte et al., 2022), and others have examined how technology can help

improve instruction in courses such as music theory, composition, or music history (Biasutti, 2018). There were studies about the aural skills and the role of audiation in the development of literacy skills, but these audiation studies centered mostly around general music classes and not music ensembles (see dos Santos & dos Santos, 2021). While there were studies conducted about the advantages of teaching sight-singing and ear training using online platforms or mobile tools (Larasati & Sukmayadi, 2021), I found no studies related to teaching music literacy in secondary ensemble rehearsals conducted online. Because the future of education will most likely be impacted by interruptions caused by COVID-19 (Kaschub, 2020), it is important to understand the best approaches to developing music literacy skills online for better teacher professional development (Chrysostomou & Triantafyllaki, 2020) and to help better support ensemble students in their online learning (C. Johnson & Merrick, 2020; Rucsanda et al., 2021).

In this chapter, I demonstrated that music educators have developed online teaching skills in translational, transformational, and transcendent ways, referring to three levels of Magana's (2017) T3 framework. The shift from the traditional face-to-face music pedagogy to fully online music course offerings due to COVID-19 shutdown resulted in many challenges (Camlin & Lisboa, 2021) but has also opened opportunities to find creative ways to improve individual musicianship and develop student creativity (Hash, 2021b; Joseph & Lennox, 2021). The literature review revealed that more research is needed about secondary educator experiences developing music literacy skills and virtual communities through the online large ensemble rehearsals, to establish best instructional practices in online music education, to engage in meaningful conversations

about the future of online ensemble rehearsals, and to advocate for building better online communities to bring about positive social change. Through my research, I examined the gap in the literature that exists at the intersection of the online learning experience and the use of technology to develop music literacy skills (cognitive presence) and to build online communities (social presence), while highlighting teaching presence as the glue that helps all the other elements of the complex learning experience function in harmony.

Chapter 3: Research Method

Introduction

The purpose of this qualitative study was to explore how secondary ensemble teachers develop music literacy skills and virtual communities through online band, choir, and orchestra rehearsals. To fulfill this purpose, I explored ensemble music teachers' experiences on what instructional practices they used for developing music literacy skills and virtual communities through the online secondary rehearsals. By examining the experiences of educators who have taught large ensembles online, I hope to contribute knowledge to the gap in the music education field of literacy skills in secondary large ensembles, building online communities and virtual ensembles.

This chapter includes research design and rationale for employing a basic qualitative approach to explore how ensemble teachers develop music literacy skills and virtual communities through the online secondary ensemble rehearsals. Additionally, this chapter provides details about participant selection logic and procedures for recruitment, data collection and data analysis procedures. I also discuss my role as the researcher and share how the reflective journal questions are aligned with the RQs for this study. This chapter concludes with a section on how I address issues of trustworthiness and ethical procedures for my study.

Research Design and Rationale

The following two RQs were addressed:

RQ1: How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals?

RQ2: How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals?

The RQs in this study involved descriptions of experiences that I examined using the CoI conceptual framework, which includes three independent elements: social, cognitive, and teaching presences (see Garrison, 2016). Additionally, I examined the use of educational technology in online rehearsals using the T3 framework (see Magana, 2018).

For this study, I chose a basic, also known as a general or generic, qualitative design instead of quantitative or mixed methods study. Quantitative and mixed method approaches require numerical answers. This approach would not have helped answer my RQs because I was not seeking to focus on statistics or relationships between variables. Likewise, mixed methods, "the third research paradigm in educational research" (R. B. Johnson & Onwuegbuzie, 2004, p. 14), did not fit my study because it includes quantitative components (see G. Burkholder et al., 2016). On the contrary, qualitative data analysis is multifaceted and iterative at the same time (Patton, 2015). Qualitative research is used to understand certain scenarios, people, and moments, which is different from quantitative research that focuses on discovering averages and how intentional changes affect specific outcomes (G. Burkholder et al., 2016). My goal was to identify and describe the problem, something that is done through qualitative studies, while gaining awareness of the described problem (see Creswell & Poth, 2018). Qualitative researchers pursue understanding of the ways that people see and experience the world,

"trying to make meaning of their experiences as well as specific phenomena within it" (Ravitch & Carl, 2021, p. 7).

There are many different approaches to qualitative research (Denzin & Lincoln, 2011). Ravitch and Carl (2021) listed 10 qualitative approaches but focus on general qualitative research, noting that the "majority of qualitative research studies, in terms of approach, remain unnamed/unspecified and are referred to as 'general qualitative research'" (p. 19). The following definition of a generic qualitative inquiry by Percy et al. (2015) helped me understand further the appropriateness of basic qualitative approach for my study: "Generic qualitative inquiry investigates people's reports of their subjective opinions, attitudes, beliefs, or reflections on their experiences, of things in the outer world" (p. 78). This definition assumes the investigation of subjective opinions of participants while focusing on the external research (D. Kennedy, 2016), something that was applicable to my study.

One of the methodology approaches I considered was the qualitative Delphi method (see Brady, 2015; Fletcher & Marchildon, 2014). In a qualitative Delphi method, the researcher combines expert opinion to solve a problem generating new knowledge (Cole et al., 2013). The Delphi approach seemed applicable for my study because the RQ appeared to be best answered by seeking expert opinions. I considered collecting online questionnaires that would consist of three rounds with a goal of reaching a consensus from the experts (see Brady, 2015). However, after giving it a considerable thought and consulting with both my dissertation chair and my methodologist, it became clear that it would be challenging to classify the participants as experts in online ensemble teaching

since this phenomenon is very recent. For this reason, I did not choose the qualitative Delphi approach for this study.

Additionally, I considered different types of qualitative research approaches that use the qualitative framework, such as case study, narrative study, grounded theory, or phenomenology. Case study research examines one specific educational setting and uses methods that employ a variety of data sources, which can include documents, artifacts, interviews, or observations (Creswell & Poth, 2018; Patton, 2015; Yin, 2017). While conducting such comprehensive research would have been fascinating, I decided not to pursue this approach at this time because of the possible complications such as copyright laws, for example, related to obtaining student rehearsal videos or recordings. Because I did not have a goal of developing a new educational theory with my research, I eliminated grounded theory approach (see Creswell & Poth, 2018; Patton, 2015; Percy et al., 2015; Ravitch & Carl, 2021). A narrative research lens would not have helped answer my RQs in depth because narrative researchers describe individuals' storied lives and focus on their experiences (see Connelly & Clandinin, 1990), typically focusing on one or two individuals (Creswell & Poth, 2018), while I was interested in exploring experiences from a bigger group of educators. In addition, a narrative approach often requires deep immersion in the field of study for a considerable period of time (Moen, 2006), which would present challenges for participants because of their work and family commitments.

Rejecting a phenomenological approach was probably more difficult because this approach is the closest to the basic qualitative approach. Both approaches investigate

attitudes, beliefs, opinions, or feelings. Data collection in both approaches typically involves interviews; however, while phenomenology often includes open-ended conversational interviews, basic qualitative approach requires semi or fully structured interviews, among other things (Percy et al., 2015). One of the characteristics of phenomenology is the researcher's interest in the psychological, inner qualities of the experience, and not in the experience itself (Percy et al., 2015). On the contrary, my interest was in opinions, experiences, and reflections of the participants, their external and real-world experiences, rather than the processing of these experiences by the participants (see S. B. Merriam & Grenier, 2019). A basic qualitative approach allows for researchers to understand how individuals interpret their experiences providing a mechanism to gain insight into their experiences (McLeod, 2001; S. B. Merriam, 1998). Additionally, this approach is recommended when there exists prior knowledge about the topic but there are a lot of unknown components (Percy et al., 2015).

Patton (2015) emphasized the importance of high quality data collection methods in any of the 16 different approaches to qualitative research that he listed. For my data collection, semistructured interviews were the main method of data collection. Unlike ordinary conversations, interviews are focused on RQs because the goal of the interviews is to answer the RQs, so the researchers strive to pursue the RQs in depth to accomplish that goal (Rubin & Rubin, 2012). The basic qualitative approach allowed me to align my interview questions to my study's RQs and conceptual framework without the need to frame the study within an explicit tradition (see Patton, 2015). My goal as a researcher was to interview skillfully rather than to simply ask questions (see Ravitch & Carl, 2021)

and collect rich data that would allow me to draw conclusions to answer my RQs in depth. In conclusion, I rejected other qualitative approaches and resolved that the basic qualitative study, also known as generic qualitative research (see Caelli et al., 2003; Kahlke, 2014; Percy et al., 2015) was the best approach that would allow me to answer my RQs.

Role of the Researcher

For this qualitative study, I served as the primary investigator. This role involved interviewing study participants from my professional learning network who were selected because they met the inclusion criteria. Qualitative studies do not provide a clear separation between a researcher and study participants. In my role as a sole researcher, I conducted one-on-one interviews, transcribed data, used thematic analysis to search for patterns and themes within participants' responses, and produced a description of their experiences. Hence, my role was complex as it involved being a mediator between the experiences of the participants and the community (see Wood & Bloor, 2006). Because researchers act as the data collection instruments, they shape the collection and data analysis process (Patton, 2015) and must continuously reflect on their relationship to participants and data collected to be sure that objectivity requirement is met (G. Burkholder et al., 2016). I continuously kept in mind that there could be bias or positionality, which had to be avoided (see Ravitch & Carl, 2021), especially because the participants were recruited from my professional network and I may have had affiliations with some of the institutions used in the study.

Another role I had as a researcher and interviewer was to provide my participants with a safe and confidential environment. I made sure to address the needs of my participants and protect their confidentiality while being honest and authentic in my communication with them. Because I previously taught choir in a fully online setting, it was important for me to separate my own teaching experiences from those I collected from my participants. To help reduce bias and keep the validity and credibility of my study intact, I made sure to recruit participants who taught band, choir, or orchestra courses in diverse districts from various parts of the country, with different resources and support systems available to participants and their students. Recruiting participants using my national network ensured that this goal is met.

As a qualitative researcher, I maintained transparency and reflexivity during the duration of the study, including the process of collecting, analyzing, and presenting data. I kept the interview recordings to ensure that data were transparent (see Rubin & Rubin, 2012). I kept postinterview reflections in my reflective journals, to note the feelings of my participants and my own reflections and observations during the interviews, as well as interpretations and comments that occurred during the interview. Keeping my expressions, body language, and tone of voice neutral during the interviews helped making my participants feel comfortable and not influenced by me. My reflective journals helped me in creating transparency as well as exploring the impact of self-reflection in my research process (see Ortlipp, 2008). I systematically reviewed my notes for coding, categorize, prepare analytic memos, conduct discussions, provide feedback, and more (see Saldaña, 2016). I made no assumptions about the outcome of this research

and made sure that I was hearing the voice of my participants clearly and without making any assumptions (see Rubin & Rubin, 2012). I examined my biases, and, if needed, made adjustments for my research to have trustworthiness. As a music educator, this research topic is very important to me; however, my role as researcher did not conflict with my position because I did not recruit any teachers from my district.

Methodology

In the following section, I explain the methodology of my study. First, I describe the participant selection methods and my sampling strategies. Then, I provide details on my recruitment and consent procedures. Finally, I outline the interview protocol, data collection procedures, and data analysis procedures in my study.

Participant Selection Logic

My target group of interest were teachers of band, choir, and orchestra. I chose purposive sampling strategy to deliberately select participants who were knowledgeable about the topic of study and also had specific experience with it (see Ravitch & Carl, 2021). A purposive sampling strategy helps increase trustworthiness and transferability of findings (Lincoln & Guba, 1985; Ravitch & Carl, 2021). Additionally, because I was looking to recruit participants who could provide rich information about the topic of my study, purposive sampling strategy was appropriate (see Patton, 2015). It is essential that participants have relevant experience with the phenomenon of interest and are also accessible to the researcher (Rubin & Rubin, 2012). My plan was to identify the potential participants by connecting with high school teachers in my professional network, including the members of NAfME, the National Network of State Teachers of the Year

(NNSTOY), or Fulbright Distinguished Teachers, who self-identified as having taught band, choir, or orchestra fully online.

My aim was to reach a sample size of no more than 12 teachers who met the inclusion criteria. The rationale for this number was based on research. In general, studies that involve in-depth qualitative interviews should consider number of interviews that are needed for data saturation and recruit the similar number of participants (Guest et al., 2006; Mason, 2010; Rubin & Rubin, 2012). For studies that use purposively sampled inquiry such as this one, data saturation generally can be reached with six to 12 interviews (Guest et al., 2006, 2020). In some studies, data saturation may be reached by conducting as little as six interviews, in which case more nuanced coding may be required (Guest et al., 2006). When no new information or no new themes arise from additional data collection in qualitative studies, data saturation is reached (Guest et al., 2006; Rubin & Rubin, 2012). Similarly, when ongoing interviews keep repeating previously identified themes without introducing any new information, the research has reached the data saturation point (Guest et al., 2006; Rubin & Rubin, 2012). At that point, conducting more interviews may delay research and prevent a conclusion to the study (Mason, 2010). Hence, after reviewing literature on sample size and data saturation, and consulting with my methodologist, I decided to recruit up to 12 participants for my study.

In my search for participants, I asked questions to find the qualified pool or participants who met the following inclusion criteria:

- A minimum of 5 years of high school ensemble teaching, which includes stage performance experience;

- A fully online high school ensemble teaching and virtual performance experience;
- A blended / hybrid ensemble teaching and virtual and/or blended performance experience.

I established these inclusion criteria so that the participants had experiences related to my RQs, as well as variety of perspectives (see Ravitch & Carl, 2021). Because my literature review revealed that the fully online instruction during the COVID-19 pandemic included courses such as band, choir, and orchestra, my inclusion criteria included teachers who taught any one of these ensembles. I reached out to teachers who were members of the above-mentioned organizations by sharing information about my study through individual emails first, with a social media follow up on sites such as Facebook, Twitter, LinkedIn, if needed. Participants who self-identified that they met the criteria receive the invitation to participate in the study. Those participants who did not meet the selection criteria were excluded from the study. I created a protocol, which included the invitation, informed consent based on the verbatim document from the Walden IRB, and a closing statement.

Instrumentation

For this study, my goal was to obtain rich data that utilities investigational perspective. Although there are various forms of interview designs that can help achieve this goal (Creswell & Poth, 2018; S. B. Merriam & Tisdell, 2015), I conducted in-depth semistructured interviews with an interview guide, which is an appropriate data collection method for generic qualitative studies (see Patton, 2015; Percy et al., 2015). The only

data collection instrument was an interview guide with interview protocol, interview procedures, and interview questions (see Turner, 2010). The organization of the interview guide that I used was based on research that Castillo-Montoya (2016) and Jacob and Furgerson (2012) presented in relation to conducting effective interviews for qualitative research. I used the four-phase process of the interview protocol refinement (IPR) framework: ensuring the alignment of interview questions with RQs, constructing an inquiry-based conversation, receiving feedback on interview protocols, and piloting the interview protocol (see Castillo-Montoya, 2016).

During the first phase of developing my interview protocol, I worked on designing my interview questions and turned to research to ensure that my interview questions were not simply "logically derived" from my RQs, but were rather contributing "to answering these questions" (see Maxwell, 2009, p. 236). During the second phase of IPR, I developed interview questions that promote inquiry-based conversation rather than simply answering the questions, making sure the interview questions were different from RQs. Beginning with less controversial questions that used neutral phrasing to help build rapport with interviewees (see Castillo-Montoya, 2016), I followed the advice of expert qualitative researchers to design follow-up questions that are based on main questions (see Castillo-Montoya, 2016; Maxwell, 2009; Patton, 2015; Percy et al., 2015; Rubin & Rubin, 2012). Keeping in mind that the purpose of my interviews was to collect further information relative to my study, I made sure the wording of my main questions was relevant to the RQs and was consistent. In designing my prompt questions, I used the main questions as my guide to ensure alignment and consistency. Following the

recommendations of researchers (see Castillo-Montoya, 2016; Rubin & Rubin, 2012), I created a matrix that reveals the relationship between interview questions and the RQs. Table 1 is an alignment of the six interview questions to the RQs.

Table 1

Interview Questions Aligned to Research Questions

Interview questions	RQ1: How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals?	RQ2: How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals?
IQ1: What strategies and technological resources have you used to teach your performing ensemble class(es) online during the COVID-19 school shutdown?	X	
IQ2: To what extend were you able to develop music literacy skills in your online ensemble classes, and what specific skills were involved?	X	
IQ3: How would you compare teaching music literacy skills in online ensemble classes to teaching music literacy skills in a face-to-face setting?	X	
IQ4: How did your experience change in terms of building and maintaining the sense of community among your students when you had to move fully online?		X
IQ5: What are some of the strategies that you developed to make your students continue to feel connected and cared for, while teaching your ensembles online?		X
IQ6: What have you learned about your students and their ensemble learning experiences during the online teaching?		X

Note. IQ = interview question; RQ = research question

I aligned my open-ended questions to my conceptual framework, as researchers have recommended (see Castillo-Montoya, 2016; Maxwell, 2009; Patton, 2015; Ravitch & Carl, 2021; Rubin & Rubin, 2012) to ensure the content and rigor of the investigational perspective and to gain a more in-depth and strategic approach to designing my interview questions. The following key ideas from my conceptual framework and my RQs guided me in designing my interview questions: understanding the extent of cognitive, social, and teacher presence in online learning, understanding the role of technology, and uncovering some of the approaches to teaching literacy skills online. Table 2 shows the relationship between the RQs, interview questions, and conceptual framework.

Table 2

Alignment of Questions With the Conceptual Framework

RQ	Interview questions	Relationship to conceptual framework
RQ1*:* How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals?	1 2 3	Cognitive presence: the content, relevancy, and critical thinking that occurs within an online learning environment and is vital to critical thinking as it focuses on thinking and applying concepts, leading learners to explore higher order thinking. Teacher presence: the binding element in creating a CoI. The T3 Framework: an evidence-based model which increments technology usage in schools into three distinct domains: T1: Translational, T2: Transformational, and T3: Transcendent.
RQ2*:* How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals?	4 5 6	Social presence: the ability of the participants to project themselves socially and emotionally through the medium of communication used. Teacher presence: the binding element in creating a CoI. The T3 Framework: an evidence-based model which increments technology usage in schools into three distinct domains: T1: Translational, T2: Transformational, and T3: Transcendent.

During the third phase of the IPR framework, I received feedback on interview protocols from two of my educator colleagues who were not part of my study and whose data was not included in the final analysis to enhance the reliability and trustworthiness of my research instrument (see Castillo-Montoya, 2016). My goal was to ensure that my interview questions were clear and close to what my intentions were (see Patton, 2015).

Following Castillo-Montoya's (2016) suggestion, I asked my colleagues to read the questions and share their thoughts, including clarifying questions, in the same document. Specifically, I created a feedback survey which was based on Castillo-Montoya's (2016) questions from the *Activity Checklist for Close Reading of Interview Protocol* (p. 825) and shared with my two colleagues to gain their feedback. Questions were divided into three sections and asked about protocol structure, the writing style and grammar, whether all questions were needed, and whether the questions were open-ended and concise. Responders answered yes or no, depending on the presence of the item in the interview protocol, and had an opportunity to share feedback for each of the items that can be improved. My colleagues' feedback was valuable; based on some of the comments, I reworded one of the questions to add more clarification to it and shortened another one to avoid ambiguity.

As a result, I was able to develop a strong interview protocol, which can be found in Appendix D. It includes the introductory script, background/introductory questions, interview questions with prompts to help obtain more focused and in-depth responses and closing script. The introductory script welcomes participants and explains the purpose of the study. The interview questions are open-ended. After several neutral questions, content-rich questions follow, inviting participants to engage in rich reflections of their practices and to explore their perspectives developing music literacy skills in online rehearsal settings. Such strong interview protocol helped in obtaining meaningful and focused data that fully captured the experiences of my participants. However, the

interview protocol is only a research instrument. As a qualitative researcher, I was the most important and useful research instrument (see Castillo-Montoya, 2016).

Procedures

In this section, I explain the procedures for my study. First, I explain procedures for online recruitment from numerous professional learning networks that I belong to. Then, I explain the procedures for participation. Finally, I provide all details about the data collection procedures.

Procedures for Recruitment

Upon receiving the Walden IRB approval, I began the recruitment process. Because my goal was to recruit a very specific pool of candidates who would fit my inclusion criteria, I tried to be very careful about the procedures for recruitment. Although online participant recruitment has eased the process for researchers (Saberi, 2020), it has also created certain challenges, as researchers are now facing an increased difficulty with recruiting qualified candidates. Additionally, there has been an increased difficultly with imposter participants. When research is conducted online, it becomes easier for participants to misrepresent their identity (Roehl & Harland, 2022). To avoid recruiting candidates who falsify information related to their qualifications and to recruit the necessary number of participants who fit my inclusion criteria, I used some suggestions from the experts (see Roehl & Harland, 2022) throughout the three phrases of my recruitment process, shared later.

For the first phase, I reached out to individuals I knew through my professional networks who fit the inclusion criteria and who could be interested in participating in my

study. I shared digital infographic I created and invited them to participate in the study. The infographic gave them more information such as an introduction to the study, call for participants for my research study, as well as the link to the Google survey. It was my hope that I would be able to recruit several participants during my first phase of recruitment.

For the second phase, I planned to ask individuals in my network who may also be gatekeepers, to share my digital infographic within their network, in an effort to recruit more qualified potential participants. Additionally, I applied to receive research survey assistance from NAfME, a program that allows for members to share information about their study with the members of their association for a fee, and I received approval on October 9, 2023. This allowed me to reach out to potential qualified participants nationwide. Additionally, I contacted my network of State Teachers of the Year, Fulbright Teachers, or NAfME members through email or private organization sites. After sending the initial contact email with the infographic attachment to the selected participants from my professional network, I narrowed the list of possible participants to the ones who fit my selection criteria. This helped prevent imposter participants, recruit candidates who fit the inclusion criteria, and ensure the trustworthiness of my research (see Roehl & Harland, 2022).

For the third phase of recruitment, I planned to contact private Facebook page moderators for Band/Choral/Orchestra Directors Group Facebook pages and ask their permission to post the infographic on their pages. This was going to ensure that the information was still shared with the members of music education organizations, a

selected group of educators who would fit my selection criteria. Finally, if the desired number of qualified participants was not reached, I planned to move to the fourth phase of my recruitment, posting the infographic on my personal social media accounts such as Facebook, Twitter, LinkedIn, and Instagram. I included Twitter/Instagram handles such as @NAfME, @NNSTOY, @NEA, @FulbrightTeach, as well as certain octothorpes, more commonly known as hashtags, with key words such as #musiceducation or #banddirectors, to reach a specific category of music educators from my professional network.

To ensure that my selected participants were not faking their identity, I asked them to provide their school email which served as proof of their employment, and if possible, a link to the school's website that included the participant's name (see Roehl & Harland, 2022), although I was able to easily find all of participants' information online. Care was taken there to make sure there were no ethical concerns, and that the participants' privacy was protected. For example, the letter of consent that I developed included the wording recommended by Roehl and Harland (2022) about the verification step.

Originally, I created a cascading Google survey, which asked several questions to determine participant eligibility and included the following: introduction and inclusion questionnaire, letter of consent, and demographic questionnaire. If the potential participant gave their consent to participate in the study, the Google form then would take them to the demographic questionnaire, which would ask participants' name, the levels they taught while online and in-person, type(s) of ensemble(s) they teach, for how long,

and some other questions regarding concert performance formats that the potential participants have conducted. However, I ended up not needing this form because I was able to verify all the necessary information about my participants' teaching courses, their schools and districts, and their main instrument. Reaching out to each potential participant directly helped me build trust with the potential participants.

I sent emails to those who were eligible and set up interviews. For those who did not fit the criteria, I sent an email to thank them for their willingness to participate. When I have recruited and interviewed 11 people, I reached saturation and made sure there were no more flyers or invitations to join the study. Participation was voluntary, and a $20 gift card from www.jwpepper.com was going to be provided to all participants who completed the interview process. However, because the gift card from J.W. Pepper came in increments of $25, I sent everyone a $25 gift card instead. Included in Appendix D is the full interview protocol.

Procedures for Participation

Concerning participation, I followed certain procedures to make sure my participants were comfortable with the interview process. Research has shown that building a relationship with participants helps collect richer data, and learning about participants is one way of building rapport (Ravitch & Carl, 2021; Rubin & Rubin, 2012). I was transparent about the interview process and the voluntary nature of the study from the start and was reachable to my participants to help build trust. The initial connection via email offered a quick way to share all the necessary information, including participant expectations. For both RQs, participants were asked to participate in one 45-60-minute

interview, which followed the interview protocol (see Appendix D). Although face-to-face interviews have been historically preferred (Hawkins, 2018), I conducted my interviews using the online Zoom platform. Virtual interviews on Zoom became a common qualitative methodology since the COVID-19 pandemic (Sharma & Sha, 2020). This method of data collection is inexpensive and allows to get a wide range of participants (Ravitch & Carl, 2021). Additionally, the option of transcribing and recording the Zoom interviews was convenient. If participants had preferred not to use the video tool, they could have kept their camera off, while I had mine on. Because I recruited participants from across the United States and territories, I made sure to include information about time zones.

Procedures for Data Collection

In relation to data collection, I conducted semistructured individual interviews using responsive interviewing techniques. The participants were high school ensemble (band, choir, or orchestra) teachers who had at least 5 years of teaching experience and an experience teaching in a fully online environment. I collected data through 45-60-minute interviews via Zoom and kept these on a password-protected computer as well as password-protected online accounts. I also used the Zoom audio recording function in case the first recording failed. Though I did not have any participants using their phones, I offered an option for those participants who would prefer using telephone interviews to use my laptop's audio recording tool, as well as my cell phone recording app. Immediately after each interview, I took notes on the interview and any information related to the process of interviewing, including participant reactions to questions or

follow-up prompts. I recorded these notes in my reflective journal, which contained my experiences during the process of conducting my study, my opinions and thoughts, notes on body language and silences during the interview, and helped in writing up the research (see Ortlipp, 2008). The reflective journal also included my immediate impressions following the interviews, though these could be corrected later, if necessary (see Halcomb & Davidson, 2006).

The next step in data collection procedures included creating verbatim transcripts, the most efficient way to capture interview data as they help analyze for patterns and themes (Halcomb & Davidson, 2006; Patton, 2015; Ravitch & Carl, 2021; Rubin & Rubin, 2012). I used Kaltura software to transcribe each interview to obtain a verbatim transcript. After putting the transcript into a Word file, I removed any personal information, including participants' names and work locations, and used pseudonyms to ensure confidentiality. I made sure to listen to the audio recordings several times and edit each transcription, also referring to my reflective journal notes to ensure that the transcripts were accurate. I completed my transcriptions promptly, after each interview, and before my next interview.

Participation also included member checking. One element of member checking involved a participant reading through the summary of their transcripts obtained after the interview to check for accuracy of ideas and representation (Lincoln & Guba, 1985). After the interview and coding, which was my interpretation of the interview, I sent a 2–3-page summary of the interview for participants to view for accuracy and to do a member checking, as suggested by Carlson (2010). This was an important step in

ensuring the analyzed data were confirmed by the participant as an accurate interpretation. Including quotes from the interview helped share authentic voices of the participants. Participants were given time to respond if they found any issues or discrepancies with their interview. Ensuring that participants were actively involved in the research process helped demonstrate a level of respect to my participants' expertise (see Jacob & Furgerson, 2012). This debriefing process gave more credibility to my study (see Shenton, 2004; Tracy, 2010). This information was included in the consent form so that the participants were aware of the expected time commitment. I asked them to review and return with any misinterpretations I may have made in how I captured their thoughts and experiences. Member checking would take the participants approximately 15-20 minutes.

Member checking is a technique used to ensure validity in qualitative research, to make sure the participants' ideas are captured correctly. It also ensures trustworthiness, which allows to conclude that the study was performed with rigor (Chase, 2017). However, it is important to know about possible challenges associated with member checking. Carlson (2010) examined additional ways for increasing trustworthiness to avoid "traps" in member checking and suggested using five vignettes. After reflecting on her first experiences as a researcher, Carlson learned that providing participants with more detailed instructions on how to conduct member checking would have been beneficial. These include predetermined choices for member checking procedures such as the extent of transcription or summary needed, preciseness of language needed, the desired outcomes of member checking, and informing participants how their narrative

will be used in the published version of the study (Carlson, 2010). In my study, I followed these suggestions to avoid any problems related to member checking and to keep a healthy relationship with the participants.

To summarize, the audio recordings and interview transcripts, reflective journals with my notes, and participant validation strategies were a part of my data collection and confirmation procedures.

Data Analysis Plan

For this basic qualitative study, my data analysis plan was a part of design (see Coffey & Atkinson, 1996) rather than something that was conceptually separated from design (see Maxwell, 2009). Hence, the approaches to the data analysis both influenced and would be influenced by the rest of the design (see Maxwell, 2009). With this in mind, I obtained data through completing interviews and reflective journals and conducted data analysis by using Patton's (2015) and Saldaña's (2016) approach. In qualitative research that involves in-depth interviews, the most fitting plan for data analysis is coding interview transcripts (Patton, 2015; Rubin & Rubin, 2012; Yin, 2017). I manually coded my data. Even though completely automated methods of coding are not yet sufficient for comprehensive qualitative data analysis (Grimmer & Stewart, 2013; Nelson et al., 2021), I also used Dedoose, a qualitative data management program, to assist me in the coding process. One of the approaches to coding is identifying, sorting, weighing, and integrating coded data to generalize findings (Rubin & Rubin, 2012). Another approach suggests compiling, disassembling, reassembling, and interpreting codes prior to forming conclusion (Yin, 2017).

For the first step, I compiled and organized raw data that included verbatim transcription of recorded interviews (see Rubin & Rubin, 2012). I uploaded the audio recordings to Kaltura captioning software which generated transcripts (see Yin, 2017). Then, I carefully compared the audio recordings with the transcripts and filled in any data gaps to ensure accuracy. Throughout this process, I also referred to my notes to make sure that each transcript reflected any expressed emotions and body language that may not have been captured. I followed the procedures of iterative coding thoroughly to reduce a fixed mindset and to allow the understanding of the emerging themes (see Patton, 2015; Percy et al., 2015; Ravitch & Carl, 2021).

Next, I conducted a basic hand-coding of the data. During this step, rather than using a priori (see Crabtree & Miller, 1992), or preestablished, coding (see Saldaña, 2016), I reviewed the verbatim transcripts using open coding, also called inductive coding (Maxwell, 2009) or initial coding (Saldaña, 2016). Initial coding is an "open-ended approach" that allows the researcher to take ownership of the contents and "nuances" of data (Saldaña, 2016, p. 115), and the researcher does not need to organize data into already established categories (Patton, 2015; Percy et al., 2015; Ravitch & Carl, 2021; Rubin & Rubin, 2012). Following this inductive analysis, Level 1 coding allowed the codes to come out of the data. I kept an open mind to make sure not to miss new patterns and themes that emerged. I uploaded all data into Microsoft Word software and began identifying, coding, and analyzing concepts and themes. While following the procedures for iterative coding, I used tables for coding interviews, as described by LaPelle (2004): the table columns will delineate emerging codes, and I used Word's

sorting function to organize the codes and create a codebook to improve my study's credibility (see Patton, 2015; Rubin & Rubin, 2012; J. Smith & Firth, 2011). The codebook followed the guidelines provided by DeCuir-Gunby et al. (2011), including the following components: (a) code names; (b) detailed code descriptions, which included key words, synonyms, inclusion and exclusion criteria; and (c) brief data example for reference. Once the patterns, themes, and recurring content were identified (see Patton, 2015), I used the functions of Microsoft Word to utilize graphical presentation features and support my visualization and interpretation of the data (see Saldaña, 2016). In this process, I began seeing broad themes that would be reflected in examples. While being open to discovering emerging codes and themes, I continuously referred to the RQs and conceptual framework to make sure any additional concepts and themes were reflected and were aligned with the RQs.

During Level 2 coding for inductive analysis, I categorized emergent codes into predetermined *a priori* categories, or "buckets" (predetermined or emerged from data) that aligned with my framework and themes highlighted by my literature review. I continued the data collection and analysis process as needed, until there were no new emerging themes or patterns in the participant responses in each category or question, and I achieved data saturation.

Those emergent codes that do not fit into any clean "buckets" are the so-called discrepant data, or outliers. It is important to identify this discrepant data because these outliers are our "teachers": they challenge researcher's preconceived notions as well as the developed themes (Ravitch & Carl, 2021). Deciding how to treat these discrepant data

that does not fit into the "current understanding of the data" (Ravitch & Carl, 2021, p. 285) is part of the data analysis plan. Thick descriptions from outlier participants are important in keeping the study reliable, so my plan for dealing with discrepant data was to include analyzing and reporting it to strengthen the validity of my findings and to increase the reliability of my study.

Issues of Trustworthiness

Trustworthiness brings credibility, transferability, dependability, and confirmability to qualitative research and is one of the essential elements of any study. To achieve trustworthiness, researcher must use rigorous methodology (Lincoln & Guba, 1985; Patton, 2015; Ravitch & Carl, 2021). While quantitative researchers consider the reliability, objectivity, and validity (Anney, 2014), qualitative researchers ensure the rigor of qualitative findings by taking into consideration all four dimensions of trustworthiness: credibility (strategies such as triangulation, member checks, saturation), transferability (strategies such as thick descriptions), confirmability (strategies such as reflexivity), and dependability (strategies such as audit trails and triangulation). See Guba (1981)and Schwandt et al. (2007) for more information.

I implemented rigorous methodology to ensure my study was trustworthy. I employed the use of transcripts, reflexive notes, and analytic memos. I also developed guidelines and prompts to increase my reflexivity and the level of detail in my journal entries, to bring awareness to my own responses to the data I collected and helped me avoid influencing my analysis and interpretation of data bias (see Orange, 2016).

My goal was to answer my RQs in depth, focusing on measuring what was expected of this study, ensuring that there was validity to my research. Keeping in mind the importance of precision, rigor, credibility, and transferability (Golafshani, 2015), I focused on details to generate understanding. I focused on valuing credibility, neutrality, or conformability, and stayed consistent with my research to ensure its quality. In the following paragraphs, I address each of the four components of trustworthiness and provide the specific guidelines that I followed so that my research is valid.

Credibility

Credibility is defined as truth, accuracy, and the believability of findings (Lincoln & Guba, 1986). Patton (2015) recommended that qualitative researchers use the following strategies to enhance credibility of qualitative research: deepen the analysis, reexamine initial findings, and continuously work back and forth between the findings and the data to validate findings against data. The researcher must have an ability to take into account all of the complexities that are present in a study and deal with patterns that are not always easily explained (Guba, 1981). Credibility is comparable to internal validity, and common methods to address this issue include triangulation, prolonged contact, member checks, and saturation. I followed Lincoln and Guba's (1986) clear guidelines to ensure rigor and credibility, so that my study has a true value. The first step in achieving this was to align RQs with the study design, data triangulation, and to make sure the procedures were followed carefully from data collection to analysis (see Houghton et al., 2013; Lincoln & Guba, 1985; Patton, 2015; Ravitch & Carl, 2021).

Research has suggested that clear procedures improve credibility (Bashir et al., 2008; Lincoln & Guba, 1985; Patton, 2015; Ravitch & Carl, 2021). In collecting data, I used an interview protocol that allowed me to structure each interview in the exact same way and included probing questions to allow for honesty. This approach was followed to ensure that the results were credible (see Patton, 2015). The interview protocol also included probing questions to allow for honesty (see Jacob & Furgerson, 2012; Turner, 2010). Working extensively with the collected data, I made sure to read the answers numerous times and review my notes, while revisiting my notes from reflective journals and checking my final thoughts. I made sure the emerging codes, categories, and themes were aligned. After each interview, I took immediate notes to reflect on participant's engagement, my level of communication, as well as any other thoughts on the interview, as another strategy to improve credibility of the study (see Anney, 2014). Each participant received an email with the interview summary so they could confirm the data I collected.

Transferability

Transferability is the ability of the study to be replicated in similar settings (Ravitch & Carl, 2021). Anney (2014) suggested that in qualitative studies, the purposeful sampling can improve the transferability of findings. Using purposeful sampling can allow the researcher to focus on those "informants" who are particularly knowledgeable about the phenomena being studied (Schutt, 2018), providing more in-depth findings than other probability samplings methods (L. Cohen et al., 2017). In my study, I used purposeful sampling to identify 11 participants who fit in my selection

criteria, and I used inductive coding (see Lincoln & Guba, 1986), which in certain methods literature has also been labeled as “literal coding,” “verbatim coding,” “In Vivo Coding,” “indigenous coding,” natural coding,” or “emic coding” (Saldaña, 2016, p. 105). I needed to make sure that all my participants have produced virtual performances or recordings during the COVID-19 shutdown so that they could reflect on their experiences of teaching music literacy skills in an online setting while expected to still produce a performance. Experiences of my participants can be replicated in virtual/online settings, because these would be expectations from any performing ensembles.

Another way to improve the transferability and credibility of my study was to increase its complexity by using the strategy of thick description (see Creswell & Poth, 2018; Guba, 1981) when I described the themes and the participants’ experiences (see Anney, 2014; Houghton et al., 2013; Lincoln & Guba, 1986; Ravitch & Carl, 2021). Using thick descriptions allowed my readers decide on the transferability of my study to their context. In reporting my findings, I did not generalize them to keep my study’s transferability (see Lincoln & Guba, 1986; Patton, 2015; Ravitch & Carl, 2021).

Dependability

Similar to the quantitative concept of reliability (Guba, 1981; Lincoln & Guba, 1986), dependability in qualitative studies is “the stability of findings over time” (Bitsch, 2005, p. 86), measuring the stability of the data (Ravitch & Carl, 2021). Because a qualitative study has to have consistency or dependability (Lincoln & Guba, 1986), I needed to ensure that when any of my peers review my research, they will find my data interpretations and recommendations to be dependable and consistent. In my study, I

made sure to use appropriate data collection methods and have a reasonable argument for choosing these methods. My goal was to produce dependable data that answers my RQs, so I looked carefully at aligning my chosen approach, data collection, and analysis procedures to my RQs. Specifically, the interview questions were aligned to my RQs and my conceptual framework. During my data collection and analysis, I was consistent in keeping my reflective journals with my notes about interviews, coding, and analysis. Developing, and reporting my codebook was another dependability strategy that allowed for my study to be dependable and consistent.

Confirmability

Confirmability is a concept that is often compared to the quantitative idea of objectivity (Ravitch & Carl, 2021). Defined as data accuracy (Houghton et al., 2013), confirmability ensures the objectivity of the study and requires the researcher to declare any possible biases and make sure that all analysis done can withstand the test of time and be further audited and reviewed (Ravitch & Carl, 2021). This part of my research required me to look deep into my own biases and positionality and be open about them and how they map onto my interpretations of data. I created various data sources to support analysis and interpretation of collected data, such as journal notes and reflection audio files. Additionally, I engaged in reflexivity and kept the audit trail (see Houghton et al., 2013; Lincoln & Guba, 1986; Orange, 2016). For example, I compared the transcripts to audio recordings to make sure the transcripts were accurate, confirmed that with my participants, and made sure that my data interpretations were supported by data (see Lincoln & Guba, 1986).

Ethical Procedures

The trustworthiness of qualitative research depends on how researchers follow ethical procedures (Kahlke, 2014; Patton, 2015). For this study, I followed ethical procedures set forth by the Institutional Review Board (IRB) at Walden University. Specifically, I followed the proper procedures for recruitment and informed and voluntary consent processes to make sure that participants agreed to research before it started (see Ravitch & Carl, 2021). To comply with Walden University's ethical standards, as well as U.S. federal regulations, I submitted an application to the IRB for ethics review and received the IRB approval (IRB # 09-08-23-0731421) before I started any recruitment, data collection, or dataset access.

First, I developed clear written procedures for data collection and maintenance and got them approved by my committee chair. In these procedures, I indicated how I would develop the word for word transcript from the audio recording, how and where I would save my audio files and transcripts so that they can be accessible to my chair and committee members. In my letter of consent, I included all IRB requirements which included the nature of risks and privacy concerns. During data collection, I made sure that my participants were reminded again that they were being recorded (see Castillo-Montoya, 2016; Rubin & Rubin, 2012). The IRB guidelines also listed the guidelines about ways that data should be stored and how it should be accessed, as well as how to protect my participants' confidentiality. I made sure to follow all these guidelines. I obtained the IRB approval and received an approval number prior to the start of my participant recruitment and data collection. I made sure my committee members did not

know the identity of my participants. To protect participant confidentiality even further, I removed any identifying information from my research report and assigned pseudonyms to all participants, ensuring proper labeling of audio recording and transcript files for each participant. The date/time stamps were included for each interview in the research records. My main method of interviewing was through Zoom video calls, with an option for participants to keep the video off. I used the option of transcribing the text, available in Zoom, and made sure to listen to the recordings several times to check for accuracy of transcriptions. I saved these interviews on my hard drive, as well as an external disk for a backup. While listening and transcribing the interview data, I determined whether saturation in the data has been reached by analyzing the themes and determining at which point there would be no new information or themes observed in the data (see Guest et al., 2006).

In case of any unexpected events or diversions from the IRB approved data collection plan, I planned to immediately inform my chair, and, if needed, the IRB. The interview records and transcripts will be deleted after 5 years. Also, to respect my participants' time and to stay true to my promises, I kept my interviews to the agreed-upon 60-minute-long timeframe. I promptly followed-up with an email after each interview to express my gratitude and mailed $25 gift cards from www.JWPepper.com to each of my participants. In conclusion, I was transparent with my participants during the entire process and followed strictly the IRB ethical guidelines (see Patton, 2015; Ravitch & Carl, 2021).

Summary

In Chapter 3, I provided a detailed discussion of my study's methodology and rationale for my choices. This included the research design and rationale, my role as a researcher, and procedures that I followed in my participant selection, instrumentation, recruitment, participation, data collection, and data analysis. I began with a description of the basic qualitative approach and why it is best aligned with my RQs and conceptual framework, after sharing about a variety of other options that I have considered. Next, I outlined the logic in the selection of my participants, sampling size, and recruitment procedures. Then I explained how I developed my interview protocol and why it was an appropriate data collection instrument to help collect thick data about a broad range of educator experiences. Next, I discussed the alignment of the basic qualitative study with inductive coding so that any bias and preconceived notions can be avoided. Finally, I shared strategies for ensuring trustworthiness and ethical considerations.

Chapter 4: Results

The purpose of this qualitative study was to understand how ensemble teachers develop music literacy skills and virtual communities through online secondary ensemble rehearsals. To accomplish this purpose, I employed a basic qualitative approach and collected data by interviewing secondary ensemble teachers who have taught large ensembles online. The interview questions were aligned with my two RQs.

RQ1: How do music teachers develop music literacy skills through secondary band, choir, and orchestra rehearsals?

RQ2: How do music teachers develop virtual communities though online secondary band, choir, and orchestra rehearsals?

These RQs allowed me to explore a range of ideas that secondary teachers expressed about ways they teach online secondary ensembles, with the focus on the music literacy skills and virtual communities development.

In this chapter, I report the results of my qualitative study. Chapter 4 includes a description of my study's setting and demographics of participants. In addition, this chapter details procedures that I implemented for data collection, data analysis, and trustworthiness during all steps of the study from recruitment to reporting of findings. Chapter 4 ends with a detailed description of the results of my qualitative study, and a summary.

Setting

The setting for this basic qualitative study was completely online. Participants were recruited through email, primarily from my professional network. Additionally, I

partnered with the NAfME to extend invitations to their members. All participants who volunteered for the study were in the United States and held NAfME membership. All 11 participants of the study elected to complete interviews via Zoom teleconferencing software, at the participants' convenience and in personal settings of their choosing. Therefore, due to national online recruitment, there was no single setting for this study.

Although the interviews took place after the peak of the COVID-19 pandemic, the context of the pandemic closures is essential to understanding the experiences shared by the participants. The abrupt shift to online learning created a complex and varied educational landscape. Hence, several conditions may have influenced the interpretation of study results. Specifically, differences in technological proficiency, access to resources and support systems among participants, coupled with variations in instructional time, class composition, and teacher adaptability and innovation, likely contributed to a wide range of experiences.

Demographics

The participants in this study comprised 11 secondary ensemble teachers from various regions across the United States who taught choir, band, or orchestra online during the COVID-19 school closures. Geographically, participants all taught in the United State with locations ranging from the East Coast to Midwest to West Coast. There were six female and five male participants, with overall teaching experience ranging from 8 to 28 years, totaling 215 years of combined experience. Each participant taught secondary levels from Grades 9 to 12 at the time of data collection, and five of the participants also taught at the middle school level in their district. Because the gender of

participants was not relevant to my data analysis and some participants are well known in the music education professional circles, I use the singular "they" when discussing participants to ensure identity confidentiality. Given that some teachers instructed both choir and band/orchestra, the participants included three teachers experienced in teaching band, six teachers experienced in teaching choir, and six teachers experienced in teaching orchestra (see Table 3).

Table 3

Participants' Current Content Area, Years of Teaching, Main Instrument, and Region

Participant	HS main ensemble at the time of the interview	Years teaching experience	Main instrument	Region
P1	Band	19	Clarinet, sax, piano, voice	Pacific Northwest
P2	Choir	8	Voice	Northeast
P3	Orchestra	28	Clarinet, violin	Midwest
P4	Choir	20	Voice	Midwest
P5	Orchestra	16	Harp, flute, piano	Midwest
P6	Orchestra	24	Violin	Midwest
P7	Choir	23	Voice, trumpet	Northeast
P8	Orchestra	19	Violin	Northeast
P9	Band	23	Tuba	Northeast
P10	Choir	10	Voice, piano, guitar, clarinet	Northeast
P11	Orchestra	25	Double bass	Pacific Northwest

Participant 1 (P1) was a seasoned secondary music educator with 19 years of teaching experience and instrumental skills in clarinet, saxophone, piano, and voice. Throughout their career, P1 has taught a wide range of grade levels, from kindergarten to high school. Before the COVID-19 pandemic, P1 taught middle school music electives, beginning band, high school jazz band, concert band, and choir. During the pandemic, restrictions required P1 to teach exclusively high school band, concert band, and choir, to minimize travel between the schools. At the time of the interview, P1 taught jazz band, concert band, high school choir, mariachi band, and Popular Music of the World, a

nonperforming Fine Arts/Social Studies course. P1 utilized various technological tools such as Zoom, Flipgrid, Kahoot, Soundtrap, Flat.io, and Google Classroom to enhance their teaching.

Participant 2 (P2), whose primary instrument was voice, has been teaching for 8 years, initially focusing on choir and music theory before expanding their role to include orchestra for both high school and middle school. P2 taught middle school orchestra through pullout lessons, rotating students from various subjects, while the high school orchestra was a scheduled class. In addition to orchestra, P2 taught high school choir, which was also the main ensemble they taught during the school closures. P2 incorporated several technological tools in their teaching, both before and during the COVID-19 pandemic. These tools included www.musictheory.net, Google Classroom, and Schoology for classroom management and instructional support. Additionally, P2 utilized MusicFirst Classroom, which offers various resources such as Auralia and PracticeFirst.

Participant 3 (P3) had an extensive teaching career spanning 28 years, with primary expertise in violin and string orchestra. At the time of the interview, P3 taught Grades 9-12 orchestra, including Freshman Orchestra, Symphony Orchestra, and a combined Philharmonic known as Full Symphony. P3 previously taught high school band, middle school band, and middle school orchestra. During the COVID-19 pandemic, in addition to teaching orchestra online, P3 also launched a Digital Music class, adding to their repertoire of music courses. Technology has been an integral part of P3's teaching

approach even prior to the school shutdown, utilizing audio recordings as a practice tool, as well as Google Classroom, Canvas, and SmartMusic.

Participant 4 (P4) was a vocalist with 20 years of teaching experience. At the time of the interview, P4 taught choral music at the high school level, focusing exclusively on grades 9-12. P4's background was primarily in vocal performance, having spent most of their career teaching middle and high school choral music. For the past decade, P4 has dedicated their efforts to teaching five choir classes daily, either independently or co-teaching with another choral director. Prior to the COVID-19 pandemic, P4's use of technology in ensemble classes was minimal, primarily involving students recording themselves on their cell phones and submitting their audio files for assessment. Apart from showing examples of choirs on YouTube, P4 admitted that advanced instructional tools were not a significant part of their teaching approach before the online teaching.

Participant 5 (P5) was an experienced instrumental music teacher specializing in orchestra, including strings such as violin, viola, cello, and bass. P5 had 16 years of teaching experience and a diverse musical background, having taught general music, choir, band, and orchestra across various grade levels. At the time of the study, P5 focused on teaching beginning and advanced orchestra at the high school level and provided instruction at several feeder elementary schools. Technology was an integral part of P5's teaching even prior to school closings, with access to projectors, whiteboards, and digital resources like YouTube and SmartMusic. These tools and skills enabled P5 to incorporate digital music libraries and sight-reading practices into their curriculum,

significantly enhancing the teaching and learning experience during the COVID-19 pandemic.

Participant 6 (P6) was an experienced orchestra teacher whose main instrument was the violin. P6 had been teaching in the same school district for 23 years, with the beginning of the 24th year at the time of the study. P6 also served as the department chair, while continuing to teach string orchestra for Grades 5 through 12 daily. Additionally, P6 conducted full orchestra rehearsals once a week during the winter, with woodwinds and percussion joining in. Furthermore, P6 led an after-school chamber orchestra twice a week. P6 was proficient with technology even prior to the school closings. In particular, they utilized Google Classroom to manage student recordings for assessment, requiring students to upload scale tests using any device they recorded on, including cell phones, which accommodated those with limited connectivity at home.

Participant 7 (P7) was primarily a vocal music teacher, with a background in vocal performance and musical theater, emphasizing a dramatic and interpretative approach in their teaching. P7 had 23 years of teaching experience, with a primary focus on Grades 7 through 12. P7's main teaching responsibilities included teaching chorus for seventh and eighth graders, as well as choir for high school students. Additionally, P7 taught public speaking and theater classes, although theater classes have been increasingly replaced by public speaking courses. In terms of technology use prior to the COVID-19 pandemic, P7 mainly utilized SmartMusic for instructional purposes. Other technological tools included websites like www.teoria.com, audio recordings submitted

by students via their phones, and Google Classroom for academic assignments such as observational critiques and interpretation exercises.

Participant 8 (P8) was a professional violinist with 19 years of teaching experience. P8 had a diverse teaching background, having taught elementary-level instrumental music, general music, and band. For the past 10 years, P8 was the middle school and high school orchestra director, and occasionally taught choral music. Prior to the COVID-19 pandemic, P8 primarily used technology for assessment purposes by having students submit recorded audio files instead of conducting in-class tests, which allowed for direct feedback and saved valuable classroom time. Additionally, P8 used video clips to show interesting performances and inspire students, especially given the limited exposure to classical and instrumental music in the district. P8 also brought in programs like "Electrify Our Strings" to broaden students' perspectives on string music.

Participant 9 (P9), whose main instrument was the tuba, was a band teacher with 23 years of teaching experience. P9 had been the director of bands at a high school since 2017, following extensive experience teaching middle school and some elementary school. Prior to the COVID-19 pandemic, P9 incorporated technology in a casual and informal manner. This included using Google Classroom primarily for reminders and notes about rehearsals, and occasionally projecting scores on the smartboard during rehearsals so students could see the entire score. P9 shared that their use of technology prior to online teaching was not extensive, joking that using an amplified metronome was the peak of their technological engagement.

Participant 10 (P10) was a choir teacher at a suburban high school with 10 years of teaching experience. P10's primary instruments were voice and piano, with limited experience in guitar and clarinet. P10's teaching philosophy focused on multicultural and culturally responsive pedagogy to ensure all students felt seen and heard. At the time of the study, P10 taught three levels of choir: a nonaudition entry-level concert choir, an auditioned acapella choir of about 80 members, and a chamber choir of 23-32 students performing collegiate-level music. P10 also directed two extracurricular ensembles, the Tenor/Bass choir, and the Treble choir. Prior to COVID-19, P10 used technology primarily for creating rehearsal tracks using GarageBand, Finale, and Sibelius. These tracks included piano parts and vocal parts, as well as diction and articulation. P10 also used recordings for student self-assessment and reflection, though technology was not considered indispensable in choir instruction. During the COVID-19 pandemic, P10 learned to edit videos and mix audio for online concerts.

Participant 11 (P11), whose main instrument was the double bass, was an orchestra teacher with 25 years of teaching experience. For the past 15 years, P11 taught orchestra at various levels, with a primary focus on high school for the last 10 years. Additionally, P11 conducted a second orchestra in a local symphony. Throughout their career, P11 taught high school orchestra, jazz band, and a beginning guitar class, as well as middle school band and elementary orchestra/band. Prior to the COVID-19 pandemic, P11 incorporated technology such as using a sound system with a metronome or drum machine, experimenting with MIDI sequencers in Logic, and utilizing elements of the

Google suite for creating slide shows and spreadsheets. P11 also extensively used websites like www.musictheory.net and the Rhythm Randomizer for classroom support.

These 11 participants in my study provided ample information for me to reach data saturation and answer my RQs, so I decided not to recruit the additional 12th participant, as originally planned. More information about the length of interviews is discussed in the "Data Collection" section.

Data Collection

I received IRB approval on September 8, 2023, and began recruiting participants for my study. For this basic qualitative study, the main data collection tall was semistructured interviews. Data collection procedures also included participant transcript summary reviews to confirm data. My reflexive journal entries served as an important part of enhancing the credibility, ethical integrity, and methodologic rigor of the study (see B. A. Smith, 1999).

For my interviews, I chose a purposive sampling strategy to deliberately select participants who were experienced and knowledgeable about the topic of study and who taught high school ensemble classes online during the schools' shutdown. On September 9, 2023, I sent out emails to secondary teachers from my professional networks whom I knew to be qualified for my study. I also reached out to some distinguished NAfME members from across the nation who had previously been actively involved in sharing their experiences with the music education community through their journal publications or articles. Additionally, I submitted my request for research assistance from NAfME's Society for Research in Music Education (SRME), on September 9, 2023, to gain indirect

access to the association's membership list through NAfME's e-mail transmission platform. I received an approval on October 9, 2023.

This recruitment approach proved to be successful, allowing for an increased trustworthiness and transferability of findings (see Ravitch & Carl, 2021), and eliminated the possibility of getting imposter participants (see Roehl & Harland, 2022). As a result, I collected data from 11 participants via virtual interviews. All interviews were conducted in Zoom at times convenient for the participants, either from my home or work office, using the interview protocol described in Chapter 3. I audio recorded the interviews in two ways to ensure that I had backup recordings in case technology failed. I used Zoom's audio recording feature to capture audio recordings, as well as a voice recorder app on my phone. After each interview, I saved the digital files to a password protected hard drive. Unless otherwise noted, data were collected as described in Chapter 3, and no unusual circumstances occurred during the data collection process.

Interviews

The main data source for my study were participants' interviews. I conducted a total of 11 interviews, with the first one being on September 25, 2023, and the last one on December 7, 2023. Interviews ranged from 40 to 54 minutes and were mostly held after school hours, except for four participants who preferred to be interviewed during their preparation periods at school. I used the interview protocol described in Chapter 3 and Appendix D. My last interview question was an open prompt asking participants to share any last thoughts that they had related to their experiences teaching online ensembles, or anything else that might have been relevant to my topic of study. Before

that last question, I informed participants of the remaining time to be respectful of their time. Immediately after each interview, I recorded my thoughts and observations in my reflective journals. The reflective journal included my immediate impressions following the interviews (see Halcomb & Davidson, 2006). This helped me understand my participants' feelings better, as well as interpret data better by creating transparency and exploring the impact of self-reflection in my research process (see Ortlipp, 2008). For transparency and clarity of reporting, Table 4 includes the participant pseudonyms, the date of each interview, the time each interview occurred, and the duration of each interview.

Table 4

Interview Dates, Times, and Duration

Participant identifier	Interview date (2023)	Interview start time (EST)	Interview duration
P1	September 25	7:00 p.m.	49 m 30 s
P2	October 2	6:30 p.m.	44 m 57 s
P3	November 6	4:30 p. m.	44 m 32 s
P4	November 9	4:30 p. m.	51 m 38 s
P5	November 11	1:00 p. m.	40 m 37 s
P6	November 15	4:30 p. m.	50 m 13 s
P7	November 28	9:30 a. m.	47 m 23 s
P8	November 28	1:00 p. m.	40 m 03 s
P9	November 30	9:30 a. m.	42 m 31 s
P10	December 1	11:40 a. m.	48 m 34 s
P11	December 7	4:30 p. m.	54 m 09 s

To prepare interview data for the data analysis phase, I transcribed audio to make written transcripts by using capture recording tool Kaltura, keeping all audio and transcripts safe within the Canvas platform as an additional form of backup. Next, I listened to each audio interview at least five times, and edited the transcripts, using the edit feature in Kaltura, to delineate speakers and fix grammatical or spelling errors. Next,

I transferred the updated transcripts into the word processor Microsoft Word and began taking notes of the interviews by using the comments feature in Word. Part of my revision involved redacting any personal information from the transcripts that could identify my participants. I used color-coding or highlighting approaches to identify the interview text that I believed was important, staying consistent with the specific colors that I chose for different interview questions or themes. I engaged in reflexivity and kept the audit trail by comparing the transcripts to audio recordings to make sure the transcripts were accurate (see Houghton et al., 2013; Lincoln & Guba, 1986; Orange, 2016). I took notes about preliminary patterns, participant quotes that stood up, and any other data that was relevant to my research (see Saldaña, 2016).

Member Checking

To confirm that my interpretations were supported by data (see Lincoln & Guba, 1986), following my data analysis, I developed a 2–3 page summary of each transcript and sent it to each participant for member checking. This document included how that participant's data contributed to the study's themes. Additionally, this was an opportunity for me to ask some follow up questions related to specific areas where I needed clarification. All participants returned the summary of their transcripts without any additional corrections, except for one participant who sent me a minor clarification to be included, which I added to the document.

Reflective Journals

I kept two types of journals: one was a handwritten journal where I recorded my thoughts and actions during recruitment and after data collection, and the other one was a

Google document that I used to quickly record any of the ideas that came up during the interviews, such as my first impressions of main themes or possible codes. These were often written in the form of bullet points so that I could keep my focus on the interviewee and our conversation. After my first interview, I met with my dissertation chair and discussed my approach to conducting the interviews, as well as shared my reflective journal thoughts and entries for feedback. This discussion allowed me to stay consistent with my approach to conducting the interviews and ensured that my subsequent interviews and journal entries would provide me with rich data. In preparation for my final data analysis, I combined my handwritten and typed journal entry notes that were relevant for my final analysis and continued to refer to these entries.

Data Analysis

I used the open descriptive coding approach for qualitative research recommended by Saldaña (2016) to gain a detailed, in-depth understanding of each interview transcript. This iterative, open coding approach helped identify key issues, patterns, and categories unique to the phenomenon being studied. I conducted data analysis at two levels. First, I began by reading through the data, reflecting, and allowing codes to emerge, identifying meaningful segments. During this stage, I analyzed each participant's data separately, without trying to fit their data into any of the categories (see Patton, 2015; Percy et al., 2015; Ravitch & Carl, 2021; Rubin & Rubin, 2012) I assigned descriptive labels or codes to these segments, reflecting the essence of the content, and described their meaning in my notes. As I progressed, several codes became apparent in the transcripts. I grouped similar codes together using color-coding and developed categories and themes that

captured the underlying patterns and key concepts within the data. This iterative process allowed for continuous refinement of the codes and categories, enhancing the depth and accuracy of the analysis. Additionally, open descriptive coding provided a structured approach to breaking down complex data into manageable units, facilitating a comprehensive understanding of each segment. After this process was completed, I uploaded the Microsoft Word transcripts, including the initial codes I had developed, to Dedoose, a qualitative management software, to track the codes names. To aid in the coding process, I developed a Microsoft Word codebook as described by DeCuir-Gunby et al. (2011) and used it early in the coding process, updating it throughout the coding process. However, after becoming more familiar with Dedoose, I decided to keep my codebook within Dedoose. This software became my codebook "playground," which allowed for a better organization of my codes, including using colors, writing descriptions, inserting related excerpts, and taking notes about each of the codes. I kept updating my codebook throughout the coding process, including merging codes when further analysis revealed that codes were closely connected. I merged several of the child codes directly into parent code when the child code had fewer than five excerpts. Through this process, I was able to eliminate numerous "repeated" or "redundant" codes or subcodes, resulting in a significant reduction of my total codes.

At the second level of data analysis, I conducted another round of reading and analyzing data, this time keeping in mind my RQs and the dimensions of my framework, which included CoI (Garrison, 2007a) and T3 (Magana, 2018), along with findings from the literature to guide the development of codes. I grouped emergent codes into similar

groups based on the initial themes, and then aligned these themes with the conceptual framework. At this stage, I color-coded some of the main themes that emerged and printed my transcripts so I could have a quicker access to my data with a stronger visual interpretation. As I continued coding, I continued refining the codes and categories that emerged, which led me to rearranging the codes and experimenting with coding hierarchy to ensure the code tree accurately represented the data and was relevant to both the RQs and the framework. I continued to frequently revisit the codes and their definitions, reorganizing my structure by removing, adding, or rearranging, based on how well these codes fit the evolving code tree and themes.

As described, the process of merging codes and developing themes and categories took several rounds. Dedoose provided visual insights into the data by showing how codes were applied across different segments of the data, including frequency of code usage, distribution across data sources, overlap and co-occurrence, density, and intensity of codes. These visuals highlighted the overlapping codes and impacted my thinking about themes. For example, Figure 5 shows the code presence chart for Theme A and offers a detailed overview of how various codes are applied across different participant transcripts. This chart helps in identifying patterns, trends, and potential anomalies within the data.

Figure 5

Code Presence Data Analysis Chart for Theme A from Dedoose

Media \ Codes	Theme A Category 1: Adaptations in	Interactive Learning	Technology	Learning Over Perfection	Skill Development	Composing/arranging	Music Theory	Performing	Rhythm	Sight-Reading	Theme A Category 2: Independent	Assessment and Grading	Feedback	Recordings	Beginner challenges	Isolation	Individualized instruction	Motivation	Slowness	Solos	Success	Theme A Category 3: Cultivating	Flexible assignments	PBL opportunities	Creative projects	Music History	Virtual Concerts
P01 Transcript 9_25_23	1	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P02 Transcript 10_2_23	1	1	1	1	1	1	1	1	1	1	1	1		1			1	1			1	1	1	1	1	1	1
P03 Transcript 11 06 23	1	1	1	1	1			1			1	1	1	1	1	1	1	1				1	1	1	1	1	1
P04 Transcript 11 09 23	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
P05 Transcript 11 11 23	1	1	1	1	1			1		1	1	1	1				1	1			1	1	1	1			
P06 Transcript 11 15 23	1	1	1	1	1	1	1	1		1	1	1	1	1			1		1	1	1	1	1	1	1		1
P07 Transcript 11-28-23	1	1	1	1	1		1	1	1		1	1		1			1	1		1	1	1		1	1		1
P08 Transcript 11-28-23	1	1	1	1	1		1	1		1	1	1	1	1			1	1		1	1	1	1	1		1	
P09 Transcript 11-30-23	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1			1	1	1	1	1		
P10 Transcript 12-1-23	1	1	1	1	1	1		1		1	1	1		1	1	1	1			1	1	1	1	1	1		1
P11 Transcript 12-7-23	1	1	1	1	1		1	1	1	1	1	1	1	1			1		1		1	1	1	1	1	1	1

While Dedoose charts like the one in Figure 5 offered a valuable tool for visualizing data patterns and emerging themes, they could not replace my critical thinking as a researcher. I employed both the T3 framework (Magana, 2018) and the CoI framework (Garrison, 2007a) to guide my analysis, allowing me to delve deeper into the nuances and context of each participant's response. Additionally, I engaged in iterative coding and thematic analysis, continually refining my understanding through reflective journaling. Through this rigorous process, I identified 24 codes, which I then organized into 16 subcategories, six categories, and culminating in the development of two overarching themes. Table 5 shows a summary of the final themes/categories and

provides the total number of code occurrences related to each of the themes, its categories, and subcategories.

Table 5

Summary and Codes for Themes From Data Analysis

Theme and RQ answered	No. of categories grouped within the theme	No. of subcategories grouped within the category	No. of codes	Total No. of code occurrences
Theme A: Teachers make adaptations in online rehearsals, focus on independent learning, and cultivate student passion (RQ1)	3	8	16	805
Theme B: Teachers foster a sense of belonging, provide safe online environment, and collaborate with colleagues (RQ2)	3	8	8	458
Total	6	16	24	1,263

As Table 5 shows, from each theme, categories, subcategories, and codes were derived. Theme A, teachers make adaptations in online rehearsals, focus on independent learning, and cultivate student passion, answers RQ1, and is subdivided into three main categories, eight subcategories, and 16 additional codes. Table 6 provides sample quotes from interviews that best describe data that were coded in this category.

Table 6

Participant Responses Corresponding to Category 1: Adaptations in Online Rehearsals

Category	Subcategories grouped within the category	Sample quote
Teachers develop music literacy skills online by making adaptations in online rehearsals	Interactive learning	Soundtrap…was easy enough that the students were able to hop right in and do it. Had two girls who played a viola duet, and it actually worked. And they were able to rehearse together –we all worked on that together. And that was fun." (P6)
	Learning over perfection	"You realize that perhaps the culminating performance or a virtual performance is not as important as we probably all put emphasis on it. But you focused more on the process, or on engaging the students in many other ways, and I feel that that paid off." (P11)
	Skill development	We worked a lot on intervals. That was something that we were able to successfully kind of manage and actually see them progress in that. Again with musicheory.net and such…Auralia was a really good website for that we used. And then rhythmic dictations. So I did work on that with theory, but ended up working on that with choir just because it was so easy to do online." (P2) "The saving grace for me and my colleagues during that point was utilizing Sight Reading Factory. As a teacher, I could set those different levels. I could customize it. The recording would come back to me, then I could give feedback. That was huge." (P4)

Excerpts coded in the first category, teachers develop music literacy skills online by making adaptations to their teaching methods, highlight that teachers integrate interactive learning through technology as a crucial component, prioritize the learning process over perfection or producing culminating concerts, and focus on developing skills such as sight-reading, composing, and arranging, music theory, rhythm, and performance. All participants contributed to this category, and skill development was the most

frequently mentioned subcategory. Participants shared that if it was not for the technology, none of the learning would have been possible in a fully online setting. They also noted an enhancement in their technological skills, which is noteworthy for ensemble teachers, who traditionally did not rely on technology in their classrooms. For example, P2 learned to effectively engage students with technology, moving beyond just YouTube videos, and discovered Noteflight's real-time monitoring feature, which they might not have encountered without online teaching. P4 shared that they made individualized sight-reading assignments possible through SRF, allowing for customization that supported student growth. P10 highlighted how students took initiatives by creating original arrangements, some of which were mind-blowing in their originality and complexity and were unexpected from the students who created them. Overall, the participants collectively shared how the integration of technology not only transformed their teaching practices but also empowered them to explore new creative possibilities in their teaching.

The second category, teachers develop music literacy skills online by focusing on independent learning, is subdivided into three subcategories and further into seven additional codes. This category applies to data matching developing music literacy skills and includes the subcategories of assessment, beginner challenges, and individualized instruction. The codes of feedback and recordings were derived from the assessment subcategory. The beginner challenges subcategory included the code isolation and the subcategory of individualized instruction included the codes slowness, motivation, solos,

and success. Table 7 provides sample quotes from interviews that best describe data that were coded in this category.

Table 7

Participant Responses Corresponding to Category 2: Focus on Independent Learning

Category	Subcategories grouped within the category	Sample quote
Teachers develop music literacy skills online by focusing on independent learning.	Assessment	"It was really, really difficult for me to know how the students were receiving the information and if they were understanding it... And then in the larger group classes that were all together…to take away the sound was also-okay, now I don't even know what you sound like while you're playing (*laughs).* So… I don't know if you're slightly out of tune or if you're completely out of tune or what's happening when you're playing or what your tone quality is like. Those were big challenges." (P6) "I found myself doing more individual recordings, again, telling students that it's not a gotcha or I gotcha. It's – hey, I want to hear where you are and then I can actually help you individually." (P4)
	Beginner challenges	"There were some kids that had only learned their instrument online, like they'd never had an in-person lesson, like a year later when I saw this kid in person. Things that I didn't quite hear because of sound quality and stuff there of how much bow weight they were using. And from that standpoint, the technique side of the physical playing literacy suffered." (P3)
	Individualized instruction	"Everything felt individualized. You know, I was able to conference with kids one on one, again, individual sight-reading assignments." (P4) "I would ask students to play independently so I could actually hear if they were all playing all the notes of the scale versus just skipping over a few and letting other people take over… the fundamentals online were pushed." (P5)

Excerpts coded in the second category demonstrate how teachers encouraged students to take charge of their learning process by providing various resources and adapting to virtual environments. Participants reported using the Sight Reading Factory (SRF) and GarageBand to facilitate independent practice. P2 described how students were encouraged to explore and choose their own musical pieces for solo projects. P6 shared that they provided individual lessons through Google Meet to help students with their personal growth. P11 highlighted the success of virtual tools in helping students independently grasp musical concepts, observing that students had to learn to interpret musical symbols on their own, which proved to be an empowering experience for them.

The third category, teachers develop music literacy skills online by cultivating student passion, is subdivided into two subcategories and further into three additional codes. This category applies to data matching developing music literacy skills and includes the subcategories of flexible assignments and project-based learning (PBL) opportunities. The codes of creative projects, music history, and virtual concerts were derived from the PBL opportunities category. Table 8 provides sample quotes from interviews that best describes data that were coded in this category.

Table 8

Participant Responses Corresponding to Category 3: Teachers Cultivate Student Passion

Category	Subcategories grouped within the category	Sample quote
Teachers develop music literacy skills online by cultivating student passion.	Flexible assignments	"The other thing that we tried to do was to say: the big group thing is not working. Let's try to do things that at least gave the kids some individual options and freedom for things they want to do." (P9) "Let's talk about a musical idea. Talk about melody…use this rhythm and come up with your own melody to this rhythm…I wouldn't make them write it out, I'd just make them record it on their instrument. Part of it was to see if they could figure out how to play the rhythm, but also be creative with coming up with the notes." (P11)
	PBL opportunities	"Create a four-measure sight-reading example, and we all sing it – like, everyone takes a turn each day and we'll sing your sight-reading example. So, it's cool because then the kids can actually hear someone sing it, even though it's just a sight-reading." (P2) "One of them wrote a full band piece. And we actually performed it last year because we had the right instrumentation for it. And it was just so moving because over COVID, they listened to this song that they really liked out of one of their TV shows. And because they had time, they were able to transcribe it just by listening to it until they could get it down for a full concert band. It was just mind blowing." (P1)

Excerpts coded in this category highlighted how teachers adapted their teaching methods to foster creativity and individual expression among students, and how they created PBL opportunities for students, including giving students freedom of choosing what would get them most passionate about. P4 shared how they used kitchen utensils to create music and admitted that they had never done anything like that in the past but that

it was a lot of fun. P3 shared the difficulty of coordinating virtual performances but emphasized the value of giving students autonomy in choosing their projects, which fostered a sense of ownership and pride in their work. P11 added that music history lessons became more interactive and engaging, with students exploring the cultural context of compositions through activities like creating YouTube playlists to trace musical evolution. P4 shared an example of a shy student who created a singing video of themselves, which turned out to be better than anything they had seen from the student in a classroom setting and highlighted how performing from their own space helped students develop confidence. These examples show how teachers were able to not only nurture student passion but also enhance their confidence and creativity.

Theme B, teachers foster sense of belonging, provide safe online environment, and collaborate with colleagues, answers RQ2, and is subdivided into three main categories, eight subcategories, and eight additional codes. Table 9 provides sample quotes from interviews that best describe data that were coded in this category.

Table 9

Participant Responses Corresponding to Category 4: Teachers Foster a Sense of Belonging

Category	Subcategories grouped within the category	Sample quote
Teachers develop virtual communities by fostering a sense of belonging.	Active engagement	"I would play a tune on the piano, they'd type into the chat box: Oh, that's the song from Shrek. That's the Star-Spangled Banner. That's Mary Had a Little Lamb (laughs). So that was *Guess the Tune*. We had some other games… I mean, we would just come up with creative ways to get them to engage with each other." (P10)
		"I was not actually a teacher as a teacher, I was more like a little bit older adult who was supervising their game." (P8)
	Building the community	"Building community, I think, is having that opportunity for everyone to come together and listen to music, review some assignments, not put the expectations too high on them." (P11)
		"A game that was easy to do was Rhythm Bingo…That was like a fun little community activity." (P2)
	Student voice	"One thing that came out of COVID was the student leadership. We have more sectionals now, more chamber music, where it's not the teacher down, it's the students lifting everyone up. And it's the student voices that are being heard in leading the groups. Because of online school and because of COVID, I now have natural servant leaders who want to be my sectional leaders." (P1)
		"I had them do a lot of solo projects…they'll gravitate towards all the anime music that is not published anywhere, but somebody has put it up on MuseScore. I did let them choose for their solo projects." (P6)

Participants emphasized that fostering a sense of belonging in the online learning environment was crucial for student engagement and well-being. P2 used games and interactive activities like solfege races and staff twister to engage students and foster a

fun learning environment. P3 encouraged students to share their personal interests and projects, such as playing different instruments around the house. They also initiated virtual events like a talent show where students could showcase their skills, which helped build a sense of community and belonging. P5 shared that they started their classes with discussions about students' lives and experiences, emphasizing the significance of social-emotional learning and personal interactions. P10 prioritized community-building activities, dedicating a portion of class time to icebreakers and games like scavenger hunts. These examples illustrate how participants actively worked to create a supportive and inclusive online learning environment.

The fifth category, teachers develop virtual communities by creating a safe online environment, applies to data matching developing virtual communities and includes a subcategory increasing student comfort, which is further divided into two additional codes: compassion and insight. This category focuses on the various ways that teachers increased student comfort by gaining insight into students' lives and family situations, fostering compassion and ensuring students feel secure and supported. Table 10 provides sample quotes from interviews that best describe data that were coded in this category.

Table 10

Participant Responses Corresponding to Category 5: Teachers Provide Safe Online Environment

Category	Subcategories grouped within the category	Sample quote
Teachers develop virtual communities by providing safe online environment.	Increasing student comfort	"It was a very safe environment where kids could sight read of figure out the music notation and put this thing out there, and it became much more of this abstract thing than if they were to sight read in front of the class." (P11) "Sometimes just a private chat to let them know hey, I'm here for you, let me know. Something simple as that where I could have that one on one without it being a big deal, just off the radar on that chat. A lot of kids said: thank you, I'm struggling, but I really appreciate you reaching out to me." (P4) "This student over here is playing in a hotel room because her family couldn't afford to be in a home, they got evicted. And so, she's in a hotel playing her cello with her cellphone. You know, the camera pointed at her so that I can see her so that you know those pieces, those different elements of all their stories. Just being aware of what their needs are and being sensitive to it without trying to overdo the educational part. The education came just from acknowledging their needs and trying to get something, anything out of them." (P5)

Excerpts coded in the fifth category convey how educators prioritized creating a safe and supportive online environment and emphasized the importance of personal connections. By providing individualized attention and understanding students' unique circumstances, teachers were able to foster comfort and confidence in online environment. P2 created a safe space for their students was by implementing one-on-one check-ins to understand students' feelings better and to give individual feedback. P4

recounted using moments when a pet would wander into the frame to engage with students, helping them feel more comfortable by talking about things familiar to them, such as their cat or dog. P10 used breakout rooms to facilitate smaller group discussions, allowing students to interact more comfortably and share their experiences. These examples demonstrate some of the successful strategies teachers used to create a safe and supportive online environment, allowing students to feel more at ease and engaged in their learning.

The sixth category, teachers develop virtual communities by collaborating with colleagues, applies to data matching developing virtual communities and includes four subcategories: collegiate support, professional growth, teacher recordings, and virtual concerts. This category focuses on how teachers supported each other by sharing resources and strategies, enhancing their technological skills, and creating virtual performances. Table 11 provides sample quotes from interviews that best describe data that were coded in this category.

Table 11

Participant Responses Corresponding to Category 6: Teachers Collaborate with Colleagues

Category	Subcategories grouped within the category	Sample quote
Teachers develop virtual communities by collaborating with colleagues.	Collegiate support	"We formed online communities with PLC. So, we just set up an arbitrary, okay, 09:00am on Tuesday mornings, all the orchestra teachers are going to talk, and here's how we're going to figure out how to do all this. That's where I got some ideas." (P3) "Most of the ideas I stole from other people." (P4) "We help each other out: I'll run sectionals; he'll do whatever needs to be done." (P2)
	Professional growth	"One of the coolest things about music teachers is we're more than willing to share with each other." (P1) "My skills of using Logic…are much stronger. Some of my skills around using Google slides are stronger than they used to be. I still use those." (P11) "Trying to get my students linked to someone outside of our own learning community and connected to somebody who plays an instrument like theirs? That was important to them and me, you know." (P5)
	Teacher recordings	"Some of my choir teaching colleagues get together and make multitrack recordings and then making their own part dominant recordings for kids to sing along with." (P11
	Virtual concerts	"Online performances…was the toughest thing to do, to get everything aligned; to get them… and they are not professionals. Even for professionals.... We did it but it was kind of a challenge for a professional. I understood right now for my students how hard it was, being online. Click that button, follow the music, hear the music. That was a big, big challenge. I appreciate live making music much more right now." (P8)

Excerpts coded in the sixth category demonstrate how teachers worked together to overcome the obstacles of remote teaching, leveraging each other's strengths and expertise to enhance their teaching and support for their students. P1 described creating an online cohort of teachers to share experiences and support each other in various ways. P3 noted how the online PLCs helped them gain new insights and improve their teaching practices. P5 shared how they collaborated with a local violinist to provide master classes and workshops, strengthening the connection between educators and musicians. P9 explained their team-teaching approach, where teachers with different instrument specialties collaborated to produce high-quality practice files for students. P10 recounted learning audio and video editing to create virtual concerts, which required collaborating with tech-savvy colleagues to produce high-quality performances. Through these collaborations, teachers maintained their passion for music education, navigated new teaching environments, and fostered resilience and community among themselves and their students.

During the data analysis process, I deliberately sought out instances of discrepant data that did not align with the pre-established codes or themes. Although these data did not reveal any disconfirming cases as described by Burkholder et al. (2020), they offered unexpected insights into additional area I felt compelled to code due to their richness. Specifically, a detailed examination of the data revealed codes related to participants' experiences teaching in-person ensemble classes post-COVID, which were influenced by their experiences and lessons learned during the fully online teaching period. The depth and detail of this data led me to organize it into two categories: postremote adaptations

and postremote thoughts, each containing several subcategories. However, these codes did not directly address my RQs related to fully online teaching experiences. Faced with the dilemma of whether to include this data in my analysis, I consulted with my dissertation committee members. They provided guidance and ultimately supported my decision not to include this data in the final analysis, as it did not answer my RQs. Figure 6 provides a visual representation of this data that was excluded from the analysis for this reason.

Figure 6

Postremote Code Applications Not Included in Data Analysis

Media \ Codes	Xtra: Post-Remote Adaptations	Independent learning	Private Lessons Online	Projects	Sustained Online Practices	Xtra: Post-remote Thoughts	Behavior Changes	Bell Curve	Ensemble Coherence	Ensemble Participation Decline	Following the Conductor	Literacy Gaps	Lost Ensemble Skills	Online Environment	Priority Realignment	Quotes	Totals
P11 Transcript 12-7-23	3	1		2		5		1				1		1		1	15
P10 Transcript 12-1-23	1			1		13		2		1	2		6			2	28
P09 Transcript 11-30-23	5	2			3	14	1	3	1	3			4			4	40
P08 Transcript 11-28-23						3			1		1		1			2	8
P07 Transcript 11-28-23	1				1	6				1						5	14
P06 Transcript 11 15 23	8	3	1		6	11	1	2	2			1	1			9	45
P05 Transcript 11 11 23	2				2	10			1			5	2		2	2	26
P04 Transcript 11 09 23	4	1		1	1	2										2	11
P03 Transcript 11 06 23	6		1		3	1										1	12
P02 Transcript 10_2_23	1	1				4						1	1			2	10
P01 Transcript 9_25_23	27	1	5	8	5	10		2				2		2	2	2	66
Totals	58	9	7	12	21	79	2	10	5	5	3	10	15	3	4	32	

As a result of my final data analysis, I linked 1,263 participant excerpts to 24 codes, 16 subcategories, and six categories. Table 12 shows the code occurrence per participant related to each category and the percentage distribution of codes across the categories, illustrating the prominence and focus areas on the interview data. This breakdown highlights which categories were most frequently discussed by participants, providing insights into the key areas of interest and emphasis within the study.

Table 12

Code Occurrences per Participant and Categories

Participant	Adaptations in online rehearsals	Focus on independent learning	Cultivate student passion	Sense of belonging	Safe online environment	Teacher collaborations	Total
P1	81	82	19	58	49	26	315
P2	33	37	9	13	6	11	109
P3	31	18	9	20	13	11	101
P4	18	24	12	20	19	7	100
P5	28	28	3	7	10	6	82
P6	32	45	6	10	12	8	113
P7	16	16	6	8	4	4	54
P8	19	17	4	12	13	5	70
P9	25	38	5	11	10	8	97
P10	29	33	11	20	18	10	121
P11	22	37	12	10	13	6	100
Total	334	375	96	189	167	102	1263
%	27%	30%	8%	15%	13%	8%	100%

The analysis of code distribution across participants revealed that P1 had the highest total number of code occurrences, with 315 codes distributed across the themes, and P7 had the lowest total number of code occurrences, with 54 codes. The analysis of code occurrences identified which categories appeared more frequently across participants' responses, indicating their relative prominence in the data set. The most prominent category across all data is Category 2, focus on independent learning, with 30% of data being linked to it. Despite the ensemble being traditionally a group class,

teachers opted for a more individualized approach to online instruction. Because of latency issues in online setting, students had to be muted during rehearsals. This technological limitation has necessitated a shift in teaching methods to emphasizing individual instruction, during which students were able to unmute their microphones and sing or play their instruments in real time. This approach also helped mitigate the challenges posed by the lack of synchronous musical interaction, maintaining student engagement, and fostering a more personalized learning experience. The prominence of this category suggests a strong focus on student autonomy, the need for teachers to provide students with an ability to learn independently, and students' ability to do so.

Category 1, adaptations in online rehearsals, accounts for 27% of the total data. This reflects the adjustments and innovations that teachers implemented to provide students with rich learning experiences despite the challenges of online instruction in music ensembles. It indicates the importance of integrating music literacy into online rehearsals to develop fundamental music skills such as sight-reading, composing/arranging, music theory, rhythm, and performing. The emphasis is on interactive teaching methods that empower students to independently read and understand music. Additionally, the integration of music literacy might have been favored because, in an online environment, teaching ensemble skills was often more challenging than teaching music literacy skills, as most of the participants noted, except for P5 and P10. Category 1 also illustrates a pedagogical shift from prioritizing culminating concerts or performances to emphasizing the learning process which includes making meaningful

connections to the repertoire, including text or historical factors, as well as the students' own experiences.

Category 4, teachers foster a sense of belonging, comprised 15% of the total data, highlighting its role in creating inclusive and supportive learning environments. This category was discussed by all participants, emphasizing the importance of community and connection, and highlighting it as crucial for student engagement and motivation. Participants implemented various strategies to build community, including strengthening relationships and showing support by visiting students' homes to help with instrument repairs (see P1, P5, P6, P8) or to simply to show that they cared (see P4, P10). In summary, the data from Category 4 suggests that fostering a sense of belonging promotes student engagement and encourages academic risk-taking.

Category 5, teachers provide safe online environment, represented 13% of the data, underscoring the significance of creating secure and supportive digital spaces for learning. This category involves ensuring that online learning environments are safe and conducive to student participation and interaction, focusing on the need to create a positive, inclusive, and welcoming atmosphere in virtual spaces. The data suggest that teachers prioritize creating safe online spaces, which is crucial for maintaining student engagement and trust in digital learning platforms. This focus on safety and inclusivity plays a critical role in ensuring that the teachers provide the best learning experiences to their students.

Category 3, teachers cultivate student passion, and category 6, teachers collaborate with colleagues, accounted for 8% each. Category 3 accounted for 8% of the

total data, indicating its role in inspiring students and fostering a love for music. This category captured the participants' thoughts on the importance of encouraging students' enthusiasm and interest in music, helping them find personal meaning and joy in their musical pursuits. It involves teaching methods that ignite passion and motivate students to explore music beyond the classroom. This category suggests a focus on creating an engaging and inspiring learning environment where students are encouraged to pursue music passionately.

Category 6, also comprising 8% of the data, highlights the collaborative efforts among teachers to enhance teaching practices and student learning experiences. Many participants expressed how much connecting with other music teachers meant to them, both professionally and personally. This category covers the various ways teachers worked together to share resources, strategies, and insights, fostering a community of practice that benefitted both teachers and students. The limited representation of this category may be the result of the absence of a specific interview question that was related to this topic. However, the data suggests that this was a vital aspect of educational practice, influencing how teachers learn from each other and implement effective teaching strategies.

Evidence of Trustworthiness

I upheld issues of trustworthiness in several ways. In this section, I will describe how I ensured credibility, transferability, dependability, and confirmability by using a rigorous methodology (see Lincoln & Guba, 1986; Patton, 2015; Ravitch & Carl, 2021). I employed a rigorous methodology to enhance the trustworthiness of my study, aligning

my methods with my RQs and adhering to best practices for basic qualitative research design as detailed in the literature. I employed the use of transcripts, reflexive notes, and analytic memos.

First, to ensure credibility in my study, I followed refinement procedures, ensuring that the interview questions were field-tested before data collection to prevent misunderstandings during interviews. This approach was guided by strategies from Castillo-Montoya (2016), as detailed in Chapter 3. I began by sharing the questions with education professionals and revising them based on their feedback. Subsequently, I conducted a trial interview and made further necessary adjustments. This process helped refine the interview questions, making them clearer for participants. Additionally, the questions were kept open-ended to allow participants to respond freely and without direction.

I adhered to meticulous procedures at each step of the research process, as detailed in Chapter 3 (see Bashir et al., 2008; Carlson, 2010; Lincoln & Guba, 1986; Patton, 2015; Ravitch & Carl, 2021). I utilized a standardized interview protocol, asking each participant the same questions to enhance the credibility of the results (see Patton, 2015). To further bolster the study's credibility, I employed audio recordings, created verbatim transcripts, conducted participant transcript validation, and used reflexive memos (see Ravitch & Carl, 2021). Additionally, I improved credibility by developing a codebook and completing multiple levels of data analysis, including considering discrepant data and capturing thick descriptions (see Jorgensen, 2009; Patton, 2015; Ravitch & Carl, 2021).

After finalizing the protocol and obtaining approval from the IRB, I conducted the interviews in a welcoming and personable manner. I listened carefully to participants, recapping and gently following up on answers to establish trust and ensure honest answers to the questions, which promoted deeper conversations (see Rubin & Rubin, 2012). As recommended by Carlson (2010) and Houghton et al. (2013), I ensured accurate interpretation of their responses by obtaining confirmation from each participant that my interpretations were correct. This included feedback from one of the participants who used a Google document to provide comments, which I incorporated into their finalized transcript. I then followed the analysis process described above, adhering to Saldaña's (2016) recommendations. Finally, I connected my findings to existing literature in the field (Shenton, 2004), with further discussion provided in Chapter 5.

I enhanced transferability (see Ravitch & Carl, 2021) by focusing on broader themes while preserving the detailed insights from each participant. To achieve this, I implemented strategies outlined by Anney (2014), as detailed in Chapter 3. This included using purposeful sampling and providing thick descriptions of the participants' contexts, allowing readers to assess the applicability of my findings to other settings. Additionally, I was careful not to overly generalize the findings, which aligns with the principles of qualitative research (see Lincoln & Guba, 1986; Patton, 2015; Ravitch & Carl, 2021).

I ensured dependability by employing a systematic design and research methods aligned with my RQs. I structured my study according to strategies outlined by Anney (2014), as described in Chapter 3. To enhance the dependability of my findings, I utilized proper coding techniques, which included creating a codebook, recoding, and

documenting decisions about merging codes (see Anney, 2014). Additionally, I used Dedoose software to track analysis decisions (see Houghton et al., 2013). Throughout data collection and analysis, I maintained reflexive memos about interviews, coding, and analysis to ensure the use of dependable techniques for a basic qualitative study.

I ensured confirmability by engaging in reflexivity and keeping an audit trail of research activities in my journal that I kept throughout the data collection process to minimize bias, as suggested by Cutcliffe and McKenna (2004). I followed the strategies suggested by Ravitch and Carl (2021) that I described in Chapter 3. I kept a researcher journal and continued to read my entries and data transcripts throughout data analysis to confirm my coding and thematic thinking. I consulted with my committee members regularly, providing them with any updates related to my coding or data analysis (Spall, 1998). Overall, the systematic strategies I implemented throughout my study enabled me to achieve trustworthy results.

Results

In this section, I organized the results according to the two RQs in my study. For each RQ, I present a code occurrence table that aligns with the themes, listing the codes and visually representing the data, along with a code tree for each theme. The summary is at the end of all results.

RQ1

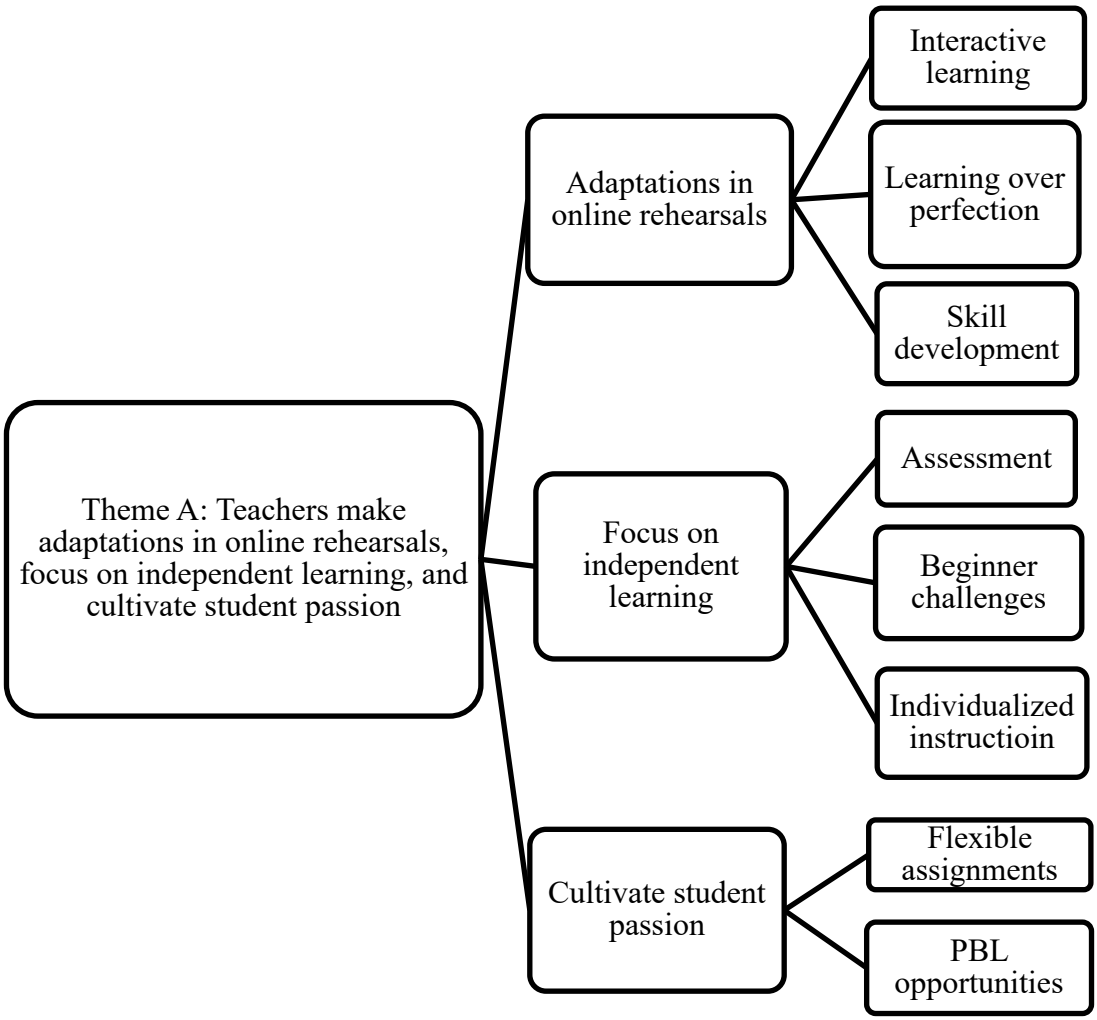
RQ1 was as follows: How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals? As part of data analysis, I determined that Theme A answered this RQ.

Theme A: Music Teachers Make Adaptations in Online Rehearsals, Focus on Independent Learning, and Cultivate Student Passion

Theme A was that music teachers make adaptations in online rehearsals, focus on independent learning, and cultivate student passion. Figure 7 shows the categories and codes for this theme. A total of three categories, eight subcategories, and a total of 16 codes made up this theme.

Figure 7

Code Tree for RQ1 Theme A



Adaptations in Online Rehearsals. The first category within the theme to answer RQ1 was adaptations in online rehearsals. This category has three associated subcategories and a total of six codes to illustrate that teachers integrate interactive learning through technology as a crucial component, prioritize the learning process over perfection or producing culminating concerts, and focus on developing skills such as sight-reading, composing and arranging, music theory, rhythm, and performance. Figure 8 shows the first category, subcategories, and codes for this theme.

Figure 8

Code Tree for Category Adaptions in Online Rehearsals

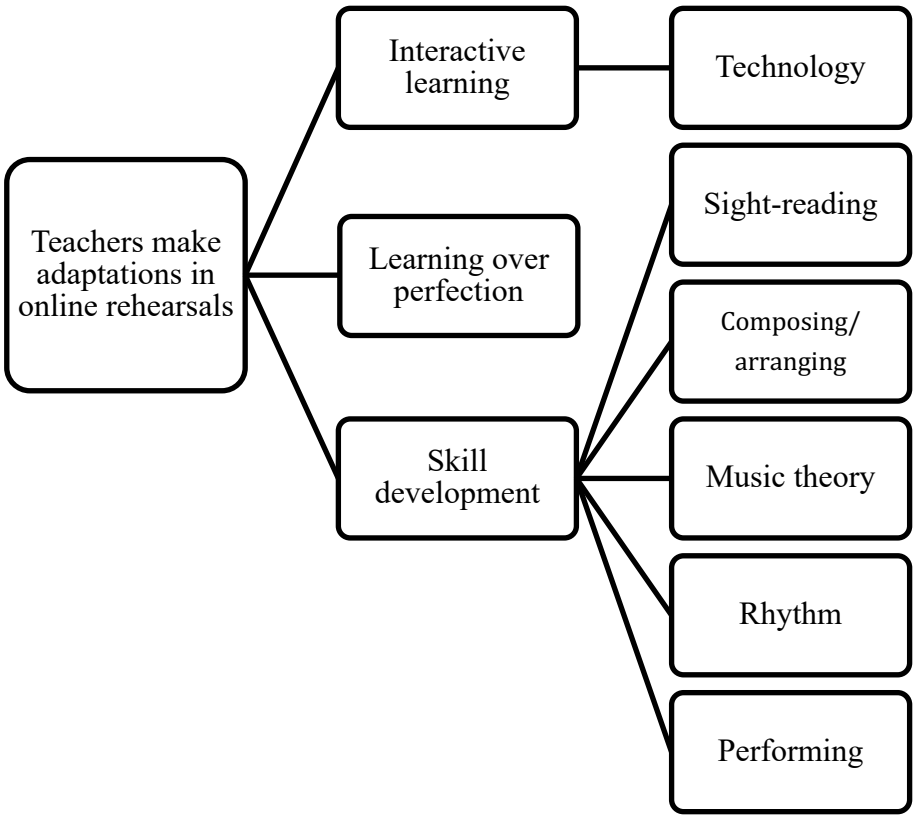


Table 13 lists the number of occurrences associated with each of the subcategory and codes for the category of teachers make adaptations in online rehearsals.

Table 13

Code Occurrences Aligned With the Interactive Learning, Learning Over Perfection, and Skill Development Subcategories

Subcategory and occurrences	Code and occurrences	Total no. of occurrences	Overall
Interactive learning (31)	Technology (75)	106	483
Learning over perfection (52)		52	
Skill development (115)	Sight-reading (69)	325	
	Composing/arranging (29)		
	Music theory (19)		
	Rhythm (22)		
	Performing (71)		

As Table 13 shows, the lowest number of occurrences (52) was in the learning over perfection subcategory. Next was interactive learning and technology (106 occurrences), and the highest number of total occurrences (325) was in the skill development subcategory, indicating its importance within the adaptations in online rehearsals category. Next section examines each of these subcategories in detail.

Interactive Learning. The first subcategory for adaptations in online rehearsals category was interactive learning. In this subcategory, I coded the ways that participants used technological tools to facilitate online learning, without delving into the specific music skills they aimed to develop, which are addressed separately under the skill development subcategory. All 11 participants contributed to this subcategory and the code. I tagged a total of 31 code occurrences in this subcategory, and 75 occurrences within the technology code, where P1, P6 and P11 contributed with the most code occurrences (see Table 14). For example, P1 explained the use of Google Suite tools to help students learn more about the history of their instruments or to conduct surveys,

whereas P11 experimented using MIDI sequencers. All three of the participants also used Kahoot for interactive activities such as icebreakers or warm-up activities, often in breakout rooms. P2 reflected on numerous tools available through MusicFirst LMS, including Soundation, a recording website that was a great tool for those students who did not have access to recording tools such as GarageBand. All 11 participants agreed that technology assisted them in keeping students engaged.

Table 14

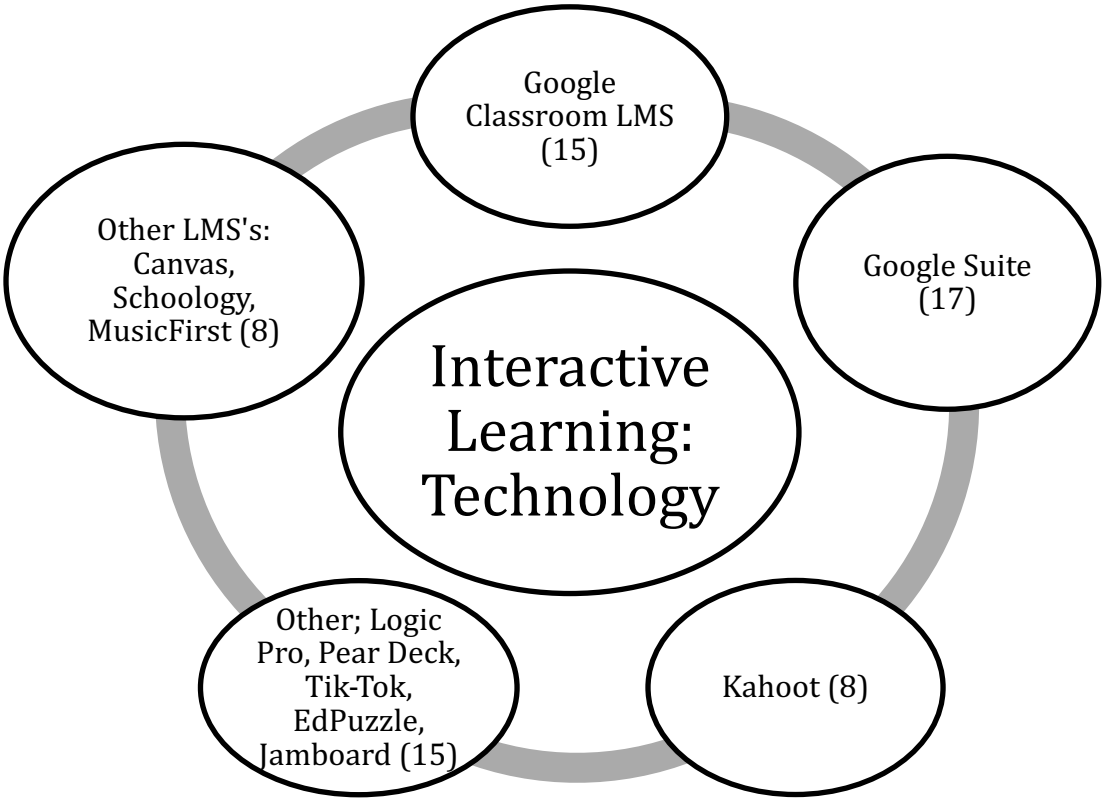
Occurrences for Interactive Learning Subcategory

Participant	Interactive learning	Technology	Total
P1	5	17	22
P2	5	8	13
P3	3	5	8
P4	1	2	3
P5	1	3	4
P6	6	15	21
P7	1	2	3
P8	1	2	3
P9	2	6	8
P10	2	4	6
P11	4	11	15
Total	31	75	106

Figure 9 highlights the most frequently mentioned tools and platforms in this category.

Figure 9

Technological Tools and Platforms Used for Interactive Learning



Technology. This code was defined as the specific technological tools teachers used to create an interactive learning environment. This code appeared 75 times with all the participants. While all participants talked about making the necessary adaptations, the use of technology varied. The most common videoconferencing tool was Zoom (P1, P2, P3, P4, P5, P7, P8, P10, P11), but Google Meet was also used by P6 and P9 for both group and individual lessons. P11 employed Google tools for different projects that included slide shows and spreadsheets, while P1, the participant with the most technology code occurrences, used various tools such as Flipgrid, Kahoot, Soundtrap, Flat.io and shared that the technology "has integrated itself into the classroom."

Teachers also shared that having LMS in place was “helpful” because it allowed for seamless integration of other technological programs. The most common LMS was Google Classroom, used by seven of the participants who shared different approaches to utilizing this LMS. For example, P6, P7, and P8 used Google Classroom for more “academic” assignments and lesson management, and P6 also used Google classroom to “park students’ recording” for convenience. P2 and P11 used Schoology. P3 and P4 used Canvas, with P4 using it mostly for SRF which was well integrated into Canvas.

One of the popular tools was SmartMusic, a digital library that enabled students to access music resources independently. Five out of 11 participants (P3, P5, P7, P9, P11) mentioned using SmartMusic. mostly for students to practice. For P7, this was “probably the main use of technology,” especially “in terms of music literacy.” P3 and P9 used SmartMusic to improve students’ playing technique, utilizing SmartMusic’s method books with scales and exercises. P9 also occasionally chose repertoire pieces because they were available on SmartMusic so students “could practice or submit recordings with it.” Other mentions included Ed Puzzle, a program that allowed creation of interactive instructional videos (P6), GarageBand (P2, P10, P11), and Soundation, a recording website that came with MusicFirst (P2).

While all participants appreciated the technology that enabled continued instruction during school closures, several challenges were identified that made online teaching particularly difficult. The sudden switch to online teaching left teachers feeling “unprepared” (P4), requiring them to learn a lot of new technology (P2), and make numerous adaptations (P5, P7, P8, P9, P10, P11). There was not enough training

provided, which contributed to stress. P4 explained, “I really, really felt overwhelmed by the technology components and I felt a little bit robbed” and P2 indicated dissatisfaction: “I hated teaching music online.” Students’ lack of WIFI (P1, P5, P9) or access to computers (P1, P5) created additional challenges such as equity concerns, and made the impact of technology “limited” (P5). The biggest frustration, as expressed by most participants (P1, P4, P8, P9, P10, P11), was related to latency issues, which forced students to be muted during synchronous rehearsals.

Learning Over Perfection. The second subcategory for adaptations in online rehearsals category was learning over perfection. In this subcategory, I coded instances when participants talked about prioritizing the learning process over perfection or deliberate preparation for a culminating performance. All participants contributed to this subcategory, and I tagged 52 occurrences within this subcategory.

Teachers appreciated the slower pace during COVID, treasuring the additional free time it provided (P1, P2, P3, P4, P5, P6, P7, P11) and took this opportunity to focus on the deep meaning of music, emphasizing connections between the real world, composers, history, and music, rather than focusing on perfecting a final performance. For P1 this meant having more private lessons and helping students “understand the cultural backgrounds for all the songs that we were playing” because “it's not all about a concert!” P9 admitted that “when you don’t have the pressure of all that other stuff, it was nice, it was kind of refreshing to focus on other fundamentals.” P2 focused more on the social-emotional aspect of music: “I’m working on this piece. How can I express this emotion?” Likewise, P3 reflected on the impact of the emotional aspect of making music:

> That's why we do music – it's not to win contests, it's not to have these amazing concerts. So, when all that's stripped away, what are you left with? It's like how does that touch you? How does it touch your heart? How does it touch others? That's like to rip everything down to its core - that was most important… Maybe don't sweat the small stuff as much.

Despite having more time, all participants agreed that putting a concert together in an online environment was "difficult" (P1, P2, P4, P5, P6, P7, P10), "challenging" (P1, P3, P4), "was a lot, was a lot" (P5), "super challenging" (P3), "not reasonable" (P8), and even "virtually impossible" (P9). P10 reflected, "The difference of experience between having an okay time on this remote instruction period versus a very difficult time was how much we were willing to let go of a perfect performance." P10, a tech-savvy teacher, was referring to their experience of preparing a repertoire of eight songs and producing a concert, which "nearly killed me." They expressed regret over spending countless hours editing video and audio files, "making them sound better than they did" for the final virtual concert which was not an indication of student's growth but just "an audio engineering project." P5 stated that "if the ensemble isn't going in the same direction as me, we're not going to be able to put on a concert…And maybe that concert isn't as important." Overall, data showed that teachers were able to have their students gain a "better appreciation for fundamentals" (P5) and expand the learning process beyond concert preparations (P1, P2, P3, P4, P6, P7, P8, P9, P11).

Skill Development. The third subcategory was skill development, which included five codes: sight-reading, composing/arranging, music theory, rhythm, and performing.

This category and the codes included the highest number of corresponding excerpts and mentions, emphasizing the concept of intentionally integrating literacy skills into the online ensemble rehearsals rather than teaching these elements in isolation. I found it challenging to code each skill separately because often, they overlapped in practice. For example, P11 used Soundtrap extensively to teach students how to create multitrack recordings, but also focused on rhythmic duets and improvisation while working on those projects, which developed students' rhythmic, composing, and performing skills simultaneously. This was true for several other participants. Hence, the skills separation here is more for organizational purposes rather than an indicating that these skills were developed independently of each other. Table 15 illustrates the prevalence of the codes that represent various skills across the participants' data.

Table 15

Occurrences for Skill Development Subcategory and Codes

Participants	Skill development	Performing	Sight-reading	Composing/ arranging	Rhythm	Music theory	Total
P1	19	19	18	11	0	0	67
P2	17	5	11	5	4	7	49
P3	7	8	0	0	0	0	15
P4	8	3	7	1	5	0	24
P5	6	9	5	0	0	0	20
P6	11	3	3	6	0	3	26
P7	9	7	0	0	4	2	22
P8	9	2	7	0	0	4	22
P9	11	6	6	0	1	0	24
P10	8	4	5	6	0	0	23
P11	10	5	7	0	8	3	33
Total:	115	71	69	29	22	19	325

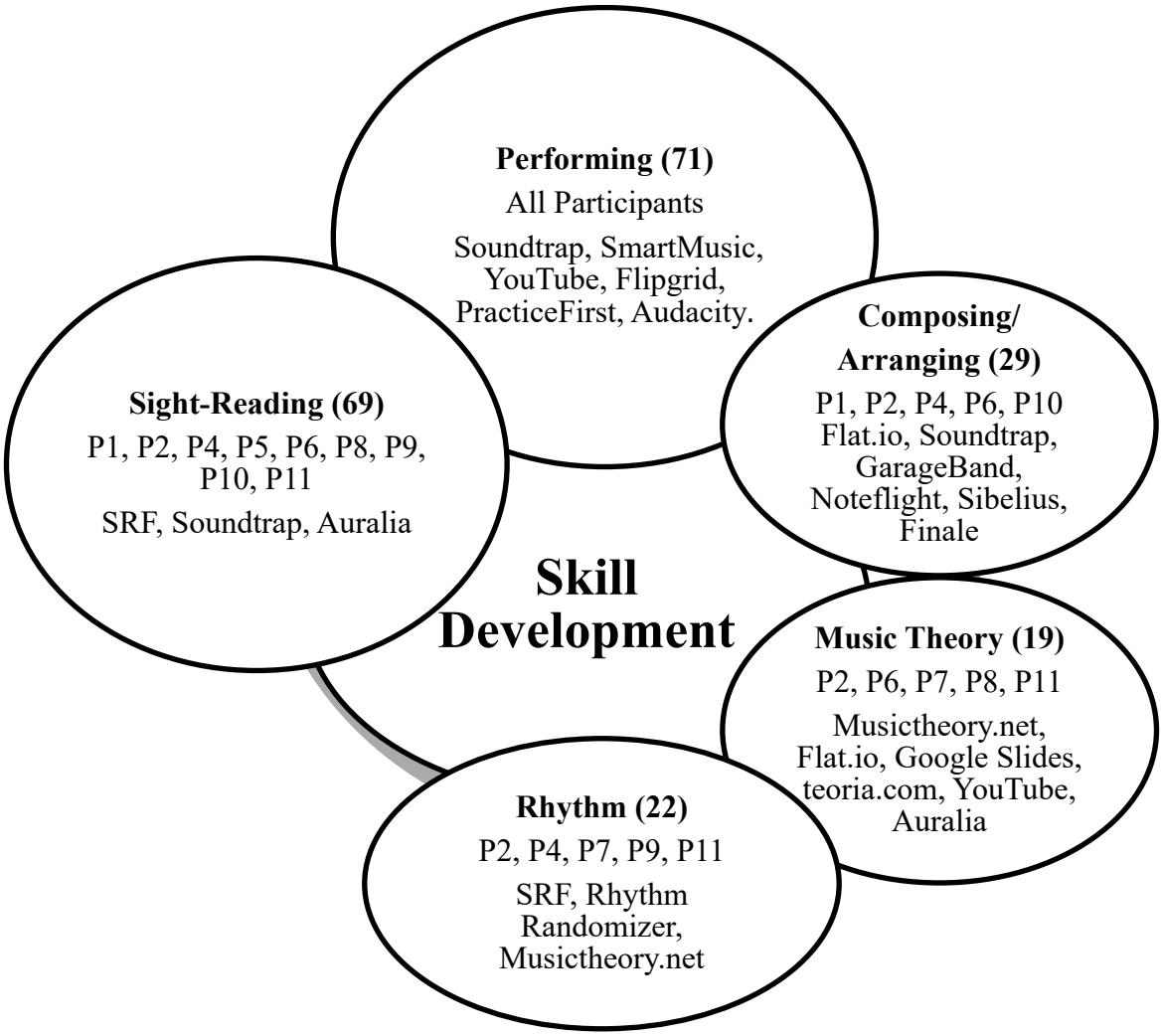
All 11 participants emphasized the performing skills, and nine participants highlighted sight-reading, indicating these were universally considered essential skills.

The emphasis on performing skills is not surprising, considering the nature of these classes, while the focus on sight-reading skills may be attributed to the relative ease with which sight-reading could be practiced and assessed through digital platforms such as Sight Reading (SRF), as mentioned by several participants. Five participants talked about composing/arranging, rhythm, and music theory skills. Despite the varied emphasis, the integration of these skills reflects teachers' commitment to students' growth, as well as their creative approaches to maintaining student engagement.

Figure 10 shows the most mentioned technological tools used for developing specific music skills and the number of occurrences across participants, with the most popular tools listed first.

Figure 10

Frequently Mentioned Technology Used for Developing Music Skills and Number of Occurrences Across Participants



Performing Skills. The most frequently mentioned skill was performing. The primary goal was to keep students engaged by making music, having them sing or play, even if it meant lowering performing standards. Thus, most of the participants prioritized keeping students engaged with their instruments or voice over academic rigor. P7 emphasized this by admitting that otherwise, “I would lose them.” Similarly, P9 and P3’s

main goal was to keep students connected to music through playing their instruments, regardless of skill level. P9 believed that “if you've made it this far in your musical career… it's probably something that somewhere inside you [that] you enjoy”. For P3, “It was a win if I could just keep playing their instrument… It's like English teachers with reading. We just want you to read. I don't care if it's a comic book or whatever.” P8 echoed this sentiment, also highlighting the importance of continuous practice because “our playing depends on muscle memory.”

The inability to physically help students with their instrumental or vocal technique, lack of immediate feedback, and latency issues contributed for the technique to suffer (P1, P3, P5, P6, P8). For example, P5 shared that “sound quality, proper body positioning, proper finger positioning - that was out the window” because students were playing their instruments while sitting on their beds. Focusing on playing pizzicato rather than using the bow allowed P5 for “some sort of clarity of sound to come through the computer”, while asking students to count on the fifth beat instead of the fourth helped “count for the lag time.” P3 reflected on the physical aspect of playing: “Teaching online made me very conscious of what do things feel like,” leading to learn how to describe certain physical elements of playing an instrument, such as putting certain pressure on the bow. P1, P2, and P10 talked about not being able to tell if their students were matching vowels or singing in tune. To address this issue, P6 incorporated more individual sessions to evaluate whether they “were playing the right notes in the right time” or “playing in tune, even if the tone quality of their video was off.” Several other participants (P1, P2, P3, P4, P10) used the same approach and held private lessons via Zoom or Google Meet,

allowing students to practice and perform in real-time, albeit with some limitations due to the delayed sound.

Participants varied in opinions regarding the development of ensemble skills. While P5 believed that the ensemble playing skills have "actually improved because [the students] became aware of 'hey, there are other parts around me, there's other people playing'", other participants disagreed. In fact, P9 even lamented the loss of ensemble playing skills, including listening skills:

> The fundamentals of playing in an ensemble were really lost. It affected this whole generation of kids and we're still recovering from that… It's not just about what you can or can't play, but it's about what you're hearing around you and how you fit into that. Also, about how your interpretation [matches] that of people around you.

Similar sentiment was expressed by nine other participants who emphasized that in-person rehearsals cannot be replaced. P10 talked about the "safety net" during in-person rehearsals where students can hear others around and "adjust" their pitch or intonation. Coming back from the pandemic, P10 explained that students "were having trouble matching intonation, matching pitch, matching vowel shape… I think that's one of the skills that suffered the most." The magic of "experiencing a four-part chord" was gone, P4 reflected, "When you stand in front of a group of kids and you sing a cool chord, you can't replicate that anywhere else." P6 pointed out that because students were muted and many also had their cameras off, it was impossible to know what they were playing or what their tone quality or intonation was like.

Despite all these challenges, all participants emphasized that those students who practiced, have improved, nevertheless. For example, many of P6's students "took solace in practicing," as "that was how they coped with the whole pandemic." As a result, several of P6's students showed considerable progress, and P6 would praise them: "Whoa, your playing has gone way up here. You're looking at most improved for the school year." P1, P3 and P11 who taught both instrumental and vocal ensembles, used the YouTube recordings, adjusted tempo settings, and had students play or sing along. Reflecting on student growth, they observed differences between vocalists and instrumentalists. For example, P1 shared that their vocal students **"**developed a lot more quickly than the instrumentalists." Likewise, P11 believed that "my vocalists developed more than my instrumentalists" because vocalists could practice anywhere while instrumentalists faced challenges like broken instruments or missing supplies and often had to wait for these issues to be resolved to continue practicing. In contrast, P2 observed that instrumentalists developed their performing skills more compared to vocalists because they are "less vulnerable" with playing an instrument being seen as "more technical," whereas singing is more personal because your body is your instrument, making any feedback feel more "personal." Regardless of the ensemble, overall, all participants agreed that students who practiced showed noticeable improvement. This improvement was evident both through submitted recordings and when students returned to in-person instruction. The assessment of performing skills during online instruction will be explored in greater depth in the assessment subcategory analysis.

Sight-Reading. Nine out of 11 participants worked on students' sight-reading skills during the online instruction. Most participants agreed that not having to prepare for a culminating concert allowed them to focus on teaching music literacy skills. For example, P9 shared that "in some ways, when you don't have the pressure of all that other stuff, it was nice, it was kind of refreshing to focus on other fundamentals." P10 expressed the same idea but emphasized that their focus was on listening and sight-reading skills specifically: "I didn't do as much traditional music literacy. What I would try to do is to build their listening and their sight-reading skills." Except for P5 who mentioned using Sight Reading Builder, a tool within the SmartMusic program, the rest of the participants used SRF as the primary tool for the development of sight-reading skills. Several participants even acknowledged currently using this tool in their in-person instruction. For example, P1 is "using the Sight Reading Factory more now," and P6 has "adopted Sight Reading Factory into my teaching a lot now. I just have the classroom subscription to it so that we can do unlimited big group exercises now instead of individual." Because sight-reading skills were primarily developed through assignments and assessments, I will explore their development in greater detail in the assessment subcategory discussion, where I will delve into the specific tools used to evaluate these skills.

Composing/Arranging. Composing and arranging skills were actively developed by five of the participants (P1, P2, P4, P6 and P10), with the goal of exploring students' creativity while keeping them engaged. Some of the popular tools included Flat.io, Soundtrap, GarageBand, and Noteflight. The common thread was for teachers to allow

students to choose their own pop songs or other compositions that interested them to keep them interested and motivated. P1 and P10 even included composition/arrangement as one of their capstone projects. P1 shared that at the end of the year, one of the options was to create their own acapella arrangement using Flat.io, and one of the students impressed them by transcribing a song from their favorite TV show "just by listening to it…it was just mind blowing." It was even more impressive considering that the student has never composed anything before.

P10 had a similar approach to developing composition/arranging skills and had students create their own a cappella arrangements as one of the capstone projects, but students used Soundtrap, GarageBand, and other sequencing software to complete these. Reflecting on these arrangements, P10 shared that it was impressive seeing such highly original and collaborative projects and realized that students have developed their creative or composing skills more than their vocal skills.

Similar to P10, P11 also utilized Soundtrap for composing/arranging projects, though these were more integrated with performances. Students used multitrack recordings to "write a melody to the top line and then improvise an accompaniment with the rhythm of the second line." P11 was impressed by some of the students who "came up with some pretty cool things. It was pretty impressive and quite frankly, surprising."

P2's approach to teaching composition was to integrate it into every class, employing Noteflight as part of their MusicFirst subscription. P2 admitted that even though they preferred Sibelius over Noteflight due to its more user-friendly interface, they used Noteflight extensively because of the program's real-time sharing capability:

"The cool thing about Noteflight is that the kids could share their compositions with me, and I could look at it in real time, which was very cool, which I did use last year actually, with them." The opportunity of monitoring the compositions as they were being composed by the students, allowed for immediate feedback which was essential in online environment. P2 shared that they were not aware of this feature prior to online learning. Hence, this collaborative learning environment was highlighted by P2' as one of the benefits of technology.

To summarize, participants shared how they nurtured students' composing and arranging skills using various technological tools. Providing platforms for creative expression and collaborative work paid dividends as several students produced impressive compositions.

Rhythm. Rhythm was a challenging but essential skill to develop during online learning, according to five participants who integrated teaching rhythm into their online lessons (P2, P4, P7, P9, and P11). For example, P2 integrated rhythm work into their teaching and used SRF and Google Docs for rhythm exercises, having students write in counts. Sometimes, P2 had students record their clapping, and in their theory classes, students did rhythmic dictations.

For P4, improving rhythmic accuracy and understanding was especially challenging. Because P4 taught rhythm through the Takadimi system, aside from using specific syllables to represent different rhythmic values, they had to also use physical elements such as conducting patterns and body movements. These elements presented a challenge because of the latency issues, so the kinesthetic learning was significantly

hindered as a result. However, P4 found a solution to this problem and utilized the SRF's rhythm exercises, having students submit their recordings instead.

In contrast to P4, P7, and P11 found the rhythm development to be one of the most successfully developed aspects of music literacy during online learning. P7 and P11 took different approaches to teaching rhythm. For example, P7 had their students record their parts on Soundtrap, which required them to align their tracks to each other as well as to the accompaniment track, to maintain precise rhythm. Any inaccuracies in a recorded format were more noticeable. As a result, students became more aware of any rhythmic inconsistencies in the online setting. P11**,** on the other hand, took a proactive approach by creating Google Slideshows with copies from the Ottman's sight-singing book, and used these exercises regularly. P11 shared, "That Google Slideshow I made for rhythm counting? I still use that a lot with my students for teaching rhythm." Additionally, P11 used Soundtrap and assigned tasks that involved recording polyrhythms, such as triplets and duplets, on separate tracks, introducing students to more complex rhythmic concepts. As a result, P11 reflected, students' rhythmic skills have improved: "It's definitely paid dividends." Overall, the participants' experiences highlight the challenges and successes in teaching rhythm during online learning.

Music Theory. Music theory skills were actively developed by five of the participants: P2, P6, P7, P8, and P11. Some of the popular tools included musictheory.net, Flat.io, teoria.com, Google Slides, and Auralia. P2 found that "working on [music theory skills] with choir… was so easy to do online…not easy but was easier to transition online versus in person… Yeah, so I definitely think they… were able to

pick up musical literacy." P2's favorite tool was musictheory.net because of the option to customize the exercises which made it accessible for both beginners and advanced learners: "I love that it allows me that accessibility, like to help students with IEPs, to … give everyone the opportunity to learn or challenge them if it's too easy." P2 also integrated Auralia into their teaching, especially for interval training, which showed noticeable progress among students.

P6 echoed the positive impact of musictheory.net and agreed that teaching music theory online was an easier adaptation than teaching some of the other skills. In addition to musictheory.net, P6 incorporated the Five-Minute Mozart series from YouTube. This resource was helpful for understanding scales, especially three forms of minor scales, or for teaching intervals, because of the "visual images and quick explanations." Additionally, P6 created their own resources using interactive programs like Pear Deck, especially when teaching basic music literacy.

P7, P8 and P11 used similar strategies to teaching music theory by integrating daily theory exercises into their classes. P8 dedicated the first few minutes of each class to musictheory.net activities, noting, "So right now, it pays off, definitely pays off. And they became more proficient." Similarly, P11 utilized musictheory.net "extensively," along with uTheory.com. P7 introduced teoria.com as another resource to teach music theory online.

Overall, the participants' experiences demonstrate that music theory was well-suited to online instruction. The adaptability and accessibility of the available online tools

allowed for differentiated instruction, meeting the needs of students at various levels of proficiency.

Independent Student Learning. The second category that emerged to answer RQ1 was independent student learning. Teachers promote independent student learning by using assessment techniques that include individualized feedback and recordings, addressing beginner challenges and isolation, and providing solo opportunities and individualized instruction tailored to each student's learning pace, motivating students, and leading them to success. Figure 11 shows the subcategories and codes for this theme. There were three subcategories in this theme, with a total of seven codes.

Figure 11

Code Tree for Category Teachers Promote Independent Student Learning

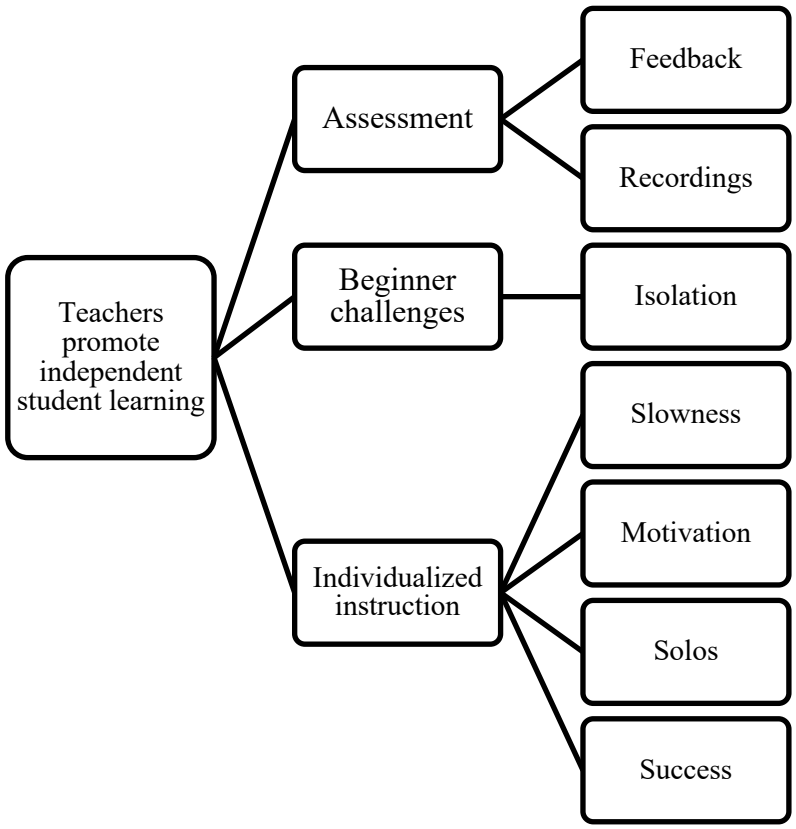


Table 16 lists the number of occurrences associated with each of the subcategories and codes for the category of teachers promote independent student learning.

Table 16

Code Occurrences Aligned With the Assessment, Beginner Challenges, and Individualized Instruction Subcategories

Subcategory and occurrences	Code and occurrences	Total no. of occurrences	Overall
Assessment (43)	Feedback (15) Recordings (26)	84	253
Beginner challenges (12)	Isolation (8)	20	
Individualized instruction (39)	Slowness (18)	149	
	Motivation (16 Solos (12) Success (64)		

As the Table 16 shows, the highest number of code occurrences (149) was in the individualized instruction subcategory, making it the most significant focus within the category. Next was assessment subcategory (84 occurrences), and beginner challenges had fewer occurrences (20), with isolation being a notable concern. The emphasis on assessment was important, considering that teachers were actively looking for ways to assess their students in fully online setting. The success code includes positive learning experiences or outcomes that made teachers proud. Overall, this suggests that individualized instruction was the primary area of focus, with significant number occurrences for success (64). Next section examines each of these subcategories in detail.

Assessment. The first subcategory for independent student learning category was assessment. In this subcategory, I coded ways that participants used assessment to

monitor student progress. The subcategory and codes were applied to data excerpts that mentioned assessment through feedback and individual recordings, the two codes that emerged from this subcategory. All eleven participants contributed to this category, with ten participants contributing to the recordings code and eight participants contributing to the feedback code, emphasizing that the most used approach to assessing students was through individually submitted recordings. I tagged a total of 84 occurrences which included 15 occurrences within the feedback code, where P1, P4 and P6 contributed with the most code occurrences, and 26 occurrences within the recordings code, where P9 and P2 contributed the most. Table 17 shows occurrences for assessment subcategory.

Table 17

Occurrences for Assessment Subcategory

Participant	Assessment	Feedback	Recordings	Total
P1	5	3	2	10
P2	5	0	5	10
P3	2	1	1	4
P4	4	3	2	9
P5	2	1	0	3
P6	6	3	3	12
P7	3	0	3	6
P8	2	1	1	4
P9	9	2	6	17
P10	3	0	1	4
P11	2	1	2	5
Total	43	15	26	84

Feedback. All eight participants who contributed to this code emphasized the value of immediate feedback. The in-person feedback was acknowledged by P5 and P8 to be the most effective approach to adjust posture, hand positions, bow pressure, and other physical elements of playing an instrument. However, in an online setting, teachers had

significant challenges related to latency issues (P1, P4, P9) and, as a result, struggled to replicate the immediacy of in-person feedback (P2 and P3). P6 noted the difficulty in reading students' nonverbal cues and assessing their understanding or performance quality without in-person interaction. P6 explained that students being muted and often with their cameras off added yet another layer of difficulty for teachers who felt that "okay, now I don't even know what you sound like while you're playing." P10 noted that students were unable to rely on each other for pitch correction or sound improvement which made it very difficult for them to improve. P4 reflected, "Is there a way to create harmonic context through Zoom? You know, in the moment that was my billion-dollar question." P1 and P6 expressed the same sentiment, highlighting that they found students to have an increased feeling of exposure, feeling "vulnerable" because the usual auditory feedback from their peers was gone. P10 tried asking students for self-assessment but did not find it to be an effective way to evaluate their progress. Students would put thumbs up in the chat, when, in fact, it was clear that many of them struggled.

To mitigate these issues, some participants, like P1, developed a system of peer feedback, but it took a while to gradually build trust and confidence for students to be able to play or sing in front of each other. P8 used breakout rooms and encouraged students to unmute and play for each other, which worked in smaller group settings, making it easier to provide feedback. Some participants (P1, P4, P6, P8, P10) opted to schedule individual lessons or sessions where students could unmute and play "live." This approach helped, because, according to P6, despite ongoing sound and latency issues, teachers could "at least hear if they were playing in tune" or "if they were playing

the right note in the right time." P5 also had students play while muted, requiring them to keep their cameras on so that fingering and positioning could be assessed, though this method still fell short without sound. Overall, while participants found creative ways to address these issues, the online environment presented significant challenges to providing immediate feedback for performance improvement.

Recordings. While navigating the difficulties in providing immediate feedback during synchronous rehearsals, 10 out of 11 participants teachers discovered that assessing students through individually submitted recordings was the most effective solution. Some of the recording tools mentioned included Soundtrap (P1, P4, P6, P7, P10, P11), GarageBand (P2, P4, P10, P11), SmartMusic (P3, P5, P7, P9), Flipgrid (P1 and P3), and Logic Pro (P10, P11), and Music Minus One (P8)**.** Soundtrap allowed for students to practice along with other tracks, record their music, and receive feedback on their performances, all within the Soundtrap platform. P7 used Soundtrap for group exercises, which allowed students to record their own tracks while also listening to other students' recordings almost in real time and noted "that was a very successful way for us to sing back and forth to each other and be able to listen and critique, and blend, and do all of those kinds of things." P4 also experimented with Soundtrap for multitrack recordings, although they felt limited due to insufficient professional development: "I think… had I gotten more training on that, I probably would have been more successful with that." P1 and P9 utilized Flipgrid or Zoom instead, enabling students to record and submit their scales or performances at their own pace. P9 shared that students preferred recording themselves because it took the pressure off from having to play in-person and

helped reduce anxiety. P11 shared about having students record their music along with the recordings that were made as accompaniments. P3 also mentioned using Flipgrid for individual recordings but noted that the process lacked the immediacy feedback aspect. Overall, students liked the flexibility of recording at their own pace and the opportunity to submit their best recording for assessment (P2, P4, P6, P8, P10).

Another tool used for assessing performing skills was SmartMusic. P9 and P3 both relied on SmartMusic as a practice tool, with P9 specifically mentioning its effectiveness in allowing students to practice independently and submit recordings for assessment. P7 echoed this sentiment, citing SmartMusic as the main technology used for music literacy and performance skill development. P5 used SmartMusic for practice, promoting self-directed learning, as students were able to practice outside of the full class setting, and then assessed students via their submitted recordings.

To work on intonation and pitch accuracy skills**,** P2 utilized PracticeFirst within the MusicFirst Classroom. Although primarily used for instrumental practice, P2's honors choir students engaged deeply with the tool and really enjoyed practicing: “They would spend hours trying to get 100% which is near impossible which voice, but a couple of them did it!”

In addition to performing skills, teachers used recordings to assess students’ sight-reading skills as well. Eight participants used SRF for sight-reading assessment (P1, P2, P4, P6, P8, P9, P10, P11), and P5 used SmartMusic’s Sight Reading Builder tool. P4, who called SRF “a saving grace,” found it to be an easy task to setup assignments within the integrated Canvas LMS, and praised the program: “I think we were still able to

progress because of that customization factor that I absolutely love about Sight Reading Factory… Sight Reading Factory was tremendous" Similarly, P1 and P9 also noticed an improvement in their students' skills: "I could hear their improvement, you know, from week to week." P1, who tailored exercises to individual student needs, noted that the increased access to Chromebooks enabled more consistent use of SRF in both remote and in-class settings, and became "proficient at it more individually." P11 attributed student growth to the independence factor in online setting and pointed out that online learning required students to "decipher" musical symbols "on their own," which is different from doing this in class where students rely on each other. P11 added that this independent practice led to significant growth in students' sight-reading abilities.

Participants shared their satisfaction with using several of SRF's tools. For example, P2, P9, and P11 used SRF to teach more fundamentals. P11 "pushed" for rhythm and key signature awareness, acknowledging the importance of these skills in reading music. P2 was happy to share that their students progressed because of the SRF use: "I actually think in terms of sight-reading and music literacy…my kids learned during COVID. [They were] definitely able to pick up musical literacy." Likewise, P9 found SRF to be a "huge tool" during online learning, praising its ability to cater to different skill levels. For P8, SRF was a great practice tool for students who wanted to audition for honors orchestra. Those ambitious students "started with level three and up, because this is the high school. Level three to six, daily sight reading was available for them." As a result, P8 observed significant improvement in students' reading skills, attributing this growth to the consistency of using SRF, among other tools.

Despite various available tools in SRF that proved to be beneficial for student development, the recording option for submitting individual assignments emerged as the most valuable. To demonstrate, P10 shared that the lack of individual submission and classroom monitoring features in the free version of SRF posed challenges in online setting, prompting P10 to use SRF more sporadically, finding it challenging to assess students. This, once again, was an indication that synchronous assessment was not a viable option in online ensemble setting and that individual student recordings were the most successful way to evaluate students.

Beginner Challenges. The second subcategory for independent student learning category was beginner challenges. In this subcategory, I coded instances when participants shared about challenges that beginner students faced. Despite the variety of challenges mentioned, one code emerged more consistently: isolation. This code referred to the struggles that underclassmen experienced with music literacy or instrumental/vocal skills due to their inability to learn from more experienced students. Six participants contributed to this subcategory and the isolation code. I tagged a total of 22 occurrences which included nine occurrences within the isolation code, and 13 occurrences within the beginner challenges subcategory. Table 18 shows occurrences for beginner challenges subcategory.

Table 18

Occurrences for Beginner Challenges Subcategory and Code

Participant	Beginner challenges	Isolation	Total
P1	2	1	3
P2	0	0	0
P3	1	1	2
P4	1	1	2
P5	1	1	2
P6	0	0	0
P7	0	0	0
P8	0	0	0
P9	4	4	8
P10	4	1	5
P11	0	0	0
Total	13	9	22

Participants (P1, P3, P4, P5, P9, P10) shared about the significant challenges their beginner students faced in online environment, particularly in online ensemble rehearsals. P5 shared the strategy they used for beginner string players to learn the instrument: "I would bring the instrument closer, show them fingerings up close…and then see if they could replicate or mimic, you know, what I was doing." Both P3 and P5 shared concerns about the lack of learning proper technique and, as a result, a decline in performing skills in the beginners. P1 reflected that learning a new instrument in the online environment influenced many students' decision not to stay in the program:

> Anyone that I started on their instruments over COVID online, that was very difficult. And a lot of those students didn't stick with it because they didn't know what it was supposed to sound, and they didn't know what the instrument, the timbre was supposed to be like.

Learning music literacy skills online was also a challenge for the beginners. P10 shared that their freshmen were learning how to sight-read for the first time, and "they found that very difficult and would not even approach it. They would rather do the YouTube music review project instead of a sight-reading project." Overall, the six participants who contributed to this subcategory agreed that teaching beginners online was a challenging experience that required continuous adjustment of instructional practice.

Isolation. Participants who contributed to this code (P1, P3, P4, P5, P9, P10) shared about the feelings of isolation that the beginner students experienced. Both P4 and P9 emphasized how their freshmen struggled without having upperclassmen physically in the same room with them, to learn from and to follow in the ensemble. P4 explained that this natural form of learning, cultivated in ensembles, that comes from learning through observation and auditory feedback, was "taken away" from them. P1 reinforced this sentiment, sharing,

> Because we weren't rehearsing as an ensemble, my underclassmen, my freshman, couldn't follow the lead of my upper classmen, my seniors and juniors who've been doing it for longer, who read the sheet music so quickly and easily. So that made it difficult.

As a result, according to P9, the fundamentals of ensemble playing, such as listening skills, interpretation, blending, balance, were lost, affecting an "entire generation of students." Overall, participants agreed that the sense of isolation, combined with the challenges of learning how to read music or to play an instrument, and lack of in-person

mentorship and immediate feedback, created a difficult learning environment for beginner students.

Individualized Instruction. The third subcategory for independent student learning category was individualized instruction. In this subcategory, I coded individualized approaches to instruction which included breakout rooms, small group rehearsals, private lessons, or solo opportunities. The four codes that emerged from this subcategory include slowness, motivation, solos, and success. All 11 participants contributed to this category, with ten participants contributing to the success code, followed by eight participants contributing to slowness, six participants contributing to solos, and four participants contributing to motivation. Table 19 shows the prevalence of the codes for individualized instruction subcategory across the participants' data.

Table 19

Occurrences for Individualized Instruction Subcategory and Codes

Participant	Individualized instruction	Slowness	Motivation	Solos	Success	Total
P1	6	3	10	1	12	32
P2	3	2	0	0	6	11
P3	5	1	0	0	0	6
P4	4	1	1	2	5	13
P5	1	2	0	0	3	6
P6	8	0	4	3	11	26
P7	2	2	0	1	1	6
P8	2	2	0	1	5	10
P9	3	3	0	0	3	9
P10	4	0	0	4	7	15
P11	1	0	3	0	11	15
Total	39	16	18	12	64	149

Individualized instruction became a prominent feature during online learning, according to all participants. This approach allowed for teachers to not only cater to

students' specific needs (P1, P2, P3, P5, P10, P11) but also learn more about their students' learning styles (P1, P8, P10). Participants discussed how scheduling one-on-one sessions and connecting individually became common practice of teaching online, which also helped students to take ownership of their learning (P9 and P10). P9 shared that music teachers in their district agreed to substitute band classes with the so-called "studio time" during which students met individually with each of the teachers with different instrument specialties to work on fundamentals of tone production. Thanks to some flexibility with scheduling in some districts, P1 and P6 shared that teachers were able to offer private lessons instead of ensemble classes. When meeting individually was not an option, P5 stated that teachers would ask students to unmute themselves to play individually one at a time or P2 added that they would utilize breakout rooms for sectional rehearsals during which students would also socialize and connect with each other. Overall, participants agreed that individualized approach allowed for more focused instruction that contributed positively to student growth.

Slowness. Participants noted that the slower pace during the pandemic allowed for more focused, individualized attention. P1 shared that the availability of time encouraged those students who wanted to improve, to book private lessons--something that would not be possible in a regular setting. P11 reinforced this sentiment, adding that the slower pace allowed for students to explore beyond the curriculum, including some creative projects. Similarly, P4 pointed out that students had more time to process and develop skills, and some even experienced a boost of self-esteem: "They actually had more time to process like, you know what, maybe I'm a better singer than I originally thought." Several of P6's

students showed notable improvements because they “took solace in practicing.” Additionally, the online setting allowed for teachers to invite guest speakers or performers via Zoom (P1, P4, P5, P8). P4 added that students “really enjoyed that; they were really engaged by some of those guest performers that we brought in.”

Motivation. Staying motivated was a struggle for both the students and the teachers. “It was very frustrating for me” P4 reflected. P11 shared, “I tried really hard to have a good attitude about it. I mostly succeeded.” P5 tried to stay positive by motivating others and posting “random motivational messages or YouTube.” Keeping students motivated presented significant challenges (P1, P4, P6, P11). P7 reflected, “The biggest challenge was keeping them singing… and happy, because everything was the same.” P9 reinforced this sentiment, sharing that a group of students

> maybe not the best players, but good kids, just disappeared during the virtual learning, though had always liked music. But you know, I could say confidently that probably 99.9% of those kids disappeared from all of school, it was not a music related thing.

Realizing that students needed support and encouragement, to have the “professional” there for them, P4 came up with various strategies to keep students engaged, such as setting up practical goals for students rather than having them "sitting around and chit-chatting." P9 motivated their students by encouraging them to stay connected to their instruments as a source of joy and positivity during stressful times. P1 and P10 increased students’ excitement by facilitating creative activities such as virtual concerts, talent nights, or virtual solo ensemble competitions. To keep things fun and engaging, P8 and

P7 incorporated games and contemporary music into their lessons. Overall, teachers found ways to keep students motivated while also staying positive themselves.

Solos. I coded instances when students have demonstrated growth as solo players, singers, or musicians. Teachers who contributed to this code observed that, in addition to noticeable personal musical growth, these students have also demonstrated increased comfort and confidence while performing solo pieces. P4 noted, "Those kids who loved the solo aspect" thrived, sharing a story of a shy and “kind of a wallflower” student creating a singing video of themselves, and “it was far better than anything I had ever seen in the classroom. So that was kind of a cool thing because I think that they developed the confidence because they were in their own space.” A similar story was told by P1 who noticed confidence in several students’ playing abilities and added that students felt comfortable recordings from their own space. P6, P9, and P10 were pleasantly surprised by some students who stepped out of their comfort zones (P6) and learned new instruments, such as the ukulele (P10). Overall, those students who were consistent and engaged, considerably improved in various areas of musical and personal growth.

Success. I coded instances of student success which was the result of the participants’ efforts to stay positive, motivated, and creative. This code received the highest number of occurrences, indicating that, despite all the challenges of the turbulent times, participants were able to achieve positive outcomes during and after online learning teaching. Student success and growth was observed across various areas during online learning. P9 shared, “There were definitely kids where I could hear their

improvement, you know, from week to week," This growth in confidence was echoed by P11, who noted improvements in many students' rhythm skills. P11 was proud of some of their students who were able to put together challenging pieces:

> We had some really high functioning string quartets that tried to put together Schubert's *Death and the Maiden*, by them all recording their own tracks... they were able to learn this quartet, and by the time when they got together in person, they were able to put [it] together very quickly.

All participants agreed that consistency in attendance and practice were important factors in achieving success. P7 reflected that despite all the challenges of online teaching, "It was as successful as it could have been…It was surprising that we were prepared in any way to do what we eventually did… I guess, it wasn't as dark a time as it could have been."

Cultivate Student Passion. The third category that emerged to answer RQ1 was cultivate student passion. Teachers cultivate student passion by providing flexible assignments and PBL opportunities that include creative projects, music history projects, and virtual concerts. Figure 12 shows the subcategories and codes for this category. There were two subcategories in this theme and three codes.

Figure 12

Code Tree for Subcategory Teachers Cultivate Student Passion

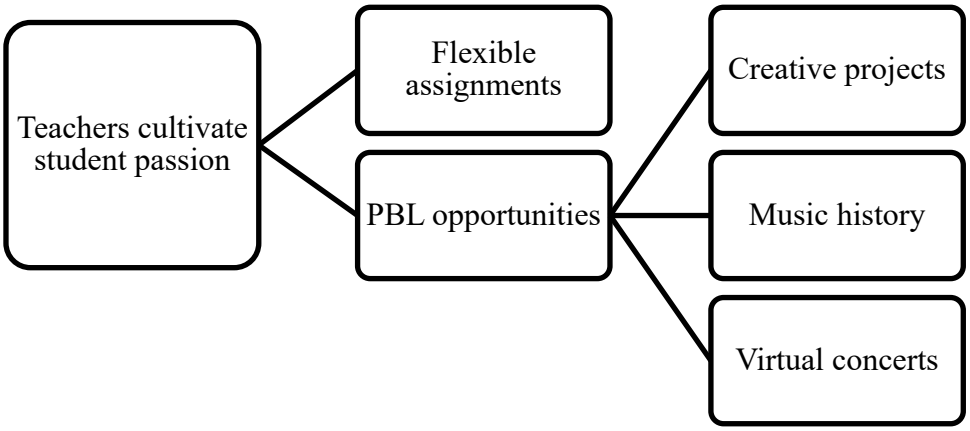


Table 20 lists the number of occurrences associated with each of the subcategories and codes for the category of teachers cultivate student passion.

Table 20

Code Occurrences Aligned With the Flexible Assignments and PBL Opportunities Subcategories

Subcategory and occurrences	Code and occurrences	Total no. of occurrences	Overall
Flexible assignments (26)		26	183
PBL opportunities (90)	Creative projects (31) Music history (20) Virtual concerts (16)	157	

As the Table 20 shows, the highest number of code occurrences (157) was in the PBL subcategory, which included creative projects (31), music history (20), and virtual concerts (16). Overall, this suggests that teachers cultivated student passion by tapping

into students' creative minds and giving them project opportunities. Next section examines each of these subcategories in detail.

Flexible Assignments. The first subcategory for cultivating student passion category was flexible assignments. In this subcategory, I coded instances when teachers provided students with freedom to choose their assignments, or the format they wanted to submit their assignments in, also offering extended deadlines. Ten out of 11 participants contributed to this category, with the highest number of occurrences shared by P1 who created virtual competitions, talent nights, or karaoke nights as part of their assignments. P9 gave autonomy to their students in choosing the format of their responses to music listening projects: they could write, play, compose, or draw. P3 allowed for students to choose a song and family members they wanted to play it with, as well as do a slideshow explaining why they chose that piece, "what's the connection for them, who they connected that piece with." P8 offered flexibility by allowing students to play a piece they liked or revisit a favorite solo. P11 shared that students were encouraged to create melodies and improvising accompaniments, leading to impressive results, especially among those with prior private music lessons experience. P10 asked for their students to "imitate the style or come up with their own flare for singing covers." Overall, these approaches aimed to provide students with a sense of freedom and control, something that participants felt was lost during in-person classes where opportunities were limited because of the strict group performance expectations.

PBL Opportunities. The second subcategory was PBL opportunities which included three codes: creative projects, music history, and virtual concerts. This category

and the codes included the highest number of corresponding excerpts and mentions, emphasizing the importance of providing project-based opportunities for students to cultivate student passion. Table 21 illustrates the prevalence of the codes across the participant's data.

Table 21

Occurrences for PBL Opportunities Subcategory

Participant	PBL opportunities	Creative projects	Music history	Virtual concerts	Total
P1	31	6	12	3	51
P2	9	5	1	1	16
P3	9	4	1	4	18
P4	5	2	0	1	8
P5	2	0	0	0	2
P6	6	3	0	2	11
P7	5	2	0	2	9
P8	3	0	3	0	6
P9	3	2	0	0	5
P10	9	5	0	1	15
P11	8	2	3	2	15
Total	90	31	20	16	157

Creative Projects. One of the ways that teachers cultivated students' passion was through creative projects. These projects developed students' composition/arranging skills and allowed for students to explore their creative side. For example, P10 shared that during a capstone project, students created elaborate multi-part harmony arrangements using sequencing software like Soundtrap or GarageBand, showcasing their creativity and growth in technology and composition skills. Students created original works using the collaborative real time function within the Flat.io program, which allowed them to work on the same score simultaneously (P1, P4, P6). P6 pointed out the speedy feedback option that "shows them which ones they get wrong; it shows them the correct answer."

P2 had students creating sight-reading examples that their peers could sing. P1's students developed creatively because they collaborated with each other, which made them "better students."

Creativity manifested in other forms as well. For instance, P4 invited voice professionals to speak about auditioning for community musical theater. In P6's class, small group projects and technology were used, resulting in impressive collaborative projects such as a successful viola duet. P10's approach ranged from encouraging students to teach a family member how to sing a scale to engaging in creative projects like acapella arrangements, which resulted in a "creative and technical" growth, rather than purely vocal. Several participants encouraged students to develop their passions by providing opportunities to learn new instruments (P1, P2, P4), create solo or duet recordings (P5), and engage in composing and recording projects (P9 and P10). P11 shared about one of the students who

> collaborated with his friend at the neighboring high school and they would put together like a whole video production along with the audio. He would make whatever our project was. Then he would send it to his friend and his friend would make like this interpretive video to go along with that. They would do all sorts of these things above and beyond, that was pretty cool.

These initiatives allowed students to explore and deepen their musical interests, fostering creativity and individual growth.

Music History. For some participants, this was a time to explore music history. For example, P4 highlighted the success of fun activities like "March Madness for

composers" when students explored composers' lives and works of their choosing. P11 described creating YouTube playlists that traced the evolution of music history from classical composers like Haydn and Mozart to early hip hop, which engaged students in understanding the music they were studying on a deeper level. P1 took a little different approach, and students had to find a professional musician "that either was the same vocal range as them, or plays the same instrument as them, and then they did a ton of research…that made them start listening to more music that they enjoy…. We still do that project." Overall, integrating music history, encouraging creative projects, and providing opportunities for individual expression, helped students explore and deepen their musical interests.

Virtual Concerts. I coded instances when teachers developed virtual projects, including concerts, by compiling audio and video files created by students and integrating them into cohesive productions. For example, P3 shared that they "did a full-blown rock concert at the end of the year," which involved getting copyright permissions and hiring some professionals to mix the sound and put the tracks together. P1 used the student-submitted tracks and "melded" them together, producing virtual concerts. P11 "put together some virtual audio recordings using Soundtrap with varying degrees of success." Because of the complexity of creating virtual concerts and the need to be comfortable with the technological aspects of putting together virtual performances, some participants opted out of creating big culminating virtual concerts. However, those who did produce virtual concerts had mixed feelings about their value. For example, P10, a tech-savvy teacher, created an impressive culminating virtual concert, along with their student

teacher, and even though they acknowledged the benefits of student collaborations and the opportunity to showcase the student talent, they regretted spending countless hours working on this production as it didn't reflect their student progress but was a "production project." Nevertheless, virtual concerts were another way of providing students with an outlet to express their talents, and for the community to enjoy.

RQ2

RQ2 was as follows: How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals? As part of data analysis, I determined that Theme B answered this RQ. The discussion that follows is organized by this theme and the categories within the theme.

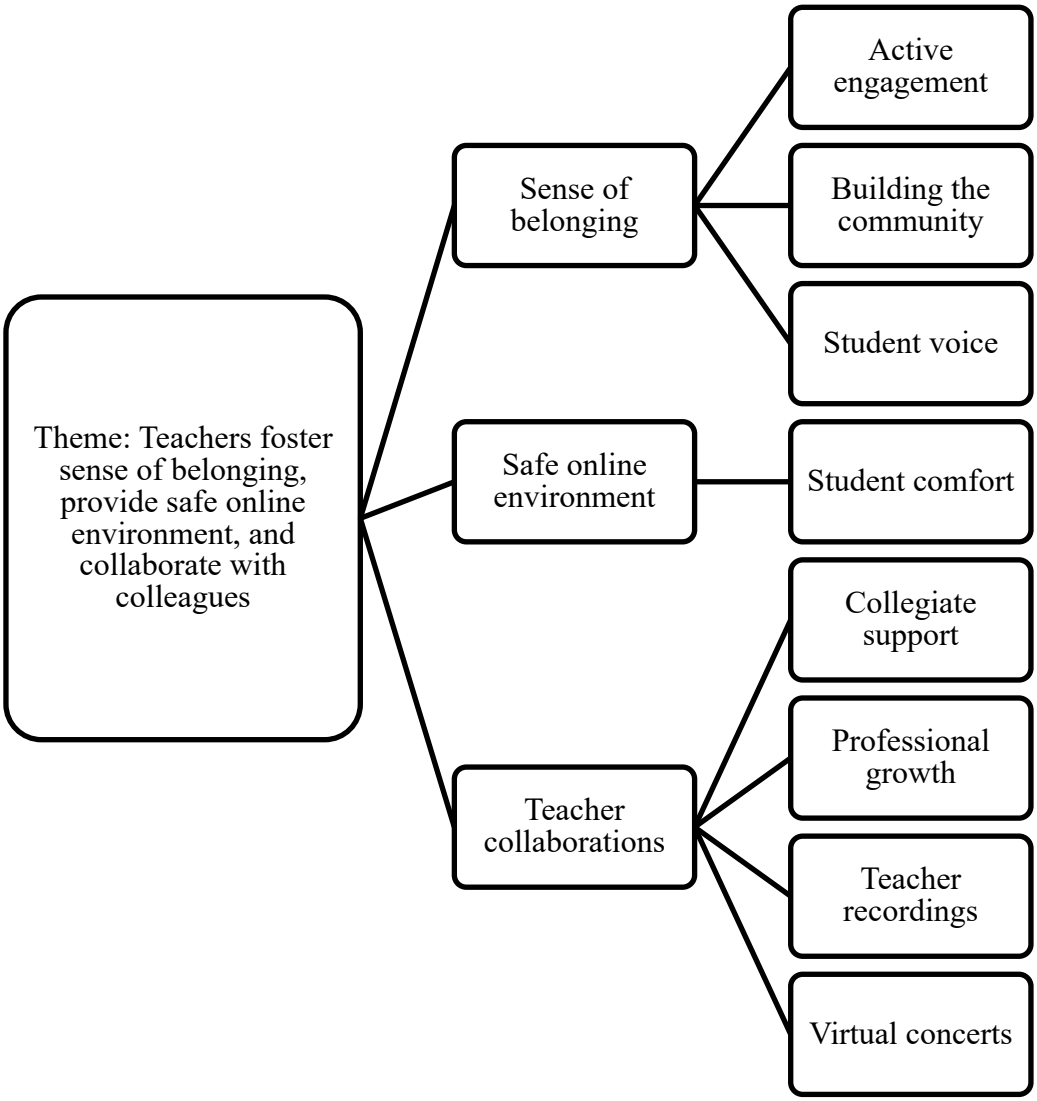
Theme B: Music Teachers Foster Sense of Belonging, Provide Safe Online Environment, and Collaborate with Colleagues

Theme B was music teachers foster sense of belonging, provide safe online environment, and collaborate with colleagues. Figure 9 shows the categories and codes for this theme. A total of three categories, eight subcategories, and a total of eight codes made up this theme.

The following code tree in Figure 13 shows all three categories that answered this RQ.

Figure 13

Code Tree for RQ2 Theme, Categories, and Subcategories



The discussion that follows is organized by these categories.

Sense of Belonging. The first category that emerged to answer RQ2 was teachers foster sense of belonging. This category has three associated subcategories and a total of six codes. Figure 14 shows the category sense of belonging, subcategories, and codes for this theme.

Figure 14

Code Tree for Category 4: Sense of Belonging

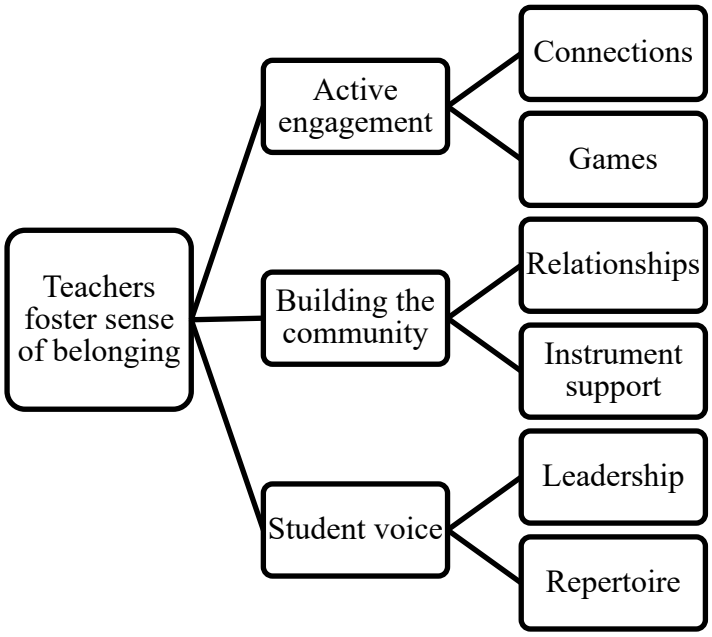


Table 22 lists the number of occurrences associated with each of the subcategory and codes for the category of sense of belonging.

Table 22

Code Occurrences Aligned With the Active Engagement, Building the Community, and Student Voice Subcategories

Subcategory and occurrences	Code and occurrences	Total no. of occurrences	Overall
Active engagement (52)	Connections (21) Games (20)	93	311
Building the community (67)	Relationships (28) Instrument support (12)	107	
Student voice (61)	Leadership (27) Repertoire (23)	111	

As the Table 22 shows, the highest number of occurrences was in the student voice subcategory (111), followed by building the community (107), and active engagement (93) subcategories. This suggests that teachers prioritized empowering student voice and building the community by providing leadership opportunities, embracing student-centered repertoire, and fostering relationships through various ways, including home visits for instrument repairs. Teachers also enabled active engagement in online rehearsals and connected with students through games and other activities.

Active Engagement. The first subcategory for fostering sense of belonging was active engagement. In this subcategory, I coded the ways that participants actively engaged students during online rehearsals. Some of the activities included playing games, facilitating personal discussions, and creating fun experiences. By incorporating these methods, teachers cultivated personal connections and helped students feel cared for, consequently, encouraging them to get more involved. All 11 participants contributed to this subcategory. For example, P4 and P5 discussed using personalized interactions, such as talking about pets or daily life, to make students feel more comfortable and engaged in the online setting. P10 emphasized the importance of incorporating games like scavenger hunts and icebreakers to create a sense of community and connection among students. P11 used activities like March Madness for composers and orchestra meme contests. Meanwhile, P2 and P8 highlighted the use of specific games like Rhythm Bingo and "Halloween Instrumental Costume" to make learning fun and interactive. These methods were not just about entertainment; they were strategically used to enhance learning, build relationships, and create a supportive online community where students felt connected

and motivated to participate. Table 23 shows the code occurrence per participant related to each active engagement subcategory.

Table 23

Occurrences for Active Engagement Subcategory

Participant	Active engagement	Connections	Games	Total
P1	9	4	4	17
P2	5	0	2	7
P3	5	3	0	8
P4	7	2	3	12
P5	3	2	1	6
P6	4	2	2	8
P7	3	1	0	4
P8	3	1	2	6
P9	1	1	0	2
P10	9	4	4	17
P11	3	1	2	6
Total	52	21	20	93

Connections. Ten of the 11 participants recounted experiences of building connections with their students, and most of them shared how much their relationships with the students meant to them. For example, P8 “learned the value of interpersonal connection with the students, the importance of understanding them better.” For P4, the surprise was related to their students’ pets that often appeared on screens and became great conversation starters. P4 would say, “Oh, well, tell me about your cat there,” which would lead to a conversation about the cat, making the student feel at ease and “in her element…Why don’t you sing that for Jasper?” Collaborative project initiatives allowed P6 to

> pay attention at little bit more to who they were interacting with in class whenever we all came back…I realized that over the course of my career, somewhere, I lost where their friendships were, and that brought that back into focus.

For P6, this was a time to

> step back and make sure I was catching everybody a little more fully, especially in the larger group at the high shoo level… It's really easy to just take off, and if it sounds good, if there's a kid or two in the back who aren't quite getting it, you just keep going and they never get it… It had me just step things back a pace and make sure again that everybody is understanding what's happening at all times. I think I learned a little bit more about how they learn.

These experiences fostered sense of belonging and provided opportunities for students to actively engage in the online environment.

Games. Eight of the participants actively used games to facilitate student engagement. From music-related activities such as solfege games (P2), Guess the Tune (P10), and teaching a family member how to sing (P4), to Kahoot (P1, P2, P 4, P8) or various "silly games" (P2) such as The Big Wind Blows (P10), the main goal was to keep students engaged by providing a fun and inclusive environment. P8, for example, took on a role of a "little bit older adult who was supervising their game" and facilitated activities such as making costumes for the instruments or dancing to the classical music. P10 "made sure that at least 20% of the time we spent together was just ice breakers, getting to know each other." Several participants (P4, P5, 10) shared stories about students' cats or dogs and the role they played in students' engagement. P10 remembered how one of

their students engaged her dog in singing by having it howl along, and how the student "never realized how hard it was to teach someone, especially if they had no experience at all" (P10). P4 created a game using kitchen utensils:

> We had spatulas, we had rolling pins, and kids were holding up, they said: "I'm not really even sure what this is, but I'm going to use it anyway!" I said: everybody, I said, I don't care how crazy you think it is, we're doing it, and I'll do it too with you!

Building the Community. The second subcategory for fostering sense of belonging was building the community. In this subcategory, I coded the ways that participants initiated various activities to support students and foster a sense of community. These initiatives included building relationships through food distributions, home visits, bagel days, or online celebrations such as award ceremonies or movie nights. These efforts demonstrated a strong commitment to students' well-being and created a supportive, connected community. All 11 participants contributed to this subcategory. Table 24 shows the code occurrence per participant related to each code within the building the community subcategory.

Table 24

Occurrences for Building the Community Subcategory

Participant	Building the community	Relationships	Instrument Support	Total
P1	26	14	1	41
P2	2	2	1	5
P3	4	1	0	5
P4	8	5	0	13
P5	5	1	6	12
P6	3	2	2	7
P7	5	0	0	5
P8	5	2	2	9
P9	1	0	0	1
P10	4	0	0	4
P11	4	1	0	5
Total	67	12	28	107

Building the community took various forms: from organized activities such as Community Days (P10), Drive-Through Bagel Days (P3), planned breakout group discussions (P1, P4, P6, P8, P9, P10), collaborative projects (P1, P2, P7), to regular check-ins (P1, P2, P3, P4, P7, P8, P9, P10), listening to teacher-created YouTube playlists (P11), and spontaneous home visits (P1, P4, P6, P7, P10). Although "getting that sense of ensemble was difficult" (P7), throughout all these experiences, teachers highlighted the importance of connection and community. P10 shared that "some students…wrote that choir was the only time they felt connected to their peers, they only time they felt a sense of community." P9 reflected that "part of what keeps kids around 100% is community. I think we're still working on rebuilding that now."

Relationships. For many teachers, the period of online teaching became an opportunity to build or rebuild relationships with their students. Several participants (P1, P4, P6, P11) used breakout rooms to connect with their students. These breakout room

discussions helped "create that sense of community that was outside of the school day" (P1), and made the experience not "all that bad because we could make those individual connections" (P4). P4 shared a story about delivering lawn signs with encouraging messages to all their seniors, to make them feel connected and cared for. P1 "had a really hard time being away from my students" and appreciated the opportunity to "connect with students that I normally didn't connect with" because "some of them prefer to hide behind a screen versus actually talking face to face…they'd rather communicate via text message. That relationship piece was big." Driving to students' homes during the Christmas time or on Valentine's Day to deliver gifts allowed P1 to "make it feel as normal as possible because our seniors missed a lot." P7 delivered bagels to students' homes as rewards for reaching sight-reading milestones, while P3 arranged "drive-through bagel days: after their performance, they all picked up their little bag of bagels."

Some participants talked about growing as an educator or a person during this time of teaching. For example, fostering a sense of community by crafting bonding experiences and organizing social events helped P10 build greater trust among the students and "enabled me to become a better community leader…It has definitely, I think, informed my relationship with the students' efforts as a community leader." For P4, the new approaches to teaching and connecting with students illuminated the positives even during the "dark" times:

> There were small packages of things that were good, and we were able to educate kids. We were able to shift some gears and do some things differently. We were able to laugh and smile and still, you know, do the private chats and make

> connections or just do something fun and funny, you know, and want to, you know, hold the kitchen utensil. There were moments that allowed us, allowed me to teach kids that, you know what, even in a time that feels dark and draining, we can still find a reason to smile. Maybe that helped me grow as an adult and as an educator.

Instrument support. Five out of 11 participants contributed to the instrument support code. These were the teachers who visited students in need of instrument repairs, among other things. P1 recalled driving to students' houses with two of their own children,

> to drop off recording equipment, or music stands, or sheet music, or at the beginning – their instruments… We couldn't go into each other's houses, but they could see me. And one of them with a mask on, they sang to me, their solo from a very far distance. They were so excited to see me.

Like P1, P6 recalled how they were able to meet students "for curbside tuning and repairs" and how happy the students were to see their teacher. P2, P5, and P8 visited students' homes to change strings or deliver missing instrument parts. Through these visits, teachers not only provided students with the necessary resources to continue their musical studies but also cultivated their sense of belonging and strengthened the community.

Student Voice. The third subcategory for fostering sense of belonging was student voice. In this subcategory, I coded the ways that participants provided leadership opportunities for students and incorporated student-centered repertoire, raising student

voice and contributing to their feelings of belonging. Table 25 shows the code occurrence per participant related to each code within the student voice subcategory.

Table 25

Occurrences for Student Voice Subcategory

Participant	Student voice	Leadership	Repertoire	Total
P1	16	13	8	37
P2	1	0	1	2
P3	13	4	5	22
P4	2	2	0	4
P5	0	0	0	0
P6	3	2	1	6
P7	0	0	0	0
P8	6	3	1	10
P9	9	1	4	14
P10	10	2	3	15
P11	1	0	0	1
Total	61	27	23	111

Nine out of 11 participants contributed to this subcategory. P1, the highest contributor to this subcategory, shared that they wanted to have students “have their voice. Because a lot of them didn’t have voices during COVID school.” Similarly, P9 believed in giving the kids “some individual options and freedom for things they want to do” and shared how they have given students “way more choice…we’ve had them do things like search out for pieces and submit them, and then let the class vote on a piece of music.” P6 allowed students to choose pieces that resonated with them, such as anime music, which contributed to their personal and musical development. P3 shared their experience of organizing creative projects such as the virtual *Connections Project*, where students were given freedom to choose and perform music that resonated with them. These examples

highlight teachers' commitment to highlighting the importance of students' personal connection to music.

Leadership. Seven participants shared how they observed students showing leadership. It manifested itself when students took the initiative to organize sectional practice sessions (P1, P3, P9, P10), to teach music to their peers (P1), record parts for collaborative projects (P1, P7, P11), provide constructive feedback (P8), help plan virtual talent nights (P1), coffeehouses (P7), or karaoke nights (P1, P4). P11 shared about the formation of "high functioning string quartets that tried to put together Schubert's *Death and the Maiden*, by them all recording their own tracks." P1 believed that the experience of students leading their peers in the breakout rooms helped "the servant leaders step up for my students… One of the most positive things I believe has come out of it was the fact that it's me stepping off the podium and letting the students take the lead."

One of the impressive student leadership initiatives was the Google Classroom Teacher Assistant program for middle schools. This program was initiated by one of P8's students with the goal of providing middle school students with instrumentals lessons. Armed with their teacher's support, the student recruited classmates, created a Google Classroom with various resources, including sheet music, recordings, and teaching materials, invited middle school students to the classroom, and provided individualized online lessons in breakout rooms. The program turned out to be so successful that it continued even when the instruction returned to a face-to-face format, with student tasks ranging from middle school visits to providing instruction to support the teacher with a

struggling student or one who hoped to be challenged more. Through these experiences, students showed noticeable growth as individuals, musicians, and leaders.

Repertoire. Seven participants shared about adjusting their repertoire to fit student needs. Choral teachers had their students reflect on the lyrics, and chose songs that could relate to students' lives, songs that carried uplifting messages. P8 included instrumental arrangements of songs by Coldplay so that students would recognize the tunes. P1's repertoire included *Not Alone* by Randall Sandridge, a powerful reminder to those who might be going through hard times that they are not alone, and *You'll Be Back* from Hamilton, to remind students that "they would actually come back to what we were." Acknowledging the importance of a culminating spring concert for the graduating seniors for whom "that was their big highlight", P3 "did a full-blown rock concert at the end of the year." which included Journey's *Don't Stop Believin'*, among other well-known songs. P8 adapted their repertoire to include string pieces that students were more interested in, allowing for individualized exploration and growth. P9 explored two different versions of *Bridge Over Troubled Water* and included Michael Jackson's *Thriller* in the band concert program. P9 explained that these pieces were "something we thought the kids would like and have fun with…and put out to the public and our administrators. We had basically a pops concert."

While students greatly benefited from having the opportunity to choose their repertoire, teachers also found this period of exploration to be an eye-opening experience that prompted them to reevaluate their repertoire choices. For example, P3 reflected,

> That was also at the same time that "Black lives matter" and we're getting more inclusive in our music choices and things. It forced a reckoning with me of why isn't Taylor Swift as important as Beethoven or those things? Why is that any less worthy of time and such? Yeah, it helped me open up a little bit and almost make things harder too, because I feel like I'm on a new journey of, okay, what all this repertoire could be.

In summary, participants noted significant emphasis on music choice and its impact on students' emotional engagement, personal interest, and musical growth, and felt encouraged to adopt a more holistic approach to repertoire selection.

Safe Online Environment. The next category that emerged to answer RQ2, was Teachers provide safe online environment. This category has one associated subcategory and a total of two codes to illustrate how teachers increase student comfort by showing compassion and by fostering compassion, gaining insight into students' lives and family situations, and ensuring students feel secure and supported. Figure 15 shows the category safe online environment, subcategory student comfort, and codes for this theme.

Figure 15

Code Tree for Category 4, Sense of Belonging

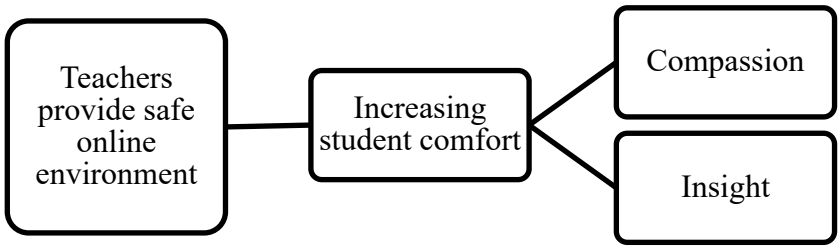


Table 26 lists the number of occurrences associated with each of the subcategories and codes for the category of teachers provide safe online environment.

Table 26

Occurrences for Teachers Increase Student Comfort, Show Compassion, and Gain Insight

Subcategory and occurrences	Code and occurrences	Total no. of occurrences
Student comfort (132)	Compassion (120) Insight (48)	300

As the Table 26 shows, teachers placed emphasis on providing a safe online environment by demonstrating compassion and understanding and making efforts to ensure students felt comfortable during their online rehearsals. The high occurrence of these codes indicates that fostering student comfort was a significant priority in creating a supportive and safe online environment. Table 27 shows code occurrence per participant related to each code within the student comfort subcategory.

Table 27

Occurrences for Student Comfort Subcategory

Participant	Student comfort	Compassion	Insight	Total
P1	21	18	9	48
P2	5	8	1	14
P3	10	15	5	30
P4	18	13	9	40
P5	10	10	3	23
P6	9	9	4	22
P7	5	4	2	11
P8	13	11	4	28
P9	10	8	2	20
P10	19	15	7	41
P11	12	9	2	23
Total	132	120	48	300

Student Comfort. The subcategory for safe online environment category was student comfort. In this subcategory, I coded instances when teachers enhanced student comfort by providing a degree of anonymity and created a secure and supportive online space. This encouraged students to participate more actively and confidently. All 11 participants contributed to this subcategory. One of the strategies that all teachers implemented was allowing students to keep their cameras off and communicate through chat instead of speaking. This approach provided comfort for many students who were unable to speak aloud due to various family situations or who preferred not to show their surroundings. Teachers also did not require students to play or sing on their own during the classes. For example, P1 asked volunteers to unmute and perform a section of the piece while everyone else remained on mute but would “never force any kid to do it”, supporting the argument that “the music classroom seems to be the safest zone for a lot of kids” (P1). Hence, P1 was able to create

> a really awesome trust system where the students would then unmute and give positive feedback and constructive criticism. They were talking to each other about how to get better at their own instruments. That created a really good sense of community because they started feeling that they could turn their cameras on and volunteered to unmute so that we could hear them.

P8 incorporated a routine at the beginning of class to help increase student comfort by allowing time for transition from their previous class, noting that "they need 30 seconds of laughing, 30 seconds of relaxing, or 30 seconds to get their mind off completely off the topic." P10 conducted "a lot more group bonding activities in the beginning of the class." Likewise, P5 often facilitated fun activities unrelated to music, to bond with the students and get them to trust each other more. P11 found a fun and safe way to provide feedback online by playing submitted assignments anonymously. This approach offered students comfort and helped build trust, as evidenced by their private messages asking the teacher if their performances could be critiqued, too. Providing a degree of anonymity became a fun and engaging way to offer feedback while maintaining a comfortable and safe online atmosphere.

Compassion. This code includes instances when participants demonstrated empathy and compassion to support students' social-emotional needs by being flexible and understanding. All 11 participants contributed to this code, each of them in their own special way. Teachers shared how they gained more appreciation for their students and their personal struggles (P1, P2, P4, P5, P8, P10) and became more empathetic throughout the process of understanding the challenges their students faced (P1, P3, P4,

P6, P7, P10, P11). Participants shared how trusting students more helped them to become more “inclusive”, and hence, more compassionate. For example, P3 reflected,

> I learned about how important it is for the kids to have a say in what they play, to trust them that they are making really good musical decisions. Sometimes online is a more inclusive way to do things when you have meetings, or a kid is sick for a long time, or gone for whatever competition they're in for some academic thing, that they can keep up with what we're doing in class, and practice, and do things, too.

P1 reflected,

> The students that we deal with are icebergs. You can only see the little bits on top. I'm like, you don't understand what's under the water, and sometimes the icebergs are really deep, and we need to be a little bit more compassionate. I think that's a huge piece that came out of it was just compassion.

Insight. This code captured instances when participants gained insight into their students’ lives by getting to know them on a deeper, more personal level. All participants contributed to this code. P8 shared that they have “learned the value of interpersonal connection with the students, the importance of understanding them better” (P8). Getting to know students on a deeper level and connecting with them was “one of the silver linings” for P4 who shared,

> Even though for some of our kids that was very personal and it was maybe somewhat vulnerable, because we were getting a glimpse into their home life, it was very easy for me and of course, in the most professional way, to ask

> questions that allowed me to get to know kids more and do it in a way that was just as, hey, I'm just having a conversation with you for a few minutes.

P6 observed that

> the smaller the group, the more likely they were to interact…We would just talk a little bit: So, what have you been doing trapped in your house for weeks on? How's your family, how's your cat? - as the cat walks across the keyboard... and then they'd start talking about: "You know, I'm really having trouble with this one section here. Could you make a recording that's slower on that?" And the other kid: "Oh yeah, I can't get that part either." And then they connected with each other again.

P1 who shared that "food was a really big issue in our community," set up a Google form to "check in to see how they actually were doing with food. And a lot of times they would talk to me about it."

P5 admitted that getting to know students' living spaces and learning more about their lives was

> an "interesting piece to this [experience]…Maybe someone's grandmother was sick. They would talk about those experiences, and I would often share how my kids are doing, or we got a new family pet. One of my students…showed me her dogs all the time, or her cats. Her cats would be in her violin case while she was playing, and so I got to know her cats. And so, you know, I had a bearded dragon that, you know, became a part of our online family.

Overall, the participants' online experiences demonstrated that, despite the physical distance, there were unexpected opportunities to gain deeper insights into their students' lives which helped foster stronger personal connections and a community filled with comfort and compassion.

Teacher Collaborations. The last category that emerged to answer RQ2 was teacher collaborations. All 11 participants contributed to this category. Teachers collaborated with each other by providing collegiate support to each other, engaging in opportunities for professional growth, and producing teacher recordings and virtual concerts. This category has a total of four subcategories to illustrate how teachers built supportive networks with colleagues to navigate the challenges of online teaching, maintain their passion for music education, and enhance their professional growth by collaborating with each other. These efforts demonstrate how teachers fostered a strong sense of community and ensured sustained resilience within the profession. Figure 16 shows the category teachers collaborate with colleagues and the total of four corresponding subcategories.

Figure 16

Code Tree for Category Teachers Collaborate With Colleagues

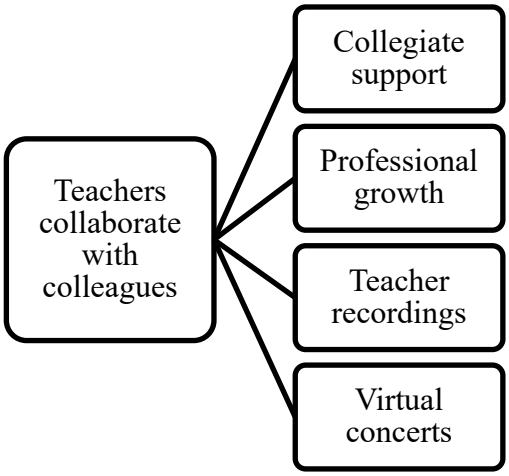


Table 28 lists the number of occurrences associated with the teacher collaboration category and subcategories within this category.

Table 28

Code Occurrences Aligned With the Collegiate Support, Professional Growth, Teacher Recordings, and Virtual Concerts

Category and occurrences	Subcategory and occurrences	Total no. of occurrences
Teacher collaborations (102)	Collegiate support (31) Professional growth (23) Teacher recordings (12) Virtual concerts (12)	180

As the Table 28 shows, the highest number of occurrences (31) was in the collegiate support subcategory. Next was professional growth (23), followed by teacher recordings and virtual concerts, with 12 occurrences each. This indicates the importance of collaborative efforts and continuous professional development among teachers and the value placed on creating recordings for student's use or producing virtual concerts to help maintain a vibrant educational environment.

Table 29 shows the number of occurrences associated with the teacher collaboration category and the subcategories within this category.

Table 29

Occurrences for Teacher Collaborations Category

Participant	Teacher collaborations	Collegiate support	Professional growth	Teacher recordings	Virtual concerts	Total
P1	26	6	2	3	2	39
P2	11	3	2	0	0	16
P3	11	5	2	1	1	20
P4	7	3	1	1	1	13
P5	6	1	2	0	0	9
P6	8	3	4	3	0	18
P7	4	1	1	0	1	7
P8	5	2	1	0	0	8
P9	8	5	1	0	2	16
P10	10	1	5	2	2	20
P11	6	1	2	2	3	14
Total	102	31	23	12	12	180

Collegiate Support. Although only mentioned by P3, Professional Learning Communities (PLCs) were an effective way to gain collegiate support. Along with a colleague from their district, P3 joined an online PLC of orchestra directors from across the state and attended regular Tuesday morning meetings. This community became a valuable source of ideas and support; P3 stated, “That's where I got some ideas.” Another form of collegiate support was in P9’s team-teaching district, where music teachers were able to offer “studio time.” P9 explained that during this “studio time,” students broke out into sections and focused on essential tone production skills, having an opportunity to work with teachers who had specialized instrument skills.

P4 collaborated with a band director colleague who “was really on top of [producing concerts].” P4 admitted that “most of the ideas I stole from other people,” including the idea of delivering lawn signs: “Somebody from the Missouri side had made yard signs. I said, oh, that’s brilliant.”

Professional Growth. All participants contributed to this subcategory, sharing their experiences of growth during the online teaching. For example, P5 reflected on their professional growth that resulted from inviting a professional musician to conduct a master class, sharing that this experience not only enriched their students but also provided an opportunity for personal connection with a fellow musician, stating, "That was really cool. It was a fantastic connection with a fellow musician and teacher." However, most of the professional growth mentioned by the participants was self-driven due to the absence of formal professional development opportunities within their districts. For example, P10 shared that they spent countless hours exploring new programs and "learned how to edit videos and mix audio to create these online concerts." P7 noted that even though their district did not form any official PLCs, they connected with a professional who

> turned me onto the video stuff was in one of those. And it was excellent. And that was what got me. I got that program, the Mac program, that made all the difference. And he had tutorials, and that was big.

Teacher Recordings. All 11 participants mentioned creating practice files or recordings for students to use as a guide for their own practice or when recording their individual tracks. Most participants completed these tasks independently, with only P9 benefitting from collaboration with colleagues, thanks to the team-teaching model in their district. For example, P1 created "a lot of recordings of myself playing things. I brought every instrument home, I think that we had, and my son played them all, too." P6 used GarageBand and Audacity to create multiple tracks for performance practice, finding

success particularly with GarageBand. Using this tool, students rehearsed together virtually, simulating the experience of playing in an ensemble. Additionally, P6 created numerous instructional videos which students continued to use even after the COVID-19 shutdown, in a face-to-face classroom. P7 created similar recordings for students' use, in an audio format. In summary, most teacher recordings for student use were created independently by their teachers, although there were some instances where colleagues contributed by recording on their own instruments.

Virtual Concerts. While all participants compiled virtual performances in various forms, not all of them chose to produce a culminating virtual concert—a task acknowledged by everyone as particularly challenging. For P8, for example, putting together online performances was "the toughest thing to do," and P4 acknowledged feeling "ill-equipped" to produce a virtual choir. P10, on the other hand, produced a virtual concert of eight songs, along with their student teacher, demonstrating advanced technological skills. P10 stated, "Using the magic of Logic Pro and all the plugins, I would make them sound better than they did." Likewise, P1 and P11 both produced culminating virtual concerts, with P1 tackling this challenging task independently, while P11 utilized collegiate support: a friend recorded tracks for students to use with a click track, and then the student teacher helped compile all the files together. P11 shared about a colleague "who literally learned how to use auto tune and would just fix wrong notes, but I never got that detailed in it." P9 worked with a colleague who

> had a lot of experience with audio engineering, so we made click track for kids and chose the piece. And then the kids submitted videos, and we edited together

> all their audio and video…My former colleague was the one who was doing the heavy lifting on that.

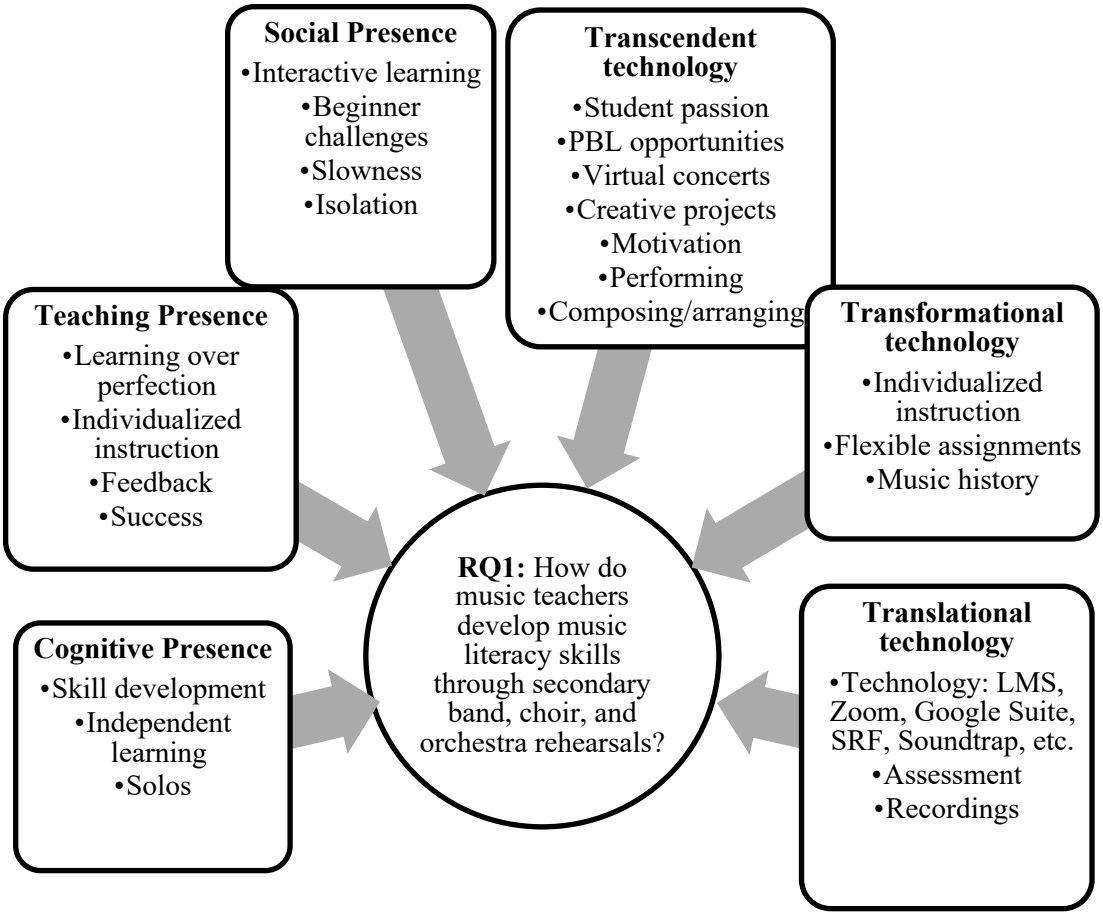
Overall, teacher collaborations played an important role in the creation of virtual concerts and performances.

Results in Context of the Conceptual Framework

The results of this study align with the conceptual framework, incorporating both Garrison's (2016) CoI model, which emphasizes the importance of social, cognitive, and teaching presence, and Magana's (2017) T3 framework that highlights translational, transformational, and transcendent technology use. This holistic approach demonstrates the effectiveness of integrating technological tools with active teaching presence to meet the unique challenges of online ensemble teaching. The two RQs were centered around developing of music literacy skills and virtual communities through online secondary ensemble rehearsals. Figure 17 shows the results of the study in context of the conceptual framework applied to RQ1.

Figure 17

Conceptual Framework Applied to the RQ1.



Findings in relation to RQ1's translational ways of using technology showed that teachers created online spaces using videoconferencing tools such as Zoom or Google Meet, utilized LMSs to provide students with access to music programs such as SRF or Soundtrap, and delivered differentiated instruction by using the adaptability of online tools. Findings in relation to transformational ways of using technology showed that teachers utilized online tools to provide individualized instruction, to develop music

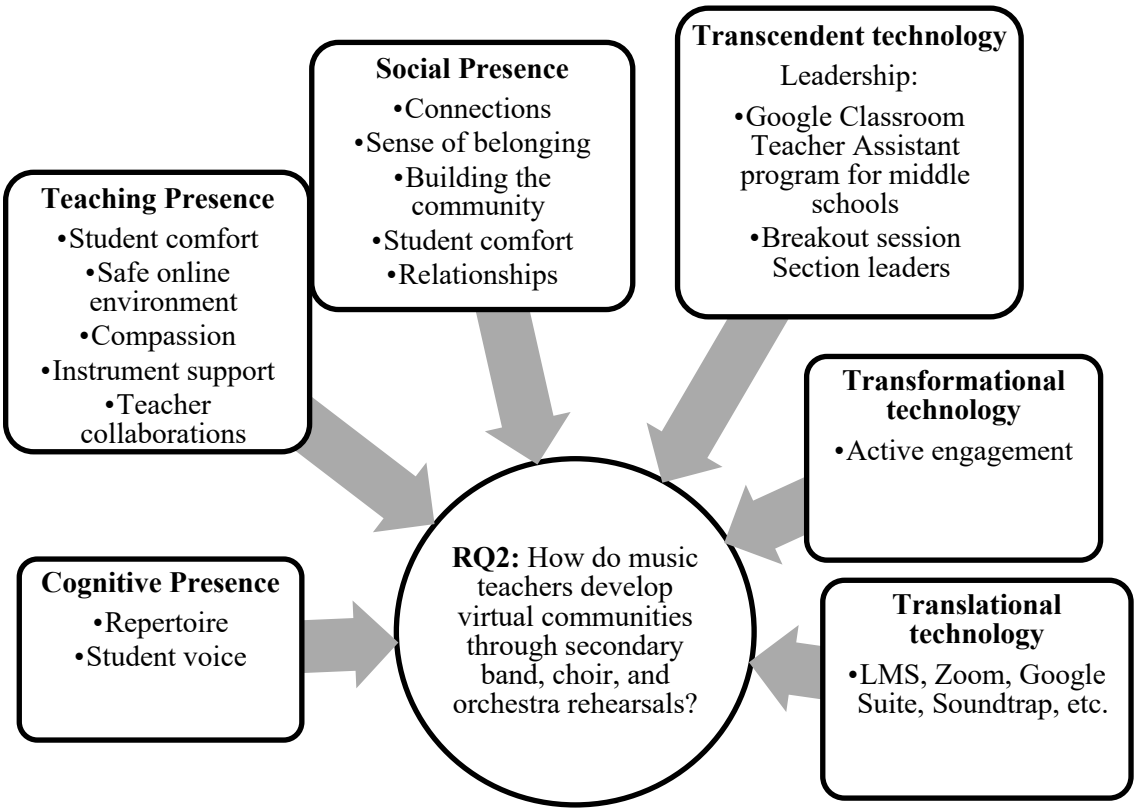
history projects, and to allow flexibility in students' assignments. Findings in relation to transcendent ways of using technology showed that teachers put the student passion at the center of all learning and made students direct their own learning by motivating them to compose and arrange their own music, create virtual performances, and make creative projects.

Findings in relation to CoI showed that teachers created meaningful learning experiences for students through the development of three independent elements: social, cognitive, and teaching presence (see Garrison, 2016). They made instructional adaptations to switch to fully online instruction, used social and cognitive activities, and built collaborative, safe, and inclusive communities. By focusing on student passion, capitalizing on independent learning, and building a safe and collaborative community of students and colleagues, teachers succeeded in providing rich and meaningful learning experiences to their students, while also navigating the complexities of the online learning experience and highlighting the social element, an integral part of online experience, particularly for students in performing ensembles.

Figure 18 shows the results of the study in context of the conceptual framework applied to RQ2.

Figure 18

Conceptual Framework Applied to the RQ2



Findings in relation to RQ2's translational ways of using technology showed that teachers used videoconferencing tools, LMS, and other online tools to create safe spaces for students to learn. Findings in relation to transformational ways of using technology showed that teachers utilized various online tools to connect with their students and get them actively engaged in the learning process. Findings in relation to transcendent ways of using technology showed that teachers provided students with opportunities to become problem solvers and change agents, which resulted in student leadership initiatives such

as the creation of section leaders and leadership programs such as the Google Classroom Teacher Assistant Program for middle schools.

Findings in relation to CoI showed that teaching presence was crucial in building the safe community, fostering a sense of belonging, and maintaining relationships. Additionally, teachers empowered students by supporting student leadership initiatives such as repertoire selection, student-run sectional rehearsal in breakout rooms, or student-founded Google Classroom Teacher Assistant Program that supported students from the middle schools in the community. Teaching presence was the "glue" that helped maintain student comfort and helped students feel connected to the community in meaningful ways. In summary, these various elements emphasize how virtual music communities were effectively nurtured despite the challenges and reflect teachers' strong commitment to student well-being and effective instruction.

Summary

Based on data analysis, two themes emerged that were used to answer the study's RQs. The first theme for RQ1 was that music teachers make adaptations in online rehearsals, focus on independent learning, and cultivate student passion. The second theme aligned to RQ2 was that music teachers foster sense of belonging, provide safe online environment, and collaborate with colleagues. Both themes are closely aligned with the CoI and T3 conceptual frameworks.

The results of the study demonstrate the integration of cognitive presences through the adaptations made in online rehearsals and the focus on independent learning while music teachers made meaningful adaptations when transitioning to teaching

performing ensembles online. The study also underscores the importance of social presence in fostering a sense of belonging and providing a safe online environment. Additionally, teacher presence is the cohesive force that unites all elements, ensuring the effectiveness and integration of the student learning experience. Leveraging both pedagogical strategies and innovative technology, teachers created a comprehensive learning environment to ensure the continuous development of students' essential music literacy skills. They made significant adaptations in online rehearsals and engaged all three domains of educational technology: translational, transformational, and transcendent (Magana, 2017). While translational technology involved the use of technology to complete the day-to-day operations, teachers also used technology in transformational way, bringing in substantial changes to teaching and learning. Based on the results of this study, these adaptations were groundbreaking considering their innovative nature and the absence of teachers' prior experience in conducting ensemble rehearsals online. Moreover, data also revealed instances of using technology in transcendent ways, resulting in teachers cultivating a generation of passionate and resilient students, inspired to become creative composers, arrangers, performers, and leaders, capable of going "above and beyond the normal range of expectations and expertise" (Magana, 2017, p. 21). The results of the study showed that music teachers created a safe community of learners that allowed for all members to grow into successful musicians and human beings while supporting each other throughout the process.

Chapter 5 will include interpretations of the findings, limitations of the study, recommendations, implications, and conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to understand how ensemble teachers develop music literacy skills and virtual communities through online secondary ensemble rehearsals. In this basic qualitative study, secondary ensemble teachers described ways they taught band, choir, and orchestra in a fully online setting. Data were collected through virtual interviews with 11 participants using purposive sampling, choosing participants who had qualifying experience (see Ravitch & Carl, 2021). Participants were limited to secondary ensemble teachers who had a minimum of 5 years of teaching band, choir, or orchestra, and had a fully online ensemble teaching and virtual performance experience, as well as blended/hybrid ensemble teaching and virtual and/or blended performance experience. I conducted data analysis of interview transcripts using open iterative coding. Since little research has been done regarding music teachers teaching secondary ensembles online, the findings of this study may add knowledge to the gap in the music education literature field related to teaching secondary large ensembles online. It is my hope that the instructional approaches analyzed in this study, with the primary focus on developing music literacy skills and virtual communities in large ensembles, will provide music educators with practical strategies for effective teaching, inspiring them to embrace online settings for large ensembles.

In this chapter, I present an interpretation of key findings and discuss ways that this study confirms, disconfirms, or extends knowledge in the online music education field. The key findings for this study were centered on two RQs and two themes that emerged from data analysis. The theme related to RQ1 was music teachers make

adaptations in online rehearsals, focus on independent learning, and cultivate student passion. The theme related to RQ2 was that music teachers foster sense of belonging, provide safe online environment, and collaborate with colleagues. Both themes were analyzed in the context of the various elements of Magana's (2017) T3 framework and Garrison's (2007a) CoI framework. While analyzing data from the T3 framework lenses, I found that teachers used all three domains of educational technology: translational, transformational, and transcendent (Magana, 2017), and chose the most appropriate applications based on students' educational needs. The data analysis from the CoI framework (Garrison, 2016) lenses revealed that the cognitive and social activities that teachers conducted in online rehearsals created meaningful learning experiences for students, fostering collaborative, safe and inclusive communities. Teaching presence was highlighted at the center of all these experiences as the "the binding element" in establishing strong learning experiences and social interactions.

Interpretation of the Findings

The development of music literacy skills and virtual communities through online secondary ensemble rehearsals was viewed through the CoI framework (Garrison, 2016) and the T3 technology framework (Magana, 2017). To avoid generalizations in my interpretation of findings, I discuss findings that confirm, extend, and disconfirm ideas found in my literature review. Even through there is little to no research on secondary online ensemble rehearsals, the existing literature on the related topic of online general music education has been examined, and I use it as a reference. I interpreted these results

in relation to the themes and categories organized by RQs. I present findings thematically since they overlap with this study's RQs and organize them by categories.

Adaptations in Online Rehearsals

Data from this study supports the knowledge from the limited studies about the unprecedented challenges teachers encountered while transitioning to online instruction because of the sudden shift to online learning because of the COVID-19 shutdown. Similar to some previous studies, results in this study confirm that teachers used a variety of platforms and interactive programs to make adaptations to curriculum design, lesson implementation, evaluation, and delivery of instruction; that there was lack of resources and training, limited access to technology and professional development, and that teachers experienced stress associated with isolation, lost performance opportunities, and inadequate time for adjustment (see Abeles et al., 2021; Biasutti et al., 2021; L. C. Bowman, 2022; Bylica & Bauman, 2022; Calderón-Garrido & Gustems-Carnicer, 2021; Camilleri, 2021; Cheng & Lam, 2021; Daugvilaite, 2021; de Bruin, 2021; Gül, 2021; Hash, 2021b; Joseph & Lennox, 2021; Kibici & Sarikaya, 2021; E. J. Knapp, 2022; Kuebel & Haskett, 2023; Pokhrel & Chhetri, 2021; Shaw & Mayo, 2022; Thornton, 2020; Vaizman, 2022). Additionally, the reflections of the 11 teachers in this study revealed a range of approaches that influenced students and the quality of music education they received during the online learning.

Similar to findings of Ayyildiz and Zahal (2023), Brändström et. al (2012), Vaizman (2022), Dammers (2009), Goodman (2020), King et al. (2019b), Pike (2020), and Riley (2009), results in this study confirm that developing performing skills in online

synchronous instruction posed a significant challenge, primarily due to sound latency issues. However, results also indicated that teachers demonstrated creativity in finding ways to provide opportunities for student growth, using technology in transformational and transcendent ways. From improving students' performing and literacy skills by providing individualized instruction and creating flexible assignments, to cultivating student passion through creative student-driven projects, teachers embraced all three forms of technology use (see Magana, 2017), enhancing student experiences and developing their skills in large ensembles. This may highlight new understanding of the role that technology plays in music education, elevating its importance from an adaptation tool to a transformational tool that can help improve music literacy and performance in an online setting. It suggests that when teachers combine creative teaching strategies with appropriate technology in online ensemble instruction, students can get more engaged and ultimately, demonstrate musical growth.

One of the most intriguing findings of the study is the shared approach adopted by all 11 participants: prioritizing learning over perfection. This concept has been previously explored by researchers who expressed concerns about the competitive nature of traditional large ensembles, which tend to prioritize musical excellence over providing students with a broader and more inclusive music education. Several authors argued that while teaching literacy skills is an essential aspect of music education, students in ensemble classes often lack adequate instruction in this area because most of the rehearsal time is dedicated to preparing to the final concert (Broomhead, 2018; Bucura, 2021; Edwards, 2010; Eyerly, 2007; Freer, 2011; Gilbert, 2016; Jellison, 2004; Miksza,

2013; Nichols, 2013; Reifinger, 2020; Trollinger, 2006; Wagoner, 2020; Weidner, 2018). The current study supports the arguments about the challenges of addressing music skills in ensemble classes. It also supports previous research about the benefits of student-centered learning and online collaborations (Berkova & Nemec, 2020; Cremata & Powell, 2017; Garrison, 2016; Lock et al., 2017; Singh & Hurley, 2017; Vahrusheva et al., 2020). Additionally, it extends previous knowledge by revealing the strong emphasis placed on the development of music literacy skills. Teachers expressed their belief that students who participated in online synchronous classes considerably improved their sight-reading, composing/arranging, music theory, and rhythm skills. Moreover, several students acquired new skills, such as playing a new instrument or producing a collaborative composition. Teachers attributed this success to the increased availability of time, as the slower pace of life allowed for a deeper focus on aspects of music that may have previously been overlooked.

Diverting focus from concert preparations to the process of learning resulted in the incorporation of the 2014 National Music Standards and placed the emphasis on the three artistic processes of creating, performing, and responding (see NAfME, 2014). The standards were reflected through the submissions of recorded assignments, exploration of various aspects of music through listening, analyzing, reflecting and responding to music, collaborative virtual productions, and original student compositions or arrangements. These creating, responding, and connecting activities in online spaces allowed for students to demonstrate a wider range of skills and abilities than before, and have expanded the process of learning beyond the walls of a concert hall.

Focus on Independent Learning

While prior findings have drawn attention to the positive outcomes of independent student learning in face-to-face settings (Salvador, 2019), this study's results indicated that independent learning might be even more critical in online settings. Teachers utilized technology to address the challenges of music learning by providing students with individual or small group lessons, giving customized feedback, and allowing students to be creative and independent. This suggests that a more adaptable and holistic approach to secondary ensemble education may help with nurturing student motivation and growth.

One way my study extended what was previously discussed in the literature is by exploring the beginner students' isolation in online secondary ensembles. While previous literature highlighted the theme of student isolation in music education at the undergraduate level (Hernández, 2020; Khaskheli et al., 2022; Richardson et al., 2024; Rucsanda et al., 2021), there is absence of studies related to this phenomenon at the secondary level, particularly, in online ensembles. The results indicated that the beginner students who had to learn new instruments or study voice in online settings experienced significant challenges due to the absence of in-person mentorship and immediate feedback from the teachers. Additionally, the natural form of learning from more experienced students, cultivated in ensembles, was gone. To address the isolation challenge, teachers provided individualized instruction when district policies or scheduling allowed, offering a fresh, student-centered approach in online ensemble education. Ultimately, the results from this study indicate that reexamining how teachers

blend ensemble teaching strategies with individualized learning to enhance education and create a sense of community in online rehearsals.

While this study confirms what others have found with regards to the value of individualized instruction related to undergraduate students (Kaleli, 2021), it extends it now to secondary students. Moreover, current study's results provide a deeper insight into the element of slower pace of learning in ensemble classes, a topic that has not been discussed in literature previously. Based on the results of the study, the deeper dive into the areas of music education other than performance, such as music literacy skills, has benefitted the students. This indicates that there may be a need to reassess the pacing in large ensemble classes, where preparations for the final performance are often the focus and individualized attention is frequently insufficient.

Teachers Cultivate Student Passion

The topic of cultivating student passion in ensembles has not yet been explored through the lens of online secondary ensembles. While providing flexible assignments and opportunities for creative projects primarily served the purpose of keeping students motivated and engaged in online setting, this approach has resulted in noticeable growth in student literacy and creativity. The study findings support the argument about the need to revisit the implementation of national standards of creating, demonstrating how ensemble teachers can utilize technology to develop individual creative expression. These insights advocate for creative, technology-enhanced methods to spark and nurture student passion, laying the groundwork for developing more engaging and effective ensemble practices.

Sense of Belonging

Similar to Bonneville-Roussy (2020), de Bruin (2021), Levstek (2021) and Draper (2021), the results of this study confirm the importance of building communities, cultivating a sense of belonging and building communities, and expand this understanding to secondary music ensembles in the context of online ensemble rehearsals. Additionally, the results provide examples of unique student leadership that helped build online communities and foster sense of belonging in online ensembles.

The current study confirmed what is known about the positive impact of building relationships and creating connections with students in in-person ensemble rehearsals (see Brennan, 2018; Cumberledge, 2017; Kumara, 2020; M. D. Martin, 1999; McNickle & Morris, 2022; Moder, 2018; Wenger, 2011) and extends it to secondary online ensemble rehearsals. The social presence and teaching presence are both emphasized as key vehicles for fostering sense of belonging, allowing for students to actively engage in the online secondary ensemble settings. Additionally, the findings add to the understanding of the value of student-centered choice of repertoire (see Després & Dubé, 2020; López-Íñiguez et al., 2022; Renwick & McPherson, 2002; Rotjan, 2021) by extending this knowledge to secondary online ensemble rehearsals. The findings confirm that cultivating student voice, building relationships with students, and getting to know them on a deeper level are effective approaches that can produce positive results.

The topic of music teachers visiting student homes for instrument support has not been previously addressed in the literature, possibly because this phenomenon may not have existed to an extent that justified research. Due to the abrupt transition to online

instruction, many band and orchestra students were left without their instruments, while others required repairs or tuning. Therefore, this study revealed something new about the topics of fostering sense of belonging and building sense of community. Teachers drove to student homes to drop off instruments, sheet music, to change strings, or deliver missing parts. The unprecedented teacher commitment demonstrated during this time may indicate a new level of fostering relationships with students and may contribute to the understanding of the teacher presence in online settings, providing another insight to the study of the relationships within the ensemble communities.

Safe Online Environment

This study contributed to and supported existing literature on the importance of providing safe online environment. Extending beyond what has been studied in undergraduate online education (Cheng & Lam, 2021; Longlong & Luen, 2023; Merrick, 2020; Pattananon et al., 2024; Stapleton, 2023), the current study revealed how secondary ensemble teachers adapted their practices to ensure that students felt safe and supported in online rehearsals. Viewed through the CoI framework, the results of the current study confirm the importance of social presence and indicate that student comfort is a significant priority for teachers during online ensemble rehearsals. Participants created a supportive and safe online environment, contributing to an increased student comfort during their online rehearsals. Gaining insight into students' lives and family situations helped teachers to foster compassion and empathy and contributed to the students' comfort level. The study indicated that prioritizing students' emotional and social well-

being is just as crucial as their academic successes, particularly in online settings where they might feel more isolated.

Teacher Collaborations

Teacher collaborations in online settings have not been previously studied in literature, especially regarding secondary ensemble teachers. The current study showed that despite the challenges of remote instruction, teachers have found meaningful ways to provide collegiate support to each other, engage in opportunities for professional growth, and produce teacher recordings and virtual concerts. In addition to providing emotional and professional support, these collaborations have also enhanced teachers' ability to deliver high quality online learning experiences to students. These findings indicated that professional collaborations may contribute to improving students online learning experiences.

Framework-Related Study Insights

This study exposed broad themes related to the immense opportunities in online music education. No longer bound by the constraints of preparing for a final performance, teachers have explored creative approaches to developing students' music literacy skills and cultivating creativity. The study aligned with the CoI (2016) framework and placed the student-teacher relationships and social interactions at the core of virtual learning, while supporting the development of the students' cognitive presence. The results confirmed that social and teaching presences are essential in creating an online learning environment where students can build deeper understanding and engage meaningfully.

Looking at the results through the lens of Magana's (2017) T3 framework, the use of technology in this study went beyond mere substitution for in-person rehearsals. Rather, the findings confirmed that instead of mirroring the traditional classroom in an online setting, teachers explored innovative instructional methods. Technology became a transformative tool that allowed for new learning opportunities and enhanced the students' musical experiences. In that sense, the study suggests that there could be hybrid model possibilities available to music educators that employ both in-person and virtual tools and would offer fulfilling and transformative musical experiences.

Limitations of the Study

This study had a few limitations that may affect the transferability of the findings. These limitations are related to the research design, participants, and limited time available for the interviews. The first limitation was related to the research design. As with any basic qualitative research methodology, there is a possibility of an unintentional researcher bias. In Chapter 3, I described some of the ways that I increased the trustworthiness of the study, including the recruitment process, transparency about the research findings, and my personal and professional connections to the research study.

Another limitation was related to the participants. In my efforts to avoid imposter participants, the participants were limited to my professional learning network of educators who came from six different states and 11 districts. Each of these schools had varied access to technology and different policies related to class schedules and the type of instruction. Although many aspects of participants' experiences may be generalizable, this study was limited to participants' availability and the length of the interviews. Still,

even with these limitations, I was able to collect rich data from band, choir, and orchestra male and female teachers, and achieve data saturation.

Recommendations

Recommendations for further research are based on study results and limitations of the study. The first three recommendations are related to RQ1 and the findings that teachers make adaptations in online rehearsals, focus on independent learning, and cultivate student passion. The first recommendation is that more research needs to be done about the effectiveness of various instructional approaches in online ensemble rehearsals so that a deeper understanding of how to best support student independence and sustain motivation throughout online learning can be developed. Exploring hybrid models of ensemble learning could also provide valuable insights on how technology, in combination with traditional settings and instructional approaches, can be used as a transformative tool to support student growth, cultivate student passion, and inspire creativity.

The second recommendation is related to the finding that teachers prioritized learning over perfection. Having an opportunity to shift the focus from culminating performance preparations to the process of learning allowed teachers to spend time on exploring other aspects of musicianship, such as listening and analyzing music or reflecting on the musical text or the history behind the composition. Further research is needed to investigate how the shift away from performance-driven instruction affects students' overall musicianship. For example, a study on investigating the impact on student musicianship in an ensemble class that is not centered on a culminating

performance could help understand this phenomenon. The results of such study could inform future curriculum development and instructional practices in ensemble education.

The third recommendation is related to the finding that teachers develop music literacy skills and cultivate student passion in online ensemble rehearsals. Investigating in more depth which teaching strategies are most effective in teaching literacy skills online could provide valuable insights into promoting music literacy and the role of music skills in cultivating student passion. For example, the right technological tools can be pivotal in capturing student interest and promoting creativity. Research could further investigate how student creativity and self-expression is affected by technology that reaches Magana's (2017) transcendent level. Investigating the effectiveness of specific tools that allow students to engage in collaborative creative projects that go beyond the capabilities of in-person ensembles could provide more understanding on the potential that technology has on cultivating student passion. The future research on the long-term impact of technology integration on music literacy skills in secondary ensembles could help understand how the use of innovative technology affects student learning. This could include creating student portfolios from elementary to secondary school levels, so that students' musical growth can be measured over time.

The fourth recommendation is related to the RQ2 and the finding that teachers collaborate with colleagues. While online collaborations among teachers have become more common, their effects on student learning outcomes are not fully understood. Further research in this area is needed to understand the true impact of these collaborations on student learning and growth. For example, a comparative study on

schools with robust teacher collaboration models and those without collaboration practices could provide valuable insights into the long-term benefits of these practices.

The last recommendation is related to the design and limitations of this study. This study could be replicated using other data sources or methodologies. For example, I would recommend conducting a multiple-case study design to compare two in-person large ensemble classes, with one class implementing traditional teaching methods and the other one incorporating some of the best practices from online teaching. It could show how student work might be influenced by pedagogical practices that would include adaptive, holistic instructional approaches, and whether such a creative approach would inspire teachers to leverage technology that would spark student passion. To gain a more holistic perspective, I would recommend including students' insights which can provide valuable personal accounts of their experiences and offer a deeper understanding of how the adaptations to educational approaches impact students' learning and engagement. The inclusion of students' perspectives could also help understand the degree of importance of teacher presence in developing virtual communities. This would enrich the findings and offer stronger opportunities for data triangulation, as well as a more well-rounded perspective.

Implications

This study can contribute to positive social change in several ways. First, the findings of this study addressed a gap in the literature, as research on online ensemble rehearsals has been scarce and primarily focused on higher education practices. The findings related to adaptations in online rehearsals may contribute to the growing

understanding of online music education and help bridge the knowledge gap by supporting the feasibility of offering online ensemble instruction. More significant is, however, the possibility that the study's findings may enhance ensemble instruction as rehearsals return to face-to-face settings. Integrating digital resources and online teaching techniques into traditional rehearsal settings may offer more personalized learning, reinforcing in-person ensemble work. Additionally, teachers may be better prepared to effectively blend in-person and online tools for enhanced music literacy and community building.

Another contribution that this study makes to positive social change is in relation to improved professional practice. The results of the study may advance knowledge in the field of online music ensemble rehearsals by generating conversations about most efficient online ensemble instructional practices. This could potentially result in meaningful professional development which may lead to improved learning student experiences. The potential of blending concert objectives with online integrated activities in ensemble education could provide improved curriculum models, ultimately leading to more adaptive approaches that would incorporate independent learning approaches into large ensemble rehearsals.

This study further contributes by exploring implications for positive social change at the organizational level. The study's findings could provide policymakers with insights into the diverse music learning opportunities that are available to students of all backgrounds across different regions. This may help advocate for improved internet access, high-quality audio and video equipment, and reliable software platforms in

schools and music education institutions. The results of the study may also motivate policymakers to fund professional development programs and initiatives, as well as resources aimed at equipping teachers with more advanced skills and knowledge. In turn, these advancements could enhance students' learning, strengthen their sense of belonging, and support their well-being.

Lastly, the results of this study may draw attention to equity and access issues related to online music education. Many students lack access to traditional in-person ensemble programs due to various reasons, including socioeconomic, geographic, or personal. The hybrid or fully online ensemble models, though unable to replace in-person rehearsal experiences and limited in their offerings, may still provide an opportunity for students to be a part of an ensemble experience. This can especially benefit students if teachers use a holistic instructional approach and leverage technology in ways that empower independent learning to teach performance, music literacy skills, cultivate student passion, and develop virtual communities. These improved online models that capitalize on independent learning approaches, if adopted, could also help students who plan on studying music at the undergraduate level but have no means to pay for private instruction, to get skills, knowledge, and ways of improving their craft before they audition for college programs or take music theory placement exams. Ultimately, the findings point to a future where technology can enhance inclusivity and reduce barriers to music education, helping teachers to foster lifelong creativity, collaboration and community-building, and ensuring that students from diverse backgrounds can engage in cooperative and creative learning experiences.

Conclusion

The social problem that this study was based on was the potential loss of quality music education and sense of community in secondary ensembles due to the limitations of the online learning format. The research problem addressed in this study was lack of understanding of how secondary teachers develop music literacy skills and virtual communities through the online secondary ensemble rehearsals. The findings of this study add to the limited literature about online music education. Exploring the experiences of 11 secondary ensemble teachers during the fully online learning and examining the adaptations to their teaching practices revealed a more inclusive and adaptive approach to teaching ensembles, possibly indicating the limitations of traditional performance-focused instruction. Though participants were in an agreement that nothing can replace the in-person rehearsals, they created space for students to engage in more exploratory and individualized ways, and their newly acquired skills may continue to be integrated in face-to-face classes. Better understanding of ensemble music teachers' online experiences may lead to improved professional development (Chrysostomou & Triantafyllaki, 2020) and may provide insights on ways how technology can better support online music learning (C. Johnson & Merrick, 2020). The focus on deeper and more meaningful learning experiences during online learning implies that technology, often seen as a barrier to music education, can become a catalyst for innovation.

There is much to be learned from the experiences of students and teachers during the school closures. Though these times were challenging, the lessons learned may lead to more flexible, inclusive, and innovative approaches to education that could benefit all

learners. As music education has been fundamentally changed, it is my hope that my study has provided helpful insights into how music educators can deliver quality instruction to all students, regardless of their background, access to resources, or learning environment.

References

2014 Music Standards. (2014). *NAfME*. https://nafme.org/my-classroom/standards/core-music-standards/

Abeles, H., Weiss-Tornatore, L., & Powell, B. (2021). Integrating popular music into urban schools: Assessing the effectiveness of a comprehensive music teacher development program. *International Journal of Music Education*, *39*(2), 218–233. https://doi.org/10.1177/0255761420986220

Abrahams, F. (2015). Another perspective: Teaching music to millennial students. *Music Educators Journal*, *102*(1), 97–100. https://doi.org/10.1177/0027432115590860

Abril, C. R., & Gault, B. M. (2008). The state of music in secondary schools: The principal's perspective. *Journal of Research in Music Education*, *56*(1), 68–81. https://doi.org/10.1177/0022429408317516

Adileh, M. (2012). Teaching music as a university elective course through e-learning. *Australian Journal of Music Education*. https://eric.ed.gov/?id=EJ1000246

Ahmad, H., Rukayah, R., & Triyanto, T. (2020). Using Baroque music to improve reading comprehension skills. *Ilkogretim Online*, *19*(4), 2419–2433. https://doi.org/10.17051/ilkonline.2020.764432

Akbel, B. A. (2018). Students' and instructors' opinions on the implementation of flipped learning model for cello education in Turkish music. *Journal of Education and Training Studies*, *6*(8), 1–11. https://doi.org/10.11114/jets.v6i8.3256

Akyol, Z., Garrison, D. R., & Ozden, M. (2009). Online and blended communities of inquiry: Exploring the developmental and perceptional differences. *International*

Review of Research in Open and Distance Learning, *10*. https://doi.org/10.19173/irrodl.v10i6.765

Alekseenko, N., & Rakich, D. (2020). The use of innovative pedagogical technologies in music education. *SHS Web of Conferences*, *87*, 00079. https://doi.org/10.1051/shsconf/20208700079

Ali, R., & Nath, S. (2023). Pre-service teachers' experiences of remote online learning: Reimagining teacher education post-pandemic. *Educational Research*, *0*(0), 1–20. https://doi.org/10.1080/00131881.2023.2223645

Allen, J., Rowan, L., & Singh, P. (2020). Teaching and teacher education in the time of COVID-19. *Asia-Pacific Journal of Teacher Education, 48*(3), 233-236. https://doi.org/10.1080/1359866X.2020.1752051

All-state choir audition material. (n.d.). Texas Music Educators Association. https://www.tmea.org/vocal/audition-material/

All-state sight reading standard: 11/12 grade auditions. (n.d.). Florida Bandmasters Association. https://fba.flmusiced.org/media/1862/all-state-sight-reading-standards-11_12.pdf

All-state sight-reading standards: 9th & 10th grade winds. (n.d.). Florida Bandmasters Association. Retrieved October 4, 2022, from https://fba.flmusiced.org/media/1861/sr-standards-9-10-website.pdf

Altena, J. A. (2020). Advancing from strength to strength: An interview with UNLV conductors Thomas G. Leslie, Zane Douglass, and Anthony Labounty. *Fanfare: The Magazine for Serious Record Collectors*, *44*(1), 76–82.

Ang, M. F., Chang, L. Y., & Tan, A. G. (2022). Singing in an odd time: Choir members' perspectives on virtual choir experience and live choir experience. *International Journal of Academic Research in Business and Social Sciences*, *12*(10), 239–262. https://doi.org/10.6007/IJARBSS/v12-i10/15210

Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies*, *5*(2), 272–281. https://doi.org/10.4236/jmf.2022.123028

Anyanwu, K. (2019). *Making sense of new technology integration frameworks in 21st century teacher education program*. 545–551. https://www.learntechlib.org/primary/p/210049/

Asmus, E. P. (2004). Music teaching and music literacy. *Journal of Music Teacher Education*, *13*(2), 6–8. https://doi.org/10.1177/10570837040130020102

Atterbury, B. W., & Richardson, C. P. (1995). *The experience of teaching general music*. McGraw-Hill.

Aucouturier, J.-J., & Canonne, C. (2017). Musical friends and foes: The social cognition of affiliation and control in improvised interactions. *Cognition*, *161*, 94–108. https://doi.org/10.1016/j.cognition.2017.01.019

Ayyıldız, E. B., & Zahal, O. (2023). Instructor experiences with online guitar lessons during the Covid-19 pandemic in Turkey. *International Journal of Music Education*, *41*(3), 484–496. https://doi.org/10.1177/02557614221123078

Baker, W. J., Hunter, M. A., & Thomas, S. (2016). Arts education academics' perceptions of eLearning & teaching in Australian early childhood and primary ITE degrees. *Australian Journal of Teacher Education*, *41*(11), 31–43. https://doi.org/10.14221/ajte.2016v41n11.3

Baldwin, R. L. (1923). The evolution of public school music in the United States: From the civil war to 1900: settling the problem of reading. *Music Supervisors' Journal*, *10*(2), 8–57. https://doi.org/10.2307/3383103

Barbeau, A.-K., Generale, M., & Creech, A. (2022). Online group music-making in community concert bands: Perspectives from conductors and older amateur musicians. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.878307

Barrett, M. (1998). Music literacy in the information technology age. In J. Dyson (Ed.), *More than words can say: A view of literacy through the arts* (pp. 59–73). Australian Centre for Arts Education, Faculty of Education, University of Canberra.

Bartle, J. A. (2003). *Sound advice: Becoming a better children's choir conductor*. Oxford University Press, USA.

Bashir, M., Afzal, M. T., & Azeem, M. (2008). Reliability and validity of qualitative and operational research paradigm. *Pakistan Journal of Statistics and Operation Research*, *4*(1), 35. https://doi.org/10.18187/pjsor.v4i1.59

Bauer, W. (2010). *Technological pedagogical and content knowledge for music teachers*. 3977–3980. https://www.learntechlib.org/primary/p/34001/

Bauer, W. (2013). The acquisition of musical technological pedagogical and content knowledge. *Journal of Music Teacher Education*, *22*(2), 51–64. https://doi.org/10.1177/1057083712457881

Bauer, W. (2020). *Music learning today: Digital pedagogy for creating, performing, and responding to music*. Oxford University Press.

Bautista, A., Chua, S. L., Wong, J., & Tan, C. (2019). Developing video-based learning resources for music teachers in Singapore. In *Innovative Teaching and Learning Methods in Educational Systems* (pp. 151–158). https://doi.org/10.1201/9780429289897-21

Bayley, J. G., & Waldron, J. (2020). "It's never too late": Adult students and music learning in one online and offline convergent community music school. *International Journal of Music Education*, *38*(1), 36–51. https://doi.org/10.1177/0255761419861441

Beach, P., & Bolden, B. (2018). Music education meets critical literacy: A framework for guiding music listening. *Music Educators Journal*, *105*(2), 43–50. https://doi.org/10.1177/0027432118808580

Beirnes, S. (2022). Learner-centered pedagogy and student engagement in a virtual elementary instrumental music program. *International Journal of Music Education*, 02557614221074378. https://doi.org/10.1177/02557614221074378

Beirnes, S., & Randles, C. (2022). A music teacher's blended teaching and learning experience during COVID-19: Autoethnography of resilience. *International*

Journal of Music Education, 02557614221091829. https://doi.org/10.1177/02557614221091829

Berkova, A. J., & Nemec, R. (2020). Teaching theory of probability and statistics during the covid-19 emergency. *Symmetry*, *12*(9), 1577–1577. https://doi.org/10.3390/sym12091577

Bernhard, H. C. (2004). The effects of tonal training on the melodic ear playing and sight reading achievement of beginning wind instrumentalists. *Contributions to Music Education*, *31*(1), 91–107.

Bernhard II, H. C. (2006). The long-term effect of tonal training on the melodic ear playing achievement of beginning wind instrumentalists. *Journal of Band Research*, *42*(1), 70–79.

Berry, S. (2019). Teaching to connect: Community-building strategies for the virtual classroom. *Online Learning*, *23*(1), 164–183. https://doi.org/10.24059/olj.v23i1.1425

Biasutti, M. (2015). Creativity in virtual spaces: Communication modes employed during collaborative online music composition. *Thinking Skills and Creativity*, *17*, 117–129. https://doi.org/10.1016/j.tsc.2015.06.002

Biasutti, M. (2018). Strategies adopted during collaborative online music composition. *International Journal of Music Education*, *36*(3), 473–490. https://doi.org/10.1177/0255761417741520

Biasutti, M., Antonini Philippe, R., & Schiavio, A. (2021). Assessing teachers' perspectives on giving music lessons remotely during the COVID-19 lockdown

period. *Musicae Scientiae*, 1029864921996033. https://doi.org/10.1177/1029864921996033

Biasutti, M., Antonini Philippe, R., & Schiavio, A. (2022). E-learning during the COVID-19 lockdown: An interview study with primary school music teachers in Italy. *International Journal of Music Education*, 02557614221107190. https://doi.org/10.1177/02557614221107190

Bishop, L. (2018). Collaborative musical creativity: How ensembles coordinate spontaneity. *Frontiers in Psychology*, *9*. https://doi.org/10.3389/fpsyg.2018.01285

Bitsch, V. (Ed.). (2005). Qualitative research: A grounded theory example and evaluation criteria. *Journal of Agribusiness*. https://doi.org/10.22004/ag.econ.59612

Bitter, J. M. (2018). Creating a constructivist online music course for community college students: Theory and practice. *Community College Enterprise*, *24*(2), 55–67.

Blackwell, J., Miksza, P., Evans, P., & McPherson, G. E. (2020). Student vitality, teacher engagement, and rapport in studio music instruction. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.01007

Bolden, B., & Beach, P. (2021). Integrating music and literacy: Applying invented music notation to support prosody and reading fluency. *General Music Today*, *34*(2), 5–12. https://doi.org/10.1177/1048371320926603

Bonneville-Roussy, A., Hruska, E., & Trower, H. (2020). Teaching music to support students: How autonomy-supportive music teachers increase students' well-being. *Journal of Research in Music Education*, *68*(1), 97–119. https://doi.org/10.1177/0022429419897611

Boston, W., & Ice, P. (2011). Assessing retention in online learning: An administrative perspective. *Online Journal of Distance Learning Administration*, *14*(2), 1–11.

Bowman, J. (2014). *Online Learning in Music: Foundations, Frameworks, and Practices*. Oxford University Press.

Bowman, L. C. (2022). Secondary school music teacher perceptions of music technology integration during a pandemic [Doctoral dissertation]. In *ProQuest LLC*. Northcentral University.

Bowring, L. (2019). Notation as a transformative technology: Orality, literacy and early modern instrumentalists. *Early Music*, *47*(2), 225–239. https://doi.org/10.1093/em/caz021

Boyle, J. D. (1992). Program evaluation for secondary school music programs. *NASSP Bulletin*, *76*(544), 63–68. https://doi.org/10.1177/019263659207654413

Brady, S. R. (2015). Utilizing and adapting the Delphi method for use in qualitative research. *International Journal of Qualitative Methods*, *14*(5), 1609406915621381. https://doi.org/10.1177/1609406915621381

Brändström, S., Wiklund, C., & Lundström, E. (2012). Developing distance music education in Arctic Scandinavia: Electric guitar teaching and master classes. *Music Education Research*, *14*(4), 448–456. https://doi.org/10.1080/14613808.2012.703173

Brennan, S. (2018). *The music of the marching band: Collectivity, embodiment, and performance* [Thesis]. https://digital.lib.washington.edu:443/researchworks/handle/1773/41893

Brinson, B. A., & Demorest, S. M. (2012). *Choral music: Methods and materials*. Cengage Learning.

Broomhead, P. (2018). *What is music literacy?* Routledge.

Broomhead, P. (2021). A new definition of music literacy: What, why, and how? *Music Educators Journal*, *107*(3), 15–21. https://doi.org/10.1177/0027432121991644

Bucura, E. (2021). Rethinking excellence in music education. *Visions of Research in Music Education*, *36*(1). https://opencommons.uconn.edu/vrme/vol36/iss1/6

Buonviri, N. O., & Paney, A. S. (2020). Technology use in high school aural skills instruction. *International Journal of Music Education*, *38*(3), 431–440. https://doi.org/10.1177/0255761420909917

Burke, K. (2021). "How can the creative arts possibly be taught online?" Perspectives and experiences of online educators in Australian higher education. *Asia-Pacific Journal of Teacher Education*, *49*(3), 347–361. https://doi.org/10.1080/1359866X.2020.1777531

Burkholder, G., Cox, K., & Crawford, L. (2016). *The scholar-practitioner's guide to research design.* Sage Publications.

Burkholder, G. J., Cox, K. A., Crawford, L. M., & Hitchcock, J. H. (2020). *Research design and methods: An applied guide for the scholar-practitioner*. Sage Publications.

Burns, R. (2018). Mastering organization in rehearsal using iPads. *School Band & Orchestra*, *21*(9), 16–18. https://www.robbyburns.com/blog/mastering-organization-in-rehearsal-with-ipad

Burrack, F. (2012). Using videoconferencing for teacher professional development and ensemble clinics. *Music Educators Journal*, *98*(3), 56–58. https://doi.org/10.1177/0027432111434741

Burstein, S., & Powell, B. (2019). Approximation and scaffolding in modern band. *Music Educators Journal*, *106*(1), 39–47. https://doi.org/10.1177/0027432119857801

Burton, S. L. (2017). Making music mine: The development of rhythmic literacy. *Music Education Research*, *19*(2), 133–142. https://doi.org/10.1080/14613808.2015.1095720

Bylica, K., & Bauman, B. (2022). Teaching in a time of crisis: Pedagogical creativity in music education. *Bulletin of the Council for Research in Music Education*, *231*, 7–24. https://doi.org/10.5406/21627223.231.01

Byo, J. L. (2018). "Modern Band" as school music: A case study. *International Journal of Music Education*, *36*(2), 259–269. https://doi.org/10.1177/0255761417729546

Caelli, K., Ray, L., & Mill, J. (2003). 'Clear as mud': Toward greater clarity in generic qualitative research. *International Journal of Qualitative Methods*, *2*(2), 1–13. https://doi.org/10.1177/160940690300200201

Calderón-Garrido, D., & Gustems-Carnicer, J. (2021). Adaptations of music education in primary and secondary school due to COVID-19: The experience in Spain. *Music Education Research*, *23*(2), 139–150. https://doi.org/10.1080/14613808.2021.1902488

Calderón-Garrido, D., Gustems-Carnicer, J., & Carrera, X. (2020). Digital technologies in music subjects on primary teacher training degrees in Spain: Teachers' habits

and profiles. *International Journal of Music Education*, *38*(4), 613–624. https://doi.org/10.1177/0255761420954303

Camilleri, M. A. (2021). Shifting from traditional and blended learning approaches to a fully virtual and remote course delivery: Implications from COVID-19. *Academia Letters*. https://doi.org/10.20935/AL481

Camlin, D. A., & Lisboa, T. (2021). The digital 'turn' in music education (editorial). *Music Education Research*, *23*(2), 129–138. https://doi.org/10.1080/14613808.2021.1908792

Cara, M. (2022). Multivariate Approach to Reading Comprehension and Sight-Reading. In A. Agrawal, R. Sutar, & A. Jallapally (Eds.), *Music in Health and Diseases*. IntechOpen. https://doi.org/10.5772/intechopen.100130

Carlson, J. A. (2010). Avoiding traps in member checking. *The Qualitative Report*, *15*(5), 1102–1113. https://doi.org/10.46743/2160-3715/2010.1332

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *The Qualitative Report*, *21*(5), 811–831. https://doi.org/10.46743/2160-3715/2016.2337

Cayari, C. (2018). Connecting music education and virtual performance practices from YouTube. *Music Education Research*, *20*(3), 360–376. https://doi.org/10.1080/14613808.2017.1383374

Cayari, C. (Director). (2020a, January 1). *A history of virtual choirs: A documentary about online singing* [Video recording].

https://www.academia.edu/43432726/A_history_of_virtual_choirs_A_documentary_about_online_singing

Cayari, C. (2020b, June 24). *A history of virtual choirs: A documentary about online singing*. https://www.youtube.com/watch?v=BOEIBdoPxz8

Cayari, C. (2021). Creating virtual ensembles: Common approaches from research and practice. *Music Educators Journal*, *107*(3), 38–46. https://doi.org/10.1177/0027432121995147

Chase, E. (2017). Enhanced member checks: Reflections and insights from a participant-researcher collaboration. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2017.2957

Cheng, L. (2019). Musical competency development in a laptop ensemble. *Research Studies in Music Education*, *41*(1), 117–131. https://doi.org/10.1177/1321103X18773804

Cheng, L., & Lam, C. Y. (2021). The worst is yet to come: The psychological impact of COVID-19 on Hong Kong music teachers. *Music Education Research*, *23*(2), 211–224. https://doi.org/10.1080/14613808.2021.1906215

Choksy, L. (1999). *The Kodály method I: Comprehensive music education*. Prentice Hall.

Christensen, L. (2020). The role of technology in this time of crisis. *Piano Magazine: Clavier Companion*, *12*, 37–37.

Chrysostomou, S. (Director). (2020, April 17). *Online music teacher education: Challenges and opportunities from the Greek reality* [Webinar]. https://www.youtube.com/watch?v=3Tld31mJCyc

Chrysostomou, S., & Triantafyllaki, A. (2020). Transitioning to online music teacher education: Challenges and opportunities for knowledge development. In R. E. Ferdig, E. Baumgartner, R. Hartshorne, R. Kaplan-Rakowski, & C. Mouza, *Teaching, Technology, and Teacher Education during the COVID-19 Pandemic: Stories from the Field*. Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/p/216903/

Çoban, S., & Soykunt, N. (2021). The experiment of beginning of violin training with "Colourstrings", a string instrument teaching method based on Kodaly child music education approach. *Ilkogretim Online*, *20*(1), 370–380. https://doi.org/10.17051/ilkonline.2021.01.034

Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies* (pp. x, 206). Sage Publications, Inc.

Cogo-Moreira, H., Andriolo, R. B., Yazigi, L., Ploubidis, G. B., Brandão de Ávila, C. R., Mari, J. J., & Cogo-Moreira, H. (2012). Music education for improving reading skills in children and adolescents with dyslexia. *Cochrane Database of Systematic Reviews*, *8*. https://doi.org/10.1002/14651858.CD009133.pub2

Cohen, A., & Holstein, S. (2018). Analysing successful massive open online courses using the community of inquiry model as perceived by students. *Journal of Computer Assisted Learning*, *34*(5), 544–556. https://doi.org/10.1111/jcal.12259

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education*. Routledge. https://doi.org/10.4324/9781315456539

Cole, Z. D., Donohoe, H. M., & Stellefson, M. L. (2013). Internet-based Delphi research: Case based discussion. *Environmental Management*, *51*(3), 511–523. https://doi.org/10.1007/s00267-012-0005-5

Connelly, F. M., & Clandinin, D. J. (1990). Stories of experience and narrative inquiry. *Educational Researcher*, *19*(5), 2–14. https://doi.org/10.3102/0013189X019005002

Considine, A. (2020). The ZOOM where it happens. *American Theatre*, *37*(4), 20–23.

Crabtree, B. F., & Miller, W. F. (1992). A template approach to text analysis: Developing and using codebooks. In *Doing qualitative research* (pp. 93–109). Sage Publications, Inc.

Crawford, R. (2014). A multidimensional/non-linear teaching and learning model: Teaching and learning music in an authentic and holistic context. *Music Education Research*, *16*(1), 50–69. https://doi.org/10.1080/14613808.2013.812627

Crawford, R. (2017). Rethinking teaching and learning pedagogy for education in the twenty-first century: Blended learning in music education. *Music Education Research*, *19*(2), 195–213. https://doi.org/10.1080/14613808.2016.1202223

Crawford, R., & Jenkins, L. (2015). Investigating the importance of team teaching and blended learning in tertiary music education. *Australian Journal of Music Education*, *2*, Article 2.

Crawford, R., & Southcott, J. (2017). Curriculum stasis: The disconnect between music and technology in the Australian curriculum. *Technology, Pedagogy and Education*, *26*(3), 347–366. https://doi.org/10.1080/1475939X.2016.1247747

Creagh, S., Thompson, G., Mockler, N., Stacey, M., & Hogan, A. (2023). Workload, work intensification and time poverty for teachers and school leaders: A systematic research synthesis. *Educational Review*, *0*(0), 1–20. https://doi.org/10.1080/00131911.2023.2196607

Creech, A., & Hallam, S. (2011). Learning a musical instrument: The influence of interpersonal interaction on outcomes for school-aged pupils. *Psychology of Music*, *39*(1), 102–122. https://doi.org/10.1177/0305735610370222

Cremata, R. (2019). The schoolification of popular music. *College Music Symposium*, *59*(1), 1–3. https://doi.org/10.18177/sym.2019.59.sr.11433

Cremata, R., & Powell, B. (2017). Online music collaboration project: Digitally mediated, deterritorialized music education. *International Journal of Music Education*, *35*(2), 302–315. https://doi.org/10.1177/0255761415620225

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches* (Fourth edition). SAGE.

Crich, W. (2020). Exciting times?? *mETAphor*, *2*, 37–37.

Cronenberg, S. (2020). Music teachers' perceptions of general music as a required middle level course. *RMLE Online: Research in Middle Level Education*, *43*(9), 1–24. https://doi.org/10.1080/19404476.2020.1818020

Croom, A. M. (2015). Music practice and participation for psychological well-being: A review of how music influences positive emotion, engagement, relationships, meaning, and accomplishment. *Musicae Scientiae*, *19*(1), 44–64. https://doi.org/10.1177/1029864914561709

Cumberledge, J. P. (2017). The benefits of college marching bands for students and universities: A review of the literature. *Update: Applications of Research in Music Education*, *36*(1), 44–50. https://doi.org/10.1177/8755123316682819

Cumberledge, J. P. (2021). Band together: How college marching band students perceived community during the covid-19 pandemic. *Update: Applications of Research in Music Education*, *39*(3), 67–74. https://doi.org/10.1177/87551233211003839

Cutcliffe, J. R., & McKenna, H. P. (2004). Expert qualitative researchers and the use of audit trails. *Journal of Advanced Nursing*, *45*(2), 126–133. https://doi.org/10.1046/j.1365-2648.2003.02874.x

Czajkowski, A.-M. L., Greasley, A. E., & Allis, M. (2022). Mindfulness for musicians: A mixed methods study investigating the effects of 8-week mindfulness courses on music students at a leading conservatoire. *Musicae Scientiae*, *26*(2), 259–279. https://doi.org/10.1177/1029864920941570

Dalby, B. (1999). Teaching audiation in instrumental classes: An incremental approach allows teachers new to Gordon's music learning theory to gradually introduce audiation-based instruction to their students. *Music Educators Journal*, *85*(6), 22–46. https://doi.org/10.2307/3399517

Dammers, R. J. (2009). Utilizing internet-based videoconferencing for instrumental music lessons. *Update: Applications of Research in Music Education*, *28*(1), 17–24. https://doi.org/10.1177/875512330934415

Dammers, R. J. (2012). Technology-based music classes in high schools in the United States. *Bulletin of the Council for Research in Music Education*, *194*, 73–90. https://doi.org/10.5406/bulcouresmusedu.194.0073

Dammers, R. J., & LoPresti, M. (2020). *Practical music education technology*. Oxford University Press.

Danso, A., Rousi, R., & Thompson, M. (2021). Novel and experimental music technology use in the music classroom: Learning performance, experience and concentrated behavior. *Human Technology*, *17*(1), 81–112. https://doi.org/10.17011/ht/urn.202106223979

Datta, A. (2020). 'Virtual choirs' and the simulation of live performance under lockdown. *Social Anthropology/Anthropologie Sociale*, *28*(2), 249–250. https://www.doi.org/10.1111/1469-8676.12862

Daugvilaite, D. (2021). Exploring perceptions and experiences of students, parents and teachers on their online instrumental lessons. *Music Education Research*, *0*(0), 1–15. https://doi.org/10.1080/14613808.2021.1898576

Davis, A. (2024). *Change for the better? An examination of how technology-based instruction during COVID-19 changed teaching methods in band* [Dissertation, Liberty University]. https://digitalcommons.liberty.edu/doctoral/5534

de Bruin, L. R. (2021). Instrumental music educators in a COVID landscape: A reassertion of relationality and connection in teaching practice. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.624717

Debrot, R. A. (2019). Voices 21C: A collaborative choral enterprise. *International Journal of Music and Performing Arts*, *7*(1), 7. https://doi.org/10.15640/ijmpa.v7n1a2

DeCuir-Gunby, J. T., Marshall, P. L., & McCulloch, A. W. (2011). Developing and using a codebook for the analysis of interview data: An example from a professional development research project. *Field Methods*, *23*(2), 136–155. https://doi.org/10.1177/1525822X10388468

Demorest, S. M. (1998). Improving sight-singing performance in the choral ensemble: The effect of individual testing. *Journal of Research in Music Education*, *46*(2), 182–192. https://doi.org/10.2307/3345622

Demski, J. (2011). Music instruction goes digital. *The Education Digest*, *76*(7), 14–18.

Denis, J. (2016). Band students' perceptions of instruction via videoconferencing. *Journal of Music, Technology & Education*, *9*(3), 241–254. https://doi.org/10.1386/jmte.9.3.241_1

Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE handbook of qualitative research*. SAGE.

Després, J.-P., & Dubé, F. (2020). The music learner voice: A systematic literature review and framework. *Frontiers in Education*, *5*, 119. https://doi.org/10.3389/feduc.2020.00119

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process* (Vol. 8). D.C. Health & Co. Publishers.

Dorfman, J. (2016). Music teachers' experiences in one-to-one computing environments. *Journal of Research in Music Education*, *64*(2), 159–178. https://doi.org/10.1177/0022429416649947

dos Santos, R. A. T., & dos Santos, R. P. (2021). Developing a tool for music theory placement: An emphasis on implicitly learned abilities. *Journal of Research in Music Education*, *69*(1), 43–61. https://doi.org/10.1177/0022429420949963

Draisey-Collishaw, R. (2007). The limits of doing: A critical assessment of performance-based music education. *The Canadian Music Educator*, *48*(4), 31–36.

Drai-Zerbib, V., & Baccino, T. (2018). Cross-modal music integration in expert memory: Evidence from eye movements. *Journal of Eye Movement Research*, *11*(2). https://doi.org/10.16910/jemr.11.2.4

Drai-Zerbib, V., Baccino, T., & Bigand, E. (2012). Sight-reading expertise: Cross-modality integration investigated using eye tracking. *Psychology of Music*, *40*(2), 216–235. https://doi.org/10.1177/0305735610394710

Draper, E. A. (2021). Teaching music remotely: Strategies for students with disabilities. *General Music Today*, *34*(3), 39–41. https://doi.org/10.1177/1048371321990662

Dumlavwalla, D. (2017). Transitioning from traditional to online piano lessons: Perceptions of students, parents and teacher. *MTNA E-Journal*, *8*(3), 2.

Dunbar, L., & Cooper, S. (2020). Speaking the same language: How the Kodály method promotes disciplinary literacy. *General Music Today*, *34*(1), 14–20.

Dweck, C. S. (2008). *Mindset: The new psychology of success*. Ballantine Books.

Eccles, R., van der Linde, J., le Roux, M., Swanepoel, D. W., MacCutcheon, D., & Ljung, R. (2021). The effect of music education approaches on phonological awareness and early literacy: A systematic review. *Australian Journal of Language & Literacy*, *44*(1), 46–60.

Edward, C. N., Asirvatham, D., & Johar, Md. G. Md. (2018). Effect of blended learning and learners' characteristics on students' competence: An empirical evidence in learning oriental music. *Education and Information Technologies*, *23*(6), 2587–2606. https://doi.org/10.1007/s10639-018-9732-4

Edwards, S. M. (2010). *Exploring the work of band directors: An institutional ethnography.* [Thesis, University of Victoria]. https://dspace.library.uvic.ca/handle/1828/3190

Elpus, K. (2017a). Just ask me: Convergent validity of self-reported measures of music participation. *Journal of Research in Music Education*, *65*(2), 129–138. https://doi.org/10.1177/0022429417713721

Elpus, K. (2017b). *The status of music education in United States public schools*. https://www.giveanote.org/media/2017/09/The-Status-of-Music-Education-in-US-Public-Schools-2017_reduced.pdf

Elpus, K., & Abril, C. R. (2019). Who enrolls in high school music? A national profile of u.s. students, 2009–2013. *Journal of Research in Music Education*, *67*(3), 323–338. https://doi.org/10.1177/0022429419862837

Enbuska, J., Rimppi, A., Hietanen, L., Tuisku, V., Ruokonen, I., & Ruismäki, H. (2018). E-learning environments, opportunities and challenges in teaching and learning to play the piano in student teacher education. *The European Journal of Social & Behavioural Sciences*, *Issue 1*. https://doi.org/10.15405/ejsbs.226

Enbuska, J., Tuisku, V., & Hietanen, L. (2018). The Community of Inquiry as a framework in student teachers' music education. *The European Journal of Social & Behavioural Sciences*, *23*(3), 2713–2732. https://doi.org/10.15405/ejsbs.239

Enright, E. (2020). Asynchronous ensembles come out swinging. *Downbeat*, *87*(10), 88–88.

Evison, F. (2023). Musical engagement at any cost? Community music leaders' embrace of technology-enabled music-making during the COVID-19 pandemic. *Journal of Popular Music Education*, *7*(The 25th Anniversary Release of Théberge's Any Sound You Can Imagine: Making Music/Consuming Technology), 169–193. https://doi.org/10.1386/jpme_00109_1

Eyerly, H. E. (2007). Children's choirs: Redefining performance in choral music education, part II. *Choral Journal*, *48*(1), 49–51.

Fan, P., Wong, A. C.-N., & Wong, Y. K. (2022). Visual and visual association abilities predict skilled reading performance: The case of music sight-reading. *Journal of Experimental Psychology: General*. https://doi.org/10.1037/xge0001217

Ferreri, L., Singer, N., McPhee, M., Ripollés, P., Zatorre, R. J., & Mas-Herrero, E. (2021). Engagement in music-related activities during the COVID-19 pandemic

as a mirror of individual differences in musical reward and coping strategies. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.673772

Fine, P., Berry, A., & Rosner, B. (2006). The effect of pattern recognition and tonal predictability on sight-singing ability. *Psychology of Music*, *34*(4), 431–447. https://doi.org/10.1177/0305735606067152

Fiock, H. S. (2020). Designing a community of inquiry in online courses. *International Review of Research in Open and Distributed Learning*, *21*(1), 134–152. http://dx.doi.org/10.19173/irrodl.v20i5.3985

Fletcher, A. J., & Marchildon, G. P. (2014). Using the Delphi method for qualitative, participatory action research in health leadership. *International Journal of Qualitative Methods*, *13*(1), 1–18. https://doi.org/10.1177/160940691401300101

Franceschini, A., Laney, R., & Dobbyn, C. (2020). Sketching music: Exploring melodic similarity and contrast using a digital tabletop. *Journal of Music, Technology & Education*, *13*(1), 5–31. https://doi.org/10.1386/jmte_00014_1

Francese, R., Bruno, P., & Tortora, G. (2021). Supporting interaction in a virtual chorus: Results from a focus group. In C. Ardito, R. Lanzilotti, A. Malizia, H. Petrie, A. Piccinno, G. Desolda, & K. Inkpen (Eds.), *Human-Computer Interaction – INTERACT 2021* (pp. 722–730). Springer International Publishing. https://www.doi.org/10.1007/978-3-030-85623-6_41

Freer, P. K. (2011). The performance-pedagogy paradox in choral music teaching. *Philosophy of Music Education Review*, *19*(2), 164–178. https://doi.org/10.2979/philmusieducrevi.19.2.164

French, M. K. (2019). Online music education: The fuel education virtual choir project. *International Journal of Inspired Education, Science and Technology*, *1*, 24–28.

Gall, M., & Breeze, N. (2007). The sub-culture of music and ICT in the classroom. *Technology, Pedagogy and Education*, *16*(1), 41–56. https://doi.org/10.1080/14759390601168015

Galvan, J., & Clauhs, M. (2020). The virtual choir as collaboration. *The Choral Journal*, *61*(3), 8–18.

Garrison, D. R. (2007a). Community of inquiry framework: Validation & instrument development. *Instructor*, *1*(2), 3.

Garrison, D. R. (2007b). Online community of inquiry review: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks*, *11*(1), 61–72.

Garrison, D. R. (2009). Communities of inquiry in online learning. In *Encyclopedia of Distance Learning, Second Edition* (2nd ed., pp. 352–355). IGI Global.

Garrison, D. R. (2016). *E-learning in the 21st century: A Community of Inquiry framework for research and practice*. Taylor & Francis.

Garrison, D. R., & Akyol, Z. (2015). Thinking collaboratively in educational environments: Shared metacognition and co-regulation in communities of inquiry. In *Educational Developments, Practices and Effectiveness: Global Perspectives and Contexts* (pp. 39–52). https://doi.org/10.1057/9781137469939_3

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2), 87–105. https://doi:10.1016/S1096-7516(00)00016-6

Gautam, R., & Sharma, M. (2020). 2019-nCoV pandemic: A disruptive and stressful atmosphere for Indian academic fraternity. *Brain, Behavior, and Immunity*, *88*, 948–949. https://doi.org/10.1016/j.bbi.2020.04.025

Gerber, C. L. (2021). Ralph L. Baldwin: His influence on American music education through teaching, publication, and service. *Journal of Historical Research in Music Education*, *43*(1), 5–25. https://doi.org/10.1177/1536600620901329

Gibson, S.-J. (2021). Shifting from offline to online collaborative music-making, teaching and learning: Perceptions of Ethno artistic mentors. *Music Education Research*, *23*(2), 151–166. https://doi.org/10.1080/14613808.2021.1904865

Gilbert, D. (2016). Curious, collaborative, creativity: Applying student-centered principles to performing ensembles. *Music Educators Journal*, *103*(2), 27–34. https://doi.org/10.1177/0027432116677553

Golafshani, N. (2015). Understanding reliability and validity in qualitative research. *The Qualitative Report*, *8*(4), 597–606. https://doi.org/10.46743/2160-3715/2003.1870

Goodman, S. L. (2020). Idea bank: Rehearsing ensembles online. *Music Educators Journal*, *107*(1), 15–16. https://doi.org/10.1177/0027432120957434

Goolsby, T. W. (1996). Time use in instrumental rehearsals: A comparison of experienced, novice, and student teachers. *Journal of Research in Music Education*, *44*(4), 286–303. https://doi.org/10.2307/3345442

Gordon, E. (1989). Audiation, music learning theory, music aptitude, and creativity. In *Suncoast Music Education Forum on Creativity*. https://eric.ed.gov/?id=ED380341

Gordon, E. (2004). *The aural/visual experience of music literacy: Reading and writing music notation.* Boydell & Brewer Ltd.

Gordon, E. (2007). *Learning Sequences in Music: A Contemporary Music Learning Theory*. GIA Publications.

Gordon, E. (2013). *Music learning theory for newborn and young children*. GIA Publications, Inc.

Grebosz-Haring, K., Schuchter-Wiegand, A. K., Feneberg, A. C., Skoluda, N., Nater, U. M., Schütz, S., & Thun-Hohenstein, L. (2022). The psychological and biological impact of "in-person" vs. "virtual" choir singing in children and adolescents: A pilot study before and after the acute phase of the COVID-19 outbreak in Austria. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.773227

Green, L. (2002). *How popular musicians learn: A way ahead for music education*. Routledge. https://doi.org/10.4324/9781315253169

Green, L. (2008). *Music, informal learning and the school: A new classroom pedagogy* (1st ed.). Routledge. https://doi.org/10.4324/9781315248523

Greenhow, C., Graham, C. R., & Koehler, M. J. (2022). Foundations of online learning: Challenges and opportunities. *Educational Psychologist*, *57*(3), 131–147. https://doi.org/10.1080/00461520.2022.2090364

Grey, A. (2020). Rote instruction in secondary instrumental music classrooms: A review of the literature. *Update: Applications of Research in Music Education*, *39*(1), 59–69. https://doi.org/10.1177/8755123320909149

Grey, A. (2021). Improving students' aural skills on the AP Music Theory exam. *Music Educators Journal*, *107*(3), 47–53. https://doi.org/10.1177/0027432121994658

Grimmer, J., & Stewart, B. M. (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. *Political Analysis*, *21*(3), 267–297. https://doi.org/10.1093/pan/mps028

Gromko, J. E., & Russell, C. (2002). Relationships among young children's aural perception, listening condition, and accurate reading of graphic listening maps. *Journal of Research in Music Education*, *50*(4), 333–342. https://doi.org/10.2307/3345359

Groulx, T. J., & Hernly, P. (2010). Online master's degrees in music education: The growing pains of a tool to reach a larger community. *Update: Applications of Research in Music Education*, *28*(2), 60–70. https://doi.org/10.1177/8755123310361765

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, *29*(2), 75–91.

Gudmundsdottir, H. (2010). Advances in music-reading research. *Music Education Research*, *12*(4), 331–338. https://doi.org/10.1080/14613808.2010.504809

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough?: An experiment with data saturation and variability. *Field Methods*, *18*(1), 59–82. https://doi.org/10.1177/1525822X05279903

Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLOS ONE*, *15*(5), e0232076. https://doi.org/10.1371/journal.pone.0232076

Gül, G. (2021). Teachers' views on music education practices in secondary education in distance education during the COVID-19 pandemic process. *Journal of Education in Black Sea Region*, *6*(2), Article 2. https://doi.org/10.31578/jebs.v6i2.235

Halcomb, E. J., & Davidson, P. M. (2006). Is verbatim transcription of interview data always necessary? *Applied Nursing Research*, *19*(1), 38–42. https://doi.org/10.1016/j.apnr.2005.06.001

Hamel, M. (2014a). Some uses for the iPad in the classroom. *Canadian Winds / Vents Canadiens*, *13*(1), 31–34.

Hamel, M. (2014b). Using the iPad in the band room. *Canadian Winds / Vents Canadiens*, *12*(2), 34–37.

Hammond, T., Watson, K., Brumbelow, K., Fields, S., Shryock, K., Chamberland, J.-F., Barroso, L., de Miranda, M., Johnson, M., Alexander, G., Childs, M. D., Ray, S., White, L., Cherian, J., Dunn, A., & Herbert, B. (2020). *A survey to measure the effects of forced transition to 100% online learning on community sharing, feelings of social isolation, equity, resilience, and learning content during the COVID-19 pandemic*. https://hdl.handle.net/1969.1/187835

Haning, M. (2020). “I didn’t know I could do that!” Student and teacher perceptions of an independent choral music learning project. *Update: Applications of Research in Music Education*, 875512332096108. https://doi.org/10.1177/8755123320961083

Haning, M. (2021). The role and influence of performance in school music programs: A grounded theory. *Journal of Research in Music Education*, *69*(1), 85–104. https://doi.org/10.1177/0022429420953118

Hanrahan, F., Hughes, E., Banerjee, R., Eldridge, A., & Kiefer, C. (2019). Psychological benefits of networking technologies in children’s experience of ensemble music making. *International Journal of Music Education*, *37*(1), 59–77. https://doi.org/10.1177/0255761418796864

Hanson, M. (2003). Effects of sequenced Kodaly literacy-based music instruction on the spatial reasoning skills of kindergarten students. *Research & Issues in Music Education*, *1*(1). https://commons.lib.jmu.edu/rime/vol1/iss1/4

Hash, P. M. (2021a). Frank William Westhoff (1863–1938): A music education leader of the progressive era. *Journal of Historical Research in Music Education*, *43*(1), 26–52. https://doi.org/10.1177/1536600620929227

Hash, P. M. (2021b). Remote learning in school bands during the COVID-19 shutdown. *Journal of Research in Music Education*, *68*(4), 381–397. https://doi.org/10.1177/0022429420967008

Hawkins, J. (2018). The practical utility and suitability of email interviews in qualitative research. *The Qualitative Report*, *23*(2). http://dx.doi.org/10.46743/2160-3715/2018.3266

Hayward, C. M., & Eastlund Gromko, J. (2009). Relationships among music sight-reading and technical proficiency, spatial visualization, and aural discrimination. *Journal of Research in Music Education*, *57*(1), 26–36. https://doi.org/10.1177/0022429409332677

He, G. (2020). Blended teaching mode of art course based on objective achievement scale. *International Journal of Emerging Technologies in Learning*, *13*, 289–302. https://doi.org/10.3991/ijet.v15i13.14987

Heilporn, G., & Lakhal, S. (2020). Investigating the reliability and validity of the community of inquiry framework: An analysis of categories within each presence. *Computers & Education*, *145*. https://doi.org/10.1016/j.compedu.2019.103712

Henry, M. (2011). The effect of pitch and rhythm difficulty on vocal sight-reading performance. *Journal of Research in Music Education*, *59*(1), 72–84. https://doi.org/10.1177/0022429410397199

Henry, M. (2015). Vocal sight-reading assessment: Technological advances, student perceptions, and instructional implications. *Update: Applications of Research in Music Education*, *33*(2), 58–64. https://doi.org/10.1177/8755123314547908

Hernández, A. M. (2020). Online learning in higher music education: Benefits, challenges and drawbacks of one-to-one videoconference instrumental lessons. *Journal of Music, Technology and Education*, *13*(2), 181–197. https://doi.org/10.1386/jmte_00022_1

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, *27*, 1–12. https://doi.org/10.1163/9789004702813_021

Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher (through 2013)*, *20*(4), 12–17.

Houlahan, M., & Tacka, P. (2015). *Kodály today: A cognitive approach to elementary music education*. Oxford University Press.

Humphreys, J. T. (1986). Measurement, prediction, and training of harmonic audiation and performance skills. *Journal of Research in Music Education*, *34*(3), 192–199. https://doi.org/10.2307/3344748

Hurley, C., Musselwhite, D., & Wesolowski, B. C. (2018). Examining the effect of aural preparation on second grade students'. *Research and Issues in Music Education*, *14*(1). https://eric.ed.gov/?id=EJ1201992

Jacob, S., & Furgerson, S. (2012). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report*, *17*(42), 1–10. https://doi.org/10.46743/2160-3715/2012.1718

Jan, S. K., & Vlachopoulos, P. (2019). Social network analysis: A framework for identifying communities in higher education online learning. *Technology, Knowledge & Learning*, *24*(4), 621–639. https://doi.org/10.1007/s10758-018-9375-y

Jellison, J. A. (2004). It's about time. *Journal of Research in Music Education*, *52*(3), 191–205. https://doi.org/10.2307/3345854

Johnson, C. (2017). Teaching music online: Changing pedagogical approach when moving to the online environment. *London Review of Education*, *15*(3), 439–466. https://doi.org/10.18546/LRE.15.3.08

Johnson, C. (2021). A historical study (2007-2015) on the adoption of online music courses in the United States. *International Journal on Innovations in Online Education*, *5*(1). https://doi.org/10.1615/IntJInnovOnlineEdu.2021037316

Johnson, C., & Merrick, B. (2020). Enabling music students' well-being through regular Zoom cohort chats during the COVID-19 crises. In *Teaching, technology, and teacher education during the COVID-19 pandemic: Stories from the field* (pp. 261–264). Association for the Advancement of Computing in Education (AACE).

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

Jordan, J. (2022). *Intonational solfege (teacher's edition): A contextual and aurally immersive approach to intonational music literacy* (1st ed.). GIA Publications. https://www.giamusic.com/store/resource/intonational-solfege-book-g10727

Jorgensen, E. R. (2009). On thick description and narrative inquiry in music education. *Research Studies in Music Education*, *31*(1), 69–81. https://doi.org/10.1177/1321103X09103632

Joseph, D., & Lennox, L. (2021). Twists, turns and thrills during COVID-19: Music teaching and practice in Australia. *Music Education Research*, *23*(2), 241–255. https://doi.org/10.1080/14613808.2021.1906852

Juntunen, M.-L., & Westerlund, H. (2011). The legacy of music education methods in teacher education: The metanarrative of Dalcroze eurhythmics as a case. *Research Studies in Music Education*, *33*(1), 47–58. https://doi.org/10.1177/1321103X11404653

Kahlke, R. M. (2014). Generic qualitative approaches: Pitfalls and benefits of methodological mixology. *International Journal of Qualitative Methods*, *13*(1), 37–52. https://doi.org/10.1177/160940691401300119

Kaleli, Y. S. (2021). The effect of individualized online instruction on TPACK skills and achievement in piano lessons. *International Journal of Technology in Education*, *4*(3), 399–412. https://doi.org/10.46328/ijte.143

Kallio, A. A. (2017). Popular "problems": Deviantization and teachers' curation of popular music. *International Journal of Music Education*, *35*(3), 319–332. https://doi.org/10.1177/0255761417725262

Kao, J. (2021). Another perspective: Music education in the age of innovation. *Music Educators Journal*, *107*(3), 63–69. https://doi.org/10.1177/0027432121994079

Karkina, S., Karkina, S., Faizrakhmanova, L., Kamalova, I., Akbarova, G., & Kaur, B. (2022). Performance practice in a pandemic: Training ensemble skills using e-tivities in music teacher education. *Frontiers in Education*, *7*. https://doi.org/10.3389/feduc.2022.817310

Kaschub, M. (2020). Making music education future-ready. *Music Educators Journal*, *106*(4), 19–20. https://doi.org/10.1177/0027432120924443

Kennedy, D. (2016). Is it any clearer? Generic Qualitative Inquiry and the VSAIEEDC model of data analysis. *The Qualitative Report*, *21*(8), 1369–1379. https://doi.org/10.46743/2160-3715/2016.2444

Kennedy, M., & Kennedy, J. (2013). *The Oxford dictionary of music*. Oxford University Press.

Khaskheli, A., Jiang, Y., Raza, S. A., & Qamar Yousufi, S. (2022). Social isolation & toxic behavior of students in e-learning: Evidence during the time of the COVID-19 pandemic. *Interactive Learning Environments*, 1–20. https://doi.org/10.1080/10494820.2022.2133145

Kibici, V. B., & Sarikaya, M. (2021). Readiness levels of music teachers for online learning during the COVID-19 pandemic. *International Journal of Technology in Education, 4*(3), 501–515.

Kim, J. H. (2021). Music teachers' understanding of blended learning in Korean elementary music classes. *Music Education Research*, *23*(3), 311–320. https://doi.org/10.1080/14613808.2020.1862776

Kim-Boyle, D. (2019). Compositional strategies with generative scores. *Digital Creativity*, *30*(1), 67–80. https://doi.org/10.1080/14626268.2019.1576736

King, A., Prior, H., & Waddington-Jones, C. (2019a). Connect resound: Using online technology to deliver music education to remote communities. *Journal of Music, Technology and Education*, *12*(2), 201–217. https://doi.org/10.1386/jmte_00006_1

King, A., Prior, H., & Waddington-Jones, C. (2019b). Exploring teachers' and pupils' behaviour in online and face-to-face instrumental lessons. *Music Education Research*, *21*(2), 197–209. https://doi.org/10.1080/14613808.2019.1585791

Klusmann, U., Aldrup, K., Roloff-Bruchmann, J., Carstensen, B., Wartenberg, G., Hansen, J., & Hanewinkel, R. (2023). Teachers' emotional exhaustion during the COVID-19 pandemic: Levels, changes, and relations to pandemic-specific demands. *Teaching and Teacher Education*, *121*, 103908. https://doi.org/10.1016/j.tate.2022.103908

Knapp, D. H., Powell, B., Smith, G. D., Coggiola, J. C., & Kelsey, M. (2023). Soundtrap usage during COVID-19: A machine-learning approach to assess the effects of the pandemic on online music learning. *Research Studies in Music Education*, *45*(3), 571–584. https://doi.org/10.1177/1321103X221149374

Knapp, E. J. (2022). Teaching music during COVID-19: Teachers' perceptions of personal and professional effects. *Bulletin of the Council for Research in Music Education*, *231*, 57–76. https://doi.org/10.5406/21627223.231.04

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, *9*(1), 60–70.

Koh, B., Hann, I.-H., & Raghunathan, S. (2019). Digitization of music: Consumer adoption amidst piracy, unbundling, and rebundling. *MIS Quarterly*, *43*(1), 23–45. https://doi.org/10.25300/MISQ/2019/14812

Koner, K. M., & Weaver, A. (2021). An exploratory case study of mindfulness techniques in a high school band program during the COVID-19 pandemic. *Update: Applications of Research in Music Education*, 87551233211050011. https://doi.org/10.1177/87551233211050011

Koskela, M., Kuoppamäki, A., Karlsen, S., & Westerlund, H. (2021). The paradox of democracy in popular music education: Intersectionalizing "youth" through curriculum analysis. *The Politics of Diversity in Music Education*, *29*, 135–159. https://doi.org/10.1007/978-3-030-65617-1_10

Koutsoupidou, T. (2014). Online distance learning and music training: Benefits, drawbacks and challenges. *Open Learning*, *29*(3), 243–255. https://doi.org/10.1080/02680513.2015.1011112

Kovanović, V., Joksimović, S., Poquet, O., Hennis, T., de Vries, P., Hatala, M., Dawson, S., Siemens, G., & Gašević, D. (2019). Examining communities of inquiry in massive open online courses: The role of study strategies. *The Internet and Higher Education*, *40*, 20–43. https://doi.org/10.1016/j.iheduc.2018.09.001

Kozan, K., & Caskurlu, S. (2018). On the Nth presence for the community of inquiry framework. *Computers & Education*, *122*, 104–118. https://doi.org/10.1016/j.compedu.2018.03.010

Kruse, A. J., & Hill, S. C. (2019). Exploring hip hop music education through online instructional beat production videos. *Journal of Music, Technology & Education*, *12*(3), 247–260. https://doi.org/10.1386/jmte_00009_1

Kruse, N., Harlos, S., Callahan, R., & Herring, M. (2013). Skype music lessons in the academy: Intersections of music education, applied music and technology. *Journal of Music, Technology and Education*, *6*(1), 43–60. https://doi.org/10.1386/jmte.6.1.43_1

Kruse, N., & Veblen, K. (2012). Music teaching and learning online: Considering YouTube instructional videos. *Journal of Music, Technology & Education*, *5*(1), 77–87. https://doi.org/10.1386/jmte.5.1.77_1

Kuebel, C., & Haskett, E. (2023). "I'm doing the best I can": Teaching general music in the time of Covid-19. *Applications of Research in Music Education*, *41*(2), 28–37. https://doi.org/10.1177/87551233211067766

Kumara, M. (2020). *Choir as community: An inclusive, anti-racist high school choral curriculum*.

Kumtepe, M. A. (2022). Individual instrument practice habits of musicology students with demographic features and music literacy: Example of Kırıkkale. *International Journal of Education and Literacy Studies*, *10*(1), Article 1. https://www.doi.org/10.7575/aiac.ijels.v.10n.1p.103

Kupczynski, L., Ice, P., Wiesenmayer, R., & McCluskey, F. (2010). Student perceptions of the relationship between indicators of teaching presence and success in online courses. *Journal of Interactive Online Learning*, *9*(1), 23–43.

Kuzmich Jr., J. (2010). Today's K-12 virtual music instruction. *School Band & Orchestra*, *13*(2), 12–14.

La Pelle, N. (2004). Simplifying qualitative data analysis using general purpose software tools. *Field Methods*, *16*(1), 85–108. https://doi.org/10.1177/1525822X03259227

Laato, S., Rauti, S., & Sutinen, E. (2020). The role of music in 21st Century education-Comparing programming and music composing. *2020 IEEE 20th International Conference on Advanced Learning Technologies (ICALT)*, 269–273. https://doi.org/10.1109/ICALT49669.2020.00088

Langer, E., Russel, T., & Eisenkraft, N. (2009). Orchestral performance and the footprint of mindfulness. *Psychology of Music*, *37*(2), 125–136. https://doi.org/10.1177/0305735607086053

Larasati, M. T. L., & Sukmayadi, Y. (2021). *Mobile learning design for sight reading*. 70–73. https://doi.org/10.2991/assehr.k.210203.015

Lehman, P. R. (1994). The national standards: From vision to reality. *Music Educators Journal*, *81*(2).

Leonhard, C. (1999). A challenge for change in music education. *Music Educators Journal*, *86*(3), 40. http://dx.doi.org/10.2307/3399559

Levstek, M., Barnby, R. M., Pocock, K. L., & Banerjee, R. (2021). "It all makes us feel together": Young people's experiences of virtual group music-making during the COVID-19 pandemic. *Frontiers in Psychology*, *12*(21), 1–18. https://doi.org/10.31234/osf.io/adwqe

Levy, S. (2003). Factors to consider when planning online distance learning programs in higher education. *Online Journal of Distance Learning Administration, Spring*, *6*(1).

Li, Z. (2017). Mobile learning in the theater arts classroom. *International Association for Development of the Information Society*.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.

Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation*, *1986*(30), 73–84. https://doi.org/10.1002/ev.1427

Liperote, K. A. (2006). Audiation for beginning instrumentalists: Listen, speak, read, write. *Music Educators Journal*, *93*(1), 46–52. https://doi.org/10.1177/002743210609300123

Liu, C.-W. (2021a). Beyond virtual classrooms: Exploring feelings in the social world. *General Music Today*, *34*(3), 36–38. https://doi.org/10.1177/1048371320985169

Liu, C.-W. (2021b). Navigating music teaching in uncertain times. *General Music Today*, *34*(2), 39–41. https://doi.org/10.1177/1048371320961384

Liu, J., & Liang, L. (2021). The application of computer music technology in music education. *2021 IEEE Asia-Pacific Conference on Image Processing, Electronics and Computers (IPEC)*, 791–793. https://doi.org/10.1109/IPEC51340.2021.9421234

Lock, J., Eaton, S. E., & Kessy, E. (2017). Fostering self-regulation in online learning in k-12 education. *Northwest Journal of Teacher Education*, *12*(2). https://doi.org/10.15760/nwjte.2017.12.2.2

Longlong, C., & Luen, L. C. (2023). New trend in online pedagogy for college vocal music education in the digital era. *International Journal of Academic Research in*

Progressive Education and Development, *12*(4), Article 4. http://dx.doi.org/10.6007/IJARPED/v12-i4/20091

López-Íñiguez, G., Pérez Echeverría, M. P., Pozo, J. I., & Torrado, J. A. (2022). Student-centred music education: Principles to improve learning and teaching. In J. I. Pozo, M. P. Pérez Echeverría, G. López-Íñiguez, & J. A. Torrado (Eds.), *Learning and Teaching in the Music Studio* (Vol. 31, pp. 369–385). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-0634-3_18

Luke, A. (2012). Critical literacy: Foundational notes. *Theory Into Practice*, *51*(1), 4–11. https://doi.org/10.1080/00405841.2012.636324

Ma, J. Y., & Hall, R. (2018). Learning a part together: Ensemble learning and infrastructure in a competitive high school marching band. *Instructional Science*, *46*(4), 507–532. https://doi.org/10.1007/s11251-018-9455-3

MacDonald, R., & Zumbansen, A. (2023). Successful online choir for people living with dementia: A qualitative case study. *OBM Integrative and Complementary Medicine*, *08*, 1–20. https://doi.org/10.21926/obm.icm.2302024

MacRitchie, J., Chmiel, A., Radnan, M., Taylor, J. R., & Dean, R. T. (2023). Going online: Successes and challenges in delivering group music instrument and aural learning for older adult novices during the COVID-19 pandemic. *Musicae Scientiae*, *27*(3), 596–615. https://doi.org/10.1177/10298649221097953

Magana, S. (2017). *Disruptive classroom technologies: A framework for innovation in education*. Corwin Press. https://maganaeducation.com/what-is-the-t3-framework-for-innovation/

Magana, S. (2018). Disruptive classroom technologies: Transcending the status quo with the T3 framework. *Teachers Matter*, *37*, 14–17.

Magana, S. (2019). Disrupting low-impact technology use: Aligning visible learning and the T3 framework for innovation. *Thousand Oaks, California: Corwin*.

Maki, J. (2001). Is it possible to teach music in a classroom from a distance of 1000 km? Learning Environment of music education Using ISDN-videoconferencing. *Association for the Advancement of Computing in Education (AACE)*.

Mansfield, J. E. (2004). The musical subject, technoculture and curriculum in the postmodern condition. *Research Studies in Music Education*, *23*(1), 42–58. https://doi.org/10.1177/1321103X040230010401

Mark, M., & Gary, C. L. (2007). A history of American music education. In *Rowman & Littlefield Education* (3rd ed.). Rowman & Littlefield Education.

Marone, V., & Rodriguez, R. (2019). "What's so awesome with YouTube": Learning music with social media celebrities. *Online Journal of Communication and Media Technologies*, *9*. https://doi.org/10.29333/ojcmt/5955

Marshall, D. T., Pressley, T., Neugebauer, N. M., & Shannon, D. M. (2022). Why teachers are leaving and what we can do about it. *Phi Delta Kappan*, *104*(1), 6–11. https://doi.org/10.1177/00317217221123642

Martin, L. (2014). iRehearse: The iPad and the choral rehearsal. *Choral Journal*, *54*(7), 63–67.

Martin, M. D. (1999). Band Schools of the United States: A Historical Overview. *Journal of Historical Research in Music Education*, *21*(1), 41–61. https://doi.org/10.1177/153660069902100108

Martinec, J. (2020). The virtual choir: Examining the benefits and obstacles of online teaching in the choral setting. *The Canadian Music Educator*, *61*(3), 41–46.

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *11*(3), Article 3. https://doi.org/10.17169/fqs-11.3.1428

Matthews, W., & Koner, K. (2017). A survey of elementary and secondary music educators' professional background, teaching responsibilities and job satisfaction in the United States. *Research & Issues in Music Education*, *13*(1). https://commons.lib.jmu.edu/rime/vol13/iss1/2

Maxwell, J. (2009). Designing a qualitative study. *The SAGE Handbook of Applied Qualitative Social Research Methods*, 214–253. https://doi.org/10.4135/9781483348858.n7

May, B. N., Broomhead, P., & Tsugawa, S. (2020). A music literacy-based rationale for popular music ensembles and experiences in music education. *International Journal of Music Education*, *38*(3), 470–491. https://doi.org/10.1177/0255761420923186

McLeod, J. (2001). *Qualitative research in counselling and psychotherapy*. Thousand Oaks, CA. https://methods.sagepub.com/book/qualitative-research-in-counselling-and-psychotherapy

McNeill, J., & McPhail, G. (2020). One direction: Strategic challenges for twenty-first century secondary school music. *Music Education Research*, *22*(4), 432–446. https://doi.org/10.1080/14613808.2020.1796952

McNickle, C. B., & Morris, C. R. (2022). Social and emotional learning for choirs. *Choral Journal*, *62*(9), 8–19.

Menard, E. A. (2015). Music composition in the high school curriculum: A multiple case study. *Journal of Research in Music Education*, *63*(1), 114–136. https://doi.org/10.1177/0022429415574310

Meng, C., Martin-Hammond, A., Deal, S. W., & Tian, R. (2024). Improving human connections and audience satisfaction in online concerts and music conferences. *Computer Music Journal*, 1–52. https://doi.org/10.1162/comj_a_00685

Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). Jossey-Bass Publishers.

Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice: Examples for discussion and analysis*. John Wiley & Sons, Incorporated.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Merriam, S., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). Jossey-Bass.

Merriam-Webster. (n.d.-a). Ensemble. In *Merriam-Webster.com dictionary*. https://www.merriam-webster.com/dictionary/ensemble

Merriam-Webster. (n.d.-b). Secondary school. In *Merriam-Webster.com dictionary*. https://www.merriam-webster.com/dictionary/secondary%20school

Merrick, B. (2020). Changing mindset, perceptions, learning, and tradition: An "adaptive teaching framework" for teaching music online. *International Journal on Innovations in Online Education*, *4*(2), Article 2. https://doi.org/10.1615/IntJInnovOnlineEdu.2020035150

Miksza, P. (2013). The future of music education: Continuing the dialogue about curricular reform. *Music Educators Journal*, *99*(4), 45–50. https://doi.org/10.1177/0027432113476305

Millican, J. S., & Forrester, S. H. (2018). Core practices in music teaching: A Delphi expert panel survey. *Journal of Music Teacher Education*, *27*(3), 51–64. https://doi.org/10.1177/1057083717736243

Mishra, P., & Koehler, M. (1998). *TPACK.ORG*. http://www.tpack.org/

Moder, J. (2018). Factors influencing non-music majors' decisions to participate in collegiate bands. *Journal of Band Research*, *54*(1), 1–17.

Moen, T. (2006). Reflections on the narrative research approach. *International Journal of Qualitative Methods*, *5*(4), 56–69. https://doi.org/10.1177/160940690600500405

Mok, A. O. (2020). 'I can follow': Self-directed informal learning strategies adopted by choristers in an adult amateur choir. *Music Education Research*, *22*(4), Article 4. https://doi.org/10.1080/14613808.2020.1796951

Music Educators National Conference. (1994). https://nafme.org/my-classroom/standards/national-standards-archives/

Mustofa, S., Wihidayat, E., & Hatta, P. (2018). Can the use of video learning increase student's interest in traditional music? *Indonesian Journal of Informatics Education*, *2*(1), 13–20. https://doi.org/10.20961/ijie.v%vi%i.12998

National Association for Music Education. (2014). *2014 Music Standards*. https://nafme.org/my-classroom/standards/core-music-standards/

National Association of School of Music. (2021). *Handbook 2020-21*. https://nasm.arts-accredit.org/wp-content/uploads/sites/2/2021/01/M-2020-21-Handbook-Final-01-08-2021.pdf

National Federation of State High School Associations & National Association for Music & Education. (2020, October 6). *Fall 2020 Guidance for Music Education*. https://nafme.org/wp-content/uploads/2020/10/NAfME_NFHS-Guidance-for-Fall-2020-August-21-Version-4.pdf

Nelson, L. K., Burk, D., Knudsen, M., & McCall, L. (2021). The future of coding: A comparison of hand-coding and three types of computer-assisted text analysis methods. *Sociological Methods & Research*, *50*(1), 202–237. https://doi.org/10.1177/0049124118769114

Nichols, B. (2013). The way we do the things we do: A survey of middle-school choral educators' sight-singing attitudes and influences. *Contributions to Music Education*, *39*(1), 87–100.

Nichols, B. (2020). Equity in music education: Access to learning during the pandemic and beyond. *Music Educators Journal*, *107*(1), 68–70. https://doi.org/10.1177/0027432120945151

Nichols, B. (2021). The positive influence of the popular music movement. *Update: Applications of Research in Music Education*, 87551233211067095. https://doi.org/10.1177/87551233211067095

Norman, T. D. (2021). Teaching music online: Using Microsoft Powerpoint to create prerecorded lessons. *General Music Today*, *34*(3), 45–51. https://doi.org/10.1177/1048371321996292

Nwoko, J. C., Emeto, T. I., Malau-Aduli, A. E. O., & Malau-Aduli, B. S. (2023). A systematic review of the factors that influence teachers' occupational wellbeing. *International Journal of Environmental Research and Public Health*, *20*(12), Article 12. https://doi.org/10.3390/ijerph20126070

O'Carroll, D. (1993). Feature-detecting neurons in dragonflies. *Nature*, *362*(6420), 541–543. https://doi.org/10.1038/362541a0

Orange, A. (2016). Encouraging reflective practices in doctoral students through research journals. *The Qualitative Report*, *21*(12), 2176–2190. https://doi.org/10.46743/2160-3715/2016.2450

Orman, E. K. (2002). Comparison of the national standards for music education and elementary music specialists' use of class time. *Journal of Research in Music Education*, *50*(2), 155–164. https://doi.org/10.2307/3345819

Ortlipp, M. (2008). Keeping and using reflective journals in the qualitative research process. *Qualitative Report*, *13*(4), 695–705.

Paparo, S. A. (2021). Real voices, virtual ensemble 2.0: Perceptions of participation in Eric Whitacre's virtual choirs. *International Journal of Research in Choral Singing*, *9*, 92–115.

Park, Y. J. (2021). Online music education for sustainable development: Analysis of music learning videos in e-Hakseupteo. *International Journal of Music Education*, 02557614211058800. https://doi.org/10.1177/02557614211058800

Parkita, E. (2021). Digital tools of universal music education. *Central European Journal of Educational Research*, *3*(1). https://doi.org/10.37441/cejer/2021/3/1/9352

Parrish, M. (2016). Toward transformation: Digital tools for online dance pedagogy. *Arts Education Policy Review*, *117*(3), 168–182. https://doi.org/10.1080/10632913.2016.1187974

Pattananon, N., Pongvatnanusorn, P., Gularnupong, K., & Niramittham, K. (2024). Pedagogical innovations in advanced music education. *Educational Administration: Theory and Practice*, *30*(4), Article 4. https://doi.org/10.53555/kuey.v30i4.2727

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth edition). SAGE Publications, Inc.

Pendergast, D., & O'Brien, M. (2023). "Teachers are rock stars!" rethinking teaching and teacher education in a post-pandemic world: Innovative disruption and silver linings. *Education Sciences*, *13*(7), Article 7. https://doi.org/10.3390/educsci13070685

Pendergast, S., & Robinson, N. R. (2020). Secondary students' preferences for various learning conditions and music courses: A comparison of school music, out-of-school music, and nonmusic participants. *Journal of Research in Music Education*, *68*(3), 264–285. https://doi.org/10.1177/0022429420931826

Percy, W., Kostere, K., & Kostere, S. (2015). Generic qualitative research in psychology. *The Qualitative Report*, *20*, 76–85. https://doi.org/10.46743/2160-3715/2015.2097

Pfordresher, P. Q., & Demorest, S. M. (2021). The prevalence and correlates of accurate singing. *Journal of Research in Music Education*, *69*(1), 5–23. https://doi.org/10.1177/0022429420951630

Pike, P. (2015). Using a synchronous online teaching internship to develop pedagogical skills and explore teacher identity: A case study. *Journal of Music, Technology & Education*, *8*(3), 227–242. https://doi.org/10.1386/jmte.8.3.227_1

Pike, P. (2017). Improving music teaching and learning through online service: A case study of a synchronous online teaching internship. *International Journal of Music Education*, *35*(1), 107–117. https://doi.org/10.1177/0255761415613534

Pike, P. (2020). Teaching music online: Past, present, and future opportunities. *Piano Magazine: Clavier Companion*, *12*, 62–64.

Pike, P., & Shoemaker, K. (2013). The effect of distance learning on acquisition of piano sight-reading skills. *Journal of Music, Technology & Education*, *6*(2), 147–162. https://doi.org/10.1386/jmte.6.2.147_1

Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, *8*(1), 133–141. https://doi.org/10.1177/2347631120983481

Pomerleau-Turcotte, J., Moreno Sala, M. T., Dubé, F., & Vachon, F. (2022). Experiential and cognitive predictors of sight-singing performance in music higher education. *Journal of Research in Music Education*, *70*(2), 206–227. https://doi.org/10.1177/00224294211049425

Postle, G., Sturman, A., Mangubhai, F., Cronk, P., Carmichael, A., McDonald, J., Reushle, S., Richardson, L., & Vickery, B. (2003). *Online teaching and learning in higher education: A case study*. Commonwealth of Australia.

Powell, B. (2021). Modern band: A review of literature. *Update: Applications of Research in Music Education*, *39*(3), 39–46. https://doi.org/10.1177/8755123320988528

Price, H. E. (2006). Relationships among conducting quality, ensemble performance quality, and state festival ratings. *Journal of Research in Music Education*, *54*(3), 203–214. https://doi.org/10.1177/002242940605400304

Puentedura, R. R. (2014). SAMR: A contextualized introduction. *Lecture at Pine Cobble School.*

Pulham, E. (2019). Online instruction for choral ensembles: One university choir's experience with blended learning. *Choral Journal*, *59*(11), 53–61.

Radcliffe, S. (2020). *"Contact Tracing" the Chaconne Theme in the Brahms Symphony No. 4 Finale: Summary of a research, analysis and performance project of the Carlton College Orchestra*. The College Music Society.

Randel, D. M. (1992). The canons in the musicological toolbox. In K. Bergeron & P. V. Bohlman (Eds.), *Disciplining music: Musicology and its canons* (pp. 10–21). University of Chicago Press.

Ravitch, S. M., & Carl, N. M. (2021). *Qualitative research: Bridging the conceptual, theoretical, and methodological* (Second edition). Sage.

Reifinger, J. L. (2020). Teaching pitch notation–reading skills. *General Music Today*, *33*(3), 21–28. https://doi.org/10.1177/1048371319891419

Renwick, J. M., & McPherson, G. E. (2002). Interest and choice: Student-selected repertoire and its effect on practising behaviour. *British Journal of Music Education*, *19*(02). https://doi.org/10.1017/S0265051702000256

Resta, C. (2021). Looking back to move forward: Charles Fowler and his reconstructionist philosophy of music education. *Journal of Historical Research in Music Education*, *43*(1), 79–97. https://doi.org/10.1177/1536600620937973

Richardson, L., Long, E., Goodfellow, C., Milicev, J., & Gardani, M. (2024). Starting an undergraduate degree amid the COVID-19 pandemic: A mixed-method egocentric network study on student loneliness. *PLOS ONE*, *19*(2), e0297953. https://doi.org/10.1371/journal.pone.0297953

Riley, H., MacLeod, R., & Libera, M. (2016). Low latency audio video: Potentials for collaborative music making through distance learning. *Update: Applications of*

Research in Music Education, *34*(3), 15–23. https://doi.org/10.1177/8755123314554403

Riley, P. (2009). Video-conferenced music teaching: Challenges and progress. *Music Education Research*, *11*(3), 365–375. https://doi.org/10.1080/14613800903151580

Riley, P. (2013). Teaching, learning, and living with iPads. *Music Educators Journal*, *100*(1), 81–86. https://doi.org/10.1177/0027432113489152

Rodriguez, C. X. (2004). Bridging the gap: Popular music and music education. In *MENC: The National Association for Music Education*. Rowman & Littlefield Publishing Group, 4501 Forbes Blvd.

Roehl, J., & Harland, D. (2022). Imposter participants: Overcoming methodological challenges related to balancing participant privacy with data quality when using online recruitment and data collection. *The Qualitative Report*, *27*(11), 2469–2485. https://doi.org/10.46743/2160-3715/2022.5475

Rolandson, D. M. (2020). Motivation in music: A comparison of popular music course students and traditional large ensemble participants in high school. *Contributions to Music Education*, *45*, 105–126.

Rolandson, D. M., & Conn, D. R. (2022). Large ensemble teachers' support for popular music courses in high schools. *Journal of Music Teacher Education*, 10570837221091525. https://doi.org/10.1177/10570837221091525

Rotjan, M. (2021). Deciding for or deciding with: Student involvement in repertoire selection. *Music Educators Journal*, *107*(4), 28–34. https://doi.org/10.1177/00274321211013879

Rubin, H. J., & Rubin, I. (2012). *Qualitative interviewing: The art of hearing data* (3rd ed). SAGE.

Rucsanda, M. D., Belibou, A., & Cazan, A.-M. (2021). Students' attitudes toward online music education during the COVID 19 lockdown. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.753785

Ruokonen, I., Enbuska, J., Hietanen, L., Tuisku, V., Rimppi, A., & Ruismäki, H. (2019). Finnish student teachers' self-assessments of music study in a blended learning environment. *The Finnish Journal of Music Education FJME*, 30.

Russell, C. R. (2019). Effects of pitch and rhythm priming tasks on accuracy and fluency during sight-reading. *Journal of Research in Music Education*, *67*(3), 252–269. https://doi.org/10.1177/0022429419851112

Saberi, P. (2020). Research in the time of coronavirus: Continuing ongoing studies in the midst of the COVID-19 pandemic. *AIDS and Behavior*, *24*(8), 2232–2235. https://doi.org/10.1007/s10461-020-02868-4

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.

Salvador, K. (2019). Assessment and individualized instruction in elementary general music: A case study. *Research Studies in Music Education*, *41*(1), 18–42. https://doi.org/10.1177/1321103X18773092

Salvador, K., Knapp, E. J., & Mayo, W. (2021). Reflecting on the 'Community' in Community Music School after a transition to all-online instruction. *Music Education Research*, *23*(2), 194–210. https://doi.org/10.1080/14613808.2021.1905623

Schatt, M. D. (2021). Passing the baton: Building student autonomy and democracy in the large ensemble setting. *Update: Applications of Research in Music Education*, 87551233211041693. https://doi.org/10.1177/87551233211041693

Scheid, M. (2014). Music education—Privately, personally and professionally. The school subject of Music, digital media and tools. *Education Inquiry*, *5*(2), 215–232. https://doi.org/10.3402/edui.v5.23255

Schons, S., & Jones, A. T. (2020). Teaching with my music staff during COVID-19. *Piano Magazine: Clavier Companion*, *12*, 36–36.

Schutt, R. K. (2018). *Investigating the social world: The process and practice of research*. SAGE Publications.

Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, *2007*(114), 11–25. http://dx.doi.org/10.1002/ev.223

Seddon, F., & Biasutti, M. (2009). Participant approaches to and reflections on learning to play a 12-bar blues in an asynchronous e-learning environment. *International Journal of Music Education*, *27*(3), 189–203. https://doi.org/10.1177/0255761409336704

Shaheen, M. (2021). Self-determination theory for motivation in distance music education. *Journal of Music Teacher Education*, 10570837211062216. https://doi.org/10.1177/10570837211062216

Sharma, S. S., & Sha, Y. (2020). Part A: Special section on COVID-19 research. *Emerging Markets Finance and Trade*, *56*(15), 3551–3553. https://doi.org/10.1080/1540496X.2020.1858617

Sharp, T. (2020). From the Executive Director. *Choral Journal*, *61*(2), 2–4.

Shaw, R. D., & Mayo, W. (2022). Music education and distance learning during COVID-19: A survey. *Arts Education Policy Review*, *123*(3), 143–152. https://doi.org/10.1080/10632913.2021.1931597

Shea, P., Li, C. S., Swan, K., & Pickett, A. (2019). Developing learning community in online asynchronous college courses: The role of teaching presence. *Online Learning*, *9*(4), Article 4. http://dx.doi.org/10.24059/olj.v9i4.1779

Sheldon, R., Boonshaft, P. L., Black, D., & Phillips, B. (2010). *Sound innovations: For concert band: A revolutionary method for beginning musicians CD DVD set. Book 1* (Director's choice edition). Alfred Music Publishing.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Shoemaker, K., & van Stam, G. (2010). E-Piano, a case of music education via e-learning in rural Zambia. *Web Science Conference 2010*.

Shohel, M. M. C., Shams, S., Ashrafuzzaman, M., Alam, A. S., Mamun, M. A. A., & Kabir, M. M. (2022). Emergency remote teaching and learning: Digital competencies and pedagogical transformation in resource-constrained contexts. In *Handbook of Research on Asian Perspectives of the Educational Impact of COVID-19* (pp. 175–200). IGI Global. https://doi.org/10.4018/978-1-7998-8402-6.ch011

Shuler, S. C., Norgaard, M., & Blakeslee, M. J. (2014). The new national standards for music educators. *Music Educators Journal*, *101*(1), 41–49. https://doi.org/10.1177/0027432114540120

Singh, R. N., & Hurley, D. (2017). The effectiveness of teaching and learning process in online education as perceived by university faculty and instructional technology professionals. *Journal of Teaching and Learning with Technology*, *6*(1), Article 1. https://doi.org/10.14434/jotlt.v6.n1.19528

Singletary, L. (2018). Instructional content and frequency in the beginning band setting: Defining the fundamentals. *Journal of Band Research*, *54*(1), 49–68.

Skinner, L., A. (2023). *Teaching music virtually: A qualitative study of the changing pedagogies of urban ensemble music teachers during the COVID-19 pandemic* [Doctoral dissertation]. Rutgers, The State University of New Jersey Rutgers The State University of New Jersey, School of Graduate Studies.

Sleator, R. D. (2010). The evolution of eLearning background, blends and blackboard.... *Science Progress*, *93*(Pt 3), 319–334. https://doi.org/10.3184/003685010X12710124862922

Slevin, E., & Sines, D. (1999). Enhancing the truthfulness, consistency and transferability of a qualitative study: Utilising a manifold of approaches. *Nurse Researcher*, *7*(2), 79–97.

Smith, B. A. (1999). Ethical and methodologic benefits of using a reflexive journal in hermeneutic-phenomenologic research. *Image: The Journal of Nursing Scholarship*, *31*(4), 359–363. https://doi.org/10.1111/j.1547-5069.1999.tb00520.x

Smith, J., & Firth, J. (2011). Qualitative data analysis: The framework approach. *Nurse Researcher*, *18*(2), 52–62. https://doi.org/10.7748/nr2011.01.18.2.52.c8284

Spall, S. (1998). Peer debriefing in qualitative research: Emerging operational models. *Qualitative Inquiry*, *4*(2), 280–292. https://doi.org/10.1177/107780049800400208

Stapleton, S. (2023). Best virtual practices: Virtual voice pedagogy through COVID-19 and beyond. *The Canadian Music Educator*, *64*(2), 15–25.

Stodel, E. J., McDonald, C., & Thompson, T. (2006). View of learners' perspectives on what is missing from online learning: Interpretations through the community of inquiry framework. *The International Review of Research in Open and Distributed Learning*, *7*(3). http://www.irrodl.org/index.php/irrodl/article/view/325/743

Stoffle, A. (2023). *High school teacher career guide*. Teacher Certification Degrees. https://www.teachercertificationdegrees.com/careers/high-school-teacher/

Sullivan, G., & Sullivan Mileski, A. (2019). Building rhythmic skills: Connecting secondary instrumental ensembles to the elementary music classroom. *Kodaly Envoy*, *45*(3), 18–21.

Sultana, F., Bari, R., & Munir, S. (2022). Impact of school closures due to COVID-19 on education in low- and middle-income countries. *Journal of Global Health Reports*, *6*, e2022034. https://doi.org/10.29392/001c.36902

Sutherland, A., & Cartwright, P. A. (2022). Working together: Implications of leadership style for the music ensemble. *International Journal of Music Education*, *40*(4), 613–627. https://doi.org/10.1177/02557614221084310

Swan, K., Cheng-Chia (Brian) Chen, & Bockmier-Sommers, D. K. (2020). Relationships between Carl Rogers' person-centered education and the Community of Inquiry framework: A preliminary exploration. *Online Learning*, *24*(3), 4–18. https://doi.org/10.24059/olj.v24i3.2279

Tan, L. (2017). Concept teaching in instrumental music education: A literature review. *Update: Applications of Research in Music Education*, *35*(2), 38–45. https://doi.org/10.1177/8755123315604455

Tejada, J., & Morel, T. T. (2019). Design and validation of a music technology course for initial music teacher education based on the TPACK framework and the project-based learning approach. *Journal of Music, Technology and Education*, *12*(3), 225–246. https://doi.org/10.1386/jmte_00008_1

Thorgersen, K. A., & Mars, A. (2021). A pandemic as the mother of invention? Collegial online collaboration to cope with the COVID-19 pandemic. *Music Education Research*, *23*(2), 225–240. https://doi.org/10.1080/14613808.2021.1906216

Thornton, L. (2020). Music education at a distance. *Journal of Music Teacher Education*, *29*(3), 3–6. https://doi.org/10.1177/1057083720928615

Tjan, A. K. (2011). Eric Whitacre's grand experiment in virtual collaboration. *Harvard Business Review Digital Articles*, 2–3.

Tobias, E. S. (2013). Composing, songwriting, and producing: Informing popular music pedagogy. *Research Studies in Music Education*, *35*(2), 213–237. https://doi.org/10.1177/1321103X13487466

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, *16*(10), 837–851. https://doi.org/10.1177/1077800410383121

Trollinger, V. L. (2006). A reconception of performance study in the philosophy of music education. *Philosophy of Music Education Review*, *14*(2), 193–208. https://doi.org/10.1353/pme.2007.0010

Tsugawa, S. (2023). Bridging the digital divide: Distance music learning among older adult musicians. *International Journal of Music Education*, *41*(1), 52–68. https://doi.org/10.1177/02557614221091888

Turman, K. (2021). Repertoire & resources: Children's choral repertoire with highlighted pedagogical elements. *Choral Journal*, *61*(11), 57–67.

Turner, D. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report*, *15*(3), 754–760. https://doi.org/10.46743/2160-3715/2010.1178

Upitis, R., Boese, K., & Abrami, P. C. (2015). Demonstrating DREAM: A Digital Resource Exchange about Music. *International Association for Development of the Information Society*.

Vahrusheva, S. N., Masharova, T. V., & Punchyk, V. (2020). The development of students' independence in the conditions of distance learning. *SHS Web of Conferences*, *79*, 01009. https://doi.org/10.1051/shsconf/20207901009

Vaizman, T. (2022). Teaching musical instruments during COVID-19: Teachers assess struggles, relations with students, and leveraging. *Music Education Research*, *24*(2), 152–165. https://doi.org/10.1080/14613808.2022.2053512

van Gammeren, D., & Szram, A. (2019). Threshold concepts in online music education: Transforming conservatoire training. *Proceedings of the European Conference on E-Learning*, 588–592. https://doi.org/10.34190/EEL.19.069

Vasil, M. (2019). Integrating popular music and informal music learning practices: A multiple case study of secondary school music teachers enacting change in music education. *International Journal of Music Education*, *37*(2), 298–310. https://doi.org/10.1177/0255761419827367

Veblen, K., Kruse, N., Messenger, S., & Letain, M. (2018). Children's clapping games on the virtual playground. *International Journal of Music Education*, *36*(4), 547–559. https://doi.org/10.1177/0255761418772865

Vietti, F., & Menchaca, M. P. (2024). *Community college instrumental faculty using technology to engage remote learners during a pandemic*. 269–280. https://doi.org/10.22492/issn.2435-5240.2024.21

Wagoner, C. L. (2020). Integrating literacy within the performance classroom. *Music Educators Journal*, *106*(4), 24–29. https://doi.org/10.1177/0027432120917746

Waldron, J. (2009a). Exploring a virtual music community of practice: Informal music learning on the Internet. *Journal of Music, Technology and Education*, *2*(2–3), Article 2–3. https://doi.org/10.1386/jmte.2.2-3.97_1

Waldron, J. (2009b). Exploring a virtual music 'community of practice': Informal music learning on the Internet. *Journal of Music, Technology & Education*, *2*(2), 97–112. https://doi.org/10.1386/jmte.2.2-3.97_1

Waldron, J. (2013). YouTube, fanvids, forums, vlogs and blogs: Informal music learning in a convergent on- and offline music community. *International Journal of Music Education*, *31*(1), 91–105. https://doi.org/10.1177/0255761411434861

Wang, L. (2022). The skill training of reading music in the teaching of solfeggio and ear training in the new media environment. *Applied Bionics and Biomechanics*, *2022*, e8209861. https://doi.org/10.1155/2022/8209861

Wang, Y., Matvieieva, O., & Zheng, Q.-W. (2022). Effectiveness of the Orff and Kodaly methods for the development of musical ability in preschool children compared to a standard curriculum. *Culture and Education*, *34*(1), 14–38. https://doi.org/10.1080/11356405.2021.2006500

Ward, F. (2019). Technology and the transmission of tradition: An exploration of the virtual pedagogies in the Online Academy of Irish Music. *Journal of Music, Technology & Education*, *12*(1), 5–23. https://doi.org/10.1386/jmte.12.1.5_1

Weidlich, J., & Bastiaens, T. J. (2019). Designing sociable online learning environments and enhancing social presence: An affordance enrichment approach. *Computers & Education*, *142*, 103622. https://doi.org/10.1016/j.compedu.2019.103622

Weidner, B. N. (2018). Content area literacy in ensemble music education: The before-during-after instructional framework. *Journal of Music Teacher Education*, *27*(3), 10–23. https://doi.org/10.1177/1057083717732512

Weidner, B. N. (2020). A grounded theory of musical independence in the concert band. *Journal of Research in Music Education*, *68*(1), 53–77. https://doi.org/10.1177/0022429419897616

Weiger, E. A. (2020). Flipped lessons and the secondary-level performance-based music classroom: A review of literature and suggestions for practice. *Update: Applications of Research in Music Education*, 8755123320953629. https://doi.org/10.1177/8755123320953629

Wenger, E. (2011). *Communities of practice: A brief introduction*. https://scholarsbank.uoregon.edu/xmlui/handle/1794/11736

Westerlund, H. (2006). *Garage rock bands: A future model for developing musical expertise? 24*(2), 119–125. https://doi.org/10.1177/0255761406065472

Williams, D. (2007). What are music educators doing and how well are we doing it? *Music Educators Journal*, *94*(1), 18–23. https://doi.org/10.1177/002743210709400105

Williams, D. (2012). The non-traditional music student in secondary schools of the United States: Engaging non-participant students in creative music activities through technology. *Journal of Music, Technology and Education*, *4*(2–3), 131–147. https://doi.org/10.1386/jmte.4.2-3.131_1

Williams, D. (2014). Another perspective: The iPad is a real musical instrument. *Music Educators Journal*, *101*(1), 93–98. https://doi.org/10.1177/0027432114540476

Wilson, A. (2018). Aural skills for making music: Incorporating ear training into rehearsal settings. *Canadian Winds / Vents Canadiens*, *17*(1), 32–35.

Wolf, T. (1976). A cognitive model of sight-reading. *Journal of Psycholinguistic Research*, *5*, 143–171. https://doi.org/10.1007/BF01067255

Wood, F., & Bloor, M. (2006). Keywords in qualitative methods: A vocabulary of research concepts. *Keywords in Qualitative Methods*, 1–208.

Xie, Z., & Yang, J. (2020). *Autonomous learning of elementary students at home during the COVID-19 epidemic: A case study of the second elementary school in Daxie, Ningbo, Zhejiang province, China*. https://doi.org/10.2139/ssrn.3555537

Yackley, A. (2021). Developing musicianship through chamber ensembles: A sequential unit design. *Music Educators Journal*, *108*(1), 34–42. https://doi.org/10.1177/00274321211027628

Yin, R. K. (2017). *Case study research and applications: Design and methods*. SAGE Publications.

Young, V. M., & Colman, A. M. (1979). Some psychological processes in string quartets. *Psychology of Music*, *7*(1), 12–18. https://doi.org/10.1177/030573567971002

Yungul, O., & Can, A. A. (2018). Applicability of web based distance education to instrument (guitar) education. *Educational Policy Analysis and Strategic Research*, *13*(4), 37–69.

Yusoff, Z. S., Alwi, N. A. N., & Sukiman, S. L. (2019). Learners' evaluation of task-based online language activity in a Community of Inquiry. *International Journal of Research and Innovation in Social Science*, *3*(10).

Zatorre, R. J., Perry, D. W., Beckett, C. A., Westbury, C. F., & Evans, A. C. (1998). Functional anatomy of musical processing in listeners with absolute pitch and relative pitch. *Proceedings of the National Academy of Sciences*, *95*(6), 3172–3177. https://doi.org/10.1073/pnas.95.6.3172

Zhang, R. (2020). Exploring blended learning experiences through the community of inquiry framework. *Language Learning & Technology*, *24*(1), 38–53.

Appendix A: Permission to Use the Practical Inquiry Model Figure

Re: Obtaining permission for a figure to use

Argine Safari
Mon 9/16/2024 4:32 PM
To:D. Randy Garrison

Thank you so much, I really appreciate your prompt response, Dr. Garrison!
Argine

From: D. Randy Garrison
Sent: Monday, September 16, 2024 2:49 PM
To: Argine Safari <[redacted]>
Subject: Re: Obtaining permission for a figure to use

Argine,
You have my permission to use the CoI and Practical Inquiry figures.
Best wishes,
DRG

Sent from my iPad

On Sep 16, 2024, at 11:17 AM, Argine Safari <[redacted]> wrote:

[ΔEXTERNAL]

Dear Dr. Garrison,

I am a Doctoral student at Walden University, completing my dissertation, "Developing Music Literacy Skills and Virtual Communities Through the Online Secondary Ensemble Rehearsals." I would like your permission to use the Community of Inquiry Framework figure (Garrison et al., 2000, p. 88) and the Practical Inquiry model figure (Garrison et al., 2000, p. 99) in my dissertation work.

I hope to hear from you soon, and I appreciate your prompt response.

Sincerely,

Argine Safari

Reference:
Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.

Appendix B: Permission to Use the T3 Figure

Outlook

Re: So great to connect with you!

From Anthony Magana
Date Fri 10/25/2024 4:54 PM
To Argine Safari

3 attachments (884 KB)
Magana Disruptive Classroom Technologies.pdf; Visible Learning & The T3 Framework.pdf; Figure 2.3.jpg;

Hi Argine,

It was a pleasure talking with you; thanks very much for taking my call! I am keenly interested in your research and application of the T3 Framework to ensemble learning—fascinating stuff!

I hereby give my permission for you to use the image of the T3 Framework found in my book, *Disruptive Classroom Technologies: A Framework for Innovation in Education.* Please feel free to use the attached, high-resolution image in your dissertation.

I've attached the two documents, one that aligns the T3 Framework with John Hattie's Visible Learning model and research, and my official submission to the Oxford University Research Encyclopedia of Education. I hope these prove useful to your scholarship—and please do feel free to share these with your colleagues and leadership.

Also, here is a kind video that John Hattie recently recorded to help introduce people to me and my work:

https://www.youtube.com/watch?v=f4ZTjv7HJsg

Best wishes as you enter "crunch time" for your dissertation! Feel free to call me on my cell if you have any questions or would like clarity on any of these documents.

Have a wonderful weekend!

Appendix C: Permission to Use the Music National Standards Comparison Chart

Outlook

Re: Requesting permission to reprint

From Scott Shuler
Date Mon 9/4/2023 4:23 PM
To Argine Safari
Cc

Hi, Argine.

This does appear to be the correct version - thanks for checking :-)

Scott Shuler

On Aug 14, 2023, at 2:51 PM, Argine Safari wrote:

Dear Scott,

Thank you very much for this email, I really appreciate your prompt response!

I spoke to Ella Wilcox and Elizabeth Lasko from NAfME (cc'd here), and they were kind enough to share the following message with me and also attach the updated document- is this one ok by you?

Thank you!
Argine
---------- Forwarded message ---------
From: **Elizabeth Lasko**
Date: Mon, Aug 14, 2023 at 8:47 AM
Subject: RE: How are you?! And a question
To:

Hi Argine,
Thank you very much for your membership in NAfME and NJMEA! I have attached both documents. They are not on the new website yet, though I will be trying to add them soon. I think best to just point to nafme.org when you cite them. And Ella's copyright direction is fine, if you don't hear from Scott Shuler.
Best wishes to you on your proposal!
Elizabeth Lasko, NAfME

From: Scott Shuler
Sent: Monday, August 14, 2023 7:33 AM
To: Argine Safari
Cc: Chris Woodside
Subject: Re: Requesting permission to reprint

Dear Argina,

I am pleased to read that you find the Standards Comparison Chart useful.

As I recall, NAfME must approve permissions regarding the organization's copyrighted publications. In case it makes a difference, I would be very supportive of you using the chart. Assuming that NAfME does grant such permission, make sure to us the corrected chart posted online and not the erroneous chart that originally appeared in the journal — the publisher messed it up.

I'm not sure anymore who oversees publications at NAfME, so I'm cc'ing a couple of staff members in hopes that they will forward your request to the correct staff member.

Best wishes on your dissertation! The topic sounds very interesting.

Sincerely,

Scott Shuler

On Aug 13, 2023, at 7:21 PM, Argine Safari wrote:

Dear Dr. Shuler,

I am a Walden University doctorate student, and currently working on obtaining approval for my study proposal titled "Developing Music Literacy Skills and Virtual Communities Through the Online Secondary Ensemble Rehearsals". In my study, I refer to the National Standards Comparison Chart: 1994 versus 2014 from your 2014 article (Shuler et al., 2014). I am asking for your permission to use the chart image in my proposal/dissertation.

Please let me know if you would like for me to provide any additional information.

Thank you so much,
Argine Safari

Reference

Shuler, S. C., Norgaard, M., & Blakeslee, M. J. (2014). The new national standards for music educators. *Music Educators Journal, 101*(1), 41-49.

<StandardsComparison_REVISED2.pdf>

Appendix D: Full Interview Protocol

Introductory script:

Thank you so much for being willing to participate in an interview for my doctoral study. The purpose of my study is to explore how ensemble teachers develop music literacy skills and virtual communities through online secondary ensemble rehearsals. For the purposes of this study, an "online secondary ensemble rehearsal" is defined as teaching high school band, choir, or orchestra in a fully online setting.

Introduce yourself:

Hello, my name is Argine Safari, and I have been teaching high school music (choir, music theory, voice, piano) for the past 17 years. I am very passionate about music education. My teaching experiences during COVID-19 led me to appreciate my colleagues and the work they do even more, leading me to focus my research on teaching music literacy skills in an online environment, specifically, during ensemble rehearsals. In our interview today, I will be asking you about your experiences teaching music literacy skills in online ensemble rehearsals. You can end this interview at any time, and you may skip questions that you do not want to answer. The interview will last for approximately 60 minutes.

I will be audio recording our interview today so that I may make a transcript, so that I can be sure to have an accurate record of what you share with me today.
Before we get started do you have any questions?

[START RECORDING]

Background/Introductory Questions

Before you consented to participate, you answered some demographic and introductory questions which qualified you to be selected as a participant in this study. I'd like to spend a few minutes having you expand on these a bit more and get to know you a little better.

- *Would you please share about your background in education? Specifically, what is your main instrument and / or area of expertise?*
- *How long have you been teaching and what grade levels?*
- *What courses have you taught in the past and what do you currently teach?*
- *Please share in what ways did you incorporate technology in your ensemble classes prior to the COVID-19 shutdown, if at all?*

If the participant did not answer questions so that you are confident that they are a teacher of ensemble and that they the online teaching experience you're looking for…say:

I want to thank you for your willingness to participate, but after talking with you, I'm not sure you have the depth of experiences that I need to answer my research questions related to developing music literacy skills and virtual communities in online ensemble rehearsals. Thank you for time. [They do not receive any gift cards].

If the participant answers questions so that you are confident that they meet the inclusion criteria say,

Thank you, Let's go ahead and move into the interview questions.

Table of Interview Questions

Transition Statement: *My first group of questions relate to your experiences teaching music literacy skills in a high school ensemble class in a fully online environment. In this study, the term "music literacy" will include any of the following: music notation, sight-reading, sight-singing, aural skills, music theory, or music history. As you answer my questions today, please keep these definitions in mind.*

RQ1	Interview Questions (IQs)	My Notes
How do music teachers develop music literacy skills through online secondary band, choir, and orchestra rehearsals?	IQ 1: *What strategies and technological resources have you used to teach your performing ensemble class(es) online during the COVID-19 school shutdown?*	Cognitive Presence Teacher Presence The T3 Framework
	Prompts: a. What are some of the online platforms, programs, or technological resources that you used for your online classes? b. Could you share a specific story that illustrates the challenges of teaching your ensemble(s) online, including producing a culminating performance? c. Could you share a specific story that illustrates how technology provided some advantages to teaching your ensemble(s) online, including producing a culminating performance? d. What are some of the best strategies you've learned during the online teaching that you hope to incorporate in your face-to-face teaching, or have already incorporated?	
	IQ 2: *To what extend were you able to develop music literacy skills in your online ensemble classes, and what specific skills were involved?*	Cognitive Presence Teacher Presence The T3 Framework
	Prompts: a. What were some of the challenges of teaching music literacy skills in your online ensemble classes? b. What were some of the advantages of teaching music literacy skills in your online ensemble classes? c. Was there a specific music literacy skill that you were *not* able to develop through your online ensemble rehearsals?	

	d. Was there a specific music literacy skill that you were *able to successfully* develop through your online ensemble rehearsals and if yes, what tech tools were involved?	
	IQ 3: *How would you compare teaching music literacy skills in online ensemble classes to teaching music literacy skills in a face-to-face setting?*	Cognitive Presence The T3 Framework
	Prompts: a. What were your experiences of teaching music literacy skills in your face-to-face ensemble classes prior to the COVID-19 shutdown? b. In what ways, if at all, has your face-to-face music literacy teaching changed because of your online teaching experiences? c. What are some of the best strategies of teaching music literacy skills online, if any, that you look forward to incorporating in your face-to-face classrooms, or have already incorporated?	

Transition Statement: *Now that you've shared about your strategies of developing music literacy skills in an online ensemble class, I would like to move to my last set of questions. These questions are related to developing virtual communities through online ensemble rehearsals. Finally, "virtual communities" include concepts such as sense of ensemble playing/singing, student connections, student-teacher relationships, engagement, inclusivity, equity, and social-emotional skills. As you answer my questions today, please keep these definitions in mind.*

RQ2	Interview Questions	My Notes
How do music teachers develop virtual communities through online secondary band, choir, and orchestra rehearsals?	IQ 4: "*How did your experience change in terms of building and maintaining the sense of community among your students when you had to move fully online?"*	Social Presence Teacher Presence
	Prompts: a. What were your experiences of developing ensemble communities in your face-to-face ensemble classes prior to the COVID-19 shutdown? b. What are some of the ways that you have maintained the sense of ensemble singing or playing while teaching your ensemble classes fully online? c. Please share any challenges you encountered while trying to maintain the sense of ensemble/group music making online. d. Please share any benefits you have experienced while trying to maintain the sense of ensemble/group music making online.	
	IQ 5: *What are some of the strategies that you developed to make your students continue to feel connected and cared for, while teaching your ensembles online?*	Social presence Teacher presence
	Prompts: a. Please share any challenges you encountered while trying to keep your students connected to each other and to you as a teacher during your online teaching.	

	b. Please share one of your most successful strategies that you used to develop positive, supporting relationships with your students online. c. How have you adjusted your teaching to help your students develop sense of community while teaching your ensembles online?	
	IQ 6: *What have you learned about your students and their ensemble learning experiences during the online teaching?*	Teacher presence (CF)
	Prompts: a. In what ways, if at all, did your role as a teacher change when you moved to teaching fully online? b. In what ways, if at all, has your face-to-face community development changed because of your online teaching experiences? c." Describe *any strategies of developing community that you've carried over from online teaching to your face-to-face classroom."*	

Final IQs.

To reflect a bit more, please feel free to share with me your thoughts on the following:

- *What have you learned about your teaching practice through the experience of online teaching?*
- *What have you learned about yourself and your students through all of this?*
- *Is there anything else about teaching ensembles online that we have not yet had a chance to discuss?*
- *Do you have anything else to add?*

Closing Script: *Thank you so much for your time today. I really appreciate you sharing your thoughts with me. Within the next 7 days, I will transcribe this interview and email you the transcript of the interview, as well as the 2-3 page summary of my interpretation of your contribution to my study, for your review for accuracy. Please let me know if there is anything you'd like to change. In the meantime, if you would like to contact me, please email me at XXX@waldenu.edu, text, or call me at XXX. In the next few days, you will receive an email with the $20 gift card from www.jwpepper.com, a small token of my appreciation for your time and efforts. I will also email you the results of the study after the research is complete.*

Add as needed: *Also, I am still looking for more participants. Would you have names or email addresses of individuals who you think might qualify for my study? Or if you would prefer, would you be willing to forward a digital flyer about my study to some other teachers you think might be interested? Thanks for your consideration.*