

# INNOVATIVE ONLINE MUSIC TEACHING: REFLECTIVE PEDAGOGY AND STRATEGIES FOR AUTHENTIC DUAL-MODE (ONLINE AND FACE-TO-FACE) DELIVERY IN MUSIC PERFORMANCE

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*This paper reports on a dual self-study undertaken by two university music instructors as they reflect on their practice across an 18-month teaching period. It examines the delivery of a second instrument class (woodwind and guitar) across three consecutive semesters. The context of the lessons employed dual-mode teaching, where some students attended the class in real-time as face-to-face (F2F) participants, while others could only attend online via Zoom. This type of delivery is called dual-mode teaching. Using regular reflections, annotations, meetings, and discussion, the two instructors examined the affordances and challenges that arose. They created a detailed overview of key pedagogical, technological, and social considerations that emerged. Overall, both instructors identified the importance of pedagogical design through the creation and the implementation of their dual-mode teaching, whereby the varied needs of students were considered within each lesson through ongoing formative assessment and ongoing feedback about the design of the learning environment. Strategies that enabled sustained application of varied digital technologies with (F2F) students and those online were paramount, fostering the alignment and balance of teaching practices employed to support student well-being and engagement. Technology device management, learning design, student collaboration, assessment, and feedback mechanisms employed to support dual-mode teaching were examined in detail as instructors analyzed their own practice. A range of strategies for camera and audio setup and pedagogy are discussed, coupled with approaches that supported authentic learning.*

**KEY WORDS:** online learning, music teaching, performance teaching, self-study, music technology, digital instruction, authentic learning, learning design

## 1. INTRODUCTION

It is widely acknowledged that music teachers around the world were expected to modify and adapt their practice in response to the pandemic, across a range of blended, hybrid, and

collaborative contexts (Joseph & Merrick, 2023; Kuebel & Haskett, 2022; Merrick & Wilson, 2023). Often taught in a traditional classroom context, a broad range of music teaching experiences were reported within the field of education (Ferdig et al., 2020; Kupers et al., 2022) and highlighted myriad of ways in which educators responded. Due to the immediacy of transition to the online environment, many instructors reported the challenges of teaching music online (Joseph & Merrick, 2023). The subsequent difficulties and opportunities that arose due to the emergency remote learning illustrated the diverse ways in which many music teachers pivoted, adapted, and reset their teaching as they responded to the pandemic (Calderón-Garrido et al., 2019; Joseph & Merrick, 2021; Schiavio et al., 2021). Yet, the impact on teaching, and pedagogy more broadly, has yet to have been fully reviewed, explored, or applied in the context of music education. As such, there is a need to identify the new approaches employed and the lessons learned within the context of music performance teaching across the tertiary setting.

A key consideration central to effective, quality teaching and pedagogical innovation, while employing educational technology, is authenticity (Johnson & Lamothe, 2021). That is, whatever teaching or learning taking place should reflect the future real-world experiences found in music careers. The need for authentic experiences further highlighted the importance for instructional practice to draw upon existing online teaching frameworks (Johnson, 2020, 2022; Merrick, 2020) to support teachers as they move from traditional modes of delivery to explore new and innovative practice.

The central focus of this article examines the question, How can we create authentic teaching and music performance environments for all participants within a dual-mode class (with students attending class synchronously on campus via F2F and online) and fully participate in ongoing musical performance activities during class?

## 2. BACKGROUND

For those unfamiliar with music teaching, it includes both one-on-one music lessons, small group instruction, as well as large classroom and performance ensemble teaching contexts. The online environment provided music students with key components of tertiary music learning courses prior to the pandemic. This included music performance (Harrison et al., 2013), music assessment (Orange, 2022; Zhukov, 2015), music appreciation (Eakes, 2009), music history (Hunter, 2011), music teacher education (Keast, 2009), and the refinement of expertise and facility through reflection (Carey et al., 2018). The shifting of all tertiary music teaching to the online environment during the pandemic evidenced an unprecedented opportunity for all music students to experience learning online, which fostered the development and refinement of new and more purposeful teaching approaches.

As we reflect on the teaching practices adopted during the pandemic, there were noticeable increased integration and creative applications of information and communications technology (ICT) and music technology among instructors (de Bruin & Merrick, 2023; Merrick & Joseph, 2023). Musicians' core learning experiences involve performing music together, and this collaboration and sharing of music conversations is paramount to our music learning. During

the pandemic the teaching and learning experiences of instructors and students identified the critical importance of sustained communication across the higher education environment.

The technologies used to support the learning exchanges during the pandemic needed to reflect our *real-world context* of music performance. That is, music students were required to connect online to overcome the isolation of lockdowns and locate technology that mirrored or simulated the feeling of performing together. Technology use in higher education music teaching was not optional to teach students in isolation. Music educators sought to use communication tools that supported authentic music learning outcomes. Technology, like Zoom, invited students to connect as equals, within and outside the online learning environment, using communication software (Johnson & Merrick, 2020; Onderdijk et al., 2021) and a learning management system (LMS) canvas. Some educators chose to use video technology so that students could record recital performance for assessments (Ritchie & Sharpe, 2021), while others used video to support personalized instructor feedback (Blackburn & Johnson, 2023). Challenges arose for those music educators new to digital technologies as well as those with more advanced technology skills. Tertiary music educators shifted their teaching online and undertook professional learning to enable students to complete their subjects and degree programs online (Merrick & Johnson, 2020).

The forced pivot experienced by instructors of music to online delivery, particularly those working in the music discipline within the tertiary context, necessitated a clarification of key teaching roles. Here it was critical for instructors to regularly examine and reframe their teaching practice, almost weekly, as they reviewed the modality and the lens of delivery (Joseph & Lennox, 2021). Of central importance was the need to ensure that content, knowledge, and skills being taught were specifically designed to meet the teaching outcomes, driven by student needs within their area of study. Instructors integrated myriad of digital software and devices daily. Communication software such as Zoom was the preferred program and became the standard “teacher toolkit” that accompanied a wide repertoire of teaching strategies. To maintain authentic and purposeful teaching and learning modes, instructors evidenced that they could teach and deliver in new and more effective ways (MacRitchie et al., 2023). One of these ways was teaching both online to students beyond the classroom walls and in-person classroom teaching (F2F) at the same time. This is termed dual-mode teaching.

While dual-mode teaching requires different pedagogical methods when compared to a single-environment mode of teaching, the use of dual-mode delivery provides opportunities that go beyond the regular F2F music pedagogy. For example, the common conduit that connects the students and staff is often the LMS. It supports and houses all teaching resources, materials, announcements, and recordings, which enables students to access everything regardless of their modality, supporting both synchronous interactions combined with asynchronous interaction. Drawing on features of HyFlex learning (Beatty, 2014), students participating in dual-mode learning have the choice and flexibility to engage in learning online or located in the physical classroom. In addition, by offering the choice of mode to tertiary students, it provides the opportunity to have a voice in the selection of the teaching modality that suits their needs and learning progression.

As instructors continued to create and deliver teaching materials each week there was an inherent ongoing application of reflection on practice that has become an accepted component of learning in higher education (Barton 2014; Blair, 2012; Norton & Campbell, 2007). Before long, instructors were developing new pedagogies to complement the needs and changes that students were experiencing through the application of dual-mode delivery. Instructors became more aware of the affordance of various digital tools which were illustrated through developing resources, curriculum, and learning designs that supported the ongoing application of dual-mode learning approaches to maintain a high level of engagement for all students.

The need to fully examine approaches to teaching music performance online and the lens of disciplinary authenticity is considered through detailed interrogation and review. The purpose of this is to connect Anderson et al.'s (2001) *community of inquiry* model—which includes teaching presence, social presence, and cognitive presence—and examine the intersection with components of Johnson's (2017) teaching music online pedagogy to attain effective student learning outcomes.

Using a dual self-study methodology (Samaras et al., 2008; Samaras, 2011), two instructors in Australian tertiary institutions collected, developed, and maintained ongoing reflective journals, annotations, and fieldnotes about their own teaching practice. The collection took place while delivering an instrumental subject for students at a conservatorium of music during COVID. In this dual self-study design, the instructors regularly shared and reviewed their teaching practice through a reflective lens and ongoing collaborative critique and review of practice.

### 3. REVIEW OF LITERATURE

#### 3.1 Authenticity

Within music education, one of the key factors for consideration is to ensure that authenticity is maintained within the teaching environment. In the context of music education, authenticity refers to the connection between the learning environment and the real world (Bialystok, 2017). The creation and delivery of authentic tasks and activities should specifically reflect the discipline of music performance and learning, whether it be as a future music performer, instructor, conductor, or other. Wiggins (1989) highlighted the importance of creating authentic tasks for learning to be effective and transferred, suggesting that they engage “students in the actual challenges, standards, and habits needed for success in the academic disciplines or in the workplace” (p. 706). Ensuring discipline authenticity is a priority and should be reflected across the entire teaching process. This means extending the action of the teacher beyond a focus on strategies, resources, and delivery, and furthermore, ensuring that the design of any tasks or assessments required of students are purposeful within the context and develop the reflective skills and capacities they will require in their future career.

Acknowledging the “what” and “how” of assessment are critical in the online teaching process (Johnson & Lamothe, 2021). Drawing on multiple researchers in the field of education and educational technology, Johnson and Lamothe outline the need for authentic assessment in online music courses to address teaching presence within the assessment of learning design and are supportive of universal design for learning (UDL) (Rose & Meyer, 2002). “Authentic online assessment for music students should provide students with opportunities to demonstrate their knowledge and skills in collaboration and in multiple ways. Such assessment examples could include video presentation and/or projects, music performance portfolio development, written (i.e., text-based) articles or papers, digital project development, and oral presentations” (p. 269). The accompanying use of strategy, innovation, and media integration are critical in realizing and sustaining authentic and relevant teaching (Merrick, 2020) through the adoption of a growth mindset (Dweck, 2017) and the interconnection and refinement of components drawn from prior, traditionally accepted practice.

Teaching and learning needs to reflect the real world so that students continue to interact with the problems, environments, and situations from which they can develop skills and knowledge in combination with essential life skills to manage their future. This also speaks to the imperative for music education to be looking toward emerging developments, pedagogies, and learning needs that may arise in music disciplines. This suggests that as we future proof music education, we must investigate sustainable, accessible, and financially feasible approaches to support quality music instruction for all students.

### 3.2 Interaction through Technology

Like all technologies that have evolved throughout history, instructors need to be aware of the different constructs around which the technology can be applied, integrated, and modified to meet the needs of the learner across a multitude of learning levels (Smirnova et al., 2021), including digital differentiation (Haelermans et al., 2015). When examining the affordance of technology as a digital device within the teaching and learning process, considering the ways in which human beings interact with the technology to facilitate connection is critical. Further combination with the ways through which technology allows for instruction and interaction, and attainment of learning outcomes (Lai & Bower, 2020), is necessary. Once the examination of the interactions and processes within the teaching have been reviewed, it provides a series of clear reference points through which teaching can be designed and delivered with increased clarity and purpose. Using existing frameworks and models for the integration of technology in teaching and learning also provides focus for discussion, particularly around key areas of pedagogy, technology, and social connection (Wang, 2008; Wang & Huang, 2018).

Successful teaching practice requires multiple aspects of the learning process to be embedded through a complex digital interface that consists of devices, software, online connection (speed and quality), location and the technological proficiency of the user. There are several key areas that require detailed planning and attention if the teaching process is to



be successfully connected with the student, providing them with an opportunity to participate and succeed.

### 3.3 Pedagogy and Connection

The domain of pedagogy refers to the choice of strategy and activity employed to facilitate the learning outcome. The integration of digital technology requires that the instructor breaks this down into multiple components to ensure that engagement in learning occurs and that success can be experienced for all students. Pedagogy must reflect the real world in its online context and dual-mode environments. The instructor needs to consider the two-dimensional world for the online students and the three-dimensional world for the classroom students, requiring considerable and thoughtful teaching strategies that allow the dual-mode synchronous learning cohorts to master learning outcomes (Johnson, 2020; Merrick, 2020).

Effective design and selection of pedagogy involves considerable preparation and awareness of the student cohort to ensure that music performance opportunities provide access for the varied student interests, instrumental backgrounds, and diversity within both the online and F2F delivery groups (Boelens et al., 2018). Dual-mode music performance teaching requires the authenticity of engagement for all students through considered learning design. For learning to succeed, opportunities that enable access to varied technologies and pedagogy, coupled with demonstrations that illustrate and scaffold teaching practices, are critical. In music performance, audio and video need to be clearly heard and observed through the lesson through effective application of multiple technologies. This supports the clarity to demonstrate a range of sound qualities, dynamics, phrasing, and tone color associated with the different melodic, harmonic, and rhythmic roles of each instrument. The teaching process needs to be coconstructed with the learners, providing opportunities for both collaborative and individual engagement as needed.

The pedagogical opportunities provided by technology, specifically Zoom and other communication software, is unique in the dual-mode context. When creating collaborative and coconstructed connections online, the nonhierarchical structure is experienced due to the use of technology across two dimensions (sound and visual). The functionality of communication software, and related breakout rooms, supports and provides a range of opportunities for performance and highlights the different ways that students choose to participate as part of the F2F classroom. Similarly, the dependence on technology affects the pedagogy required to develop and foster aspects of self-reflection and self-regulation (Merrick, 2020) throughout the opportunities provided by synchronous and asynchronous tasks. This means that the instructor is open to continually assessing and refining their own teaching practice, recreating lesson delivery, related activities, and lesson outcomes so that the pedagogy reflects the best way to employ the use of technology to support effective, authentic teaching practice.

## 4. METHODOLOGY

The collection of data for this self-study was comprised of a period of 18 months (three teaching semesters) in Australia. The two instructors taught the same instrumental subject via dual-mode delivery. The instructors shared their practice after each weekly, one-hour class. Discussions focused on lesson planning, technology use, and preparation of LMS materials and activities, combined with having regular reflective dialogue and critical friendship interactions to interrogate and review practice. Through collaboration, collective interpretation, and critical examination of data, key factors related to the teaching process in the dual-mode context were examined. Critical conversations about the use of technology, and adjustments and modifications made to support ongoing student needs were generated. The recursive nature of Samaras's (2011) self-study research framework involves the following factors:

- Personal situated inquiry
- Critical collaborative inquiry
- Improved learning
- Transparent research process
- Knowledge generation and presentation (Samaras, 2011, p. 71).

The methodology was twofold in that it allowed for an understanding of the dual-mode phenomena to emerge, coupled by an ongoing understanding of the self-study process as part of the teaching and learning cycle that each instructor was engaging in as part of the subject delivery for their respective instrument. Key questions in the collaborative and critical discussions focused on areas such as

- What aspects of the dual-mode teaching pedagogy are working well?
- What components of the dual-mode LMS design, assessment, and implementation are effective?
- What are the resources, technologies, and approaches that are being developed and working well?
- What are the challenges and modifications to teaching that are required?
- What are the necessary and proposed changes that are needed to sustain authentic subject delivery across both modes?

The 18 months of the teaching process and the concurrent delivery of dual-mode teaching sessions (across three semesters of 12 weeks each, plus examination periods) provided a large amount of data. The instructor-researchers regularly met and reviewed their experiences, reflections, annotations, and ongoing feedback about the teaching episodes, looking to understand and improve their practice. Importantly, the researchers sought to

understand their roles within their practice, specifically focusing on their teaching of music performance in the dual-mode format (Lunenberg & Samaras, 2011).

## 4.1 Dual Mode: Eighteen Months of Online and F2F Teaching

Given the nature of the secondary instrument class, students are already professional musicians on a primary instrument. The secondary instrument class allows them to reacquaint themselves with what it was like to be a beginner-level learner on a new musical instrument. A guitar class and woodwind class are represented in this self-study. Both instructors have taught all school levels, combined with undergraduate and postgraduate music performance on their respective instruments.

The secondary instrument class provides master's-level music performance, teaching students with opportunities to learn the basic rudiments of their chosen secondary instrument. Across the 12-week semester, the following are explored: basic technique, scales, beginner and intermediate solo and ensemble repertoire, group ensemble teaching, and music pedagogical concepts and teaching approaches. Students encounter three assessments across the semester, including a midsemester performance exam, a composition/arrangement task, and a final folio assessment that focuses on secondary instrument teaching.

## 5. DISCUSSION OF FINDINGS

For this paper we discuss key areas that emerged from the dual self-study. Four thematic domains were identified from the data collected: (1) pedagogy, (2) formative assessment, (3) well-being, and (4) technology use and strategies.

### 5.1 Pedagogy

#### 5.1.1 Learning Design

The implementation of dual-mode teaching for online music classes was novel for both instructors. Faced with the challenge of not teaching full-time classes in dual mode prior to the 2020 pandemic, the outcomes of learning design resulted from both the researchers' background in online learning and extensive use of digital technology in teaching.

Through conversations and collaborations, both instructors identified learning designs that would allow all students (F2F and online) to experience authentic music learning. Key elements to the implementation of dual-mode teaching design meant that both instructors required additional setup time (which was usually around one hour) prior to start of the class to allow for testing technology, as well as ensuring internet connectivity was enabled. Learning and assessments were carefully scaffolded to ensure students were able to use any



new technology or skills without feeling overwhelmed. Careful consideration for assessment planning also included the coordination of assessment times with other concurrent classes that students were taking. This highlighted the need to connect learning design with student well-being.

Instructors use the elements of UDL in both the creation of weekly classes and with assessment planning. This allowed instructors to support students in their ability to represent their knowledge and skills in multiple ways and assessments (Rose & Meyer, 2002). Examples of dual-mode activities included group performance for those students in the classroom environment, duet performances for students within the Zoom class environment, call and response performance, student conducting activities, and play-along with backing tracks. Additional examples of activities completed by students outside of their regular class time included individual practice sessions, Zoom room practice and collaboration with peers, watching short instructor-made teaching videos, video journaling and reflections, and performances with music tracks supplied by the instructor. Through purposeful and creative teaching design, the instructors created a variety of authentic dual-mode activities to support a diverse range of student needs.

### 5.1.2 Clarity of Communication

Organization and communication clarity was paramount. Clarity of content learning was supported by ensuring that students understood the overall class objectives and scaffolded content across the semester. This was evidenced by consistent use of content slide decks prepared as PowerPoint slides that were released 24 hours prior to each class with the inclusion of the semester's assessments and topics and any updates required due to the changing nature of the class due to the impact of the pandemic. Careful communication ensured that all students had a physical instrument (either a guitar or woodwind instrument) prior to the start of the semester (which was delivered by courier to students due to isolation). Students also knew how to access additional reeds, strings, music books, etc. that were required during the semester.

Providing students with quick response to email inquiries, as well as providing multiple ways for students to contact their instructors, furthered assisted clarity of communication. This highlighted how the exchange of email, LMS direct messages (for student-to-student communication that supported privacy), and updated webpage content, etc. supported student access and decreased students' levels of anxiety within the unprecedented time, as also identified by Brown et al. (2022).

The LMS content was organized by each instructor. LMS instructional design was unique to each subject and supported their specific pedagogical approaches and instructional design for each instrument. As observed in Figs. 1 and 2, broad organizational modules (e.g., weekly teaching resources, assignment overviews, videos, reflections) were used in the guitar and bass guitar LMS subject area. Comparatively, the woodwind section of the LMS used a more specific topic-based structure due to the multiple instruments taught in the class (covering

▼ Guitar & Bass Guitar Section - [REDACTED]	⋮
📄 Guitar - 2nd Instrument Study	⋮
📄 Weekly Teaching Resources - weeks 1-6	⋮
📄 Weekly Teaching Resources Weeks 7-12	⋮
📄 Assignment overviews	⋮
📄 Guitar Lessons and Videos to watch	⋮
📄 Resource portfolio - PDF and also guidelines	⋮
📄 Additional Performance resources	⋮
📄 Student videos	⋮
🗣️ Guitar reflection and video upload	⋮
📄 Assessment requirements	⋮

FIG. 1: Guitar and bass guitar section content organization in LMS

▼ Woodwind Section [REDACTED]	⋮
This folder is for students in the Woodwind cohort [REDACTED] The assessment descriptions, grading rubrics, and recordings are specific to the woodwind cohort. [REDACTED]	
📄 Welcome to 2021 Woodwind Cohort (Secondary Instrument)	⋮
🔗 Subject Guide -Woodwind Cohort - Sem 2 2021- Please read before July 28	⋮
📄 Getting Started on Your New Instrument	⋮
The information below outlines your assessments, and provides additional supports on how to use some of the technology you may want to use to make videos, recordings and websites.	
📄 Assessments for Woodwind Cohort - Detailed	⋮
📄 Video Journals - What to include in them	⋮
📄 Using Wordpress.com for your folio project-3	⋮
📄 Final Performance Exam Sign up Sheet-2	⋮
📄 Folio Assessment - Quick Info	⋮
Help Guides for Getting Started on Your Instrument	
📄 Instrument Assembly and Instrument Care	⋮

FIG. 2: Example of woodwind section content organization in LMS

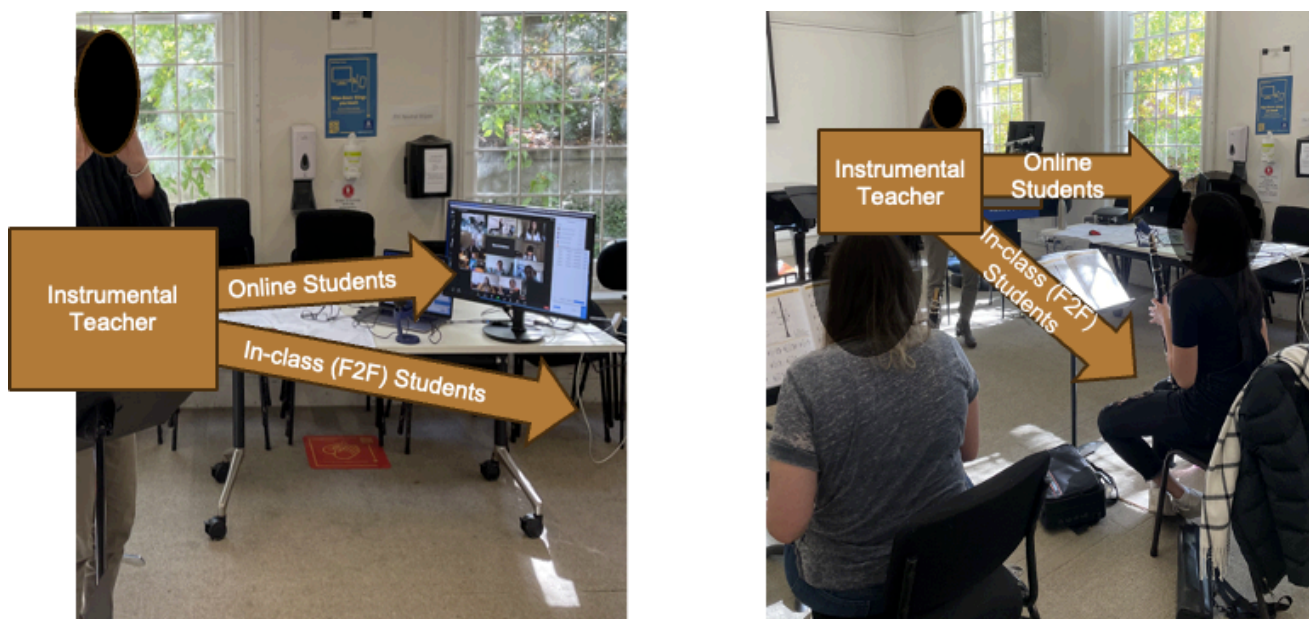
instruments such as flute, alto saxophone, bassoon, oboe, clarinet, and tenor saxophone). The organization of teaching content contributed to clear communication across the subjects.

### 5.1.3 Teaching Strategies

A range of pedagogical approaches emerged during the self-study. The overnight shift to forced online teaching in semester one of 2020 provided the impetus and catalyst for the exploration and implementation of dual-mode delivery when some students were able to come to class during the small windows between lockdowns. As the self-study progressed, we identified, shared, and observed each other's teaching strategies. Together, we evidenced more creative and exploratory teaching approaches that resembled more collaborative ensemble approaches rather than individual tuition learning. The inclusion of purposeful pedagogical approaches that enabled students to make connections with each other through authenticity of music-making experiences is further supported by the research of Waldron (2009).

### 5.1.4 Authentic Group Playing in Dual-Mode Music Teaching

Another key pedagogy used was authentic music teaching through group playing and listening. To support authentic music teaching for both student cohorts (F2F and online), the instructor talked, played, and listened to and engaged with all students across the dual-mode delivery. As displayed in Fig. 3, the instructor was positioned at the front of the classroom with the online students visible in a separate monitor on the left side of the classroom, with in-person students more central and to the right. The consistency of online student monitor's placement and F2F student classroom position allowed for predictability for both student



**FIG. 3:** Authentic group/ensemble performance in dual-mode teaching

groups and the instructor. (N.B. Placement of technology is further described later in this paper). The research of Omelchenko & Ferguson (2023) supports the use of large orchestral rehearsals using similar Zoom techniques, resulting in successful student music-making outcomes.

During class time, the online and F2F students had multiple opportunities to perform in solo, ensemble, and in “muted duet” fashion. (N.B. A “muted duet” is exemplified when online student A has a microphone and speakers on while online student B has only speakers on.) Students in the F2F class listened and played along with each other in the classroom, as per traditional ensemble playing. This teaching approach was deemed authentic due to the synchronous listening and performing skills required for the activities involved (Bialystok, 2017). It also further supported the integral authentic music-learning skills of small group music performance as noted by Ginsborg & Wistreich (2010).

### 5.1.5 Self-Regulated Learning Activities

Instructors regularly reflected on the process of learning an instrument and reinforced the expectation for students to undertake practice outside of their regular class time. Students were encouraged to rehearse with each other in Zoom rooms throughout the week. This provided regular opportunity to connect with other students during this time. Both instructors noted and observed how this supported students' self-regulated learning (SRL) (i.e., motivation, time management, confidence, etc.) as they became more familiar with the dual-mode delivery. To further support SRL, three-minute weekly video journaling activities of student progress were introduced as a formative task and then shared in the discussion forums.

The use of focused SRL activities was further supported through the addition of weekly Zoom cohort chats (Johnson & Merrick, 2020) that were held outside class time. The 60-minute sessions allowed students within the cohort to highlight challenges and opportunities they had throughout the week, as well as foster community connection across the large student cohort. McPherson (2022) identifies the importance of self-regulated learning for music students, as well as the need to be able to achieve competence through connecting learning ideas as part of individual music practice.

### 5.1.6 Peer Learning

As instructors examined the activities within their pedagogical design, peer learning was identified as a successful learning support. For example, students had the opportunity in dual-mode class time to perform for each other. In addition, students also provided “critical friend” feedback to other student performers. Both activities allowed for students to share their knowledge with their peers in an informal manner. Hearing classmates struggle as well as succeed in their advancement on secondary instruments provided pathways to learn from

their peers in both dialogical conversations about the process of learning and from the more informal observations and the focused listening that took place during class.

Another pedagogical approach involving peer learning was the activity of submitting weekly video diaries in the LMS discussion area. The video diary activities required students to record a short, three-minute performance of their current repertoire on their secondary instrument each week. Students often selected short songs that demonstrated their performance achievements, and regularly identified their challenge points. As an activity prompt to support peer learning and SRL, students were asked to respond to three instructor-created questions during their recorded video wherein they verbally described their success points for the week. Additional questions explored areas of success and challenge as well as highlighted how students could develop their own strategies to resolve challenges faced. Students posted their videos on the discussion board, wherein the instructor responded to each one individually using both verbal responses and performance demonstrations during the feedback video.

The weekly video diary activity provided students with out-of-class individualized music learning that fostered the sharing of learning with peers. Students remarked that the ability to watch other students' videos was an effective learning activity and aided their advancement in playing their secondary instrument. As noted in the research of Johnson and Blackburn (2021), the use of the video diary activity prompted students to become aware of their current ability through self-reflection, identify where they needed to improve, and evaluate how they could achieve their performance goals.

## 5.2 Formative Assessment

The importance of formative assessment in many aspects of the subject delivery contributed to the success of dual-mode teaching, with many activities employing self-reflection and feedback by students as they engaged in learning music performance and received feedback regularly while using different technologies. Both instructors found themselves providing students with formative assessment during synchronous class time as well as through individual communications. This allowed the instructors to continually adjust instruction as required (Irving, 2020). This was illustrated as instructors used weekly video journaling activities in the discussion forum which allowed students to respond to specific questions regarding their current performance learning. These questions included, *What is currently challenging you most as you learn your new instrument? What would you consider the most successful learning points of your week? What song best evidences your current playing ability and why? What would you like help with this week and why?*

By asking students to respond to these key questions, instructors found that students were able to be focused on their reflections and the instructor was able to provide a short video response (approximately 3 to 5 minutes) that was on point with the individual learning needs of each student. The benefit of housing the video activities within the discussion area meant other students were able to watch the instructor videos for additional learning support, which



provided ongoing, formative feedback to individual students and the subject cohort collectively. As the self-study developed, instructors noted that many students identified that they were playing videos of other students and observing instructor's responses during class time. Students noted that watching other videos supported their motivation and confidence levels, and the use of video allowed for detailed and close viewing of fingering positions and other important details needed when learning to play a new instrument.

Through open questioning and student responses, combined with the use of various formative tasks, the creation of a regular feedback loop between the instructors and students (both F2F and online) emerged. Both instructors noted how this formative process supported the learning progress of the students (See et al., 2022). Different aspects of the lesson design and subject delivery were consistently refined each week in response to the feedback that emerged, ensuring that students felt connected to the learning experience through continued improvement and adaption of the learning environment. One example where feedback-informed learning design arose was in the performance assessment preparation LMS materials. As students struggled to play along with music that was too fast, they asked for backing tracks to be uploaded that provided "play along" tracks with different tempos they practiced for a final performance assessment. The instructor subsequently adapted the backings by using an online software called SoundTrap to create several performance tracks at tempos of 80, 100, and 120 BPM, allowing students to rehearse more effectively as they undertook their own individual practice.

Another example of modification occurred when the feedback received from students told the instructors they were finding it difficult to commence performances with video and audio backing tracks. Here instructors found that inserting multiple bars of a metronome (click) were useful prior to the track starting to play the actual accompaniment, which is another example of how the feedback informed design. The focus on music-related skills and the real-world scenarios for assessment enhanced the authenticity of the activities used for assessment (Koh, 2017). Together, the multiple forms of formative assessment provided students with opportunities to offer regular feedback across the semester. It assisted students in identifying their learning strengths and seeking assistance with areas of challenge, while also providing valuable information to the instructors that allowed for ongoing modification and adjustment of teaching where necessary.

### 5.3 Well-Being

As both instructors discussed and reflected on their weekly subject delivery, they identified the need to ensure that the learning design and teaching processes provided well-being support. Due to the novel nature of dual-mode teaching, both students and instructors found themselves learning new approaches to learning music. The instructors noted the need for strategic use of technology, especially for those joining the dual-mode class through Zoom. For example, the instructors ensured that students in the physical classroom were able to easily view the Zoom room on the projector screen at the front of the class so that all

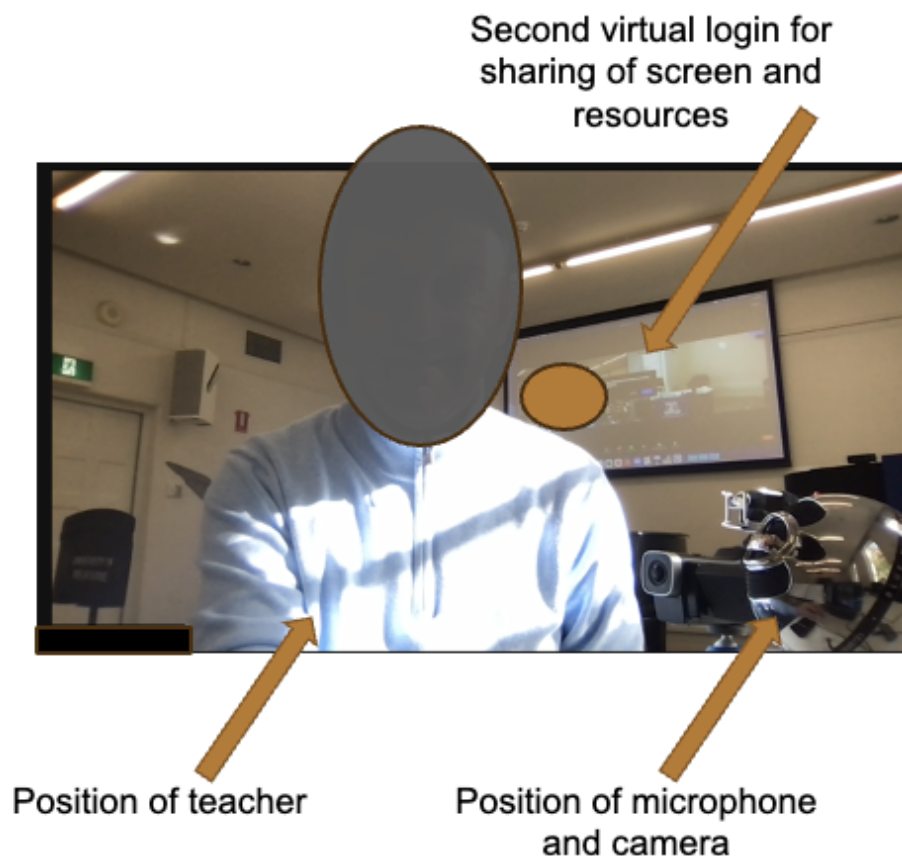


members of the class were visible and present, combined with speakers in the F2F rooms that provided the audio of the students in Zoom. Similarly, cameras and microphones were set up in the physical classroom to provide Zoom students with clear classroom audio and multiple classroom camera angles. These additional technologies were found to support online students, providing motivation to play during class time, as well as to attend the live synchronous class to engage with their online and physical classroom peers. The purposeful use of communication technology was critical to the support of well-being (Canale et al., 2022).

## 5.4 Technology Use and Strategies

Identified in the self-study, the following series of real-time photos illustrate the different considerations that were made to enable and ensure ongoing dual-mode delivery in these performance-based lessons. The photos highlight key components that were considered within the synchronous dual mode.

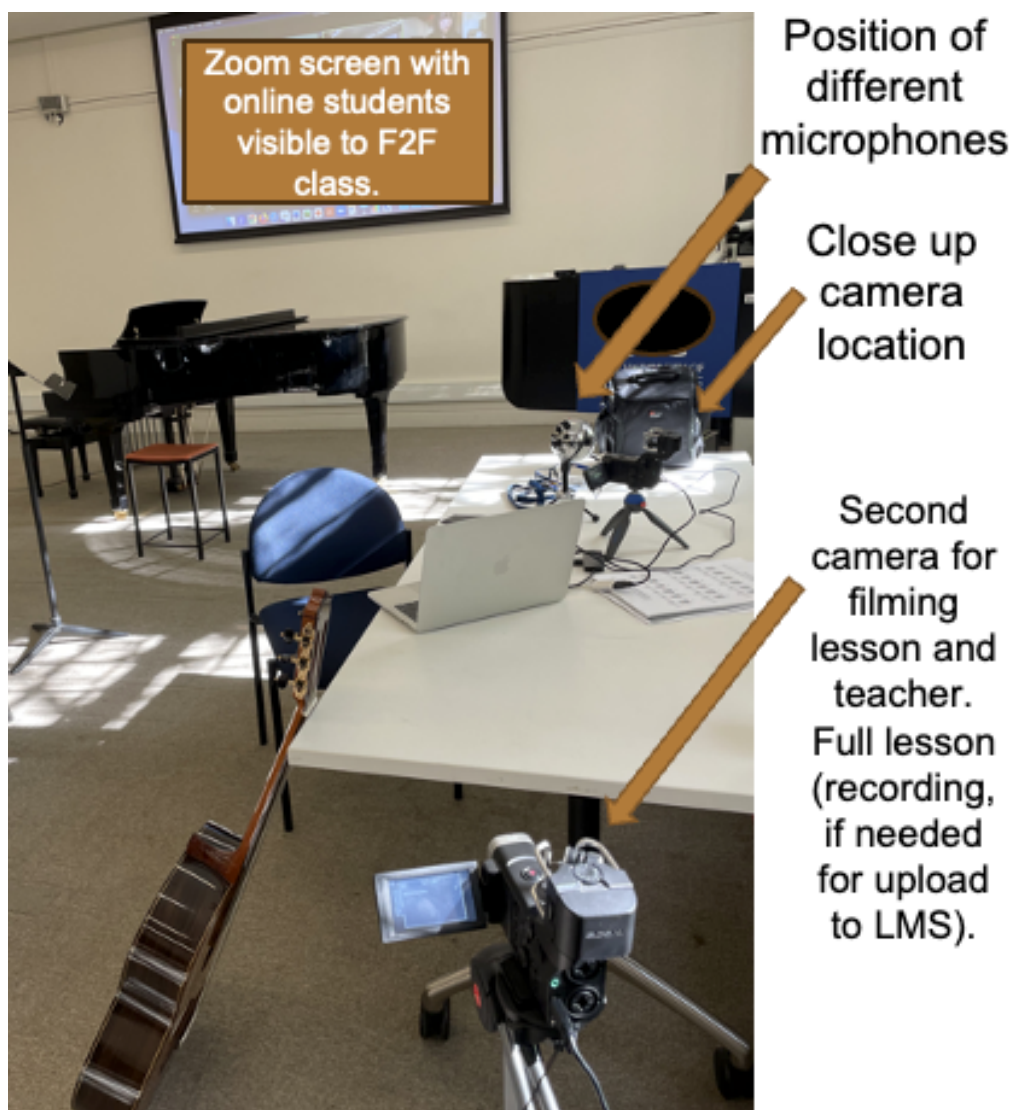
Critical to the teaching process was the positioning of the instructor relative to the computer, camera, microphone, and screen (see Fig. 4). This position ensured that both the students in the room and the students online had access to the instructors' quality sound and visual demonstrations to support performance techniques, performance examples, and/or physical modification of playing techniques.



**FIG. 4:** Position of instructor, microphone, screen, and camera in the dual-mode setting

Ongoing consideration of equipment position contributed to quality teaching in dual-mode music teaching. For example, the screen in the F2F classroom mirrored the images going to students participating online. Taking time to develop and refine this component was an important finding that emerged during this study. To assist the overall dual-mode setup, a dummy instructor Zoom link was enabled (with sound and mic muted) in the physical classroom. As noted by students during class and through formative feedback received across the semester, the front of class screen and audio speaker setup allowed in-class students to see and interact seamlessly with their online peers. Identified as “presence” by researchers in online learning (Akyol & Garrison, 2011), this technology setup allowed for in-time peer exchanges and community connection for all students.

The use of camera angles, technology-based setups, and approaches to teaching interaction can support teaching presence (Akyol & Garrison, 2011). Figure 5 highlights the complexities of teaching a practice-based subject in dual mode through meaningful visual and audio connectivity. Proximity and considered physical setup are critical as part of the planning and preparation prior to the commencement of the teaching.



**FIG. 5:** Different camera positions to support dual-mode teaching

In addition, Fig. 5 highlights the use of multiple cameras at different locations, and purposeful location of microphones, instruments, and sound sources to support the priority of instructor proximity to the computer. Importantly, this enables the instructor to communicate and engage easily with online students and to sustain connection and authenticity with all students (whether F2F or online). Positioning of technology is critical for successful sessions when providing synchronous delivery and peer learning. Creation of quality recordings of the lesson, easy access to use of archival footage, and future LMS asynchronous access are impacted by the instructor's proximity of technology within the classroom.

Figure 6 demonstrates the need for the instructor to have proximity to the various devices and peripherals, such as the camera, microphone, and computer. Visible on the photo's computer screen, the breakout room window is open to allow for online performance grouping adjustment, while also catering for the needs of students in the F2F setting. Across the teaching sessions of the study, device setup considerations were refined through instructor reflection. Standard practices arose from successful aspects of teaching as noted by student comments and instruction feasibility. Subsequently, the use of the same physical rooms, monitor, and computer setups and positions in the room, along with use of reoccurring Zoom links, were replicated and used for dual-mode delivery each week.

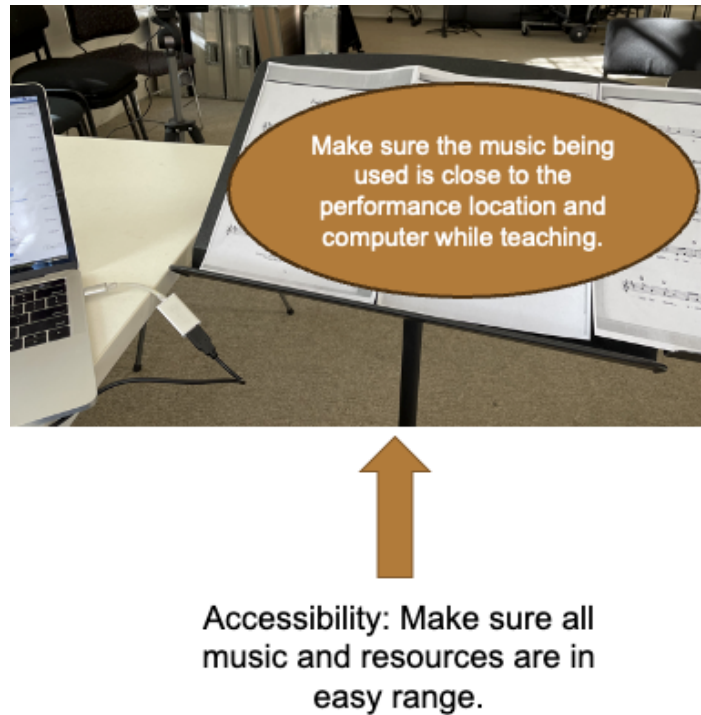
**Proximity to equipment allows for  
adaptive, response teaching**



**FIG. 6:** Proximity to devices when teaching

The location of all technology devices in conjunction with other peripheral devices used for the performance itself became integral in the success of the sustained delivery of the weekly lessons (see Fig. 7). Effective locations allowed for the flow and interchange between different components of the lesson to minimize interruption. Both instructors identified the

importance of identifying critical aspects of accessibility and location. Once refined, these strategies were repeated in each session to assist with quality (F2F and synchronous) teaching sessions.



**FIG. 7:** Accessibility to devices and music within the learning environment

Figure 8 provides an explicit demonstration of the ways in which different types of devices and cameras were used to enable quality visual access to the instrument during the teaching episodes. Depending on the focus of the lesson and different musical features being taught,

Use your camera as an extension of you as you teach



**FIG. 8:** Camera use to facilitate authentic teaching



coupled with the functionality of device and whether the instructor can hold the camera or needs it to be supported by a clip or stand, the visual reference point was adapted. Although these considerations seem minimal, as noted in Fig. 8, the various camera angles involved critical technology considerations and usage. The four images were from one class session wherein the instructor was seeking to provide explicit guitar instruction on the use of left-hand thumb and finger position. By using different cameras, detailed real-time teaching instruction was delivered to the students. Students later revisited and reviewed the lesson recording as an asynchronous archive in the LMS.

Teaching music performance via dual-mode delivery identified multiple ways to enable the changing of visual and audio settings while teaching (see Fig. 9). This critical understanding and consistency between the visual component of the teaching coupled with the shifting between audio sources required regular monitoring and refinement via the computer's system settings. Of particular importance was ensuring that all devices were attached and functioning effectively with the Zoom software prior to commencing the online teaching session. The instructors found that attempts to connect additional devices in the middle of a teaching session were often unsuccessful in the early parts of this study. Subsequently, the standard technology setup and planning process ensured all devices were connected prior to lesson commencement.

Monitoring both the sound and video (output) and (input) settings facilitate authentic teaching.

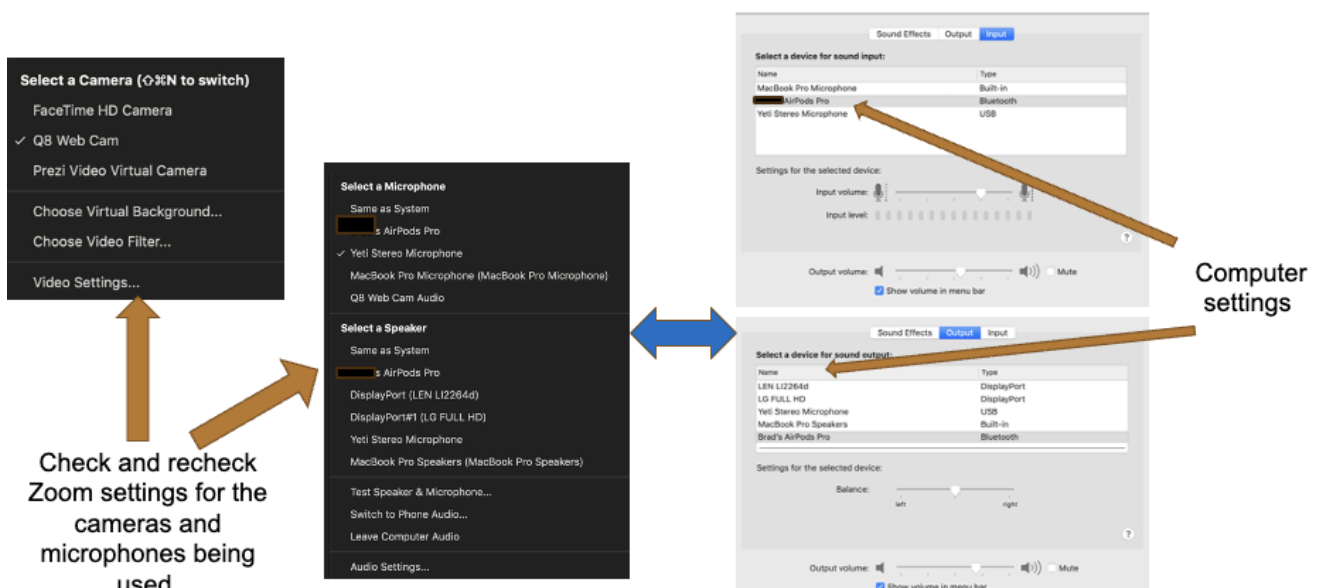


FIG. 9: Streaming video and audio shifting on the computer in dual mode

Regular review of both sound and camera images, combined with input and output, were also found critical for successful teaching. Connecting devices and different microphones and cameras on the fly was found problematic and created unwanted issues within the teaching process. During this study the instructors found that allowing time for effective setup, connection, and checking prior to each lesson were integral for lesson preparation. For example, both instructors tested the Zoom software plus the sound and video setup before

each class. This ensured any technology device used in the setup would be ready for use during their classes.

## 6. FINAL REFLECTIONS AND RECOMMENDATIONS

The shift to implementation of dual-mode teaching at the start of the pandemic was novel for many instructors. However, the outcomes of this self-study of the many positive and supportive aspects of the learning environment identified by students and instructors over an 18-month period suggest the continued use of this dual-mode teaching approach is appropriate. However as noted in the above discussion section, there are many key factors to be considered when implementing this approach.

The diverse and detailed reflections by both instructors as they delivered the dual-mode approach highlights the affordances and challenges experienced. The instructors identified the importance of drawing on previous knowledge and practice and adjusting teaching practices to meet the wide-ranging needs and experiences of students (Rose & Meyer, 2002). It was apparent that UDL practices of providing multiple representations to support student learning were foundational to the development and choice of pedagogical approaches, teaching strategies and technologies used during this time.

Drawing on the findings and discussion presented, four recommendations were identified to support instructors looking to develop and implement dual-mode teaching practices.

### 6.1 Authentic Pedagogy and Learning Design

Understanding how a range of different pedagogies are needed in dual mode, in particular, exploring pedagogical approaches that support music instruction and performance, are necessary when teaching music in dual mode. The development of workshops or short courses on music pedagogy to upskill teachers requires development and support through institutional means. Considering ways to coconstruct learning and assessment by working collaboratively with staff and students is key for authentic design and delivery.

### 6.2 Contextual Teaching Approach

Understanding the multitude of different ways that music performance and instrumental learning can take place in the dual-mode teaching scenario is critical. This is contextual to the instructor, as well as the music department culture within the institution. Consideration of these factors and linking experiences to real-world music scenarios are critical when developing a dual-mode teaching approach.



## 6.3 Purposeful Inclusion of Digital Technologies and Teaching Practice

### 6.3.1 Sound Quality and Microphones

This specifically refers to sustained oversight of quality of all sound sources and sound monitoring used while teaching and creating resources. This includes employing high-quality omnidirectional microphones and high-quality headphones while teaching to ensure all devices are well positioned with clips or stands. It is essential to check audio connections prior to commencing dual-mode delivery and to ensure that all computer drivers are regularly updated and connection adaptors are functioning.

### 6.3.2 Camera Usage

This specifically refers to the incorporation of cameras of different sizes and types within the teaching process. This may include using multiple cameras (handheld, clip-on, fixed) that are fit for purpose, location, and function as related to teacher position, computer setup, position of classroom students, and capture of music, and additional resources or screens used within the lesson. Consideration of access to adequate power sources, cabling, and stands to facilitate teaching is essential.

### 6.3.3 Software and Apps for Learning Design

This critical area of teaching includes the use of software and apps for effective learning design. It is important to consider adaptive and innovative ways to create and archive lessons and resources by using a range of software and apps (such as Screencast-o-Matic, iMovie, Camtasia, SoundTrap, Garage Band, Audacity, and Handbrake) to create resources that all learners can easily access to support a range of quality teaching materials regardless of location, connectivity quality, or the device being used.

### 6.3.4 Music Recordings and Learning Materials

The location and range of text, videos, readings, tasks, and music materials included in the LMS design is an important component of the teaching process. It is critical to ensure that all learning resources cater to the diverse needs of all learners who are in the F2F or online environment. These need to be clearly archived, well organized and labelled, and easily accessible before, during, and after lessons.

### 6.3.5 Internet Connection

A regular check of the speed and reliability of internet service can ensure that multiple types of connectivity are always functioning. This includes checking ethernet cable connectivity, wireless/WIFI connectivity, and internet speed. Verification of connections can safeguard against the chance of lost connections or impaired teaching capacity.

### 6.4 Flexibility and Adaptability

Adopting a mindset which enables flexibility as an instructor when using online technologies is essential. Engaging the dual-mode delivery mode with the capacity to be adaptive and solutions-oriented support the challenging teaching situations that often arise. Being open to exploring and implementing novel technologies and considering the nuances of both the physical and online space are critical for sustained delivery and maintaining student learning.

## 7. CONCLUSION

Overall, there were many practical learning outcomes that resulted from pandemic restrictions, many of which have informed new ways to teach and design when working in diverse learning environments. While many of these outcomes were developed from ongoing trial and error and creative thinking, the strong student learning opportunities that arose from the adoption of dual-mode music teaching evidenced helpful gains in educational technology applications. Furthermore, the outcome of this dual self-study identified specific technology use and practical strategies that can be implemented by music instructors looking for flexible and meaningful learning solutions for sustainable music education delivery in different locations and contexts. These findings further reinforce the value of undertaking “self-study” within the teaching context, whereby practice can be reviewed, adapted, and refined.

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