Community College Instrumental Faculty Using Technology to Engage Remote Learners During a Pandemic

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Abstract
Instrumental faculty include music instructors and directors focusing on teaching specific instrumentation, often in ensemble or orchestra settings. During the pandemic, community college instrumental faculty relied heavily on technology to engage remote learners. Research regarding their experiences currently exists, and a better understanding of what transpired will inform both pitfalls and best practices for using technology in online settings. This study explores how community college instrumental ensemble faculty use technology to engage remote learners during the pandemic years 2020 to 2021. To better understand their experiences when pivoting to remote instruction, the conceptual framework that will be used to analyze the data includes the Unified Theory of Acceptance and Use of Technology (UTAUT) and Kolb's Experiential Learning Model (ELM) to understand how instrumental ensemble faculty overcame their concerns about using the various tools and technology to engage remote learners during the pandemic. The research will address four broad questions: (a) How do community college instrumental ensemble faculty describe their experience transitioning from Face-to-Face (F2F) teaching to an online environment; (b) how do they describe their experience adopting technology; (c) how do they describe their professional development experience supporting their transition to an online environment; and (d) how do they describe the technologies used in their practice? This research aspires to gain and contribute a better understanding of community college instrumental ensemble faculty transitioning from F2F to online instruction, the tools that support them, and potential insights into the types of professional development support needed to help faculty in such transitions.

Keywords: Instrumental Faculty, Community College Ensembles, Technology, Online Instruction, Virtual Learning, Distance Education, Remote Teaching, COVID-19 Pandemic, Professional Development

Introduction

This study explores how community college instrumental ensemble faculty use technology to engage remote learners during the pandemic years 2020 to 2021. A paradigm shift in online learning has impacted the United States and the world because of COVID-19 (Li & Lalani, 2020). While many disciplines have been affected, this shift has rapidly thrust instrumental ensemble faculty, meaning ensemble directors and performance ensemble directors, into an online learning environment where remote learning is vastly different from teaching in the traditional ensemble classroom space. The former requires distinctive pedagogical practices and technical skills, which involve understanding the most effective elements for teaching instrumental ensembles. Moving performance ensembles online requires a teaching philosophy that supports adoption (Johnson, 2016). Johnson (2016) stated that online music pedagogical practices included four essential elements for online music courses:

- Online music pedagogy, including teaching philosophies, authentic music learning, openness to online music learning, institutional support, and online approaches;
- Course design, such as planning, organization, multimedia use, and the design process;
- Assessment, which exemplifies meaningful opportunities to demonstrate music learning; and
- Communication, including methods for exploring subject content and technology tools.

The unique technical skills identified include but are not limited to using a synchronous tool's audio and video conferencing capabilities, uploading slideshow presentations, or an interactive web tour. Using asynchronous tools to demonstrate specific performance techniques or skills would include the technical ability to use audio recording devices such as smartphones, Audacity (Digital Audio Workstation software) that has a click track for recording, Band Lab (online collaborative DAW software), Garage Band, Logic Pro X (DAW software), Abelton Live, Mixcraft, Upbeat Music App, ProTools, and audio Jamulus platform. This open-source networked music performance software enables live rehearsing and performing for musicians in different locations using the Internet (Volker, 2020). Soundtrap is a cloud-based audio recording studio that allows the user to collaborate in a learning environment using any device, at any time, from any location (Soundtrap, 2023); JamKazam is an online platform and app that facilitates playing music live and in sync with others over the internet (Richardson, 2020); and JackTrip is an open-source software developed at Stanford University in 2010 which allows low-latency connections over wired networks (Mall & Kilian, 2021). SonoBus is a free and open-source network audio streaming application. It is an online rehearsal platform, multi-user, multi-platform, used to stream peer-to-peer audio between devices over the internet or a local network (SonoBus, 2023). iMovie, a video-recording application, provides helpful visuals and demonstrations. Moreover, the technical skills needed to navigate a learning management system (LMS) are equally important. Johnson (2017) argued that LMS tools often used in academic online courses could be helpful in online music performance courses. The tools within an LMS that one would need the skills to navigate are the content pages with text, video and audio, graphics, announcement boards, discussion forums, quiz tools, the drop box, and the calendar.

The notion of online learning is a concept that has been introduced previously; it has been present in various forms since its inception. McIsaac and Gunawardena (1996) state, “The United States was slow to enter the distance education marketplace, and when it did, a form of distance education unique to its needs evolved” (p. 405). Over the past twenty years, the

development of online learning in the United States has accelerated with the use of online technologies to deliver educational content. However, during the past two decades, user access to the Internet has become more available, and innovative platforms have been developed. Thus, the availability of the Internet and the development of new platforms influenced the growth of online learning in higher education.

Since COVID-19, and perhaps more than ever, there has been a need for instrumental ensemble faculty to use appropriate technology in online learning (Rice & Kipp, 2020). However, a better understanding is needed to see how some community college instrumental ensemble faculty have addressed the following challenges:

1. Adopt new technology;
2. Adjust their instructional practices; and
3. Apply technology in instrumental ensemble performance instruction to engage music performance students.

Instrumental ensemble performance is live interaction in the performance of multiple pieces by an ensemble, which is collaborative, as in the case of a symphony or band. Instrumental ensemble performance learning in this context is "an artistic subject that is individual in expression" (Johnson, 2017, p. 7); it is interactive and "revolves around the need for the authenticity of apprenticeship under an expert musician" (Johnson, 2017, p. 8). Many studies have been published regarding remote learning, yet inquiry into music performance ensemble education, particularly that of community colleges, is limited.

The focus of this study is on community college performance ensemble directors, such as music directors, directors of bands, conductors of wind ensembles (30-50 musicians), concert bands (40-70 members), conductors of jazz bands which vary in the number of its member, chamber orchestra (40-50 musicians), an orchestra (50-100 members), and percussion ensemble. This study will exclude vocal music (chamber choirs, concert choral, jazz vocal, music theatre, and opera singers). The choice for instrumental ensembles and not vocal music is that such ensembles typically perform from the Western classical tradition on string, bass, woodwind, and percussion instruments. Meanwhile, vocal music is generated by voice without external musical instruments, and the outcome of vocal music is contingent upon the singer's voice type. Another point of differentiation is that the challenges vocal singers faced during COVID-19 had an extra layer of concern compared to instrumental performance ensembles, as they were at high risk for vocal health problems, increased voice impairment, and vocal fatigue, which was not the case for instrumental ensemble performance (Ribeiro et al., 2020).

This basic interpretive study aims to explore the perspective of community college ensemble faculty experiences during COVID-19 as they were swiftly forced to transition from face-to-face to online teaching.

With these nuances under consideration, this research aims to answer four main research questions:

RQ1: How do community college instrumental ensemble faculty describe their attitudes when they heard about transitioning from Face-to-Face (F2F) teaching to an online environment?

RQ2: How do they describe their experience adopting technology?

RQ3: How do they describe their professional development experience supporting their transition to an online environment?

RQ4: How do they describe the technologies used in their practice?

Literature Review

The Pandemic and California Community Colleges

The importance and impact of the pandemic on community colleges are most significant as community colleges enroll almost fifty percent of the students who attend California public institutions. And more than half of all students are students of color. California community colleges are a pathway to four-year colleges and universities. They are viewed as a significant part of California's post-secondary educational system and the United States. In California, almost fifty percent of students who attend a four-year institution previously attended a community college (Bulman & Fairlie, 2022). Bulman and Fairlie (2022) stated that the impact of COVID-19 on community college enrollment was unclear, particularly in comparison to four-year institutions.

Transition to Remote Instruction

The transition to remote instruction likely reduced enrollment among community college students compared to four-year college students. This was partly because of the community college student's more "tenuous patterns of attachment" (p. 1) and a focus on more pragmatic technical training in vocational programs. Howell et al. (2021) posited that at the beginning of public two-year enrollment for the 2020 high school cohort, there was a 12 percent reduction. From fall 2020 to fall 2021, public two-year and four-year colleges declined by 3 percent (Bulman & Fairlie, 2022).

What was also unclear with community college students was the effect of COVID-19 on "course loads, pass rates, and grades" (p. 2). Bulman and Fairlie (2022) argued that "students might have struggled with online learning" (p. 2) because of what appeared to be a lack of structure, as well as the need for self-discipline and issues with technology and various types of disruption. Community college faculty were seen as possibly being more lenient in their grading. Options for pass/no pass in courses increased (Bulman & Fairlie, 2022).

Music Education Changes During the Pandemic

Pre-pandemic state of music education at California community colleges. Before COVID-19, the pre-pandemic state of music education at California Community Colleges was robust. Many California Community Colleges had a wide range of curricula available that provided a pathway to various music careers. Programs most often included fundamental courses in music theory, history, performance, and, in some cases, music technology. Ensembles, choirs, orchestras, and concert bands were integral components, providing students with practical experience and opportunities to perform.

Notably, California has the most extensive independent two-year colleges in the United States (Luster, 2010). The Foundation for Community Colleges (FCC) (2021) stated that the California community college system has 73 districts and 116 colleges and is "the gateway to higher education for over 2.1 million students per year" (p. 1). These two-year colleges were called junior colleges and evolved to serve several populations. California junior colleges developed as extensions of high schools. California community colleges have remained

independent of K-12 districts with a distinct mission that has adapted to change over time (FCC, 2021).

Early research conducted by Kaplan (1941) focused on creating successful music education programs at junior colleges by hiring talented and versatile instructors and integrating the college into the musical life of the surrounding community. After World War II, music education at junior colleges expanded and included vocational programs in music therapy, jazz, and audio recording (Kaplan, 1943).

Daniels' (1946) research led to a contrasting view of music education at two-year colleges. He believed junior colleges were an essential and integral link between secondary and tertiary education. Therefore, he recommended that community colleges offer courses aligned with four-year lower-division courses, vocational training in music, and a trial music major (Daniels, 1946). Taking these priorities a step further, Reiss (1950) posited that music education programs at junior colleges should serve the local community, provide vocational and further liberal education at the collegiate level, and prepare students for entrance into four-year universities.

State of musicianship in music education. Anderman (2011) focused on the transfer aspect of the music education curriculum when he assessed the state of musicianship instruction at community colleges in California. He presented a detailed analysis of musicianship pedagogy, textbook and materials employed, and time spent on sight-singing, dictation, and keyboard skills. Anderman (2011) observed that California community college students came from diverse backgrounds, and many needed to prepare for community college musicianship programs, so remedial education was often necessary.

Mark and Gary (1992) described the 1960s and 1970s as a real-time of radical changes within music education. One of the most notable shifts within these changes was the implementation of comprehensive musicianship. First introduced around 1965, comprehensive musicianship radicalized and reinvigorated the American education system's music curriculum. This development was founded and based on incorporating "music history and theory" (p. 361).

In the 1970s, community college music education expanded and included music theory and ear training (Belford, 1970). Like Kaplan's early research on junior colleges, Stanton (1972) drew his attention to how music education was a distinguished aspect of the community service programs and consequently identified three California community college districts. The research included the Foothill District, which includes De Anza and Foothill Colleges in Cupertino and Los Altos Hills (near San Jose, California), El Camino College in Torrance (Los Angeles area), and Cabrillo College in Aptos (near Santa Cruz, California) [Stanton, 1972]. The focus was on music performance at these community colleges, including professional musicians like the Los Angeles Philharmonic. They were among notably high-profile music groups (Stanton, 1972). There was also an array of community-sponsored programming that encouraged college ensembles' performances and performances sponsored by student organizations. Stanton (1972) posited that having state-of-the-art facilities allowed community colleges to present a wide variety of music to the community. The colleges' community service function enhanced academic training. Involvement in the arts is an integral part of a liberal arts education. Therefore, training in this context meant students would have access to performance space for various college and community performances, inspiration garnered from professional musicians and performances, and rehearsal spaces that emulated the acoustics of premier venues.

This community-sponsored programming is representative of Santa Monica College (SMC) in its partnership with Broad Stage. "The Broad Stage provides Santa Monica College students with exposure to artists at the height of their craft" (The Broad Stage, 2021, p.1). This facility is a highlight of the Performing Arts Campus. It is an "acoustically outstanding 499-seat auditorium" (SMC, 2021, p.1), which serves as an "ideal venue for music students to develop their performing abilities" (SMC, 2021, p.1). Another feature of the Broad Stage is the Edye Second Space, which is "an effective area for music students to develop their skill before going on to the big stage. Smaller performing groups give their performances in this 100-seat space" (p.1).

Los Angeles City College (LACC) is yet another example of a community college with state-of-the-art facilities that facilitate a wide variety of music to the community and where the community service function of the college enhances academic training. LACC's facilities have a 200-seat Herb and Lani Alpert Recital Hall, a 150-seat David Alpert Lecture Hall, a full-size band and orchestra rehearsal room, and a dedicated music library and ear training lab that enhances academic training (LACC Music, n.d.) Like other community colleges in California, the state-of-the-art learning environments enhance academic training through rehearsal spaces that emulate the acoustics of premier venues, where students can develop their performing abilities and support the arts on campus and within the community. In short, these community colleges were not just academic settings but also served as cultural hubs within their communities, often engaging in public performances and events.

Music education in online environments. Given the interest in online music education, Klingenstein and Hagen (2013) identified that the first accredited online music course available at the post-secondary level was attributed to Valley City State University's Music Fundamentals course in 2004 (Johnson & Hawley, 2017).

Notably, there have been increased development and learning benefits of online learning technologies from that time forward, which further prompted music educators to rethink the possibilities of learning music online (Crawford, 2017). Johnson and Hawley (2017) found that formal online music learning is increasing at an exponential inclusion rate. Crawford (2017) describes music education as a pivot point for educational change. This change welcomes the 21st-century education technology of online learning, which has become commonplace in music education. Online music learning addressed the challenges of declining post-secondary music student enrollment and provided strategies for future formal art education development. Herbert (2007) recognized a rapid proliferation of online courses among mainstream universities. This proliferation was also valid for community colleges.

Ruthmann and Herbert (2012) posited a rationale for transitioning music education from the face-to-face classroom to the virtual environment. Online music education is far-reaching, with the increasingly widespread understanding that through globalization, all nations have become more intricately connected (Ruthmann & Herbert, 2012). Some researchers agree and sometimes do not agree on whether online instruction is as effective as traditional teaching methods. The challenge is that music education is subject to music history or appreciation, and music business courses are most adaptable to distance learning, while composition and performance are least adaptable.

The initial impact of the pandemic on educational institutions and online learning. According to recent literature, how has the pandemic reality initially impacted educational institutions and online learning? Moreover, how is this now viewed and experienced? The

coronavirus pandemic turned the music world upside down, forcing musicians to re-evaluate their actions. Re-evaluation was especially challenging for large bands, ensembles, and orchestras who struggled to adapt to new social-distancing protocols, other safety measures, and online learning. Hash (2020) argued that teachers moved their instruction from physical classroom space to remote online and offline platforms with little or no preparation. Hence, instrumental ensemble faculty took the same course of action and modified goals and activities to meet the challenges of remote learning while meeting students' needs. Hash (2020) posited that remote learning was "essentially emergency teaching" rather than the implementation of curricula planned, organized, and designed for distanced environments (p. 384). Hash (2020) conducted a study that "examined the practices, experiences, and perspectives of elementary and secondary school band directors concerning remote learning during COVID-19" and the impact it had on music educators (p. 381). The researcher's data showed that COVID-19 created many challenges for directors of bands, especially in schools with higher poverty levels or rural locations. In contrast to the difficulties, however, remote learning "created opportunities for instrumental faculty to incorporate a wider range of technology into curricula, more focus on individual musicianship, lessons in music theory and history" (p. 381). Video conferencing technology, such as Zoom, has become the standard in education.

Best practices for online learning in the arts. The best practices for online learning in the arts emerged during COVID-19 as teaching online presented challenges to educators across the country; they learned to adjust. As instrumental ensemble faculty and students have had to manage more uncertainty than ever, understanding best practices to create communication, a supportive online community, various work experiences, and synchronous and asynchronous activities was critical.

In reviewing the practitioner-oriented literature, the best practice that is most apparent is communication. Communication is imperative, keeping course content short, straightforward, and clear (Boettcher, 2006-2013). Communication would include sharing a set of clear expectations for music students and the music educator regarding the method of communication and how much time students should be working on the course each week. Also, early communication in the term to request informal feedback on "How is the course going?" and "Do you have any suggestions?" was beneficial (Boettcher, 2006-2013, p.1). There was also a need for "experienced teacher behavior toward learners" to provide "an attentive, genuine, understanding and respectful learning relationship reliant on good communication" (de Bruin, 2018, p.6).

de Bruin (2018) studied instrumental music educators in a COVID landscape. The research findings provided a framework for music educators to facilitate communication, "connection, motivation, and student autonomy generating personal commitment to music-making and the learning relationship" (p.1). Communication translated to significant student learning and value in learning music (de Bruin, 2018). The theme "dominance of dialogic communication" emerged in this study, which demonstrated how aspects of mutual support overcome the constraints music faculty experienced in "maintaining connection, engagement, and musical improvement in their students' (p. 2).

Another best practice is creating a supportive online community. The pandemic reshaped various aspects of the music pedagogy landscape (Schiavio et al., 2021), and engaging students in a supportive online community became challenging. McKeithan et al., (2021) described how limited social interactions with others "can become an unfortunate

characteristic of online instruction, and this social isolation can inhibit motivation and student satisfaction" (p. 2). A downfall such as this can be averted through a supportive online community that "can provide an active social presence that can encourage meaningful interactions with the content and peers" (McKeithan et al., 2021, p.2). Active social presence is evidenced by "active discussion, cooperative learning opportunities, group conferences, problem-based learning, and simulations" where students can "apply new learning in real-life settings" (McKeithan et al., 2021, p.2). Boettcher (2006-2013) further encouraged large, small, and individual work experiences used in synchronous and asynchronous activities. Other activities incorporated in prepared discussion posts would invite questions, discussions, reflections, and responses. Lastly, different strategies used in a supportive online community focus on content resources, applications, links to music videos, and other easily accessed examples from the learner's computer or mobile device (Boettcher, 2006-2013). Hence, actively engaging students through engaging activity in a supportive online community creates "effective and meaningful teacher and peer interactions that promote engagement, satisfaction, and establishment of meaningful learning communities for learners" (McKeithan et al., 2021, p.3).

Transition to Remote Learning

Music performance faculty and students faced challenges adapting to online platforms**.** Omelchenko and Ferguson (2022) stated that teaching and delivering a large music ensemble was an enormous challenge during the pandemic from 2020 to 2021. The study of primary symphonic literature was integral to developing a musician's education and training; therefore, the authors quickly modified and adapted their curriculums and delivery formats for the large ensembles they directed. For them, the pandemic brought insights and strategies to address the challenges of remote extensive ensemble rehearsals of 50 to 70 students. One insight was the orchestra during COVID-19 would not look the same as it had in pre-pandemic times, nor was it realistic or feasible to make a genre that was intended to be presented in a live format with large audiences in attendance in a concert hall to fit into a Zoom environment (Omelchenko & Ferguson, 2022). Hence, the challenge was that music performance ensembles are one of the most challenging courses to deliver remotely. The strategies that were employed incorporated the use of Zoom for video and Jamulus for audio. Ensemble rehearsals took place on Zoom for video and visual elements and Jamulus for audio. External mics and ethernet connections were suggested for optimal sound production. To assist the musicians, they were directed to practice outside of Zoom. Videos were created of the music director conducting a piece to enable the musicians to play along with their conducting (Omelchenko & Ferguson, 2022). The utilization of Zoom for the visual elements aided in the opportunity for the musicians to see the conductor conduct, one another, and members of their section on the Zoom screen.

Research Setting and Participant Context

This study will focus on community college instrumental ensemble faculty who are part of the California public community college system. While data analysis and findings are ongoing, the participants were selected from six community colleges out of thirty-five possible Southern California community colleges based on regional proximity and accessibility. The following are the criteria for participants: (a) instrumental ensemble faculty, (b) taught online during the pandemic, and (c) director of bands, conductor of wind ensemble/concert band/jazz band, or music director (orchestra).

Theoretic Framework

The theoretic frameworks that will be used to analyze the data include the Unified Theory of Acceptance and Use of Technology (UTAUT) [Venkatesh et al., 2003] and Kolb's (1984) Experiential Learning Model (ELM) in order to understand how instrumental ensemble faculty overcame their concerns about using the various tools and technology to engage remote learners during the pandemic. These frameworks support the music performance faculty's intention, use of technology, and experiential learning, whereby they learn from experiences. These frameworks help guide the analysis of the perceptions and attitudes of community college instrumental ensemble faculty about the transition to online teaching because of COVID-19. This study interweaves the key UTAUT constructs (Venkatesh et al., 2003) and Kolb's (1984) ELM stages to illustrate the interrelationships between UTAUT and Kolb (1984) to assist in answering the research questions.

Conclusion

While a review of the literature review has helped inform some understanding of the experiences of instrumental faculty transitioning to online delivery, this study will more fully explore how instrumental faculty, music instructors, and directors relied on technology to engage remote ensemble students; what transpired informs both the pitfalls and the best practices for using technology in online settings. While live performances have resumed, concert halls are now filled; the lesson learned from the time of COVID-19 is that it is not realistic to take a genre that was intended to be given in a live format fit into a Zoom screen (Omelchenko & Ferguson, 2022). However, the takeaway is that for both the instrumental faculty and students, learning the necessary technology, whether a learning management system or audio technology, would prepare music students for the future.

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