

Liberty University

School of Music

**Remote Learning in Collegiate Instrumental Courses:
The Impact of Remote Learning During the COVID-19 Pandemic and the Future of
Remote Learning**

A Thesis Submitted to
the Faculty of the School of Music
in Candidacy for the Degree of
Doctorate in Music Education

by

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August 2023

Abstract

During the 2020-2022 COVID-19 pandemic, many colleges were required to transition to a remote learning platform. This was a new concept to many professors and proved to impact college courses, including courses that relied on in-person learning and interactions, such as instrumental music courses. Courses were affected because teaching and learning methods that applied to in-person learning were not entirely possible with remote learning due to the mandates of social distancing and the lack of face-to-face instruction. Many music professors were required to make necessary changes to the curriculum, teaching styles, and educational technologies. Courses required new and innovative ways to provide collaborative music-making opportunities, as in-person rehearsals were not an option during remote learning. This qualitative case study analyzes the impact of remote learning on collegiate band, orchestra, and instrumental studio lessons, as well as the professors and students involved in the courses. The results will show the curricular changes made to the curricula, the benefits and disadvantages of online learning and teaching, and potential teaching strategies that have proven to be successful.

Keywords: Remote, hybrid, collegiate, instrumental, ensemble, band, orchestra, studio, COVID-19, online learning

Dedication/Acknowledgements

The completion of this thesis was possible with the aid of many people who have supported me along the journey. I would like to thank those who have played a role in my music education, as I would not be where I am today without their support and knowledge. This thesis is dedicated to my professors at Liberty University, my master's degree professors at Anderson University, and my undergraduate professors at the Crane School of Music. I am especially grateful for my thesis advisors, Dr. Rebecca Watson and Dr. Monica Taylor. Furthermore, my growth and success as a musician would not have been possible without my oboe professors, Karena Creasy, Dr. Anna Hendrickson, and Dr. Andreas Oeste. Thank you all for your continued belief and support in my musical journey and for helping me to become the music educator I am today.

I would also like to express my gratitude towards my family, who have watched me grow throughout my academic career. Additionally, I thank you all for always allowing me to be who I am and explore my interests in music. I love you all so much.

Finally, I owe all my gratitude to my Lord and Savior, Jesus Christ. My life is entirely His and everything that I have, and everything that I am is because of the great love that He provides us with. Thank you, Lord, for who I am and who you have made me.

Thank you all for the roles you have played in my life and for supporting me through completing this thesis.

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CHAPTER ONE: INTRODUCTION

In the year 2020, the COVID-19 pandemic had a worldwide impact as widespread disease became a concern. This concern and the effects of significant infection rates were felt in numerous fields, including education. With the requirements of teachers and students to socially distance themselves to mitigate the spread of the COVID-19 virus, school buildings and institutions closed their physical doors and opened the doors to the remote classroom. In March 2020, CNBC stated, “At least 1,102 colleges and universities in the U.S. have closed their campuses due to coronavirus, choosing to move classes online. Georgetown Professor Dr. Bryan Alexander estimates that “College closures have impacted over 14 million students' ‘at least,’ he stresses.”¹ As a result of the large population moving to an online learning platform, professors, students, and administrators worked hard to navigate how to transform their classes to be virtual, which would become the new norm for much of the pandemic.

Background

While remote learning was not new to education with the COVID-19 pandemic, there was a widespread increase in learners experiencing remote learning for the first time. Remote learning was often required to continue courses that took place in person before the pandemic. The online learning curriculum that took place before the pandemic was explicitly designed to be taught virtually. However, the courses that transitioned to a remote platform due to the pandemic had to be quickly adapted from in-person learning to a virtual platform. This was also true for music courses in higher education. For example, instrumental music courses had to be adapted as

¹ Abigail J. Hess, “How Coronavirus Dramatically Changed College for over 14 Million Students,” CNBC, 2020, Accessed February 20, 2022, <https://www.cnbc.com/2020/03/26/how-coronavirus-changed-college-for-over-14-million-students.html>.

the curriculum relied upon the ability to rehearse in person. However, other lecture-based courses, such as music appreciation courses, may have had an easier time transitioning to an online platform. Zuheir Khlaif, and Soheil Salha, professors at An Najah National University in Palestine, and Bochura Kouraichi of the University of Szeged in Hungary, comment on the difference between these two cases of remote learning by writing:

Emergency Remote learning (ERL) is the unplanned and sudden shift from the traditional form of education into a remote one following the state of emergency in different countries due to the outbreak of COVID-19. It is different from online learning before the COVID-19 crisis in terms of course design and evaluation tools (Affouneh et al., 2020). The course design, assessment, and teaching strategies used were originally designed for face-to-face teaching.²

This statement supports the necessity for the adjustments that had to be made by educators, students, and administrators to quickly change their reliance on in-person instruction to comfortability with learning remotely. Through this process, professors had to decide how in-person instruction could be performed virtually. This study focuses on the adjustments explicitly made for collegiate instrumental courses. Band, orchestra, and instrumental studio classes previously experienced instruction through collaborative, face-to-face performance and rehearsal. However, the courses now had to be taught virtually, and having an entire ensemble of instruments performing at once was not possible. The research topic addresses the solutions for successfully teaching these courses remotely.

Statement of the Problem

While there is current research presenting the impact of remote learning on collegiate students, the newness of remote learning for instrumental performance classes leaves room for

² Zuheir N. Khlaif, Soheil Salha, and Bochura Kouraichi, "Emergency Remote Learning During COVID-19 Crisis: Students' Engagement," *Education and Information Technologies* 26, (2021): 7034, DOI: 10.1007/s10639-021-10566-4.

further research and conclusions to be found. This study specifically addressed the transitions between remote and in-person learning and the continuation of hybrid and remote learning that continued into 2022. COVID-19 introduced unexpected remote learning situations for college courses and remote learning continues to occur and remain a possibility for these courses. According to Collin Binkley of U.S. News and World Report, at the start of the Spring Semester 2022, “more than 70 colleges across 26 states were starting the term online, and others say they were considering it.”³ This statistic supports the fact that remote learning continues to be implemented. Additionally, the next time a complete remote learning platform is needed, educators and students must be prepared, as the absence of in-person learning cannot result in the halt of effective educational strategies.

The instrumental courses studied, including orchestra, band, and individual studio lessons that rely on in-person performances, were significantly impacted by remote learning. While remote learning was present before the COVID-19 pandemic, it became the norm for many colleges where students still needed to participate in a remote learning platform. Various programs were used to create virtual classrooms, including Zoom, Microsoft Teams, Skype, Facetime, and Google Meet. The commonality between each of these was using technology to reinvent the classroom where teachers and students were no longer physically together. Additionally, these platforms allowed students and educators to meet via video, providing a way for face-to-face interaction and communication to be carried out at a distance. This posed the scenario in music classrooms where an ensemble or instrumental course meant conducting learning through an online platform. Because this concept was new to teachers and students, the

³ Collin Binkley, “Taking a Step Back: US Colleges Returning to Online Classes,” *U.S. News and World Report*, 2022, Accessed February 20, 2022, <https://apnews.com/>.

transition to remote learning required a period of adjustment to optimize learning that took place digitally and at a distance.

Statement of the Purpose

The purpose of this study is to examine how remote learning changed teaching and learning styles in collegiate instrumental courses and how students and professors adjusted to these changes. Additionally, this study provides insight into the potential future of remote learning in collegiate instrumental courses. The teaching and learning styles of students and professors of the courses were reported to determine what worked and did not work when transitioning from in-person courses to an online learning platform. From the survey responses of those studied and the reported benefits and drawbacks of remote collegiate instrumental learning, this study concludes how these courses may best be taught remotely following the COVID-19 pandemic.

Significance of the Study

Because of the increase in remote teaching practices due to the COVID-19 pandemic and the increased presence of online learning, research is needed to determine the best practices for teaching and learning in virtual classrooms. This study provides information on strategies to reinvent courses that rely on in-person instruction, such as instrumental ensemble courses, to account for the barriers that remote learning presents. Just as education research has presented educators with successful practices to utilize in the classroom, this new style of teaching and learning requires research to integrate it into the classroom effectively. When reflecting on the adaptation of collegiate instrumental ensembles, Herman states:

Music educators face a unique challenge in adapting instructional methods and performance practices that can thrive in online and hybrid learning environments. The difficulty of this task is augmented due to the inherent complexities rooted in authentic

delivery of music instruction (i.e., synchronous ensemble performances, artistic expression and interpretation, development, and assessment of musical skills). Yet, there is little empirical data to guide effective instructional design choices that can positively impact music learning in online learning contexts.⁴

Understanding the pedagogical practices that make remote instrumental courses engaging and knowing how to replicate the benefits of in-person performance over remote learning is necessary. This study is significant to the field of music education as it provides research and findings for music educators that will likely allow them to improve their collegiate instrumental teaching methods.

Professors need more research to determine the effects of remote learning on student achievement. Additionally, teaching methods should be developed in response to the benefits and deficits that remote learning has presented thus far. Hybrid learning, partially remote and partially in-person learning, continues to be an option for many college courses. This presence of remote learning requires a deep understanding of how to teach courses at a distance successfully. The research findings provide insight and understanding of the best way to implement remote learning.

Research Question and Sub Questions

This study seeks to illustrate how teachers and students at the collegiate level adjusted to remote learning in instrumental music courses during the 2020-2022 COVID-19 pandemic. The following questions were asked to determine the outcomes of remote learning for collegiate band, orchestra, and instrumental studio courses:

⁴ Christina Herman, "Student Perceptions of Online Peer Learning in Preservice Music Teacher Education: Motivation, Social-Emotional Learning, and Classroom Climate" (Master's Thesis, Colorado State University, 2021), 3, ProQuest Dissertations Publishing (28322969).

Research Question One: In what ways can in-person lessons and ensemble rehearsals be adapted for remote learning lessons?

Research Question Two: What changes in learning styles and experiences occur for college students enrolled in instrumental music courses when compared to in-person learning?

Research Question Three: What are the perceived challenges and benefits of remote learning in collegiate instrumental courses according to professors and students?

Sub Question: What teaching and learning methods provide an optimal remote learning experience according to students enrolled in instrumental collegiate courses?

Often, a classroom consists of the presentation of materials from teacher to student with in-person interactions and learning activities as students explore new concepts and skills for an applied subject. In-person music classrooms reflect this model and may include communication through singing and playing instruments. In most classroom scenarios, in-person interaction through teaching and learning has been the standard procedure. However, the COVID-19 pandemic changed how the classroom is viewed, and further research is required to learn about improving the application of remote learning.

Summary

This chapter explores the research questions answered in this study. Additionally, the significance and purpose of the research questions as they apply to music education. During the pandemic, remote learning impacted how collegiate instrumental courses were taught. As a result, professors and students were required to change their established practices of instructional approaches to transition from in-person learning to virtual learning. This study will present how the research findings contribute to the music education field and benefit educators as they continue to navigate remote instruction of collegiate instrumental courses.

Definition of Terms

Curriculum: The collection of topics, modules, and learning subjects taught in a course. As defined by Brummelen, “What is taught, particularly the subject matter contained in a school’s course of study. . .An organized set of documented, formal educational plans intended to attain preconceived goals.”⁵

Remote Learning: The teaching and learning of curriculum as educators “modify their course content for fully online instruction due to emergency situations.”⁶

Hybrid Learning: The combination of in-person and remote learning.

Pandemic: Such as the COVID-19 pandemic, defined by Grennan: “An epidemic (an outbreak that spreads over a larger geographical area) that spreads globally.”⁷

⁵ Harro Van Brummelen, *Steppingstones to Curriculum: A Biblical Path* (Colorado Springs, Colorado: Purposeful Design Publications, 2002), 13.

⁶ Lucas Kohnke, Di Zou, and Ruofei Zhang, “Pre-Service Teachers’ Perceptions of Emotions and Self-Regulatory Learning in Emergency Remote Learning,” *Sustainability* 13, no. 13 (2021): 1.

⁷ Dara Grennan, MD, “What is a Pandemic?” *JAMA Patient Page* 321, no. 9 (2019): 910, DOI: 10.1001/2019.0700.

CHAPTER TWO: LITERATURE REVIEW

Introduction

The literature reviewed for this study explores the experiences of remote learning before 2020 and following the initial implementation of remote learning during the 2020 COVID-19 pandemic. The research findings and texts provide insight into valuable experiences that inform future teaching practices of remote instrumental collegiate education. Additionally, the texts offer recommendations for successful teaching and learning practices for in-person, remote, and hybrid learning. The transition of course material between these learning platforms requires an understanding of the differing needs of learners and course material between these two learning styles.

The next few years will unquestionably see large numbers of studies relating to emergency remote teaching and learning. We suggest that well-designed, multi-institutional, quantitative studies with large samples are the best way of answering these questions.⁸

Terence Day of Okanagan College, I-Chun Catherine Chang of Macalester College, Calvin King Lam Chung of The Chinese University of Hong King, William E. Doolittle of The University of Texas at Austin, Jacqueline Housel of Sinclair Community College, and Paul N. McDaniel of Kennesaw State University, express the importance of studying and expanding the literature about the impacts of remote learning during the COVID-19 pandemic to inform the future of remote learning.

Experiences of Instructors and Students During Remote Learning

For many, remote learning was a surprise, and adjustments were required to occur quickly to transform the physical classroom into a remote learning platform. Due to the

⁸ Terence Day, I-Chun Catherine Chang, Calvin King Lam Chung, William E. Doolittle, Jacqueline Housel, and Paul N. McDaniel, "The Immediate Impact of COVID-19 on Postsecondary Teaching and Learning," *The Professional Geographer* 72, no. 1 (2020): 10, <https://doi.org/10.1080/00330124.2020.1823864>.

unfamiliarity of online learning during the COVID-19 pandemic for many students and teachers, difficulties were experienced when the sudden change was made from in-person to remote learning. Bethany Nickel, Assistant Professor of Music Education at Vanderbilt University, writes about potential stressors of remote learning in a study about high school instrumental ensembles during the COVID-19 pandemic stating, “For many band teachers, finding creative ways in which to engage remote or hybrid classes both musically and socially was one of the challenges of COVID-era music education.”⁹ These teachers and collegiate educators alike had to find engaging ways to teach courses in the absence of face-to-face instruction. For students, Nickel shares, “Finding ways to negotiate musical learning, feel ownership over their learning, and navigate social activities during COVID-19 could be difficult.”¹⁰ Both instructors and students were required to “Learn new safety procedures and new technologies to function productively during the pandemic.”¹¹ These hurdles experienced by instructors and students during remote learning during the COVID-19 pandemic can highlight areas of attention and improvement for future remote learning.

Upon researching the readiness of K-12 band directors for remote learning, Brian Lotter, music teacher, and performer, concluded through his academic research that among those surveyed, “the majority of band directors received little training in remote instruction before the 2020-2021 school year.”¹² Regarding comfortability in teaching remotely, “47.89% rated

⁹ Bethany J. Nickel, “High School Band Communities of Practice During COVID-19: A Multiple Case Study” (PhD diss., Case Western Reserve University, 2021) 10, ProQuest Dissertations (28829865).

¹⁰ Ibid., 10.

¹¹ Ibid., 10.

¹² Brian Lotter, “The Music Classroom in the Digital Age: Educator Responses to Remote Instruction” (master’s thesis, Southern Illinois University at Edwardsville, 2020), 22 ProQuest Dissertations (28031321).

themselves as a three”¹³ on a 5-point Likert scale where three is moderately comfortable. These results support the claim that instrumental music instructors were not adequately prepared before the widespread use of remote instrumental instruction during the COVID-19 pandemic. To provide further evidence of a lack of preparedness amongst instructors for online learning during the COVID-19 pandemic, Minsun Shin and Kasey Hickey of the Department of Teaching and Learning at Montclair State University reported professors' experiences in their study. It is reported that “Regardless of whether the instructors had previous experiences teaching online or not, they were expected to learn how to teach online and pivot to online learning within a short, often unrealistic, timeframe.”¹⁴ Shin and Hickey also report on the change in teaching styles between in-person and remote teaching by stating, “Since in-person teaching skills and course designs cannot be directly transferred over to the virtual world, instructors need to acquire a new and extended skillset during emergency remote teaching.”¹⁵ Furthermore, the data collected by Lotter show the need for a higher level of training in effective remote instrumental instruction as a response to remote learning experiences during the COVID-19 pandemic. Doing so provides more significant potential for success in future hybrid and remote teaching and learning.

Michele Biasutti of the Philosophy, Sociology, Pedagogy, and Applied Psychology Department at the University of Padua, Roberta Philippe of the University of Lausanne, and Andrea Schiavio, of the Centre for Systematic Musicology at the University of Graz provides further insight into the experiences of music teachers during the remote teaching period of the

¹³ Brian Lotter, “The Music Classroom in the Digital Age: Educator Responses to Remote Instruction” (master’s thesis, Southern Illinois University at Edwardsville, 2020), 24 ProQuest Dissertations (28031321).

¹⁴ Minsun Shin and Kasey Hickey, “Needs a Little TLC: Examining College Students’ Emergency Remote Teaching and Learning Experiences During COVID-19,” *Journal of Further and Higher Education* 45, no. 7 (2021): 976.

¹⁵ *Ibid.*, 976.

COVID-19 pandemic through a qualitative research study. A perceived benefit of remote learning included a greater appreciation for technology in music education. One teacher noted, “I was able to enhance my abilities to search for music online and make instructional videos.”¹⁶ Instructors are able to use the skills acquired through the transition to remote learning during the COVID-19 pandemic in future remote learning opportunities.

Cathy Li, Head of Media at the World Economic Forum, notes the impact of remote learning worldwide at the beginning of the COVID-19 pandemic, when 1.38 billion learners were impacted by school closures in March of 2020.¹⁷ Due to the widespread closure of physical school buildings, institutions, and instructors were tasked with determining the best practices for continuing teaching and learning at a distance. Remote learning was the solution for most, if not all, during this time. While during this time, schools were required to learn and create appropriate teaching practices to move their classrooms to a remote platform, implementing remote learning opens the possibilities for utilizing these teaching practices in the future. Wang, Vice President of Tencent Education, is quoted by Li as stating, “I believe that the integration of information technology in education will be further accelerated and that online education will eventually become an integral component of school education.”¹⁸ The experiences of instructors and students of recent remote and hybrid learning provide insight into the teaching methods that can be implemented in the future of remote learning.

¹⁶ Michele Biasutti, Roberta Antonini Philippe, and Andrea Schiavio, “Assessing Teachers’ Perspectives on Giving Music Lessons Remotely During the COVID-19 Lockdown Period,” *Musicae Scientiae* 26, no. 3 (2022): 592, doi: 10.1177/1029864921996033.

¹⁷ Cathy Li, “The COVID-19 Pandemic Has Changed Education Forever. This Is How.” World Economic Forum, April 29, 2020, accessed September 25, 2022, <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/>.

¹⁸ Ibid.

At the initial introduction of remote learning, Lauren Hensley, Ryan Iaconelli, and Christopher Wolters of The Ohio State University found that “Students simultaneously felt a distancing from the norm along with the foreign feel of a new location and format for learning. Students felt disconnected from their prior connections with the campus, while the new learning environment was unfamiliar and discordant with their academic goals.”¹⁹ In remote instrumental music education, students are experiencing a change in the learning environment and the performance environment where ensembles and rehearsals are being experienced individually rather than as a large performance group. Siu-Lan Tan, Professor of Psychology at Kalamazoo College, Peter Pfordresher, Psychology Professor at SUNY Buffalo, and Rom Harré, former Professor of Psychology at Georgetown University, write, “The presence of other people tends to enhance performance.”²⁰ This enhancement is referred to as “social facilitation.” Social facilitation cannot be experienced in the same way as face-to-face performance in remote learning. Because students are performing at a distance, new methods for performance that connect performers to the audience are required to take the place of the connections made during in-person performances. In preparation for online performances, instructors were tasked with determining how to rehearse pieces of music not as a large group but in smaller group, or individual instruction. Furthermore, studio lessons lost the immediate availability to play alongside a professor. Due to this, the perceived disconnect of student learning may be more intense in instrumental courses during remote learning.

¹⁹ Lauren C. Hensley, Ryan Iaconelli, and Christopher A. Wolters, “This Weird Time We’re In: How a Sudden Change to Remote Education Impacted College Students’ Self-Regulated Learning,” *Journal of Research in Technology in Education* 53, no. 4 (2021): 5208.

²⁰ Siu-Lan Tan, Peter Pfordresher, and Rom Harré, *Psychology of Music: From Sound to Significance* (New York, NY: Routledge, 2018), 208.

The implementation of remote learning during the COVID-19 pandemic introduced students to a style of learning that was new or unfamiliar to many. A learning practice where music was studied and made apart from other musicians. Lori A. Custodero, Professor of Music Education at Columbia University, writes, “Musical meaning is made through interactions with others, and to genuinely engage with music, we must be genuinely engaged with musicians. The processes of meaningful music education are musical reflections about classroom culture, and our roles as teacher-musician require thoughtful considerations.”²¹ Online learning does not eliminate the possibility for meaningful engagement with others through music-making; rather, it requires new methods for engagement that can be practiced remotely and at a distance. Distance learning can provide a successful alternative to in-person collaborative music-making when instructors and professors prioritize meaningful music connections in curriculum writing.

One mutual experience of many students who participated in remote instrumental learning was the lack of communal music-making, from a study where Jason Cumberledge, University of Kentucky, surveyed collegiate students. “A common theme that emerged from the open-ended questions was the importance of community in marching bands. Students perceived a lack of community in pandemic marching band compared to prior seasons.”²² To prevent the loss of a sense of community, remote instrumental ensembles must seek to provide a community through varied methods apart from physical closeness.

²¹ Lori A. Custodero, *Critical Issues in Music Education* (New York, NY: Oxford University Press, 2010), 85.

²² Jason P. Cumberledge, “Band Together: How College Marching Band Students Perceived Community During the COVID-19 Pandemic,” *Applications of Research in Music Education* 39, no. 3 (2021): 71, doi:10.1177/87551233211003839.

Along with the impact of remote learning on the music-making processes of students, evidence of impacts on student mental health was observed in pandemic remote learning. A portion of this impact was found to be a cause of the loss of in-person experiences when remote instruction was implemented for students who had never taken part in distance learning. Najmul Hasan and Yukun Bao, of the Center for Modern Information Management in Wuhan, China, studied the impact of remote learning on the mental health of Bangladeshi college students and found that “In the end, findings suggested that fear of academic year loss has mediated the relationship between e-learning crack-up and student’s psychological distress.”²³ Furthermore, “e-Learning stressors are linked to academic delays that affected students’ mental well-being and were positively associated with anxiety symptoms of Bangladeshi college students during lockdown.”²⁴ With the study's findings, it can be concluded that if there is no intent to recreate or replace learning and academic experiences present during in-person learning during remote learning, student mental health can suffer.

It is also imperative to take note of the various learning styles in a classroom during remote learning, just as in the traditional classroom. This includes student learning needs and students with disabilities. With a study of the success rate of students with disabilities in an online learning environment, Dana Gullo, Project Manager of Instructional Design at Cecil College, concluded that positives of remote learning include ease of access to learning materials, benefits of the use of media sources in instruction, and instructor aid with learning accommodations.²⁵ Furthermore, while Gullo recognized challenges in remote learning in

²³ Najmul Hasan and Yukun Bao, “Impact of ‘e-Learning Crack-Up’ Perception on Psychological Distress Among College Students During COVID-19 Pandemic: A Mediating Role of ‘Fear of Academic Year Loss’,” *Children and Youth Services Review* 118 (2020): 5, <https://doi.org/10.1016/j.childyouth.2020.105355>.

²⁴ *Ibid.*, 7.

²⁵ Dana L. Gullo, “Supporting Students with Disabilities to Be Successful in an Online Learning Environment,” (PhD diss., Wilmington University, 2021), 50-52, ProQuest Dissertations (28323811).

research findings, it was concluded that the increased utilization of technology for remote during the COVID-19 pandemic was positive and can benefit future remote and hybrid learning environments.

Joshua Long, music performer, researcher, and college band director, shares his experiences of adjusting to teaching a collegiate instrumental ensemble during remote learning and the slow return to in-person learning. He writes,

Since there has to be a lack of performance opportunities due to the no use of wind instruments, my focus has been on music education that we can absorb without making music together. From video conferencing of lessons on theory, music industry, composing, rhythmic activities, and other music topics, we are making it work with what we can do together in lieu of using wind instruments.²⁶

Long describes a method for enriching music education in an ensemble course that does not require synchronous instrumental performance. This method may prove useful for other remote learning contexts.

Through the experiences of both instructors and students during remote and hybrid learning, various teaching methods can arise for successful remote learning practices. The careful and detailed lesson planning that occurs for in-person learning must also be present in remote and hybrid learning. Collegiate instrumental learning requires implementing specific teaching and learning methods that reflect the needs of the student, instructor, and institution.

Technology for Remote Collegiate Instrumental Instruction

Available technology is the most important tool for remote instrumental instruction in collegiate courses. Understanding the barriers and differences between remote instrumental instruction and in-person instrumental instruction can guide instructors and institutions in

²⁶ Joshua E. Long, "The Instrument-Less Band Director," *American Education History Journal* (2021): 145.

making appropriate choices when utilizing technology in remote collegiate courses. Renée Crawford, Faculty of Education at Monash University, emphasizes the importance of technological advancements in the 21st century to enhance music education. Crawford writes, “Evolving technologies require educational policy change; only then will all students have access to a holistic music education experience facilitated by professional teachers and high-quality technological resources that respond to contemporary societal requirements.”²⁷ Exploring how institutions will incorporate emerging technologies will evolve course offerings, availability of material to students, and the quality of online education. The analysis of how these technologies were implemented during the COVID-19 pandemic provides insight to what technologies can continue to contribute to the future of online learning.²⁸

Among the various needs for remote instrumental instruction, a reliable online teaching and learning platform is perhaps the most important. Through research findings, Phillip Hash, Professor of Music Education at Illinois State University, concluded that with a focus group of grade school band directors, the utilized learning materials included but were not limited to: 80.7%, video conferencing platforms such as Zoom; 78.4%, learning management systems such as Blackboard; 60%, music accompaniment software such as SmartMusic; 46.5%, interactive music learning websites such as MusicTheory.net; and 22.5%, audio editing software such as Audacity.²⁹ Furthermore, programs that allow for collaborative music making can be used for online music learning. JackTrip Labs is a virtual music collaboration platform that provides

²⁷ Renée Crawford, “Evolving Technologies Require Educational Policy Change: Music Education for the 21st Century,” *Australasian Journal of Educational Technology* 29, no. 5 (2013): 728, doi:10.14742/ajet.268.

²⁸ *Ibid.*, 732.

²⁹ Phillip M. Hash, “Remote Learning in School Bands During the COVID-19 Shutdown,” *Journal of Research in Music Education* 68, no. 4 (2021): 387, doi: 10.1177/0022429420967008.

musicians with the opportunity to perform simultaneously to replicate an in-person rehearsal. This technology moves “sounds at the speed of light” and “mix[es] the sounds together in real-time and send them back to everyone who’s connected”³⁰ to allow for real-time audio playback for multiple users. Programs can also utilize the technology of virtual reality to make music online. In a study that examined the use of virtual reality technology, Ying Sai of the Arts Department at Shandong Management University in China stated that “Performers can use the virtual environment to make music in VR [virtual reality]. . .In augmented reality, traditional instrumental playing is supported by technologies that provide users with visual, auditory, and tactile feedback.”³¹ By using virtual reality, students and instructors can have a visual and auditory replication of the classroom in online learning. In addition to these online music learning tools, appropriate technologies such as microphones and video cameras must be selected and utilized in remote collegiate instrumental instruction.

In their research study, Ozlem Omur and Bilgehan Sonsel of the Kastamonu University Music Department in Turkey concluded that one of the most apparent difficulties of remote instrumental instruction is audio synchronization while using a digital platform. The authors write, “Pre-service [music] teachers stated that audio synchronization poses a problem for both their teachers and themselves throughout piano lessons provided in the emergency remote teaching process during COVID-19 lockdown while visual synchronization is better compared to that of audio synchronization.”³² Collegiate instrumental courses rely on the ability to have audio

³⁰ “About Latency and Connections: Optimizing JackTrip Virtual Studio for You and Your Group,” 2022, accessed March 2023, <https://www.jacktrip.com/how-it-works>.

³¹ Ying Sai, “Online Music Learning Based on Digital Multimedia for Virtual Reality,” *Interactive Learning Environments for Virtual Reality* (2022): 4, <https://doi.org/10.1080/10494820.2022.2127779>.

³² Ozlem Omur and Bilgehan Sonsel Omer “COVID-19 and Digital Literacy: Assessing Pre-Service Music Teachers’ Views on Piano Lessons Provided in Emergency Remote Teaching,” *International Journal of Education & Literacy Studies* 9, no. 3 (2021): 124.

synchronization in rehearsal and teaching. A solution to improving audio synchronization is found through exploring and evaluating available technology. Michael Dessen of the Music Department at the University of California writes that when experiencing remote instrumental teaching and learning, “In addition to increasing digital audio and remote collaboration skills, these efforts led many musicians to engage more deeply with questions about synchrony and timing.”³³ Dessen shares that collaborative and synchronous music-making should be a goal of remote learning, just as it is in in-person instruction. Dessen emphasizes, “Playing together in person, we never experience an ensemble in exactly the same way-sitting next to the drums is very difficult than next to the piano-but we typically strive to minimize those differences and achieve a shared feeling of overall sound.”³⁴ Regarding online music teaching through distance learning, Dessen writes, “Multi-site music making, even more than when we are in person, often involves consciously working towards the goal of a shared experience, with the understanding that we cannot achieve it precisely.”³⁵

To ensure the successful implementation and use of technologies utilized for online learning, institutions must support students in access to reliable technology. Because remote learning takes place online, students must have a reliable internet source to participate in distance learning, Christina Herman of the Music Education Department at Indiana University writes in a study about student perceptions of online learning, “Technological options are dependent on the electronic devices and Internet connections that students have access to at home, as well as

³³ Michael Dessen, “Thinking Telematically: Improvising Music Worlds Under COVID and Beyond,” *Jazz Perspectives* 13, no. 3 (2022): 283, doi:10.1080/17494060.2022.2078430.

³⁴ *Ibid.*, 285.

³⁵ *Ibid.*

available school resources.”³⁶ To ensure reliable access to the internet for all students, institutions may opt to provide internet services, connect students and families with local internet providers, or give students resources to locate places that internet can be found within their area of learning, for example, workspaces in a local library or university.

Miranda Wilson, cellist and author, emphasizes the importance of obtaining reliable and high-quality technology for remote instrumental instruction and understanding the technology. With video conferencing platforms such as Zoom, Wilson suggests “disabling the platform’s background-noise reduction and enabling original sound to solve most issues with time lags and other distortions.”³⁷ Furthermore, “Speakers are another matter, as you may want more sound than your computer’s built-in speakers can produce.”³⁸ Properly using appropriate technologies allows for a better teaching and learning experience in online instrumental learning.

Remote instrumental music courses also require reliable sources of technology to allow for student-to-teacher and student-to-student interactions to replace in-person communication. Schiavio and Luc Nijs, of the Institute of Psychoacoustics and Electronic Music share a successful method of communication used in an online instrumental course. It was found “To support communication with the teacher beyond the lesson, the platform Flipgrid was used...that allows teachers to facilitate the students’ engagement, discussions, and collaboration by offering them an opportunity to post tasks and questions using videos and other interactive materials.”³⁹

³⁶ Christina Herman, “Student Perceptions of Online Peer Learning in Preservice Music Teacher Education: Motivation, Social-Emotional Learning, and Classroom Climate” (Master’s Thesis, Colorado State University, 2021), 10, ProQuest Dissertations Publishing (28322969).

³⁷ Miranda Wilson, “Remote Tool Kit,” *Strings* 34, no. 5 (2020): 45.

³⁸ *Ibid.*, 47.

³⁹ Andrea Schiavio, and Luc Nijs, “Implementation of a Remote Instrumental Music Course Focused on Creativity, Interaction, and Bodily Movement. Preliminary Insights, and Thematic Analysis,” *Front Psychol* 33 (2022): 5, doi: 10.3389/fpsyg.2022.899381.

This platform and others similar to it allow students to have engaging interactions with their instructors even in the absence of being in the presence of one another.

When determining which educational technologies to utilize in the classroom, Linda Nilson, Director of the Clemson University Office of Teaching Effectiveness and Innovation, suggests, "Teaching at its best requires that we consider every education tool at our disposal to give our students the richest possible education experience. Education technology is like any other element of course design. We should choose technologies because they most effectively help our students achieve our learning outcomes."⁴⁰ This point is important to consider regarding remote instrumental music instruction as the technologies that may be appropriate for other collegiate courses may not be the best for instrumental courses. For example, a Zoom meeting with no audio enhancements may be sufficient for a lecture or group discussion but would not allow an instrumental course to have the highest potential for successful performance or rehearsal. Ana Hernández of Centro Universitario in Brazil further emphasizes the importance of using appropriate technologies for remote instrumental courses. It is suggested that "The first thing a teacher should do is take time to try the technologies and choose the videoconferencing software that best suits the specific instrument. Tests could be made together with the student to decide which software is optimum for both, and settings should be revised in case they can be adjusted for music."⁴¹ Hernández shares that utilizing these technologies can improve remote instrumental instruction. Additionally, Hernández writes, "Some platforms like Zoom give the

⁴⁰ Linda B. Nilson, *Teaching at Its Best: A Research-Based Resource for College Instruction* (San Francisco, CA: Jossey-Bass, 2016): 45.

⁴¹ Ana Martínez Hernández, "Online Learning in Higher Music Education: Benefits, challenges and Drawbacks of One-to-One Videoconference Instrumental Lessons," *Journal of Music, Technology & Education* 13, no. 2 & 3 (2021): 190, doi:10.1386/jmte_00022_1.

possibility of preserving the natural sound that is recorded by the microphone. This makes a big difference in the audio output, as echo cancellation, noise reduction, gain control, and equalization are eliminated.”⁴²

With the selection of appropriate technologies for remote instrumental learning, appropriate training and support for using such technologies must also occur. Whether it is provided by the professor or a technology staff member, students must be provided with the knowledge necessary to use the technology being used during remote learning and should be provided with technological support during the remote learning process. Vikki Katz and Katherine Ognyanova of the Department of Communication at Rutgers University and Amy Jordan of the Department of Journalism and Media Studies at Rutgers University state that “There are two kinds of connection that students need to develop remote learning proficiency: digital connectivity, in the form of consistent, high-speed internet and functional digital devices on the one hand, and string human connections to the instructors who guide their learning on the other.”⁴³ This two-fold method of successful remote learning highlights the importance of not only affective and appropriate technology, but also the supported use of reliable technology with support provided by the course instructors. This conclusion supports the principle that remote learning can be successful with a curriculum that is adapted and created for remote learning and that instruction occurs using reliable, high-quality, and well-supported technology for both the institutions and the students.

⁴² Ana Martínez Hernández, “Online Learning in Higher Music Education: Benefits, challenges and Drawbacks of One-to-One Videoconference Instrumental Lessons,” *Journal of Music, Technology & Education* 13, no. 2 & 3 (2021): 188, doi:10.1386/jmte_00022_1.

⁴³ Vikki S. Katz, Amy B. Jordan, and Katherine Ognyanova, “Digital Inequality, Faculty Communication, and Remote Learning Experiences During the COVID-19 Pandemic: A Survey of U.S. Undergraduates,” *PLoS One* 16, no. 2 (2021): 14, <https://doi.org/0.1371/journal.pone.0246641>.

David A. Camlin, Faculty in the Department of Music Education, and Tania Lisboa from the Center of Performance Science at the Royal College of Music in London, United Kingdom, highlight the increasing presence of technology in music education, especially in response to the COVID-19 pandemic and the reliance of technology in online learning. Camlin and Lisboa write, “The increased use of technology by music educators in order to sustain their practice through the crisis highlights another important feature to emerge, which we might see as a convergence between recording and performing fields of music.”⁴⁴ Furthermore, the authors emphasize the importance of effective online teaching through an understanding of the technology being used by the instructor and student. The findings warn, “Inconsistencies both in provision of resources and in support for educators themselves, can inevitably lead to compromises in the student experience, highlighting the importance of technological resourcing, training and support to enable educators to provide the best possible experience for their students.”⁴⁵ Because instrumental courses may not have been traditionally designed or offered through an online learning platform, the backbone of the new learning style, the technology, must be clearly understood to provide a successful teaching and learning experience.

The Future of Remote Collegiate Instrumental Instruction

During the COVID-19 pandemic, most institutions required remote learning, giving collegiate instrumental courses no choice but to transition to an online learning platform. However, remote and hybrid learning style has the opportunity to be beneficial and necessary for many learners and institutions, even beyond the days of the pandemic. Abigail Hess, Multimedia

⁴⁴ David A. Camlin and Tania Lisboa, “The Digital ‘Turn’ in Music Education (Editorial),” *Music Education Research* 23, no. 2 (2021): 134, <https://doi.org/10.1080/14613808.2021.1908792>.

⁴⁵ *Ibid.*, 137.

Reporter for CNBC reported that in the United States, as of March 2020, “at least 1,102 colleges and universities in the U.S. have closed their campuses due to coronavirus, choosing to move classes online.”⁴⁶ However, the 2020 COVID-19 pandemic did not end remote and hybrid learning. Many colleges still rely on remote instruction or are taking advantage of the increased ability to share course material through online instruction. Because of the lesser prevalence of remote and hybrid instruction prior to March 2020, appropriate teaching and learning strategies were established and experienced for each institution, instructor, and course. These strategies provide information that can be applied to the future of remote instrumental instruction at the collegiate level.

The need to adapt or change curriculum and course design when transitioning from in-person learning to online learning allows professors to create new methods for learning and engagement specific to the remote course. Harro Van Brummelen, former Associate Professor of Education at Trinity Western University encourages adaptation in curriculum, both for in-person and online learning. Van Brummelen writes, “Curriculum is a dynamic, ever-changing series of planned learning experiences. The curriculum is a path that sets out a general direction, but teachers and students modify the path as they go along and may even decide to explore side trails-or sometimes stop in their tracks.”⁴⁷ Remote learning required professors to adapt their curriculum to make it appropriate for an online learning platform. Moving forward from the COVID-19 pandemic, instructors will benefit from analyzing how curriculum can be further adapted, changed, and created to be specific for online learning. The COVID-19 pandemic

⁴⁶ Abigail J. Hess, “How Coronavirus Dramatically Changed College for over 14 Million Students,” CNBC, 2020, accessed September 25, 2022, <https://www.cnbc.com/2020/03/26/how-coronavirus-changed-college-for-over-14-million-students.html>.

⁴⁷ Harro Van Brummelen, *Steppingstones to Curriculum: A Biblical Path* (Colorado Springs, Colorado: Purposeful Design Publications, 2002), 14.

unveiled that curriculum cannot be directly transferred from in-person to online learning. Schiavio and Nijs, highlighting the course design of a remote clarinet instruction course, share that “The course was organized to let students find their own creative path through collaborative work. They were given the opportunity to propose specific topics and address them collaboratively.”⁴⁸ This addition to the online course allowed students to be active learners of the material and active participants in the curriculum design, showing the professor’s attention to student needs and desires. Laura Ritchie and Benjamin T. Sharpe of the University of Chichester in the United Kingdom contribute to the discussion on the importance of an updated curriculum to promote student engagement through online and hybrid learning in a study that analyzes the approach of music students when participating in remote performances. Ritchie and Sharpe report, “As blended forms of learning become the ‘new normal’ in the future and include alternate forms of engagement and assessment, educators should take a broader view of the way they prepare and expect students to engage with their curricula.”⁴⁹ By examining and updating the curriculum to meet the needs of online learning, instructors are able to expand their teaching strategies while meeting the needs of remote students.

In a study that explored the attitudes of students as a reaction to the implementation of remote learning during the COVID-19 pandemic, Mădălina Rucsanda and Alexandra Belibou, Faculty of Music, and Ana-Maria Cazan, Faculty of Psychology and Education Sciences at the University of Braşov in Romania, noted numerous key challenges that students faced. Students

⁴⁸ Andrea Schiavio, and Luc Nijs, “Implementation of a Remote Instrumental Music Course Focused on Creativity, Interaction, and Bodily Movement. Preliminary Insights, and Thematic Analysis,” *Front Psychol* 33 (2022): 2, doi:10.3389/fpsyg.2022.899381.

⁴⁹ Laura Ritchie and Benjamin T. Sharpe, “Music Student’s Approach to the Forced Use of Remote Performance Assessments,” *Frontiers in Psychology* 12, (2021): 6-7, <https://doi.org/10.3389/fpsyg.2021.641667>.

reported that the most notable problems that were experienced included, “Audio and visual quality, the lack of quality personal devices, lack of physical proximity, and impossibility of synchronous performances.”⁵⁰ Additionally, Rucsanda, Belibou, and Cazan explain that “One of the limitations of this way of teaching [remotely] is the lack of technical skills in both the teacher and student, which prevent the exclusive focus on the expressive interpretation.”⁵¹ These challenges impacted the learning experiences of students. The researchers further explained hardships experienced by students in remote learning relating to performances. Rucsanda, Beliboi, and Cazan continue on to write that, “The lack of in-person interactions between musician-audience or learner-teacher and the absence of students’ performative experience, were major aspects that could not be transferred to the virtual environment.”⁵² These findings highlight the importance of recognizing what is lacking in remote-learning when compared to in-person learning. These shortcomings must be addressed when transitioning to remote learning to provide a meaningful learning experience such as the in-person design of courses.

Alanna Gillis, Assistant Professor of Sociology at St. Lawrence University, and Lauren Krull, Assistant Professor of Sociology at St. Norbert College, report practices for transitioning teaching methods from their original approach to the pandemic approach during remote learning. For example, dynamic peer-to-peer discussions were originally done by assigning “small groups for class discussions and activities.”⁵³ The pandemic approach is to create “daily ‘lesson plans’

⁵⁰ Mădălina Rucsanda, Alexandra Belibou, and Ana-Maria Cazan, “Students’ Attitudes Toward Online Music Education During the COVID-19 Lockdown,” *Frontiers in Psychology* 12, (2021): 6-7, <https://doi.org/10.3389/fpsyg.2021.753785>.

⁵¹ *Ibid.*, 3.

⁵² *Ibid.*, 7.

⁵³ Alanna Gillis, and Laura M. Krull, “COVID-19 Remote Learning Transition in Spring 2020: Class Structures, Student Perceptions, and Inequality in College Courses,” *Teaching Sociology* 48, no. 4 (2020): 288, doi: 10.1177/0092055X20954263.

that typically require small group video meetings of forum posts.”⁵⁴ Peer discussion and interaction in instrumental performance courses originally relied upon rehearsal, where communication took part through playing individual parts in a piece of music. In remote learning, the instructor can allow students to still focus on their individual parts and the ensemble's collaboration by sharing about each part to better understand the music through group discussions.

Students must also have practices of promoting self-regulated learning when participating in a remote course. Because students are not able to receive face-to-face encouragement and follow-up from instructors throughout their learning in online courses, self-motivation strategies can aid student engagement and success in online courses. Additionally, instructors can support student motivation and regulation by sharing methods for online learning and regularly following up with students throughout the course. Lucas Kohnke, Di Zou, and Ruofei Zhang of The Education University of Hong Kong, share several practices for self-regulated learning strategies in a study that explores learning strategies in emergency remote learning that occurred during the COVID-19 pandemic. These learning strategies included, “Allocating extra study time, setting short-term as well as long-term goals, preparing questions before joining the chat room and discussion, reading aloud the instructional materials that were posted online, and meeting their classmates face-to-face when needed.”⁵⁵ Gillis and Kroll also suggest improving student learning experiences in remote learning through various styles of teaching. Their study reveals “A

⁵⁴ Alanna Gillis, and Laura M. Krull, “COVID-19 Remote Learning Transition in Spring 2020: Class Structures, Student Perceptions, and Inequality in College Courses,” *Teaching Sociology* 48, no. 4 (2020): 288, doi: 10.1177/0092055X20954263.

⁵⁵ Lucas Kohnke, Di Zou, and Ruofei Zhang, “Pre-Service Teachers’ Perceptions of Emotions and Self-Regulatory Learning in Emergency Remote Learning,” *Sustainability* 13, no. 13 (2021): 8-9.

tradeoff between synchronous interaction, enjoyment, and accessibility. The presence of alternative lesson plans for students who could not attend live Zoom sessions and students' ability to schedule their own meeting time for small group discussion likely contributed to these high accessibility ratings."⁵⁶ When students are encouraged to take the initiative to promote self-regulated learning, their ability to succeed in online learning is increased as they become more engaged with course material.

Furthermore, it is suggested that instructors should "Maintain consistency with pre-pandemic expectations and with pandemic expectations."⁵⁷ This extends beyond pandemic learning as instructors must maintain consistency through course expectations to uphold the vigorous learning environment. In an instrumental performance course, instructors should emphasize that while daily group rehearsal is not taking place in the traditional format, music learning is still taking place and students must still understand and know the music to the same level.

When students transition to online learning, there is an expectation of a learning experience that is as impactful as in-person learning. Senida Harefa, and Grace Lamudur Arta Sihombing, Faculty of Religious Education and Christian Education Management at Institut Agama Kristen Negeri Tarutung in Indonesia, explain in a study that examines the experiences of high school students who participated in online learning during the COVID-19 pandemic that, "Educators are expected to redesign implementing procedures for online learning so that students can still learn as much as possible. From the teacher's side, it is hoped that teachers will improve

⁵⁶ Alanna Gillis, and Laura M. Krull, "COVID-19 Remote Learning Transition in Spring 2020: Class Structures, Student Perceptions, and Inequality in College Courses," *Teaching Sociology* 48, no. 4 (2020): 292, doi: 10.1177/0092055X20954263.

⁵⁷ *Ibid.*, 288.

the methods of teaching by designing models and other approaches to provide variation in learning to raise students' interest and willingness to learn online."⁵⁸ Remote learning presents the opportunity for teachers to not only adapt the current curriculum for online instruction but to also create a new curriculum specific to the teaching and learning styles of online learning. For example, activities and assignments rely on remote learning technology.

Regarding the transition between remote and in-person music learning, Braeden Henderson, Music Educator, and Communications Specialist, writes, "Back-to-school season will prove pivotal for music students around the world, and modern band educators are uniquely equipped to address their needs. Time will tell what long-term impacts of this transition will be on schools, but, working through an unprecedented collision of challenges, pressures, and advantages, teachers are already learning in to prepare for success."⁵⁹

High-quality or beneficial remote learning can be evaluated with criteria such as student success, instructor and course evaluations, assessment performance, and student engagement. Zuheir Khlaif, Soheil Salha, and Bochura Kouraichi of An-Najah National University suggest that "The desired high-quality content is well-organized activities with well-specified learning objectives; they are also expected to be useful and easy to use in online learning activities."⁶⁰ This poses an important factor of remote instruction where learning materials must be appropriate for remote learning and may not be the same as the same materials used for the

⁵⁸ Senida Harefa and Grace Lamudur Arta Sihombing, "Students' Perception of Online Learning Amidst the COVID-19 Pandemic: A Study of Junior, Senior High School and College Students in a Remote Area," *F1000Research* 10, (2021): 10, doi: 10.12688/f1000research.52152.2.

⁵⁹ Braeden Henderson, "The Great Return," *School Band & Orchestra* 24, no. 8 (2021): 18.

⁶⁰ Zuheir N. Khlaif, Soheil Salha, and Bochura Kouraichi, "Emergency Remote Learning During COVID-19 Crisis: Students' Engagement," *Education and Information Technologies* 26, (2021): 7037, doi: 10.1007/s10639-021-10566-4.

course when taught in person. Because the learning environment has changed, the teaching methods and materials must also be adjusted and adapted for the remote or hybrid classroom.

Recent remote music instruction, both in the United States and worldwide, has displayed the benefits and possibilities of continued availability of remote instruction. Nilesh Thomas, leader of learning technologies, curriculum development, and institutional partnerships at True School of Music, writes,

These remote music lessons also opened up a new possibility of access to quality music education to a wider set of learners from all corners of the country. Previously, top-notch music schools and qualified and experienced teachers were mostly available only in the big cities and metropolitan areas. With the ever increasing mobile internet penetration, it has now become all the more possible for many aspiring learners to seek quality music education, previously only available several hundred or thousand kilometers from their homes.⁶¹

Emily Scheidegger, orchestra director, emphasizes further possible benefits of remote instrumental music teaching. Upon studying virtual orchestral learning, it was reported that survey participants valued the ability to use technology for teaching methods. For example, the ability to share a screen to model appropriate and detailed playing methods and music theory analyses of a piece of music. Additionally, teachers noted that the ability to record and post-rehearsal sessions and class sessions allowed the students to return to the lesson to review the information.⁶²

Remote instrumental learning also allows music performance to reach a greater number of students. Michael Rofe, Samuel Murray, and Will Parker of Falmouth University discuss the background of a successful online music performance collaboration, Online Orchestra. Among

⁶¹ Nilesh Thomas, "How COVID-19 Changed Music Education in India?" *Business World*, March 18, 2021, 1.

⁶² Emily Scheidegger, "Pedagogical Approaches in the Virtual Beginning Orchestra Classroom: Best Digital Resources for the Beginning Virtual Orchestra Classroom" (master's thesis, University of Wisconsin at Stevens Point, 2021), 39 ProQuest Dissertations (29063263).

the primary goals when forming the program included the focus on sharing music performances to students in various locations. The authors write, “Online Orchestra aimed to design a solution in which musicians could participate from their *own* remote locations, rather than having to travel somewhere further afield in order to take part.”⁶³ This not only provides more students with the opportunity to learn, but it also benefits the outreach of music faculties and departments. Rofe, Murray, and Parker share a goal of the online orchestra studied that can apply as a goal to other remote music learning contexts. The authors state, “The two principles of connection and immersion acted as reference points throughout the project, to design a solution in which participants felt (1) connected to other remote musicians and (2) immersed in the overall musical experience.”⁶⁴

In an online music program described by Crawford, three project aims of an online music program are reported. These include: “Provide students and teachers within rural and remote schools access to high-quality learning materials and resources; To facilitate the use of online music technology in a blended learning context; And to build capacity within these schools to enable music education and the use of online music technology.”⁶⁵ This program and other potential remote instrumental music programs can extend a quality music education outside of the physical walls of the institution.

⁶³ Michael Rofe, Samuel Murray, and Will Parker, “Online Orchestra: Connecting Remote Communities Through Music,” *Journal of Music, Technology, & Education* 10, no. 2 & 3 (2017): 157, doi: 10.1386/jmte.10.2-3.147_1

⁶⁴ *Ibid.*, 158.

⁶⁵ Renée Crawford, “Rethinking Teaching and Learning Pedagogy for Education in the Twenty-First Century: Blended Learning in Music Education,” *Music Education Research* 19, no. 2 (2017): 199, doi: 10.1080/14613808.2016.1202223.

The continued integration of remote instrumental learning also reflects the increased presence of technology in education. Crawford writes, “The necessity to rethink teaching and learning pedagogy for education in the twenty-first century has emerged as a result of the growing and changing needs and requirements of society.”⁶⁶ Utilizing new and emerging technologies is beneficial for music education contexts both in and outside of the physical classroom. Such technologies have even become a necessity for remote learning. These technologies help to introduce new ways of instrumental music teaching and learning and to enhance already established programs.

Another hopeful outlook of remote music learning is highlighted by Andrew Goodrich, Department of Music Education at Boston University, in a study that explores peer mentoring in remote music education. It was reported that, “Online peer mentoring allows students to engage with students at other institutions and access to an unlimited number of resources in a particular field.”⁶⁷ Additionally, it was stated that online peer mentoring allows students to be advised through modeling in a way that differs than in-person mentoring. Remote learning provides the opportunity for students to be connected with courses and instructors from far distances. It also provides students with opportunities to connect with other students who can teach and learn with them. The use of peer mentoring gives students access to online peer connections that serve in place of face-to-face collaboration through in-person learning.

⁶⁶ Renée Crawford, “Rethinking Teaching and Learning Pedagogy for Education in the Twenty-First Century: Blended Learning in Music Education,” *Music Education Research* 19, no. 2 (2017): 197, doi: 10.1080/14613808.2016.1202223.

⁶⁷ Andrew Goodrich, “Online Peer Mentoring and Remote Learning,” *Music Education Research* 23, no. 2 (2020): 262, <https://doi.org/10.1080/14613808.2021.1898575>.

Recognizing the benefits and possibilities of remote instrumental instruction allows institutions to expand their course offering beyond the walls of the music building, even after the conclusion of the need for remote learning due to the pandemic. Biasutti, Philippe, and Schiavio, when surveying students of an Italian conservatory who took part in remote learning, cite the suggestion of a student who wrote, “It is necessary to improve the quality of online teaching and collaborations, perhaps drawing from those realities who already use e-learning every day, and explore as many solutions as possible.”⁶⁸ Because remote learning was present before the COVID-19 pandemic and will continue to be present post-pandemic, analyzing remote learning procedures and methods that have been implemented for a longer period can provide insight into appropriate teaching methods for institutions and educators. The future of remote instrumental instruction may not be an exact mirror of in-person instruction but rather a new program that utilizes its own teaching and learning methods. If institutions decide to pursue remote instrumental learning in the future, clear goals must be established for the online learning programs. When music departments determine these goals, the next steps in remote learning will become clearer.

Summary

The literature reviewed supports this study by reflecting the experiences and practices of remote collegiate instrumental instruction. Instructors, students, and institutions experienced new classroom learning styles with the transition to remote and hybrid learning during the COVID-19 pandemic. Through this quick and necessary transition, educators and students were able to adapt and learn what was successful and unsuccessful when taking part in the courses. With the

⁶⁸ Michele Biasutti, Roberta Antonini Philippe, and Andrea Schiavio, “Creative Pedagogies in the Time of Pandemic: A Case Study with Conservatory Students,” *Music Education Research* 23, no. 2 (2021): 174, <https://doi.org/10.1080/14613808.2021.1881054>.

experiences that are reflected upon in the studies reviewed and the data collected from this study, conclusions can be made regarding useful teaching and learning strategies, course creation principles, and technology utilizations that support future remote and hybrid collegiate instrumental learning.

Online teaching and learning requires an understanding of how the remote classroom differs from the in-person classroom. Additionally, an understanding of student and instructor needs when transitioning from the physical classroom to the online classroom. A thorough examination of how students participate and interact with peers, instructors, and learning material online can fulfill these requirements to implement an online course successfully. Furthermore, technological advancements and developing ways to communicate with others at a distance allow for increased possibilities for what is possible in hybrid and remote music instruction. Responding to and utilizing these advancements allows institutions to make informed decisions on designing an online music curriculum.

CHAPTER THREE: METHODOLOGY

Introduction

This survey explores the teaching and learning practices in the collegiate remote instrumental music classroom. It overviews perceptions of professors and students regarding the impact that remote learning had on their teaching and learning experiences. Additionally, this study provides practical recommendations for instructional methods that allow collegiate instrumental ensemble courses to be successfully taught virtually. Furthermore, the research questions detailed how collegiate instrumental courses changed due to remote learning and how future remote and hybrid learning situations can effectively be performed.

Design

This study was conducted using a qualitative research method. Phillips writes, “Qualitative research is one of the three main forms of behavioral research used in music education and music therapy. . . The main outcome of qualitative research is not to look at the big picture but, rather, to present a close-up picture of one participant or a small group of participants in relation to some criterion.”⁶⁹ The research findings were found using a survey that compiled the experiences of a select group of collegiate students and professors who participated in both in-person and remote learning in band, orchestra, and instrumental studio courses. The survey participants were students and professors from universities in the Northeast United States from Pennsylvania, New York, and New Jersey. Additionally, a case study was utilized as the research findings relied on interviewing participants of the courses. The study determined how remote learning has affected the teaching and learning of collegiate instrumental courses. Questions

⁶⁹ Kenneth H. Phillips, *Exploring Research in Music Education & Music Therapy* (New York, NY: Oxford University Press, 2008): 83.

were posed to students and professors that determined how the recent remote learning platform helped or hindered their course progress. Survey participants could also share their experiences and perceptions of remote learning compared to in-person learning. This qualitative case-study model was beneficial for this research study as it allowed for insight to be found that came from first-hand accounts related to the research topic.

Questions and Hypotheses

Research Question One: In what ways can in-person lessons and ensemble rehearsals be adapted for remote learning lessons?

Hypothesis One: In-person lessons can be adapted for remote learning lessons with the aid of technology, the implementation of new individual practice methods, and the teaching of repertoire without in-person instruction.

The technology used for remote learning may include microphones and video meeting platforms where students can perform individually and receive feedback from their professors or peers who are listening to take the place of in-person performance and rehearsal. Before the reliance on remote learning, the lessons used for collegiate instrumental courses depended on in-person performance. However, remote learning can present the opportunity for a chance to explore different methods of teaching and learning that time did not allow for when in-person performance was the focus in the classroom. This also includes introducing students to new ways and tools for practicing. When exploring the case of instrumental ensemble instruction during remote learning, Nickel writes:

While Mr. Oakley truly appreciated the band's reaffirmed success in playing as a group, he also saw the positive side of the individual musicianship learning objectives that he

had implemented during the school year, especially the practice goals on Sight Reading Factory and SmartMusic. The remote learning format had given him a chance to realize one of his long-time goals for individualizing each student's musical growth.⁷⁰

Mr. Oakley presents how his class took advantage of remote learning. The time that was previously utilized to rehearse in person was used to teach principles and skills that could be developed in the socially distant and virtual classroom. Furthermore, the teaching of repertoire can be adapted in several ways. For example, professors can explore the repertoire that would be performed in the ensemble by giving lectures and information on the score study, history, arrangement, musical characteristics, and the value and impact of the piece of music.

Research Question Two: What are the perceived challenges and benefits of remote learning in collegiate instrumental courses according to professors and students?

Hypothesis Two: The primary impacts of remote learning on college students enrolled in instrumental music courses include a loss of in-person communication, academic motivation, and performance opportunities compared to in-person learning.

During the pandemic, students lost the everyday social interactions that they had previously experienced before remote learning. They had to find new ways to connect with each other and their professors, which impacted their ability to communicate in the same way as in-person learning. Discussion boards, virtual office hours, and/or small group video meetings can provide means of communication between students and professors. An additional impact, the lack of academic motivation experienced by students, is shared in a study by Shin and Hickey.

⁷⁰ Bethany J. Nickel, "High School Band Communities of Practice During COVID-19: A Multiple Case Study" (PhD diss., Case Western Reserve University, 2021) 99, ProQuest Dissertations (28829865).

Upon studying student responses to remote learning, Shin and Hickey received the following feedback from a student stating “With face to face instruction, I felt more inclined to participate and complete all of the readings. With online learning, I am completing the minimum to complete assignments.”⁷¹ This student’s response shows the potential impact remote learning has on student motivation and ability to complete classwork. Ritchie and Sharpe write, “With forced remote learning, students needed to adopt more self-regulated learning strategies, taking initiative and carrying out the required methods and behaviors to learn and complete tasks.”⁷² This necessity for self-regulated learning with self-motivation may have proven difficult for some students who have relied upon regular in-person instruction for academic motivation.

Furthermore, remote learning requires students to learn how to use the technology needed for their courses. This technology can include video and audio programs on computers, cell phones, video conferencing platforms, and microphones in instrumental music courses. Students had to become familiar with the technology needed to perform virtually such as streaming a performance for a virtual audience to watch.

Research Questions Three: What are the perceived challenges and benefits of remote learning in collegiate instrumental courses according to professors and students?

Sub Question: What teaching and learning methods provide an optimal remote learning experience according to students enrolled in instrumental collegiate courses?

⁷¹ Minsun Shin and Kasey Hickey, “Needs a Little TLC: Examining College Students’ Emergency Remote Teaching and Learning Experiences During COVID-19,” *Journal of Further and Higher Education* 45, no. 7 (2021): 980.

⁷² Laura Ritchie and Benjamin T. Sharpe, “Music Student’s Approach to the Forced Use of Remote Performance Assessments,” *Frontiers in Psychology* 12, (2021): 3, <https://doi.org/10.3389/fpsyg.2021.641667>.

Hypothesis Three: The perceived challenges of remote learning in collegiate instrumental courses according to professors and students include determining how to perform virtually, how to achieve the benefits of large group music-making virtually, and how to prepare repertoire at a distance effectively.

Before remote learning, professors and students performed their repertoire in person for a live audience. During remote learning, however, both the performance and audience became virtual. This virtual performance required professors and students in instrumental music courses to determine and understand the most effective performance practices. This may include performing solos or unaccompanied works where one musician is playing at a time, performing music via a live stream where an audience can watch a video of a performance in real-time, and/or recording playing sessions and compiling each instrument part into a large ensemble track using a digital audio workspace.

Both individual and ensemble performances can depend on the ability to play simultaneously as another performer. This large group style of music-making is not always possible with remote learning and can be a challenge to students and professors. If a student is rehearsing a sonata, for example, they may not be able to play their instrument simultaneously with their accompanist over video with the available technology at the time of this writing. Omur and Omer studied the experiences in piano courses during remote learning and write:

The pandemic outbreak, which affected the whole world and created a global crisis in the field of education, also directly negatively affected piano education, which is an applied field of music education. The piano lesson, by its nature, is based on the master-apprentice relationship and is provided on a one-to-one basis; this makes it difficult to carry out the lesson with large numbers of students and to follow it asynchronously, as in

many other areas of education. This situation also creates problems for piano instructors, while it also causes the qualification of education received by students to decrease.⁷³

This statement emphasizes the impact that in-person instrumental instruction experienced due to the introduction of remote learning.

Students rely on their ability to hear one another and to receive verbal and visual instruction from the conductor. Custodero emphasizes the importance of immediate feedback in music performance and writes, “We can hear music, we can see other people moving to music, and sometimes we see musical notation as we perform. . . All these sensory possibilities for immediate feedback coalesce in musical experience, compelling our complete attention and fueling our ability to adjust our actions.”⁷⁴ This passage reinforces the benefits that come from in-person performance and rehearsal. Because in-person, large group performances could not be had during remote learning, professors needed to determine how to adapt the experiences of in-person performances for remote learning.

Participants

The participants of this study included students and professors from various collegiate music programs across the Northeast United States. Each participant was enrolled in or taught a remote learning instrumental collegiate course during the COVID-19 pandemic. The researcher selected the participants due to their participation in the courses for which they were involved. Survey participants were selected due to their participation in collegiate instrumental courses during the COVID-19 pandemic and were both known by the researcher and members of

⁷³ Ozlem Omur and Bilgehan Sonsel Omer, “COVID-19 and Digital Literacy: Assessing Pre-Service Music Teachers’ Views on Piano Lessons Provided in Emergency Remote Teaching,” *International Journal of Education & Literacy Studies* 9, no. 3 (2021): 125.

⁷⁴ Lori A. Custodero, *Critical Issues in Music Education* (New York, NY: Oxford University Press, 2010), 71.

institutions that were found through faculty contact information or referral by other survey participants. Furthermore, student participants range in age and education level from undergraduate to doctoral students. Recruitment for the study was done by in-person inquiry, outreach via social media, and electronic mail. The varied population of participants provided diverse viewpoints to the study data. The total number of course instructors surveyed was 27, and the total number of students was 30. The research findings reflect 57 total participants

Setting

This study was conducted via an online Google Form. Upon agreeing to participate in the study, the form was distributed to survey participants. The survey questions were distributed to survey participants via electronic mail or electronic message. The questionnaire was open for participants for a total of three weeks. Faculty participants were given a total of twenty-two questions and student participants were given a total of twenty questions to answer. Upon the completion the online questionnaires, the participant responses were compiled. Each participant's answers were collected and reported in Chapter Four, Research Findings.

Instrumentation

The online questionnaires distributed to research participants are included in Appendix B. The questions included in the Google Form allowed instructors and students of collegiate instrumental courses to express and detail their experiences during remote learning. Questions included multiple-choice and short-answer questions that allowed survey participants to describe their responses in detail. The varied responses of each participant were expressed in the questions where participants shared their thoughts on technology, teaching and learning styles, lesson planning, and the future of remote collegiate instrumental learning. The answers to the

survey questions provided data that draws conclusions on the successful and unsuccessful methods of designing and teaching remote collegiate instrumental courses.

Procedures

To uncover the answers to the research questions, published research, findings, and literature related to the research topic were first reviewed. The first-hand accounts of those who transitioned to remote music learning explain how classrooms were and were not successful during the transition. Hash writes, “Knowing how teachers approached and experienced these unprecedented circumstances will help identify best practices, suggest avenues for future research, and inform professional development around RL [Remote Learning].”⁷⁵ After the Literature Review, interview questions for the research participants were developed. The research participants included professors and students from various university band, orchestra, and instrumental studio courses. Each of the participants were provided with the IRB-approved participant consent form. The interviews were then conducted with an online question-and-answer form. Upon completion of the interviews, the responses of the participants were analyzed. The interpretation of the survey responses was compared to previous studies and literature findings and provide new findings to contribute to the discussion of remote collegiate instrumental learning.⁷⁶

Summary

This study examined the experiences of students and faculty of remote collegiate instrumental courses during the COVID-19 pandemic. Each experience that was shared through

⁷⁵ Phillip M. Hash, “Remote Learning in School Bands During the COVID-19 Shutdown,” *Journal of Research in Music Education* 68, no. 4 (2021): 382, <https://doi.org/10.1177/0022429420967008>.

⁷⁶ John W. Creswell and J. David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. (Thousand Oaks, California: SAGE Publications, Inc., 2018), 198.

the questionnaire provided to research participants was collected to conclude how remote collegiate instrumental courses may best be taught in the future. Furthermore, conclusions can be drawn from the participant responses that allow universities to understand better how remote instrumental courses can be incorporated into the course offerings of a music program.

CHAPTER FOUR: RESEARCH FINDINGS

Introduction

The responses from several university professors and students from Pennsylvania, New York, and New Jersey give insight into the impact of remote instruction for collegiate instrumental courses. Survey participants shared their experiences and opinions of remote learning in virtual courses and their suggestions for the future of remote instrumental education. The answers represent experiences from various universities throughout the United States of America. The findings of this research study are displayed by written answers and numerical values that reflect the responses of the professors and students. A complete list of survey questions can be found in *Appendix B*.

Findings from Professors/Instructors

The following data represent participants who instructed instrumental performance courses remotely during the COVID-19 pandemic. The questions that were asked of the collegiate instrumental instructors who qualified for and participated in the survey are listed in *Appendix B*.

The findings compiled from the survey responses are reported by participant responses and data that reflect the answers to each question. Question 1 reports the teaching responsibilities of the professors surveyed.

Question 1: Do you teach and ensemble or instrumental studio course?

- a. Ensemble
- b. Instrumental
- c. Both

The teaching responsibilities of the course instructors are displayed in Table 1.

Most of the professors surveyed primarily teach an instrumental studio course.

Table 1: *Professor/Instructor Courses*

Course	Number	Percentage
Instrumental Studio	11	41%
Instrumental Ensemble	7	26%
Both Studio/Ensemble	9	33%
Total	27	100%

The following questions further address the teaching responsibilities of the instructor survey participants. Additionally, the survey participants share if they have previously held teaching responsibilities in remote classrooms.

Question 2: If you teach an instrumental studio course, which instrument(s) do you teach?

Question 3: Please name the course(s) you teach (i.e., Symphonic Band, Chamber Orchestra, Jazz Band, Wind Ensemble, Marching Band, Electronic Music Ensemble, Oboe Studio, Flute Choir, Brass Quintet).

Question 16: Did you have experience teaching instrumental courses remotely prior to the COVID-19 Pandemic?

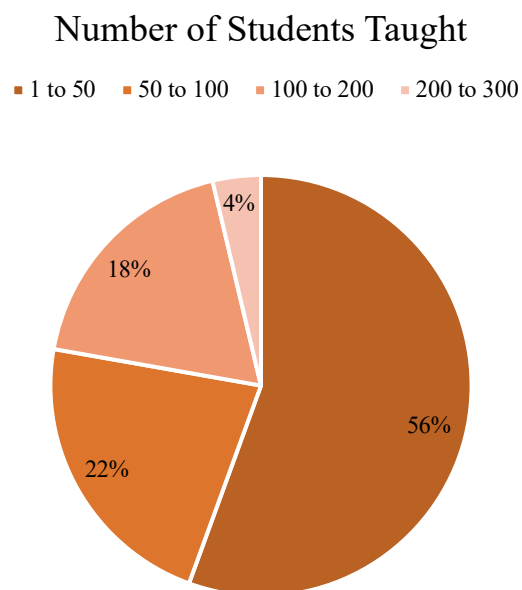
The instruments taught by the survey participants include flute, oboe, clarinet, tuba, trumpet, violin, piano, saxophone, and viola. Courses taught by the participants include but are not limited to Clarinet Techniques, Orchestral Repertoire and Pedagogy, Applied Tuba and Euphonium, Violin Studio, Concert Band, and Viola Studio. A total of 27 course instructors were surveyed, 26% of whom noted that they had experience teaching remotely before the COVID-19 pandemic.

Question 4: Approximately how many students do you teach instrumental music courses to in a typical semester?

- a. 1-50
- b. 50-100
- c. 100-200
- d. 200-300
- e. 300-400
- f. 400-500
- g. More than 500

The number of students taught by each professor is represented in Table 2. Over half of the instructors surveyed teach between 1 and 50 students per semester.

Table 2: *Number of Students Taught*



The Transition from In-Person Learning to Remote Learning

Course instructors who participated in the survey were asked to describe the transition from in-person learning to remote learning. This includes transferring in-person courses to an online learning platform at the pandemic's beginning. The survey participants were asked to describe the process of moving the classroom online. Question 5 determines how instructors

approached the loss of in-person performances and rehearsals and if they attempted to replicate them with online teaching or provide an adapted course curriculum through instructional methods such as lectures or guest speakers.

Question 5: When you began teaching your instrumental courses remotely, did you attempt to continue performances and rehearsals, or did you opt to teach lecture-style classes?

Below are select responses from survey participants.

Professor 1: Lecture style, which shifted to uses of PowerPoints and videos, as in Spring of 2020. Not all students had access to their instruments. In 2020-2023, we were completely virtual. I couldn't always hear students but felt like they were getting the teaching side of the material.

Professor 2: I continued rehearsals in small groups virtually.

Professor 3: I taught online lessons but struggled at first to ensure that all of my students had adequate technology to participate.

Professor 4: We participated in score study as a large-group ensemble. Students had assignments that required them to research composers and compositions, and we came together as a group to discuss their answers. We also had guest speakers.

Institutional Support During the Transition to Remote Learning

Questions 6 and 7 analyze the support that instructors received when transitioning to an online learning platform. The survey participants shared the amount of support that their individual institutions provided.

Question 6: Did your institution provide support when learning to use online teaching platforms? What was the most helpful support that you received?

The transition to online learning required guidance from each institution regarding implementing online learning. Survey participants were asked to describe whether or not they felt supported in this implementation process by their institution. Survey participants answered in the following ways.

Professor 1: Yes, I was supported with Zoom access, although I opted for Google Slides and linked to Moodle many resources for students to utilize.

Professor 2: Nope, I had to figure it out on my own.

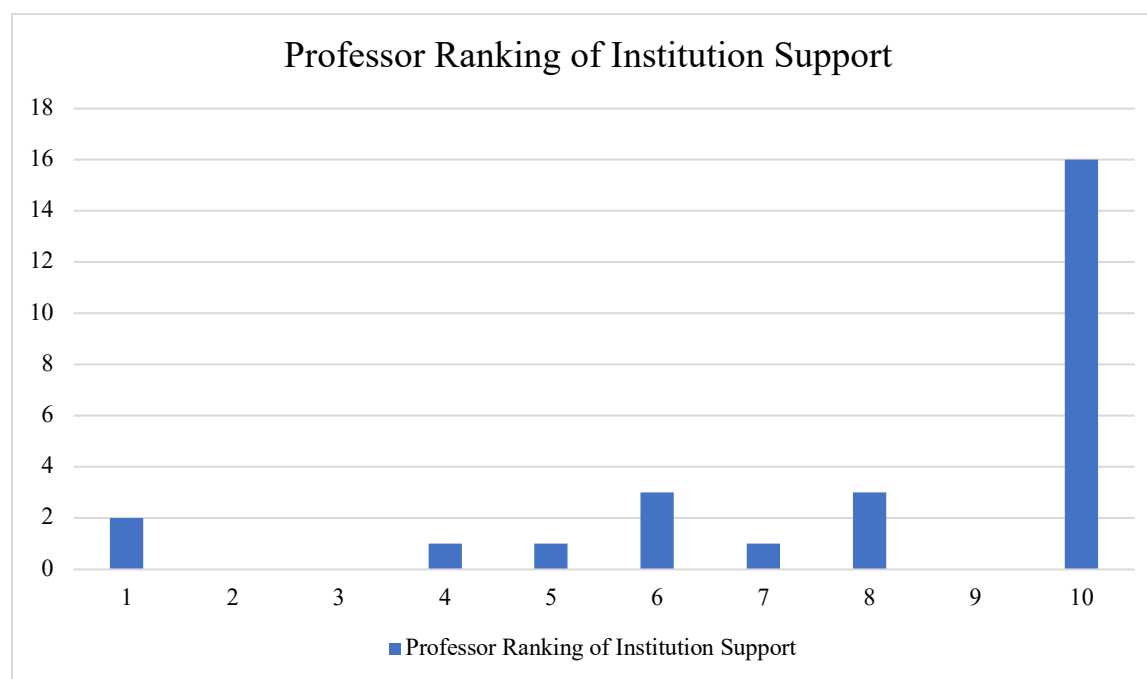
Professor 3: Yes, I was supported because Zoom was offered. But the School of Music recommended Skype.”

Professor 4: I felt more supported in my group of colleagues than the institution as we worked together to discover how to teach music online.

Question 7: One a scale of 1 to 10 where 1 is not supportive at all and 10 is the most supportive possible, how supportive was your institution’s music department in helping you to transition your course to an online learning platform?

Table 3 represents the amount of support that survey participants felt they received from their institution during the implementation of remote learning on a scale of 1 to 10 where 1 is the least support and 10 is the most support. Most professors, 59%, ranked the level of support received from their institution as 10.

Table 3: *Professor Ranking of Institution Support*



Technology for Remote Learning

In Question 8, survey participants shared the course of action to select technology for remote learning. The participants shared if they were required to use certain technology regulated by their institution or selected their own technology.

Question 8: How did the music department of your institution decide which video and audio devices to use when teaching instrumental courses remotely?

The technology utilized to teach by course instructors varied depending on the needs and availabilities of each institution, group of students, and course requirements. When asked how each institution selected the method and program for online teaching, the professors responded in the following ways.

Professor 1: We were provided a microphone to enhance our side of the process and microphones were provided for the students. I also borrowed a webcam [from the university] for teaching at home.

Professor 2: It was entirely up to us at first, but most professors settled on Zoom and that became the norm for our institution.

Professor 3: The institution selected Skype based on popularity. Individual professors could decide if they wanted to require their students to utilize additional audio equipment. I asked many of my studio students to get high-quality microphones and allowed them to borrow an extra if they needed it.

Question 9 allowed course instructors to share the experience of themselves and their students regarding the use of technology. Survey participants were asked if they experienced difficulty adjusting to the technology used in remote learning.

Question 9: Did you or your students experience difficulty learning how to use technology when switching to an online instructional method for instrumental courses? For example, the use of technology or adjusted settings to optimize sound.

As the professor and students utilized the technology, some participants in remote learning had difficulty adjusting to the new use of technology to learn and teach music while others did not. Many professors surveyed agreed that there was some level of difficulty, either for them or their students, when adjusting to the technology of teaching and learning music remotely. One professor stated, “The drawback to all Zoom teaching was we didn’t have a sense of dynamic usage,” another wrote, “The settings were difficult to get correct.”

The Impact of Remote Learning on Teaching and Learning Styles

Curriculum Adaptations for Remote Learning

In addition to navigating new teaching and learning technologies, professors were also required to change the curriculum to teach remotely. Question 10 asked instructors to recall what adjustments were made to instructional styles to teach online courses effectively.

Question 10: What major adjustments did you have to make to your course curriculum transitioning to remote instruction? (i.e., focusing on score study rather than rehearsal on instruments)

Online learning did not allow for the same curriculum or teaching practices as in-person learning because students and teachers were at a distance from one another and could not rely on face-to-face instruction or rehearsal. Instructors were asked how they adjusted their curriculum to online learning throughout the COVID-19 pandemic and answered with the following responses.

Professor 1: I had to adapt my lesson styles to teach effectively. I could not just teach lecture-style my students as a replacement for ensemble rehearsals. I had to actively engage them in the learning process through group discussions and projects related to the music they would have been rehearsing.

Professor 2: Once I got the hang of it, content was the same, delivery was different. I had to utilize multiple cameras for clarinet techniques and Repertoire and Pedagogy. I brought in guest speakers of utilized slide presentations and videos I made or found online.

Performances During Remote Learning

One major adjustment from in-person to remote learning for instrumental courses is the lack of ability to have in-person synchronous rehearsal and performance. Question 11 determined how professors replaced in-person performances in the online classroom. In Question 13, survey participants were also asked to share how remote performances and the lack of in-person performances might have impacted post-pandemic in-person performances.

Question 11: Did you find a successful substitute for synchronous instrumental performance or rehearsal in remote learning?

All professors agreed that there was no perfect substitute for in-person synchronous playing, and one professor stated that pre-recording and synchronous playing of the videos was the most successful way to adjust to remote learning. Another professor stated, “Virtual learning for music is not a substitute for collaboration with others in real time and space, but we made it work the best we could. Participation was difficult, and getting students to keep cameras on and be engaged was difficult.”

Question 13: How were performances impacted by remote learning at your institution? (i.e., no in-person audiences, more opportunity for viewers with live-streaming, smaller in-person audiences post COVID-19)

Instructors were also asked to describe how performances took place at their institution during online learning to replace in-person performances with a live audience. Survey participants shared the following responses.

Professor 1: We had no audiences and recorded videos were used for performances.

Professor 2: The only performance options for our college during remote learning were outdoor performances.

Professor 3: No in-person audience for student recitals. Faculty members could be present while others were livestreamed. However, in 2021-2022, we saw a return to live audiences. However, the livestream still exists, and it has been difficult to get students to return to the concert hall to hear concerts.

Changes in Student Motivation During Remote Learning

In addition to playing and performance practices changing with the introduction of online learning, course instructors also had to navigate changes in the learning styles of their students. In Question 19, professors shared whether or not they noticed a decrease in the motivation of their students during remote learning.

Question 19: Did you experience a decrease in student motivation when teaching your course(s) online when compared to in-person learning? (i.e., participation, amount of individual practice, assignment completion)

Certain survey participants also shared the impact of remote learning on student motivation. Instructors were asked if they experienced decreased student motivation when teaching courses online compared to in-person learning. An instrumental studio and chamber ensemble director shared the following response.

Professor 1: Yes, participation was difficult - getting students to keep cameras on and be engaged was difficult. Students have stated that most of the time they were checked out with so many online courses. They just couldn't sit for that long and absorb course after course over the computer. Virtual learning for music is not a substitute for collaboration with others in real-time and space, but we made it work the best we could. Students returning in 2021-22 were grateful for their ensemble returns and playing in person for others. Many questions if we really needed to be fully remote as we had, but also the consequences and health risks of not going that route are unknown.

The Future of Remote Learning

As fewer institutions required remote instruction after the COVID-19 pandemic, professors were required to navigate the transition back to in-person learning. In Questions 12, 14, and 15, survey participants were required to analyze how courses transitioned from online to in-person and how hybrid learning has been integrated into the course curriculum.

Question 14: What strategies did your institution use to transition from fully remote instruction back to in-person instruction? (i.e., small group ensembles, established days for in-person instruction and remote instruction, use of practice rooms to record performances)

One professor shared, “When returning to in-person teaching in Fall of 2021, the biggest concept we had to overcome was filling a large room-students were used to playing in small rooms to microphones that were hypersensitive.”

Question 12: Were or are you required to teach your course(s) both remotely and with hybrid instruction? If so, which do you feel is more difficult? Why?

Question 15: Does your institution still offer or require remote or hybrid learning for instrumental courses? If so, has the number of remote or hybrid courses decreased since the return to in-person learning?

While many schools returned to in-person learning, there is still a possibility of teaching hybrid courses where some students are in the classroom and others are remote. When asked if remote or hybrid learning was more difficult, one professor answered, "Hybrid is the worst." The professors surveyed also shared that remote learning is no longer the norm at their institutions but is still present for some. A clarinet professor stated, “Mandates were dropped in 2021-2022. While some professors or students still wear masks, there are no more mandates, and all learning is now done in person.” A chamber ensemble director stated, “We can offer students to Zoom into a class session if they are absent or have Zoom meetings outside of class session times, but overall, we are back to in-person learning. There are no more requirements for remote learning. Of course, we still have our online courses that were present prior to the pandemic.”

In Questions 17, 18, and 20, the course instructors were asked to share their conclusions following the experience of teaching remotely. Professors shared what technology and online learning platforms they believe best apply for teaching remote instrumental ensembles and what challenges are specific to the remote instrumental classroom.

Question 17: What audio equipment do you find to be the best for teaching and learning purposes in your course(s)? You may include specific brands and models of technology.

Question 18: Which online learning platform has been the most successful for you when teaching instrumental courses remotely? (i.e., Zoom, Google Meets, Skype, Microsoft Teams)

Question 20: What was similar and different about the challenges of reaching remote instrumental instruction versus remote vocal instruction?

Despite the decrease in mandated remote learning following the COVID-19 pandemic, online learning still has the potential to be utilized by professors and institutions going forward. Professors shared their insights for the implementation of successful remote teaching in response to their experiences during the COVID-19 pandemic. All the professors surveyed agreed that a reliable form of technology is a key factor in successful online teaching. A jazz ensemble instructor shared, “Vocalist share similar challenges as instrumentalists when participating in online ensembles. However, with instruments, many different types of instruments and timbres must be balanced. This could potentially be more difficult than balancing voices. Audio settings should be adjusted for each individual student, regardless of instrument or voice.” Regarding the most effective technology for teaching instrumental courses remotely, a tuba professor wrote that “stereo speakers and a high-quality microphone” are necessary. A clarinet studio professor agreed stating, “A good microphone, web camera, and a computer that can process video and audio feeds without bogging down” are needed. That professor continued to share, “Being hard wired” is better than Wi-Fi or Bluetooth devices. The virtual meeting and teaching platforms that were ranked the best by professors were Skype, Zoom, and Facetime, with 66.7% of the professors selecting Zoom as the superior platform.

Survey participants were asked what experiences in remote learning aid the future of both online and in-person learning. One professor shared that it is important for instrumental and vocal music courses to ensure that sound quality and the ability to hear others in the course are top priorities. A flute studio professor responded: “Returning was a challenge, while it was what

we know, we found new ideas through remote instruction. I was placed in a classroom with no projector or audio capabilities, I realized I had relied heavily on these even pre-COVID.”

The final survey questions asked professors if they believe that remote instrumental teaching is possible in the future and if so, what needs to be considered when implementing online learning in the future.

Question 21: In your opinion, do you believe that there is future possibility of remote instrumental ensembles?

Question 22: In your opinion, do you feel that instructions should offer remote and/or instrumental courses to students who may be online learners or learning from a distance?

Select survey participant answers are shared below.

Professor 1: Maybe there is a future of remote learning, but I feel that remote ensembles are not ideal.

Professor 2: I do not see a future of remote instrumental ensembles until we can feel like we are sitting next to the other people we are playing with in a remote ensemble – there can be no lag or delay because ensemble is based on reaction and blending to one another.

Professor 3: Yes! If given correct support, training, and resources.

Professor 4: Distance learning is a great option if the technology exists and supports real-time collaboration when playing an instrument or singing. Currently, there is still a significant delay on all platforms except potentially the internet.

With these considerations, the future of remote learning can be most successful based on online learning experiences during the pandemic. The professors' reactions support the future of remote learning at the collegiate level.

Findings from Students

The following data represent participants who were students in remote instrumental performance courses during the COVID-19 pandemic. Students shared their experiences and takeaways from their participation in remote instrumental courses. The survey findings are

reported through numerical data and narrative responses. The full list of questions that were asked of the collegiate instrumental students who qualified for and participated in the survey are listed in *Appendix B*.

To begin the survey, student participants were asked to share what instruments they play and what courses they received remote instruction in during the 2020-2022 COVID-19 Pandemic.

Question 1: Which instrument(s) do you play/receive instruction on?

Question 2: Which instrumental courses have you been enrolled in remotely? (i.e., Symphonic Band, Chamber Orchestra, Jazz Band, Wind Ensemble, Marching Band, Electronic Music Ensemble, Oboe Studio, Flute Choir, Brass Quintet)

The students include oboe, piano, saxophone, violin, trumpet, guitar, clarinet, and flute performers. The students also participated in various courses including studio lessons, Woodwind Quintet, Symphonic Wind Ensemble, class piano, and Philharmonic Orchestra. The total number of students surveyed was 30.

The Transition from In-Person Learning to Remote Learning

Learning Styles During Remote Learning

When transitioning from in-person to remote learning during the COVID-19 pandemic, students were required to make several changes to their learning styles. Students could no longer receive face-to-face instruction but had to adapt to receiving instruction virtually. One of the most essential skills students need when transitioning from in-person learning to remote learning is understanding technology. Survey participants were asked to share whether or not they experienced difficulties when learning to participate in an online classroom.

Question 6: Did you experience difficulty learning how to use technology when switching to an online instructional method for instrumental courses? For example, the use of technology or adjusted setting to optimize sound.

Select responses are shared below:

Student 1: Personally, I did not experience much difficulty with adapting to the technology. Luckily, I've had some exposure to similar software and resources throughout my life.

Student 2: I did not have any difficulty; however, I feel like the biggest challenge was working with instructors who did not understand technology.

Student 3: Yes, I had difficulty with microphones.

Institutional Support During the Transition to Remote Learning

In Questions 3, 4, and 5, student participants shared their access to technological support during remote learning that their institution offered or received.

Question 3: Did your institution provide support when transitioning to an online learning platform? What did you feel was the most helpful if you received support?

Question 5: Did your institution provide support for obtaining the necessary technology for remote learning? (i.e., Zoom, internet, microphones, speakers, cameras)

The student survey participants were also asked to describe the amount of support they received from their institution and professors when adapting to the technology of online learning.

The following responses display the various levels of support provided by the students' schools.

Student 1: I felt like I was lucky because my school was a research university, so they provided resources like Zoom which was really amazing.

Student 2: They offered funding to purchase mics. However, the process of learning instruments had little to no help, and it was very hard to retain musical growth.

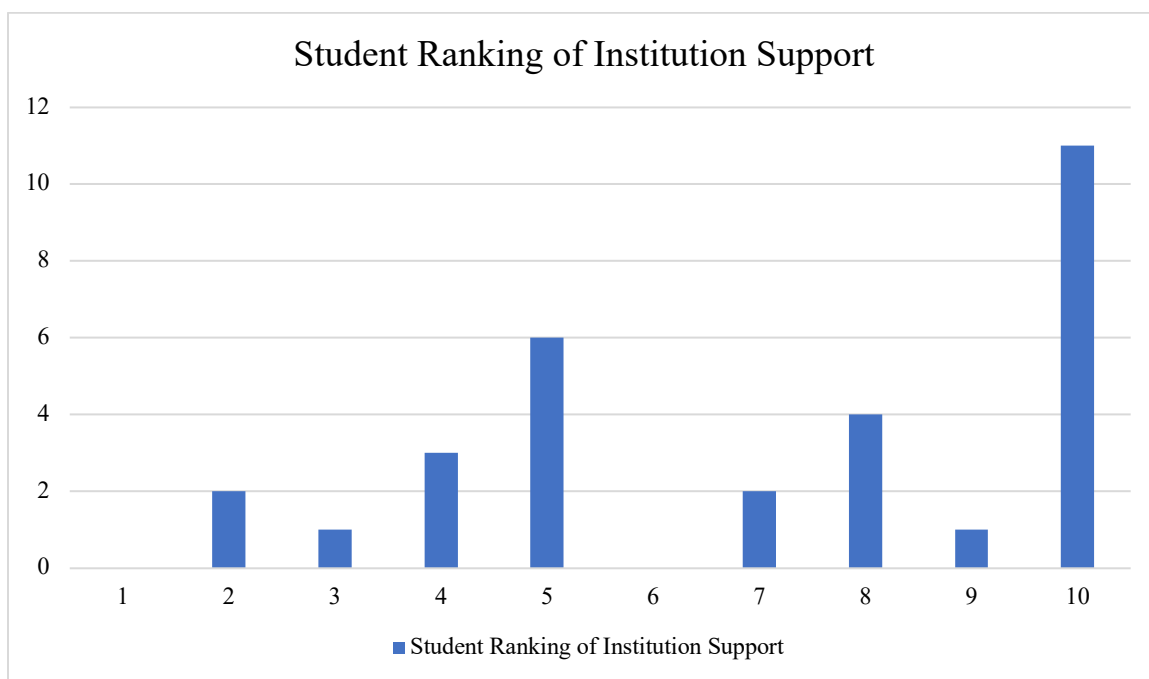
Student 3: Luckily, I did have a laptop that was able to function, but they were able to cover the cost of Zoom.

Student 4: They had a limited time option where they would provide funding for mics (I missed this) however, I bought the same mic they offered and ended up doing an upgrade to a full professional setup anyways and self-taught myself how to do recording and live video.

Question 4: On a scale of 1 to 10 where 1 is not supportive at all and 10 is the most supportive possible, how supportive was your institution's music department in helping you to transition to an online learning platform?

Table 4 represents the amount of support that students felt they received from the university when transitioning to online learning, where 1 is the least amount of support and 10 is the most amount of support. The majority of students, 60%, ranked their school's level of support at 5 or higher.

Table 4: *Student Ranking of Institution Support*



The Impact of Remote Learning on Learning Styles

Students had to not only adjust to the switch from in-person instruction to the sole use of technology for instruction but also to a learning experience where they were isolated from their peers. In Questions 7, 13, and 14, the students shared how their learning, practicing, and performing methods were impacted by remote learning.

Question 7: Did you experience a lack of motivation when learning remotely when compared to in-person learning? (i.e., participation, amount of individual practice, assignment completion)

Question 13: How did your practice and performance methods change during remote instruction? (i.e., practicing more or less than you did prior to remote learning, practicing different repertoire, focusing on score study)

Question 14: Did you experience an impact on your playing practices from a decrease in large group rehearsal time?

One student, who did not have trouble adjusting to the use of technology shared, “It was certainly a social adjustment for me!” Students also had to navigate the motivation to learn without the in-person motivation from their instructors and peers. The students were asked to share if they lacked motivation during remote learning. The following responses share the changes in learning that students experienced during COVID-19 remote learning.

Student 1: Yes! I experienced a lack of motivation!

Student 2: No, it was actually a time where I was extremely motivated and grew musically the most in college because I finally had the free time to practice and take care of myself.

Student 3: Not really, actually.

Student 4: I think I practiced more music I actually enjoyed! Some days I would play movie melodies or try to learn a theme from memory, however, I did miss communicating with others and playing in groups. I think my awareness for listening, group performance and ensemble playing improved greatly because I missed it!

Student 5: I practice more based on my career goals and not the standard “prepare for an orchestra audition” routine anymore. Since I integrated two careers, I spend lots of time perfecting my sound for arrangements and recordings.

Student 6: I think I was lucky because my school tested [for COVID-19 infection] we were able to do certain chamber classes which allowed me some really unique orchestra and band performances! But if I hadn’t had those experiences, I think I would’ve noticed a huge impact on my playing and performance skills!

Performances During Remote Learning

Changes did not only occur while learning course content during online learning but also in performances. Because collegiate instrumental courses focus greatly on face-to-face performances, both solo and large group, online learning could not provide the same experiences to students compared to in-person learning. Student survey participants were asked in Question 8

to share how performances were impacted and what effects, if any, the lack of in-person performance had on their learning experiences. The following answers display the experiences of certain students.

Question 8: Did you participate in remote performances? What were the benefits and drawbacks that you experienced for these performances? (i.e., no in-person audience, more opportunity for viewers with live-streaming, smaller in-person audiences post COVID-19)

Student 1: I did participate in a few remote performances and certainly felt a bit distanced to my usual experiences. Sometimes it's hard to connect through the camera and recordings/audio of oboe isn't always so friendly on the other end.

Student 2: I still participate in them [online performances] to this day. It's extremely beneficial because I'm able to collaborate with musicians from all over the world, connect with a wide audience, and kickstart my marketing and music career.

Student 3: It was hard with no audience.

These responses highlight the perspective that while performances may be available to view with online learning, the performance quality may be impacted by technology or the lack of face-to-face performance.

Hybrid Instruction

Hybrid learning, where some students participated in the physical classroom, and others were online, was also experienced by all the student survey participants. The students were asked in Question 9 to compare the experience of hybrid learning compared to remote learning.

Question 9: Where or are you required to learn both remotely and with hybrid instruction? If so, which do you feel is more difficult? Why?

One student wrote, "I feel like hybrid was more difficult because I had to switch between the two throughout the day." Another student shared, "I did enjoy the hybrid instruction much more because it still provided a physical element despite the trying times. I think if I was only remote, I would've had an extremely challenging time."

The Future of Remote Learning

After describing their experiences with remote learning during the COVID-19 pandemic, students were asked in Question 10 to share suggestions and implications for future remote learning as a response to what they encountered during their time in the online classroom.

Question 10: Does your institution still offer or require remote or hybrid learning for instrumental courses? If so, has the number of remote or hybrid courses decreased since the return to in-person learning?

Students were first asked if their institutions still offer remote learning. One student shared, “Yes, I do believe almost all courses have switched to in-person now, but I understand hybrid is becoming more popular and common now!” A piano student wrote, “My current one does not do any remote learning. We have recorded meetings if we miss class but not much beyond that.”

Because all student survey participants agreed that reliable and high-quality technology is necessary for successful online instrumental learning, the participants shared advice for using technology in the future of remote learning. The students were first asked in Question 11 what audio and video equipment they believe most succeeded in their online learning experiences.

Question 11: What audio equipment do you find to be the best for teaching and learning purposes in your experience with remote learning? You may include specific brands and models of technology.

Student responses included:

Student 1: I was sort of cheap over the pandemic and utilized whatever I had on hand such as ear bud headphones with microphones attached. I’m sure if I had some better equipment, it could’ve provided some great results!

Student 2: I now teach my instrument remotely as well as doing professional recording, so I invested in a setup. I bought a professional recording desk with a slide out compartment for my midi keyboard. I use an AKG P220 microphone as well as a Scarlet Solo and I additionally have sound panels and a stereo system.

Survey participants were also asked to share what difficulties might be present in remote instrumental course when compared to other courses.

Question 12: What challenges do you believe are specific to remote instrumental instruction that other courses may not experience?

When asked how audio challenges may be specific to online instrumental courses, a student shared, “The sound quality and ability to genuinely hear and be able to play together is different for every instrument. With vocal courses, the professor can give all students similar advice to adjust their singing for remote music-making, but with instruments, every instrument sound can have different tendencies on video.”

In addition to suggestions for technology use, students shared suggestions for future remote learning for professors to ensure that students are properly supported in the online learning experience. Students analyzed the successful online teaching methods of their professors in Question 15.

Question 15: What were the most helpful teaching methods that your professor used during remote and hybrid instruction?

One student explained a positive teaching method that was experienced. They wrote, “I was really pleased with my professor’s ability to assess and work with my own findings despite of digital boundaries! My technique really improved, and he was able to call me out on things I thought the computer would hide!” This response highlights the importance of professors thoroughly evaluating and instructing student playing, even if the teaching is taking place virtually or at a distance.

Suggestions for Future Remote Learning

Students shared in Question 16 potential advice that they believe should be given to students, instructors, and institutions when moving forward with online learning.

Question 16: What suggestion(s) would you give to a student who plans to enroll in a remote instrumental course?

The following responses highlight the most important principles to keep in mind, according to the student survey participants.

Student 1: Especially with music there are lags in technology and even blips in recordings. Not to mention things may sound different over the computer than in real life. One of the biggest issues though would be seeing habits or techniques that are quick to spot in person but almost impossible to tell over the computer. Such as finger position, breathing, body angle, etc.

Student 2: Sound is so important. Students need to be taught properly how to set up their sound and audio as well as teachers. Another challenge is abuse of time. I noticed instructors going even hours over the allotted class or lesson time which is not okay.

Student 3: I would advise that they [remote students] have a good sense of self awareness. Sometimes it's easy to mask things over the computer or in a recording and I think always being honest with yourself will allow you to properly assess and get what you need out of a remote class. It's a great tool and resource, but it can be easily misused if you don't want to get the full affect! Take advantage of the unique opportunity and don't let things slide just because it's "only Zoom."

Finally, student survey participants shared in Questions 17 and 18 if they believe remote learning is a viable option for the future of collegiate instrumental learning.

Question 17: If given the option, would you enroll in a remote instrumental course again? Why?

Question 18: In your opinion, do you believe that there is a future possibility of remote instrumental ensembles?

When asked if they would participate in a remote instrumental ensemble if given the choice, one student wrote, "If I needed to I would! I love in-person classes for music specifically, but I think online remote learning is a great resource that provides easy access to so many people! It's also a great tool for any illnesses or travel issues that may come up!" In contrast, another student wrote, "No, because I find it challenging to work with instructors who are not used to it. But I am okay with teaching remotely and I believe that Gen-Z will effectively be able to bring back remote learning one day."

Student survey participants further detailed their outlooks on the future of remote instrumental courses in Questions 19 and 20. Participants shared if they believe the future of remote instrumental courses can be successful and how the presence of remote instrumental ensembles can provide opportunities for future students.

Question 19: In your opinion, do you feel that institutions should offer remote and/or instrumental courses to students who may be online learners or learning from a distance?

Question 20: In your opinion, did the remote instruction that occurred during the COVID-19 provide a greater or lesser number of opportunities for students to be involved in instrumental learning at the collegiate level? Consider the opportunities for current learning and future learning.

100% of the students surveyed shared that they believe there is a future possibility of remote ensembles. However, each shared what they believe is necessary for an effective and successful future of remote instrumental ensembles and courses. An orchestra student cautioned that “Instructors need to be trained properly in online learning” to have successful remote orchestra courses. A student shared a hopeful outlook for remote learning in their final survey question response. They wrote:

In a way it [remote learning] sort of disrupted many people’s plans, goals and ideas. However, people are amazing and extremely adaptable. In the long run it taught us all many valuable lessons I don’t think we were planning to learn! I know I’ve been changed for the better and I think the realization of remote learning has opened so many doors for so many people! I think it’s an incredible opportunity for people who may be in tough situations, unable to move somewhere else or maybe need to be in a remote learning environment. I think it also made some people realize they may be paying too much for the physical location of college as well. That being said, I do think there is something so special about being able to perform with others in a group or intimate setting.

Summary

The responses of students and professors who participated in remote instrumental learning courses during the COVID-19 pandemic provided valuable thoughts and experiences that show the impact of the transition from in-person to online learning. The experiences also

allowed the survey participants to craft their own suggestions and prospects for the future of remote learning. All the responses allow for the analysis of how remote learning during COVID-19 impacted the students and professors involved.

The findings of this research study highlight key takeaways regarding the experiences of professors and students in remote learning thus far and the future of online learning in higher education. Students and professors agreed that there was a lack of preparation during the initiation of remote learning during the COVID-19 pandemic and shared the importance of support for technology and course material from their institution. Additionally, the survey participants shared a positive outlook for remote learning if the needed support was provided and participants in the online classroom understood what is expected. For example, the differences between the in-person and remote classroom and the expectations for achieving academic success on a new learning platform. The survey responses provide information for how remote learning can successfully occur in future collegiate instrumental courses through the reflection of remote learning experiences thus far.

CHAPTER FIVE: CONCLUSIONS

Introduction

This chapter summarizes the conclusions drawn from the research study and the significance of the research findings. The implications for practice and recommendations for future studies based on the research findings are also highlighted. The conclusions provide insight into the future of remote collegiate instrumental learning.

Summary of Study

The focus of this research study was to determine the impact of remote learning on collegiate instrumental courses. Three research questions were developed to specify what elements of remote learning would be highlighted in the study. Research question one focused on how in-person courses were adapted for remote learning. Research question two asked what changes occurred in students' learning styles in the transition from in-person to remote learning. The final research question asked what challenges and benefits of remote learning were experienced by college students and instructors. Existing literature on online music learning was studied to examine how remote learning has taken place in music courses and what learning and teaching methods exist for remote learning. Following the literature review, the researcher developed a survey to confirm or deny the hypothesis of the research questions. The survey questions were addressed to university students and instructors who participated in remote learning during the COVID-19 pandemic. Survey responses were compiled to determine how remote learning impacted collegiate instrumental courses and what teaching and learning suggestions and strategies will be effective for the future of remote instrumental learning.

Summary of Findings and Prior Research

Research Question One

The findings of this research study concluded that in-person lessons and ensemble rehearsals were adapted for online learning using technology. This technology included video conferencing platforms such as Zoom and Skype and audio-sharing devices such as microphones. Each survey participant shared, however, that the online courses did not perfectly replicate the ability to play instruments in a large, collective manner as in-person learning allows. Despite this drawback, the courses experienced by the survey participants were able to continue by utilizing audio and visual technology either provided by the university or acquired by the student or instructor. Additionally, the instructors who participated in the survey confirmed that lessons and studio classes could continue to be taught as they were in-person using a video conferencing platform. Students were able to play for their instructors, and peers received real-time feedback and suggestions for improvement. These responses of the survey participants confirm the prior research. Hernández, in a study that examined online instrumental lesson courses, adds to these findings and the future of technology in remote learning. It is stated that “Improvements on the resources currently available are to be expected with the development of technology, as well as an increase of the range of options to carry out online instrumental lessons.”⁷⁷ Hernández suggests, “Both teachers and institutions shall stay tuned for ongoing changes on the technology available and keep refreshing their knowledge of the field.”⁷⁸

⁷⁷ Ana Martínez Hernández, “Online Learning in Higher Music Education: Benefits, challenges and Drawbacks of One-to-One Videoconference Instrumental Lessons,” *Journal of Music, Technology & Education* 13, no. 2 & 3 (2021): 192, doi:10.1386/jmte_00022_1.

⁷⁸ *Ibid.*, 192.

Research Question Two

The responses of the survey participants determined that the transition to remote learning impacted student learning styles. Students felt both grateful and discouraged by the remote learning that took place during the COVID-19 pandemic. Some survey participants shared that they were able to turn their attention towards other aspects of their musicality, such as practicing new pieces that they did not have time to focus on while adhering to the time commitments of in-person learning. Other student survey participants shared they felt a lack of motivation due to the loss of face-to-face communication that was lost with remote learning. All participants agreed, however, that whether or not there was a lack of motivation for learning, they missed the relationships and collaborations that were lost to online learning. Literature by Schiavio and Nijs supports this research finding and suggests a solution. In a study that follows a remote beginning clarinet course, “Participants were actively encouraged to work in pairs or all together, exploiting the potential of technology (e.g., Zoom) in different ways. “Breakout rooms” were used. . .students could chat or greet each other to build a sociable atmosphere, then could discuss the possibilities for creating new exercises, or practice a difficult passage jointly.”⁷⁹ The results of this research study and the findings of Schiavio and Nijs highlight the necessity of collaboration during remote learning and encourage partner, small group, and large group collaboration using technology.

Research Question Three

The positive and negative aspects of online learning that the survey participants perceived were examined to determine how to successfully implement remote instrumental learning. The

⁷⁹ Andrea Schiavio and Luc Nijs, “Implementation of a Remote Instrumental Music Course Focused on Creativity, Interaction, and Bodily Movement. Preliminary Insights and Thematic Analysis,” *Frontiers in Psychology* 13, (2022): 3, <https://doi.org/10.3389/fpsyg.2022.899381>.

research study concluded that remote learning can have challenges when implemented without preparation, as it was for many of the survey participants. Because students were not expecting to participate in remote learning during the COVID-19 pandemic, they had to navigate the loss of their in-person learning experience and adjust to the online learning technology. However, survey participants agreed that when anticipated and prepared for, remote learning can provide learning opportunities for students at a distance from an institution or their peers. These findings that highlight the positive outcomes of remote learning support the previous research presented by Rucsanda, Belibou, and Cazan. It was found that “The accessibility and flexibility of courses, portability, and receptivity, with students having the opportunity to access courses anytime and anywhere reduce travel, accommodation and study costs on campus.”⁸⁰ Additionally, “Due to the use of technology, new skills can be developed.”⁸¹ Survey participants suggested that students who participate in remote learning in the future be prepared with appropriate technology and a mindset that remote instrumental learning is as important as in-person learning.

Limitations

The conclusions of this research were limited to the participants and literature that was available before publication. This research study was limited to the experiences and opinions of select professors and student participants at United States-based institutions. Additionally, this study focused on remote learning in collegiate instrumental courses. In order to gather a more varied perspective of remote learning during the COVID-19 pandemic, the research would include surveying participants from international universities. Furthermore, to gain a greater

⁸⁰ Mădălina Rucsanda, Alexandra Belibou, and Ana-Maria Cazan, “Students’ Attitudes Toward Online Music Education During the COVID 19 Lockdown,” *Frontiers in Psychology* 12, (2021): 8, <https://doi.org/10.3389/fpsyg.2021.753785>.

⁸¹ *Ibid.*, 8.

perspective of the impact and experiences of remote learning on instrumental courses, the study would also expand to middle and high school instrumental courses. Finally, widespread remote instrumental learning due to the 2020-2022 COVID-19 pandemic was relatively new at the time of this study. Future research will allow for more information and findings regarding remote instrumental learning.

Recommendations for Future Study

Based upon the limitations of the research study, it is suggested that future research focuses on remote instrumental learning at all levels, not exclusively in higher education. Additionally, a more detailed study on all available technology would add to the findings of this research study as it was found that functional and reliable technology is needed for remote music learning. Future studies can also provide further research on how institutions implemented remote learning after most students returned to in-person learning after the year 2022. Finally, to provide more information regarding remote music learning, additional research is required to understand how the transitions between in-person and remote learning impacted collegiate vocal ensembles and collegiate instrumental ensembles. By understanding the recommendations for future study and the limitations of this research study, future researchers will provide greater findings and insight into the topic of remote music learning.

Implications for Practice

The findings of this research study provide key methods that allow for greater success in the future of remote instrumental learning due to the experiences of students and professors during the COVID-19 pandemic. Each survey response provides a different viewpoint of remote learning, contributing to the conclusions informing the education field of how online learning

can be conducted successfully. The fundamental theories that can be drawn from this study are based on the survey responses and the literature review conducted by the researcher.

The first implication for the practice of remote learning is the necessity of support for educators and learners from institutions. Because instrumental courses are typically taught in person, developing, implementing, and sustaining remote instrumental courses requires understanding how online learning differs from in-person learning. It is clear from the study that remote instrumental courses are not taught in the same manner as in-person courses, rather, remote courses require their own technology, teaching methods, and lesson plans that allow students to collaboratively make music while at a distance from their peers and instructors. Support from an institution for remote instrumental courses includes support in providing technology, setting up and troubleshooting technology, providing necessary training for online instructors, and accepting input from students and instructors to adjust, advance, and improve remote instrumental courses.

The second implication for practice for remote learning is the requirement for reliable and appropriate technology for each online course. The survey participants shared that effective technology makes a remote learning course successful. The technology selected for each remote learning course must provide a method for clear audio and visual communication. Additionally, a requirement for the technology is the ability to be adjusted for instrumental performance. Because the sounds, voices and instruments are different and are therefore transmitted differently over audio processing equipment, the technology used for remote instrumental learning must be sensitive to the sounds of instruments. Finally, it is beneficial for remote instrumental courses to utilize technology that allows for collaborative music-making. Whether that is a technology that can overlap playing videos, allow for simultaneous playing, or allows students to play their

instrument on top of a pre-recorded accompaniment, technology that highlights simultaneous music performance provides students with the opportunity to experience music-making with others during online learning as a replacement for the in-person collaborative music-making that takes place during in-person courses.

The third and final implication drawn from this research study is that a successful remote instrumental course requires attention to student learning styles and needs. While remote learning is based on the understanding that there is little to no in-person collaborative learning, students must still be able to connect with one another and their professors. This connection takes place through video conferencing, discussion boards, opportunities for in-person meetings, course blogs, and collaborative projects. Additionally, professors can aid student connections by having students become acquainted with one another when the course begins through a class introduction assignment. While online learning differs from in-person learning with the lack of face-to-face connections, fostering collaboration and relationships between students and staff can keep students engaged with each other and the course material as they share their learning experiences with their peers.

Summary

Creating a successful online collegiate instrumental course requires attention to the needs of those primarily experiencing the course, professors, and students. During the 2020-2022 COVID-19 pandemic, many students and instructors were required to participate in remote learning without prior experience or knowledge of how to do so effectively. Based upon the participants' experiences of online during the pandemic, it was concluded from this research that support for learners and instructors, reliable and effective technology, and support for online collaboration are the key elements for a successful remote collegiate instrumental course. To

execute successful remote learning in the future, institutions must provide these key elements to allow remote learning to be as successful as in-person learning.

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APPENDICIES

Appendix A: IRB Approval


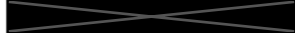

Date: 5-3-2023

IRB #: IRB-FY22-23-406
Title: Remote Learning in Collegiate Instrumental Courses
Creation Date: 10-9-2022
End Date:
Status: **Approved**
Principal Investigator: Beverly Gard
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type	Initial	Review Type	Exempt	Decision	Exempt
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Key Study Contacts

Member	Beverly Gard	Role	Principal Investigator	
Member	Beverly Gard	Role	Primary Contact	
Member	Rebecca Watson	Role	Co-Principal Investigator	

Appendix B: Survey Questions

Survey Questions for Professors

1. Do you teach an ensemble or instrumental studio course?
 - a. Ensemble
 - b. Instrumental
 - c. Both
2. If you teach an instrumental studio course, which instrument(s) do you teach?
3. Please name the course(s) you teach (i.e., Symphonic Band, Chamber Orchestra, Jazz Band, Wind Ensemble, Marching Band, Electronic Music Ensemble, Oboe Studio, Flute Choir, Brass Quintet).
4. Approximately how many students do you teach instrumental music courses to in a typical semester?
 - a. 1-50
 - b. 50-100
 - c. 100-200
 - d. 200-300
 - e. 300-400
 - f. 400-500
 - g. More than 500
5. When you began teaching your instrumental courses remotely, did you attempt to continue performances and rehearsals, or did you opt to teach lecture-style classes?
6. Did your institution provide support when learning to use online teaching platforms?
What was the most helpful support that you received?

7. On a scale of 1 to 10 where 1 is not supportive at all and 10 is the most supportive possible, how supportive was your institution's music department in helping you to transition your course to an online learning platform?
8. How did the music department of your institution decide which video and audio devices to use when teaching instrumental courses remotely?
9. Did you or your students experience difficulty learning how to use technology when switching to an online instructional method for instrumental courses? For example, the use of technology or adjusted settings to optimize sound.
10. What major adjustments did you have to make to your course curriculum transitioning to remote instruction? (i.e., focusing on score study rather than rehearsal on instruments)
11. Did you find a successful substitute for synchronous instrumental performance or rehearsal in remote learning?
12. Were or are you required to teach your course(s) both remotely and with hybrid instruction? If so, which do you feel is more difficult? Why?
13. How were performances impacted by remote learning at your institution? (i.e., no in-person audience, more opportunity for viewers with live-streaming, smaller in-person audiences post COVID-19)
14. What strategies did your institution use to transition from fully remote instruction back to in-person instruction? (i.e., small group ensembles, established days for in-person instruction and remote instruction, use of practice rooms to record performances)
15. Does your institution still offer or require remote or hybrid learning for instrumental courses? If so, has the number of remote or hybrid courses decreased since the return to in-person learning?

16. Did you have experience teaching instrumental courses remotely prior to the COVID-19 pandemic?
17. What audio equipment do you find to be the best for teaching and learning purposes in your course(s)? You may include specific brands and models of technology.
18. Which online learning platform has been the most successful for you when teaching instrumental courses remotely? (i.e., Zoom, Google Meets, Skype, Microsoft Teams)
19. Did you experience a decrease in student motivation when teaching your course(s) online when compared to in-person learning? (i.e., participation, amount of individual practice, assignment completion)
20. What was similar and different about the challenges of teaching remote instrumental instruction versus remote vocal instruction?
21. In your opinion, do you believe that there is future possibility of remote instrumental ensembles?
22. In your opinion, do you feel that institutions should offer remote and/or instrumental courses to students who may be online learners or learning from a distance?

Survey Questions for Students

1. Which instrument(s) do you play/receive instruction on?
2. Which instrumental courses have you been enrolled in remotely? (i.e., Symphonic Band, Chamber Orchestra, Jazz Band, Wind Ensemble, Marching Band, Electronic Music Ensemble, Oboe Studio, Flute Choir, Brass Quintet)
3. Did your institution provide support when transitioning to an online learning platform? What did you feel was the most helpful if you received support?
4. On a scale of 1 to 10 where 1 is not supportive at all and 10 is the most supportive possible, how supportive was your institution's music department in helping you to transition to an online learning platform?
5. Did your institution provide support for obtaining the necessary technology for remote learning? (i.e., Zoom, internet, microphones, speakers, cameras)
6. Did you experience difficulty learning how to use technology when switching to an online instructional method for instrumental courses? For example, the use of technology or adjusted settings to optimize sound.
7. Did you experience a lack of motivation when learning remotely when compared to in-person learning? (i.e., participation, amount of individual practice, assignment completion)
8. Did you participate in remote performances? What were the benefits and drawbacks that you experienced for these performances? (i.e., no in-person audience, more opportunity for viewers with live-streaming, smaller in-person audiences post COVID-19)
9. Were or are you required to learn both remotely and with hybrid instruction? If so, which do you feel is more difficult? Why?

10. Does your institution still offer or require remote or hybrid learning for instrumental courses? If so, has the number of remote or hybrid courses decreased since the return to in-person learning?
11. What audio equipment do you find to be the best for teaching and learning purposes in your experience with remote learning? You may include specific brands and models of technology.
12. What challenges do you believe are specific to remote instrumental instruction that other courses may not experience?
13. How did your practice and performance methods change during remote instruction? (i.e., practicing more or less than you did prior to remote learning, practicing different repertoire, focusing on score study)
14. Did you experience an impact on your playing practices from a decrease in large group rehearsal time?
15. What were the most helpful teaching methods that your professor used during remote and hybrid instruction?
16. What suggestion(s) would you give to a student who plans to enroll in a remote instrumental course?
17. If given the option, would you enroll in a remote instrumental course again? Why?
18. In your opinion, do you believe that there is future possibility of remote instrumental ensembles?
19. In your opinion, do you feel that institutions should offer remote and/or instrumental courses to students who may be online learners or learning from a distance?

20. In your opinion, did the remote instruction that occurred during COVID-19 provide a greater or lesser number of opportunities for students to be involved in instrumental learning at the collegiate level? Consider the opportunities for current learning and future learning.