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The application of sound technology for teaching applied music lessons online: A case study

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Abstract

The COVID-19 public health crisis forced all educators to explore technology in the largest test of online teaching during the spring of 2020. Included in the population of educators were the studio music faculty steeped in a tradition of side-by-side teaching. This research study explored the application of lighting and sound technology adapted to enhance the experiences in a 10-week, fully online course of one-to-one private lessons with a music studio faculty member and his students during summer 2020. The students received condenser microphones, headphones, and webcams with instructions for hardwiring into their home internet connection. The faculty member used the same materials plus a speaking microphone overhead on a boom along with three-point lighting: key, fill, and backlights. The lighting was used to ensure a bright studio, much like a television anchor employs. Students noticed the microphone use by instructor and commented his adaptation to the virtual lessons were more flexible while one participant exclaimed he grew more as a musician and covered more material in virtual lessons than in previous face-to-face lessons with the same instructor. The faculty member noticed better sounds from students when using the condenser microphones and less feedback because of the closed back headphones.

Key words: online teaching, technology

Introduction

The COVID-19 pandemic started in the United States early in 2020 and caused massive disruptions in several sectors: medical, political, educational, social, economic and others. By mid-March, the pandemic caused the closure of major cities by way of 'stay at home' orders, which resulted in universities moving courses online; local school districts scrambling to teach millions of students remotely; stores, restaurants, and other businesses shutting their doors; and commonplace shortages in the grocery stores.

Universities closed campuses one after another like falling dominos. Many remained face-to-face until their spring break and then moved online for the rest of the year. Faculty were given a week or two's notice to revamp curriculum or re-create face-to-face courses in an online classroom. Those faculty are award-winning educators in their discipline, yet mostly untrained in online pedagogy. They were thrown into an unprecedented situation of desperate need, with basic emergency training provided. After a flurry of Zoom meetings, the learning began again, albeit virtually.

Was the academic rigor of the course a consideration? Were Americans with Disabilities Act (ADA) and student needs paramount in the course design? Were course objectives aligned with module objectives? Did learning activities promote active learning? We dare to wonder if best practices of online learning were nearly cast aside to make the aggressive deadlines.

Faculty accustomed to face-to-face teaching grumbled at the necessary workload to create a virtual course in its entirety and have it in place before students needed it. They are used to a traditional classroom setting where they control the pace, help facilitate discussions, and can alter the

curriculum from day-to-day. The concept of placing all content into a course before it launched seemed to violate principles of good teaching. Online pedagogues understand this apparent contention point.

Online teaching is fundamentally different than face-to-face classrooms. Faculty start with learning objectives for the course and learning objectives for each module. From there, they construct activities and assessments that align to the course and module objectives, carefully aligning Bloom's level of the objective and Bloom's level of both the activity and assessment. They plan interactions between the learner and content, between learners, and between learner and instructor. The faculty also need to consider how to best use technology as a tool for learning and not simply as a toy or distraction. Course planning also needs to include ADA compliance and the needs of special learners.

These are just the high points to get a course started. We haven't discussed the new additions to a syllabus since it is online. A good course overview needs to include an introduction to the various technologies, people, and places in the course. What materials are required and optional for the learners? Are the faculty-selected tools current, such as the textbook and technology? What institutional and course service supports are in place to help the learners? The idea of planning for facilitating discussion boards is immensely valuable to consider during this process as well. With all this, no wonder over 85% of faculty surveyed responded that online course development takes 'somewhat more' or 'a lot more' effort than developing a face-to-face course (Seaman, 2009, p. 26).

The fact that many faculty and students survived the spring of 2020 is a tribute to their work ethic and willingness to try new ways of teaching and learning. Our hope is that universities are using this time to be as diligent about training their faculty in blended learning and online teaching methodology as they are with building their stockpiles of PPE, hosting Zoom meetings about reopening campus with reduced class sizes and making custom masks.

As the semester concluded and graded mechanisms were altered for pass/fail contingencies, administrators were already discussing the impending budget crisis for 2020-21 with warnings of furloughs, draconian cuts to college budgets, and the diversion of Coronavirus Aid, Relief, and Economic Security Act (CARES Act) stimulus funding to student financial aid in hopes of student retention for fall 2020.

In conversations with many of our colleagues and friends, and by watching social media of performing artists, we know that the pandemic took a thriving performance economy and decimated it. Musicians were playing nightly gigs, teaching lessons at schools during the day, and recording in studios in between. It all stopped in March. When universities shuttered their doors, the connectivity to their faculty and students was unstable or weak due to some using mobile devices instead of computers. Videos were nearly impossible due to bandwidth, so some faculty resorted to phone calls and FaceTime music lessons. The lack of pianos and large percussion instruments at home forced these faculty to be overly creative in how to alter their curriculum. The cancelled performances were the most heartbreaking for the performers yet allowing accompanists and the soloists to occupy the same space for the time needed to rehearse and perform was too dangerous.

Literature review

Private music lessons, teachers and pedagogy

Private music lessons have been comprised by a master teacher and a student since the days of 18th-century European music conservatoriums (Blackburn, 2017). Early studies of this method found that master teachers used self-devised strategies, commonsense, and tradition in their teaching (Persson, 1996a). Whereas Karlsson and Juslin (2008) contested that most teachers will emulate the teaching methods of their preferred teacher. This later method dangerously

self-propagates the ongoing struggles from one generation to the next. For a discipline to grow, educators must expand their teaching pedagogy to incorporate technology, knowledge, and societal changes at a minimum.

In a study by Jorgensen (1986), she asked faculty if their lessons were structured. Forty per cent replied, 'very structured', another 30% replied, 'quite structured', 20% claimed that their methods evidenced 'little structure', and 10% stated that the lessons were structured more for technique than repertoire. "There should be a system of some kind of structure underlying the lessons – the teacher needs to know what must be covered and this should be accomplished" (p. 124). Persson (1996a) recommended highly structured lessons to foster artistic inspiration from faculty to student.

When describing the lesson content, a variety of pedagogy, technical skills, and soft skills are mixed. Fredrickson et al. (2012) reported that 78% of the surveyed teachers taught pedagogy during part of the lesson. Another study found that faculty were primarily concerned with technical problems and their solutions in minute detail (Persson, 1996b). Albrecht (1991) found that one-third of lesson time was devoted to technical study, while two-thirds of the lesson focused around song literature. Jorgensen (1986) rank ordered her findings as technique development, music reading, and aural skills (e.g., sight-reading); knowledge of repertoire and performance repertoire; extra-musical skills (e.g., having to do with the ability to project a performance); and theoretical knowledge. Basic lesson elements, besides technical work and pieces, included sight-reading, aural training, and theory. Other lesson elements found were particular scales, studies, exercises, repertoire, and duets. Pike (2013) reported a case study of four piano teachers that all included solo and ensemble repertoire, games, harmonisation, ear training, theory, and transposition in the lesson. McPhail (2013) advocated for the inclusion of improvising, composing, and appreciating feel over technical perfection in instrumental lessons.

In an examination of three highly praised studio educators, Duke and Simmons (2006) categorised 19 elements of teaching into three categories:

Goals and expectations

1. The repertoire assigned students is well within their technical capabilities; no student is struggling with the notes of the piece.
2. Teachings have a clear auditory image of the piece that guides their judgements about the music.
3. The teachers demand a consistent standard of sound quality from their students.
4. The teachers select lesson targets (i.e., proximal performance goals) that are technically or musically important.
5. Lesson targets are positioned at a level of difficulty that is close enough to the student's current skill level that the targets are achievable in the short term and change is audible to the student in the moment.
6. The teachers clearly remember students' work in the past lessons and frequently draw comparisons between present and past, as well as point out both positive and negative differences.

Effecting change

7. Pieces are performed from beginning to end; in this sense, the lessons are like performances, with instantaneous transitions into performance character. Nearly all playing is judged by a high standard, "as if we are performing".
8. In general, the course of the music directs the lesson's errors in student performance elicit stops.
9. The teachers are tenacious in working to accomplish lesson targets, having students repeat target passages until performance is accurate.
10. Any flaws in fundamental technique is immediately addressed; no performance

trials with incorrect technique are allowed to continue.
11. Lessons proceed at an intense, rapid pace.
12. The pace of the lessons is interrupted from time to time with what seem to be 'intuitively timed' breaks, during which the teacher gives an extended demonstration or tells a story.
13. The teachers permit students to make interpretive choices in the performance of repertoire, but only among a limited range of options that are circumscribed by the teacher; students are permitted no choices regarding technique.

Conveying information

14. Teachers make very fine discriminations about student performances; these are consistently articulated to the students, so that they learn to make the same discriminations independently.
15. Performance technique is described in terms of the effect that physical motion creates in the sound produced.
16. Technical feedback is given in terms of creating an interpretive effect.
17. Negative feedback is clear, pointed, frequent, and directed at very specific aspects of students' performances, especially the musical effects created.
18. There are infrequent, intermittent, unexpected instances of positive feedback, but these are most often of high magnitude and extended duration.
19. The teachers play examples from the students' repertoire to demonstrate important points; the teachers' modeling is exquisite in every respect.

In an effort to assess their applied teaching faculty, administrators searched for methods to fairly evaluate the population. Abeles et al. (1992) surveyed faculty about the criteria they believed students would use to evaluate the faculty. The faculty selected rapport, communication, technique, musical knowledge, musical understanding, and performing ability. Albergo (1991) found the qualities "most desirable in a good piano teacher" to be patience, knowledge of music, humour, knowledge of teaching technique, and enthusiasm. Robinson et al. (2011) reported similar characteristics for creative teachers: flexibility, respect for students, enthusiasm for teaching, and establishing a discovery atmosphere. Nishimoto (2018) alerted administrators and cautioned that instructors must be aware of content knowledge, pedagogical knowledge, and pedagogical content knowledge or they may be unaware of their own 'blind spots' while teaching. "Whereas a novice guitarist may stumble through a new arpeggio, expert guitarists would draw upon their schema of keys and chordal structures as related to the fretboard and scaffolds of appropriate arpeggio technique to automatically perform the arpeggio, even if the arpeggio is new to the expert" (p. 13).

From the students' perspective, Mills (2002) found that they wanted their lessons to take place regularly and to feel planned and purposeful. Persson (1996a) and Doscher (1992) both shared a similar finding yet discussing it as both technical planning and artistic planning for lessons. Mills used the research of Schon's 1983 cycle of diagnosis – planning – instruction – assessment. While she was confident that the faculty used the cycle in their teaching, it was not clear that the cycle was being presented to students so it could be applied effectively to younger pupils. Her study also found that students identified themes:

> My teacher tells/shows me what to do. (Transmission)
>
> My teacher and I work out together what and how I should improve. (Collaboration)
>
> My teacher teaches me how to learn to be a musician. (Induction)

Resistance to the Online Environment

Not every discipline embraces the online classroom. Music is a notable exception. Music is a discipline typically taught in a community of scholars. Those scholars have close proximity to one another for rehearsals and lessons, mentoring through dialogue that could be jeopardised if

the community were only digitally asynchronous. Appana (2008) referred to this as students eSolated from faculty and classmates (p. 15). This sentiment was echoed by Blackburn (2017) as a disadvantage of online learning is not being in direct, immediate contact with teachers and peers. Jorgensen (2014) espoused that "Learning the dispositions required to live the way of life of a musician embraced a breadth of understanding that is physically impossible to achieve in distance education because one cannot live entirely in a virtual world" (p. 188).

In a rather scandalous blow to the profession, Persson (1996b) noted that "The maestro is interested in reproducing his or her own musical conceptualisation and musical behaviour through someone else. Personal considerations – and therefore developmental and education considerations – are not usually a part of the maestro role" (p. 44). This might explain why some researchers dare to claim that student learning in higher education instrumental lessons tends to be passive where students play and comply with the teacher's statements (Zhukov, 2015; Burwell, 2005), and why Pike (2015b) notes that poor teaching is only magnified online.

Studio instructors value the ability to physically lay their hands over the hands of the student while at the keyboard, correct the collapsed wrist under the fingerboard, or adjust the position of fingers on the keys of bassoon for instance. This was noted as a technique in the literature by Enloe et al. (2013), Pike (2015b), and Jorgensen (2014). This capability is certainly not possible in the online lesson or in the current COVID-19 situation.

Technology is ubiquitous to our daily lives. The typical day is filled with devices that combine several tasks into one; the cellular phone is now an alarm clock, Rolodex, day planner, flashlight, and adding new functions daily. Technology has lagged in producing methods of hosting live synchronous ensembles to the satisfaction of hypersensitive ears of musicians. Dye (2016) noted that "Instructors slow to adjust to the challenges of the online environment might be easily frustrated and less effective, while others more secure with digital communication technology, as well as being highly flexible in their delivery of instruction, might find the online environment more conducive to greater instructional success" (p. 169). Until faculty are comfortable with various technologies, they are less likely to employ it in their classrooms, let alone move to a fully online classroom. Kruse et al. (2013) projected that as instructors become more tech savvy, and as the potential for technology is more publicised in education, online lessons might become more commonplace.

Johnson (2017) found three overall perceptions about online music teaching from faculty: 1) online teaching was more challenging because of its set or published format, 2) both environments had 'a lot of crossover' regarding teaching set-up, and 3) the online environment was better able to enrich learning because of the visible nature of online work. Johnson also noted that her participants were challenged by non-participating faculty colleagues regarding how the participant transitioned from traditional pedagogy to an online pedagogy during the study.

The excellent teaching described in the research of Duke and Simmons (2006) of the 19 elements present in the master teachers' lessons makes a great argument if applied lessons can be moved to the online platform with any success. How can 19 teacher-focused elements appear in the online private lesson using technology as a medium separating the student from their master?

The move to an online platform

Transmuting an applied music lesson to the online environment takes a centuries-old model of music education into a new medium. Studying private lessons in the online environment is not a novel concept; the online private lesson has been investigated in a wide variety of methods, a range of participant ages, and purposes. Damon and Rockinson-Szapkiw (2018) found "Those skeptical of the online setting generally indicate

the following four issues perceived as barriers for the successful implementation of online voice training in higher education: 1) the absence of the personal relationship between the teacher and student, 2) technological latency during the actual lesson, 3) lack of personal experience with technology, and 4) lack of empirical research" (p. 25). Dammers (2009) used a case study to observe a trumpet faculty member teaching a high school trumpet student a thousand miles away in a rural area. Dammers deemed the study had a basic level functionality because of consistent internet connection, faculty's ability to make a basic student assessment, and the ability to conduct a normally-paced lesson.

The faculty member noted that the latency varied from lesson to lesson, as well as within a lesson. As they became familiar with the format, the latency became less of a distraction. He also noted that his motions were limited due to camera and headphone placement. The faculty member also noted his lesson preparation was more structured with an agenda than it would have been if side-by-side. He noted the challenges and occasional reminders to keep the trumpet bell pointed 45 degrees from the camera. As with Damon and Rockinson-Szapkiw (2018), Pike (2015a), and Dye (2016) also reported that enhanced bandwidth and transmission of data speeds would have reduced latency and enhanced the lesson experience for all participants. In a study by Pike (2015b), she noted that her teachers were midway through their internship when a transformation happened from distance teaching to piano teaching, perhaps due to the growth of comfortability with the equipment as is apparent in the Dammers study. A similar finding was noted in Kruse et al. (2013).

The relationship of the master and student is consistent throughout the literature as one of importance. In Gaunt (2008), she reported feedback from her participants describing their relationship as "parental, friendly, collaboratively curious or like a doctor and patient" (p. 239). Johnson (2013b) described the relationship between the expert and student as one that "moves through a gamut of exchanges" (p. 138). Is it possible for that support and trust of the master to be communicated through technology and received by the student? Jorgensen (2014) expressed that she believed it depended upon the degree and ways in which the "teacher and student are 'visible' to each other" (p. 190).

Another case study by Dye (2016) focused on a number of junior high band students receiving remote weekly instruction via videoconferencing from a university professor. Instructors in his study used more questioning of their students than they did with their face-to-face students. A similar finding was reported with Dammers (2009). In her 1992 study, Doscher advocated for the use of questions in one-on-one lessons so students become "aware of what is happening when they physically sing" (p. 64). The use of questioning encourages a student's metacognitive growth and leads them to making decisions on their own.

In a study by Orman and Whitaker (2010), students were found to spend more time performing in the lessons than in the face-to-face group. Also, noted was a 50% reduction in instructor off-task comments during online lessons. This led to more on-task students, better learning outcomes, and probably more of the highly-praised studio educators behaviours studied by Duke and Simmons (2006). In Hannum et al. (2009), the researchers' literature review finds no studies where learning outcomes in a face-to-face classroom were consistently superior to the online classroom version or vice versa.

"Video conferencing software, despite some technological limitations such as video and sound delay, provide synchronous communication and 'can at least supplement, if not yet totally replace, face-to-face music lessons" (Zhukov, 2015, p. 67). Zhukov's sentiments were echoed by Dye in 2016. "As recorded music over the past 100 years has not eliminated the desire of humans to experience live musical performance, it might be speculated that videoconferencing should not eliminate

the necessity and preference for live face-to-face instruction" (p. 169). Lockett's (2010) findings indicated that combining distance and traditional lessons might be most preferential for students.

Principles of constructivism and online tools

It is often said that online teachers should be the "guide on the side, not the sage on the stage". That educational philosophy helped form the constructivist paradigm of educational psychologists Jean Piaget, Lev Vygotsky, Jerome Bruner, John Dewey, Ernst von Glasersfeld, and Maria Montessori to name a few. In constructivism, students to develop knowledge through integration of prior knowledge, exploration, and reflective practice (Blackburn & Hewitt, 2020). Jorgensen (2014) used the metaphor of a curator role for guiding students in accessing information, then helping them to make sense of it within the confines of the course. "Constructivism is inherent in most performance-based and applied music courses; students can apply new knowledge immediately and receive synchronous feedback, both from listening to themselves and from verbal and nonverbal communication from conductors and teachers" (Keast, 2009, p. 1). Other music researchers have continued to expand research into active learning, social constructivist learning, and engaged learning (Keast, 2018; Johnson 2017).

Technology tools for learners to use in the online environment are ubiquitous, evolving, and rapidly advancing. Johnson (2013) urged faculty to become familiar with established online tools and consider the "outcomes of learning *prior* to choosing a tool. Many tools can help facilitate the same learning outcomes" (p. 1185). Keast (2018) cautioned that introducing too many new media in one course will increase student stress. Kim and Reeves (2007) thoroughly analyzed over 100 studies of learning with technology to conclude the learning activity and tools become a platform for students to fully engage with their learning through exploration, play, and identification.

There are a number of options for choosing the right tool for an online course. Some are for asynchronous use while others are synchronous. Johnson (2017) noted that tasks and tools "develop a sense of individual belonging by the faculty members helped students with the means to establish social presence" (p. 451). The tools are only useful, though, when properly used as noted by Kim and Reeves (2007), "Cognitive tools can be developed with elaborate features intended for higher-level learning and thinking, but problems arise when the value of them are not seen by the learners or are not reflected in the learning activities" (p. 210).

The challenge is for music faculty members to gain expertise in locating, funding, testing, and implementing the tools for use in their courses (Carey et al., 2013). That technology gap was not the only gap to address, though. Blackburn and Hewitt (2020) and Damon and Rockinson-Szapkiw (2018) called for broader education requirements for video production and music technology in music degrees. For students to gain that knowledge, faculty need to deliver the instruction.

YouTube is a universal tool used by students to find multiple versions of repertoire to emulate. Students also use a wide variety of methods to record themselves including cellphones, computers, Zoom digital recording devices, and many more. As noted by Zhukov (2015), it is now incumbent upon teachers to become creative in utilising technology in their studios because students are leading the way.

Pedagogical changes for the online format

The change from the face-to-face lesson delivered in the music studio to the synchronous video-conferenced lesson delivered via the internet still holds the same goal of student learning. Reaching the student through a different medium is the only change which may necessitate altering the pedagogy to best fit the student. Jorgensen (1986) established that the syllabus should be individually tailored to the student rather than the reverse.

Johnson (2013b) also noted that apprenticeship style learning is not mono-directional and must consider the students' needs.

The three-part sequence of teacher instruction/modeling, student response, and teacher feedback (an 'IRF' sequence), has dominated research as noted by Ivaldi (2014). A large portion of that research focuses on discussions and behaviours (Schmidt, 1992; Gustafson, 1986; Sibenaler, 1997, Orman & Whitaker, 2010, Burwell, 2019). Karlsson and Juslin (2008) coded their music lesson interactions as having five educational functions: testing (e.g. questions such as "should I continue"); instructional (e.g., instructions, evaluations, such as excellent); analytical (e.g. in order to play this phrase, you must use this type of fingering); accompanying or guiding the interaction (e.g. "yes, that's right"); and expressive (e.g. "more expression"). Blackburn (2017) suggested that online lessons should focus less on performance skill and more on scholarship of performance such as encouraging students to think about preparation, planning, and presenting, reflecting on audience feedback, and peer reviews.

Not all teaching is verbal; nonverbal communication is essential to both students and teachers in the learning environment. Damon and Rockinson (2018) suggested adjusting teaching practices to include "body gestures used in voice teaching and learning, the use of real-time visual feedback, accompaniment specifications, and other logistical issues necessary for optimum learning experiences" (pp. 33-34). Doscher (1992), in discussing valid suggestions with/from students, recommends that a faculty member's body language must tell students they can learn.

Online learning is not about replicating what was successful in a face-to-face class. The key to a successful online classroom is to reimagine the learning process in other places. Blackburn (2017) agreed when she wrote, "An online teaching and learning model must take into consideration the needs of the student, the presence of technology and specifically for music, the practicalities of performance studies" (p. 65). The paradigm shift to online often requires a new model as Johnson (2013b) noted in discussion of the ADDIE model.

The ADDIE model has five parts:

1. Analyse the learner objectives and the learning environment.
2. Design specific goals and strategies to employ.
3. Develop the environment using the materials identified in the design phase.
4. Implement the course with the learners.
5. Evaluate the performance from user feedback to make revisions as necessary.

While the model is a bit reductive, the simplicity helps solidify the process for a novice educator.

Careful attention to learning outcomes is essential to anchor the pace of the lessons over time. Carey et al. (2013) identified four principles when documenting teaching practices:

1. What is important to student learning
2. Privileged to teacher behaviour, the representations also address relational issues and contributions to one-to-one teaching factors
3. Specific practices to make teaching visible
4. Professional growth for the teacher.

Just as some organisations experience 'mission drift' over time, some courses that change modalities or teaching faculty can fall prey to a similar educational phenomenon. Course objectives are often set by a committee or department head in order to align with larger program goals. When faculty move courses to the online classroom it is necessary to ensure that the course objectives are still aligned with the larger unit objectives or performance-based outcomes. Misalignment places students at a disadvantage when future courses expect that prior knowledge to have been imparted. An alignment tool developed by Dyjur and Kenney (2015) at University of Calgary is an excellent resource for faculty to use when collaborating to build a curriculum map of course objectives to program goals, especially when preparing for accreditation or curricular reviews.

Student motivation in private lessons

Faculty teaching private lessons in higher education have identified the role of motivation as an element of their job. Fredrickson et al. (2012) found that 68% of instructors surveyed felt their role was to motivate a non-practicing student. In a subsequent question, 47% responded that when a student gave up, they worried "that their teaching was not good enough". Frederickson et al. (2013) reported that their sample of 1,617 members of the American String Teachers' Association strongly agreed that it was the job of the teacher to motivate students who did not practice. Persson (1996b) described the relationship between student and teacher as "parental mode". That type of relationship accommodates motivating between pieces or while setting up/packing up to leave.

Methods to increase student motivation discovered by Jorgensen (1986) were repertoire assignment or examinations. She also cited "pep talks", "applying pressure", positive and negative reinforcement, and goal setting with the students in her survey responses. One respondent used "reliance on the students' love of music" as a motivator (p. 119). As easy as it is to remember, many artists forget their love of music on challenging days in a practice room. Keast and Young (2020) suggest finding music that puts a smile on the student's face when they perform it. Be sure to end every practice session with one of those things. It can be a nursery rhyme, a rock song, a fiddle tune, or a song they wrote themselves.

A model of motivation studied by Johnson (2013b) was the ARCS model. The model focuses on attention, relevance, confidence, and satisfaction to maintain student interest during an activity. The more attention paid by the student increases the likelihood of increased motivation. The relevance of the activity to their career or current situation will boost the student's motivation. Teacher assurance and prodding will serve to bolster the student's confidence leading to higher satisfaction with the overall activity.

Motivation is not always the job of the instructor. Motivation can also come from within the students described by Johnson (2018), "when students are able to make direct connections [from goals and objectives] to their musical performance, higher degree of motivation can be found" (p. 1430). Transmuting that motivation into the online music lesson is essential if it is to succeed. As Picciano (2002) noted, motivation from the online community is integral for both keeping the student enrolled and exploring meaningful learning. Pike (2015a) found that two lessons of twenty minutes in length provided extra motivation and learning to her student. So much so that her student began recording easier duets from her sight-reading book so she could accompany herself. Piano accompaniment of vocalists or other instrumental soloists can be handled a couple of ways, the most common being to record it in advance and play it on another device, such as their phone or stereo, while the student is streaming in the online classroom to the teacher from a computer. This is a common solution to the accompaniment problem and, in some degree, maintains the performance ability for the student.

Student-centred learning, led by questions to check for understanding, reflection, and peer review is rich with opportunity in online learning. "By embracing technology and using it alongside contemporary teaching philosophies to create 'student-centered learning' or 'problem-based learning' within academic performance studies, it challenges the one-on-one instrumental pedagogy to shift instruction from teacher-focused coaching to a student-center learning environment" Blackburn (2017, p. 65). Mackworth-Young (1990) reported in her case study of face-to-face piano lessons that, "pupil-centered lessons resulted in increased enjoyment, interest, positive attitudes, motivation, and progress" (p. 82). In a Canadian study of 74 students, those who used iSCORE – a portfolio system recording student practice – developed more ownership over their learning as a result of its use (Brook & Upitis, 2015). The iSCORE

system allows students, as well as faculty, to listen to themselves regularly. While performing, musicians can experience a high cognitive load and overlook errors. However, while reviewing recordings, the errors are apparent.

Measuring course performance

Online course performance has been measured in terms of student completion rates, withdrawals, and final grades (Picciano, 2002; Keast, 2019; Keast & Tapper, 2016). The course performance studies of face-to-face applied lessons is stunted, mostly small case studies involving video recorded lessons examining time in discussion, time performing, types of discussion, non-verbal behaviours, and demonstration by instructor. Carey et al. (2010) summarised the literature as "conveying an overwhelming sense that, despite criticisms and inconsistencies, one-to-one teaching plays a valuable (and probably irreplaceable) role in the training of professional musicians, but that there may be potential for improvements in its delivery" (p. 176).

A commonly heard phrase about comparisons concerns apples and oranges. A similar argument could be made about face-to-face and online classrooms. "Direct comparisons are often made between face-to-face and online music programs, but it is important to note that these comparisons assume online programs are attempting to replicate face-to-face rather than being a different way of learning that is equally effective and valuable" (Blackburn & Hewitt, 2020). Other studies have concluded that online applied lessons are functional, but not equivalent to face-to-face instruction (Dammers, 2009; Dye, 2016; Enloe et al., 2013). In Pike and Shoemaker (2013), they found no significant differences in their statistical analysis, yet suggested that higher quality video and audio might have altered the study's results, echoing the need for better video issued by Orman and Whitaker (2010).

In a survey of faculty, Seaman (2009) reported that "80% of faculty who have taught online view online education as equally or more effective than face-to-face classes" (p. 35). Online courses cannot use the same forms of assessments and design just as they cannot be judged on the same criteria as their face-to-face counterparts. The design of online courses should reflect the interactivity needed by the student and teacher. Thus, as Johnson (2017) described, include more attention to social constructivist teaching methods.

Collaborating in the online classroom is a planning challenge for the instructor, a task that is as integral to the planning as assessment. Active learning with peer interaction in a face-to-face classroom is easily facilitated, yet the same is not so true in an online classroom. "Collaborative learning and assessment tasks in the online environment provide active learning, networking and social engagement within the class and further afield" (Blackburn, 2017, p. 69). One study by Piccano (2002) surveyed 23 graduate students in a non-music course about their satisfaction of quality and quantity of learning experiences. Using a Likert scale of 1-5, the mean for all students on this perception of learning variable was 4.32 (somewhat increased, plus). The correlation coefficient was .6732, which was positive and statistically significant, indicating that student perception of interaction in the course was higher than face-to-face experiences.

Incorporating a duet into the online studio is possible with proper technology such as headphones, microphones, and adequate internet speed. If this is not possible, the principle of recording parts and performing with a recorded part played live on the end user, who is also performing live, can simulate the experience of performing a duet with the teacher, which is highly motivating to students. In a study by Pike and Shoemaker (2013), the students in the online group exhibited more independence than the face-to-face control group during sight-reading after eight weeks of study. The transfer of this principle to music is the recording of files and layering to produce a full recording using media such as Garage Band.

Recommendations from the literature

Anecdotal suggestions from the researchers came to light that we felt should be reconfirmed here. Appana (2008) expressed concern that students need training and not just technology on their end before they can benefit from online lessons. Suitable computer and internet access does not make it possible unless the student understands how to operate the device.

Dammers (2009) discussed a potential limitation for larger instruments such as bassoons and percussion instruments as their camera was limited to a two-foot area. Their recommendation was for an instructor-controlled camera on the student to enable viewing of hand placement, instrument, or embouchure. A similar comment was made by Orman and Whitaker (2010).

A final comment was something quite simple from Damon and Rockinson-Szapkiw (2018) that both the teacher and student should have the measures numbered in their sheet music for easy communication. This is commonplace for music contests with judges and makes perfect sense for expediting clarity in distance lessons as well.

In designing this study, we thought beyond what had been studied in previous research and wanted to observe teaching presence. As Johnson (2018) noted, "Teaching presence focuses on the process of how the actual exchange of learning takes place" (p. 1427). The improvement of communication was our goal as it was recommended by Dammers (2009), Dye (2016), and Rockinson-Szapkiw (2018). Orman and Whitaker (2010) discussed their communication concern more explicitly as a sound quality issue. To that end, our study was focused on sound enhancements for both faculty and students, as well as light enhancement for teaching presence in the faculty member's studio.

The purpose of this study was to observe the effect of upgraded microphones, headphones, and webcams for student participants, as well as lighting and speaking microphones for students and the instructor over a 10-week fully online session of private lessons during the summer of 2020. Instructions for hardwiring the laptop into the home internet were also provided to participants in order to boost connectivity.

Methodology

The theoretical framework underpinning this study is qualitative using grounded theory through interviews. Following the model of Carey et al. (2013), we chose to use a case study approach. Cases studies are used to explore phenomena and encapsulate the essence of such experiences (Kruse et al., 2013).

The participants were four college-level students: a freshman, sophomore, junior, and a senior in a single studio taught by one terminally qualified faculty member with several years of face-to-face studio teaching experience. Students were enrolled for ten weeks of private lessons with the faculty member for credit over the summer with the same repertoire and jury expectations as a typical 16-week semester. The only difference was that due to COVID-19, these lessons and their juries would take place fully online. Each of these participants had studied with this particular faculty member in a face-to-face setting prior to the online lesson experience.

The three components of technology involved in this study were audio, video, and lighting. For clarity, each is addressed separately below.

Audio

A quality microphone can pick up the audio much better than the microphone installed in a typical computer. The computer has an internal microphone suitable for conversation, not musical instruments. Therefore, the choice was made to use a Yeti USB multi-pattern condenser microphone. Condenser microphones capture a larger frequency range and are able to better reproduce the sound of an instrument or voice. These were given to the students for their use at home to ensure high quality audio capture. In order to capture two sources, the instructor

utilised a dynamic Shure SM57 microphone on a boom stand for his voice and the Yeti USB multi-pattern condenser microphone for his instrument. To manage balance and convert analog sound to digital, a Zoom H6 Recorder interfaced these devices with the teacher's laptop. The students and instructor also wore headphones (such as the Sennheiser HD280 Pro Closed-back studio and live monitoring headphones) to eliminate sound feedback.

Video

It is important for music educators to not only hear their students during a lesson, but to see them. They need the ability to visually assess things such as posture, wrist, elbow, and shoulder position, anything negatively impacting breath support, and much more. Therefore, the use of video is essential during a virtual lesson as well. While not as detailed as the audio, the video needs to provide the instructor with necessary information to ask questions and give feedback to the student.

The Logitech C922 Pro Stream Webcam was provided to each student for their virtual lessons. Some students had webcams in their laptops. Students using external webcams provided separation from the laptop monitor. The students could then arrange the laptop in order to view the instructor and have the ability to direct the external webcam to fulfill the instructor's requested view. The instructor was provided the same webcam as the students.

Lighting

In virtual meetings over the past four months, we have discovered that there is always someone who doesn't realise their background is too bright or too dark. The result is a poor screen image that is often distracting for the rest of the attendees. Lighting is important so that faculty and students can see each other just like in the studio.

As in theatre lessons, we chose to use three-point lighting using a key, fill, and backlight option for the faculty studio. Light works like the sun; it comes from above and shines down. Key light is the main primary light source that covers the front subject portion. Position comes from the side, so a portion of the subject's face will be dark. Fill light covers what the key light is unable to cover such as the dark side of the face. Backlight separates the subject from the background. Good lighting can help the camera if a subject requires movement.

The instructor was provided with lighting fixtures. His key, fill, and backlights were Aputure Amaran HR672S Daylight LED Spotlights with the Softbox Kit on the key and fill lights. Students we asked to use natural light facing them or to choose a well-lit room.

Surveys

Near the eighth week of the course, students were sent an email with eight stimulus questions about their experience in the lessons. The primary purpose was to observe the effect of the upgraded technology on their experience in the lessons from the spring online lessons without the upgraded equipment (during the COVID-19 shutdown) and summer version with the equipment. The questions for the participants were:

1. What words would you use to describe your experience of online lessons this summer?
2. Are there particular things that you found helpful in online lessons this summer?
3. Are there particular things that you found challenging about online lessons this summer?
4. Can you describe the nature of your relationship with your teacher during the lessons this summer?
5. What changes (if any) to the instruction from Dr. Instructor's face-to-face to his online teaching style did you notice this summer? Were they effective?
6. Did you use the technology supplied to you (Yeti microphone, Logitech webcam, and Headphones)? How did it help in your lessons this summer?

7. What technology did you see Dr. Instructor use during the summer that he didn't use in the spring? Was it helpful to you? How so?
8. Is there anything else you would like to share with us about your participation in this study?

At the same time that the students received their survey, the faculty member also received a survey, albeit different questions. This one was phrased to see how a faculty member viewed the experience and the use of the technology. His questions were:

1. What words would you use to describe your experience of online lessons this summer?
2. Are there particular things that you found helpful in online lessons this summer?
3. Are there particular things that you found challenging about online lessons this summer?
4. Can you describe the nature of your relationship with your students during the lessons this summer?
5. What changes to instruction did you make from face-to-face to the online teaching environment for this summer?
6. Did you use the technology supplied to you (Yeti microphone, Logitech webcam, speaking microphone, headphones, Zoom, key/fill/back lights)? How did it help in your lessons this summer? Did students comment about it?
7. What technology did you see/hear students using on their end of the lesson? Was it helpful to you? How so?
8. What other technology(ies) would you suggest for the faculty or students use to improve the quality of online lessons?
9. Is there anything else you would like to share with us about your participation in this study?

Results

Student surveys were received from all four of the student participants prior to the juries at the end of the 10-week summer term. Their responses are summarised in response to each question to protect their anonymity.

1. *What words would you use to describe your experience of online lessons this summer?*

Participants used easy going, astonishing, efficient, adventurous, and uncharted. In expounding on those words, one wrote that he grew more as a musician and covered more ground in the online lesson format. Another wrote that the lessons were critical to his growth as a musician as well as much more fun and effective when compared to the online lessons that started after spring break.

2. *Are there particular things that you found helpful in online lessons this summer?*

Three participants centred on the instructor being more flexible with his scheduling during the summer which made it easier on them. A participant cited the microphone and webcam surely boosted the quality of lessons and submitted assignments. One described it as easier and another said that the instant contact and lack of travel helped him. "I have the equipment set up and it is an instant connection." He hypothesised that it might have been more helpful during previous semesters when he had early morning lessons and found himself consistently fighting traffic and rushing to make it on time.

3. *Are there particular things that you found challenging about online lessons this summer?*

One participant said nothing was challenging while two others said only the rare occasion when his Wi-Fi was low. A third participant discussed the process of setting up the webcam and microphone each time just as he had the time before so that the settings were the same. He also discussed the slow upload during daily assignment/videos to OneDrive for the instructor.

4. *Can you describe the nature of your relationship with your students during the lessons this summer?*

Participants discussed the access to the instructor in broad terms such as communicative, very accommodating, reliable, understanding, and efficient. Never an issue to get in touch with the instructor. Two participants did go on to discuss the relationship a bit more reflectively. One said it was relaxed like normal with little difference to

his face-to-face lessons. The other mentioned how the lessons over the summer allowed him to see his instructor face-to-face, albeit through a screen, and that was 150% better than not at all.

5. *What changes to instruction did you make from face-to-face to the online teaching environment for this summer?*

The participants had a wide variation of answers here from no real changes to some insightful comments. The no changes participants said the switch was seamless in structure of the lessons which is what helped keep them accountable for their progress over the 10 weeks of the summer term, or helped them expand as a musician. Another addressed that the instructor changed his assignment of two hours of practice video uploaded each day to only the best 'reps' of the assignments for that day.

The most interesting comment concerning the different of modalities mentions how the instructor would play something for the participant in his face-to-face lesson to illustrate how it should sound. However, in the online lesson, the instructor described it and helped the participant use different emotions to produce the right sound.

6. *Did you use the technology supplied to you (Yeti microphone, Logitech webcam and Headphones)? How did it help in your lessons this summer?*

The participants used words of pleased, extremely helpful, much better results, and optimum sound to describe the use of the supplied technology. One mentioned that he didn't have to worry about his mic being too hot when switching from speech to playing as the mic compensated automatically. He also mentioned that the webcam helped to make videos and live meetings look better. Two participants discussed the settings for the microphone as challenging or tedious at first. A participant discussed it as playing with the settings and the distance of the microphone, then wrapping the microphone with a t-shirt to get the sound right. He finished by saying he was looking forward to learning more about this sound technology in the future. One participant claimed the webcam gave a clearer picture and the microphone provided a more open and clear sound.

7. *What technology did you see Dr. Instructor use during the summer that he **didn't** use in the spring? Was it helpful to you? How so?*

Participants knew that this was a study of the technology, so they were aware of some technology to look for during their lessons – especially the same materials they were using. However, they mentioned that and described his use of different monitors/iPads to toggle between mics. One participant mentioned the technology enabled the instructor to hold a virtual studio class that was more efficient than the previous face-to-face version. A participant pointed out that the technology made the virtual lessons consistently close as to face-to-face.

8. *Is there anything else you would like to share with us about your participation in this study?*

Participants were very positive in response to this study. One exclaimed "Loved this semester of lessons. Genuinely surprised how much I enjoyed it. I'm really excited for the next semester even if lessons are online again!" Another commented about his progress over the semester being "leaps and bounds" and that the technology worked fabulous. A suggestion did surface that if students have MacBooks, they will need to be provided an adaptor to use the microphone and webcam which are USB 'plug and play' technology. A final comment from a participant suggested that the pandemic is a challenge for everyone, yet "it was very productive and glad I was able to experience these virtual lessons".

The studio faculty instructor for this study provided his response to a different set of nine survey questions prior to juries at the end of the 10-week summer term. His responses are provided in summary of the project rather than per survey question.

The instructor found the online format convenient as he found a way to monitor his students' quality and quantity of practice. He cited that the challenges online were hearing tone quality, such as the overtones, and working on sound in particular is most challenging for a wind instrument. The change from face-to-face to online lessons necessitated a small change in being more flexible in scheduling, receptive, and gracious with technology issues such as lag. He hoped this would ease the transition for the younger two students and boost their confidence in the virtual lessons. The instructor did not ultimately use the lighting equipment due to plentiful natural light in the room he used for lessons that were always held during the daylight hours. His reflections were that the headphones and Yeti microphones were the best of all the technology implemented for this study. He saw the participants using their Yeti microphones and webcams, yet shared that the bandwidth was an issue for some students in remote areas due to the higher quality of sound and video feed. His suggestion was to ensure that all students are using wired internet access and not wireless. The instructor used a CAT 7 cable to wire into his home internet so as to limit the possibility of lag on his end during lessons. In closing, his comment was that he loved doing online lessons much more than he expected, though he admitted it's not live. "It's close, but still not the same."

Discussion

The importance of relationship between the master and student (Gaunt, 2008; Jorgensen, 2014) was evidenced in the instructor's decision to become more flexible in scheduling, receptive, and gracious with technology issues such as lag. The participants cited this change in response to questions one and two with words such as easy going and flexible. The relationship was cited in the literature review as one caring and nurturing, yet also as hard and demanding. That dichotomy is present in these finding as well as one participant mentioned in response to question one that he covered more ground and grew more as a musician in this online lesson format. Yet another student remarked about the change in daily practice videos from two hours in the spring to only the best 'reps' during this summer term.

Evidence of one-to-one lesson structure (Jorgensen, 1986), and the components of the lesson (Duke & Simmons, 2006), were found in the survey responses from students. One response mentioned the switch was seamless in structure and that lead to their eventual progress over the 10-weeks of the course. There was also a mention of the daily video assignments given to students to upload to OneDrive, a component of the Microsoft 365. While we are not sure of the exact content of the daily assignment videos, the student describes them as the best 'reps' for that day.

The students' assessment of the studio faculty, as discussed in Mills (2002), is evidenced in the participants responses to survey question seven. The students were keenly aware of the instructor's use of technology during their lessons and one went further to describe how the technology even improved the studio class over the face-to-face experience.

The challenge for the online one-to-one lesson is to overcome the ability for the instructor to physically manipulate or help the student (Enloe et al., 2013; Pike, 2015b; Jorgensen, 2014). The studio instructor for this study specifically mentions this in his comment about challenges in online teaching as he could not hear enough tone quality and overtones to suggest changes to the air. Even with the high-quality condenser microphones, the sound was not good enough for him to make those judgements.

Latency was cited in the literature review (Pike, 2015b; Kruse et al., 2013) as a limitation of one-to-one online music lessons. In this study, only one participant mentioned lag or latency in a short comment, yet the instructor was concerned with it since the planning for this project. He specifically made the choice to be more gracious on students with technology issues during this online study.

While he did not mention latency issues in his comments anymore, he did suggest that all students must connect via wired internet access rather than wireless during future online lessons.

Previous studies discuss an increased reliance in questioning as an instructional method by faculty (Dye, 2016; Dammers, 2009; Pike, 2015a). As in the literature, this case study confirms the finding as evidenced in one participant's reply to survey question five concerning the change of instruction. He points out how the instructor used to model how he wanted something to sound while in a face-to-face studio lesson. However, in these virtual lessons, the instructor described the sound using different emotions to help elicit the sound he wanted out of the participant.

The tools used in online music courses, as described by Johnson (2013, 2017) and Keast (2018), should be selected to make the most significant impact on student learning. For this study, some of the tools were chosen for the instructor and those were the technology implemented and studied: Yeti USB microphone, Sennheiser headphones, and Logitech C930e webcam that were supplied to the participants for instance. The tool chosen by the faculty was OneDrive where his participants have access to massive storage space supplied by the University for uploading daily assigned videos.

Constructivist pedagogy, noted by Keast (2009), is prevalent in most performance-based and applied music courses since students immediately apply new knowledge, receive feedback through listening to themselves or from their peers, conductor, or studio instructor. This case study confirms the presence of constructivism with participants discussing their growth as musicians over the summer term and that the structure helped to hold them accountable over the 10-weeks.

Technology gaps that were discussed in the literature review (Blackburn & Hewitt, 2020; Damon & Rockinson-Szapkiw, 2018) were not as present in this case study. The course instructor is deemed fairly tech savvy, and three of the four participants are tech savvy as well. The fourth participant is acceptable with technology, yet is from a lower socioeconomic situation that precludes his use of some higher end electronics. One of the participants in this study did mention in his response to question six excitement to learn more about sound technology in future music courses.

The course instructor discussed his individual planning by finding a new way of monitoring students' quality and quantity of practice through daily video assignments uploaded to OneDrive. This type of individual planning, as explained by Jorgensen (1986) and Johnson (2013b), is essential for the growth of the particular student. The instructor was able to listen to the daily assignments to monitor progress and provide feedback throughout the week or wait until the prescribed lesson time.

The Logitech C930e webcams were supplied to each of the student participants, as well as the instructor in an effort to clarify the nonverbal communication discussed by Damon and Rockinson (2018). The instructor confirmed that all students used the supplied webcam in his survey response. Other than the instructor, a participant mentions that the webcam made his videos and live meetings "look better". The higher definition video camera was intended to create a better experience for the instructor and student so they could see each other's facial expressions, body movements, and instruments. While the surveys did not confirm those findings, the surveys did not mention derogatory visual issues either.

Motivating students to prepare for their lesson is not a clearly defined role (Fredrickson, et al., 2012; Frederickson et al., 2013; Persson, 1996b). Studio faculty are not in agreement of whose job it is to motive the student. The instructor of this study provided evidence of motivation in that he changed his policy to be more flexible in scheduling, more open and receptive to students, and to be gracious with their technology issues. He also showed compassion by limiting their daily assignments as evidenced in a participant's reply to question five where he normally would request two hours of daily

video upload which was reduced to just the best 'reps' of the daily assignment for the summer term.

Collaboration and duets were not observed in this case study. As mentioned in the literature (Blackburn, 2017; Pike & Shoemaker, 2013), these types of activities would have been stimulating to the participants in the study. However, the course instructor did include the studio class where students used time to perform and critique one another. Had the instructor used that time to perhaps perform duets in prerecorded layers it may have been a fresh approach to the studio class.

A final connection to the literature review was the administrative assessment of the studio instructor. Whereas this case study was not designed to serve as an opportunity to assess the instructor, the instructor could have recorded his lessons on the platform (Zoom or Microsoft Teams) and provided a link to the recording for an administrator or accreditation visitor to observe with minimal distraction to the actual lesson.

Newer technologies and open sources

The newest addition of the Spirio piano by Steinway & Sons will further the virtual work of the studio teacher. A collaborative pianist can record their part and send it through the cloud to an awaiting student across the globe. The student can download the file onto their device and hear it played as if by a Steinway piano, manipulate the tempo either faster or slower, and even create a new clip for practicing. If the student is a vocalist, the recorded file can be altered to play at a different key – either higher or lower depending on the student's preference. The saved version can be exported to an iPad and taken to another Spirio piano and the piano reads the file to perform acoustically with the singer or soloist. This technology allows musicians to hear our ideas in collaboration with others at a distance.

A 2012 start-up company, Collabra (www.collabramusic.com), is a cloud-based learning management platform focused on the performing arts to assist in seven key areas.

1. Accountability for faculty to verify student practice sessions stored on the cloud server for access by the student and faculty via a heat map for a studio to understand the health of a studio's practicing habit.
2. Asynchronous lessons on split screen, scale lessons, enhancement practice,or reinforcement lessons stored on the cloud server for access by the student and faculty.
3. Advice via feedback loops with bookmarks in videos for notes and comments.
4. Assessments that are easily created by the faculty and pushed out to individuals or who ensembles with specific measures or whole exercises to record, number of attempts allowed, time limit for each attempt, and dates allowed for the assessment. The assessments could also handle the 'final exam' for private lessons – the music jury in times of crisis like COVID-19 when face-to-face is not possible.
5. Affirmations via feedback from faculty between lessons through bookmark questions sent from students in practice session videos to the faculty. During time in a daily practice, students could have a question about a fingering, pronunciation, or other challenge that a faculty member could address quickly. The student bookmarks that part of her/his daily practice video, types a question in the message next to the bookmark, and sends it to the faculty member. The teacher can reply immediately, during a break,the evening, or not at all. However, in Brook and Upitis (2015) using a similar system as Collabra, they reported that students enjoyed receiving feedback from teachers and that it further enhanced their enjoyment of music learning.
6. Auditions for admission, group review, super groups, blind auditions, or other options for methods of captioning student auditions for ensembles or auditions for admission.
7. Collaboration to engage practice and play/combine music with others to create a digital performance for streaming online.

Open source and freeware is a growing movement that may offer hope for our future. There are already some open source Music Theory, Music History, and Music Appreciation textbooks receiving good reviews and a highly acclaimed aural skills tool free called Teoria. The hope is that the COVID-19 pandemic may lead to more of these freeware sites and resources in the near future.

Closing

During the pandemic, most educators rushed through Puentedura's (2006) SAMR model from substitution, augmentation, and modification to the redefinition level. The SAMR model acts a tool to discuss the level of technology integration into an activity or course. With substitution (S), technology is a tool that has no functional change. However, in augmentation (A) there are functional improvements. As the technology penetrates the activity beyond an enhancement into transforming to a modification (M), the faculty has significantly redesigned an activity. By the level of redefinition (R), technology has allowed for the creation of a new task altogether. For studio musicians, this might have been a whirlwind tour of educational technology. Some faculty were dismayed at the lack of technology to interface with their students while others found the advances encouragingly optimistic.

The willingness of the faculty member to try new tools and experiment is what is most important to the future success of online learning for music lessons. "An online course could achieve successful results in music performance" (Blackburn, 2017, p. 70). Optimism and technological advancements will eventually meet the challenges we are currently facing in the COVID-19 pandemic and beyond.

In rural areas, there is a need for music instruction that can be filled by online lessons. Something is better than nothing in some respect. Yet one must also start to dream as Dammers did in 2009, "Imagine a national online community music school in which students could select teachers from anywhere in the country or world" (p. 6).

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