

FOSTERING CREATIVITY AND COLLABORATION IN A FULLY ONLINE TERTIARY MUSIC PROGRAM

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One of the pedagogical challenges for online teaching is preparing tertiary music students for collaborative work, particularly in performance, composition, and production. This article surveys the use of online performance collaboration within a higher education music course. Using a framework of constructive alignment, synchronous and asynchronous learning tools are investigated and discussed. In order to achieve crucial lifelong learning needs, we determine how collaborative online performance tools not only develop musical skills, but also breakdown the perceived limitations in an online course by enhancing creativity and building meta-capabilities such as networking, communication, independent thinking, and problem solving that professional portfolio musicians require today.

KEY WORDS: constructivist learning, 4P (learning, person, process, product, and press) model, communities of practice, portfolio career, recorded performance, network music performance, video

1. INTRODUCTION

This year the world experienced a sudden change in how music education is taught across all levels of instruction. COVID-19 and social distancing have forced the tertiary music sector to adjust quickly to a fully online environment. The sudden switch to online teaching has left little time for instructors, lecturers, course coordinators, and learning designers to change their programs to suit an online environment. At the University of New England (UNE), a regionally based university in New South Wales, Australia, we have been teaching music fully online since 2015. Because this was a planned move, we were able to prepare for online teaching and learning, and design our courses in a way that did not aim to replicate face-to-face teaching, but provide students with a community of practice where

they can construct their own learning, develop levels of autonomy, and learn important meta-skills through various methods of collaboration.

Being a musician is a highly collaborative profession. Musicians operate in environments where they frequently encounter collaborations, such as working with other musicians, actors, and dancers, as well as health professionals and film makers. This paper investigates pedagogical theories that support collaborative online learning and instruction, and through examples of creative collaborations we demonstrate how an online teaching environment can promote divergent thinking and harness creativity through real-world experiences for tertiary music students.

2. BACKGROUND

Practical subjects, or “applied” music activities such as composition, production, and performance, are considered the most challenging and less understood aspects of teaching music in an online environment, especially where these activities involve or require collaboration. Simonovic-Schiff (2011), in her paper on course development strategies, confirmed this through her analysis of modes of study for music theory and practical forms of music making and creation. The study determined that for practical-based subjects it was better to use online support rather than alternate methods of student learning in a fully online course; however, Simonovic-Schiff (2011) did not rule out using online education in these areas. Simonovic-Schiff (2011) confirmed that “meticulous planning becomes critically important for balanced and undisturbed course delivery” (p. 344). Direct comparisons are often made between face-to-face and online music programs; however, it is important to note that these comparisons assume online programs are attempting to replicate face-to-face teaching rather than being a different way of learning that is equally effective and valuable. This is echoed by a number of studies cited in the comprehensive book, *Online Learning in Music: Foundations, Frameworks, and practices*, by Bowman (2014), where the author concludes “if context is taken into account when determining appropriate content, pedagogical techniques, and instructional technologies, the effectiveness of the two modes of learning should prove to be relatively equivalent” (p. 49).

3. PEDAGOGICAL THEORIES AND METHODS

There are a number of pedagogical theories—or learning theories—that have been used for online teaching within many different fields, such as marketing, management, and information technology; however, this information is rarely found in the literature about online music courses. This is because teaching tertiary music fully online is a relatively new area of education (Blackburn, 2017). Much of the existing literature has focused on school classrooms and hybrid/blended learning using online tools to enhance student

learning or provide further methods of engagement. Other research studies have been based on using Skype or similar telecommunications for studio-based instruction. In the existing literature, very few studies have critically investigated pedagogical theories or methods of teaching that can be included in a constructively aligned tertiary music course, in which the requirements of unit-level learning outcomes, course learning outcomes, graduate attributes, and thresholds prescribed by governing authorities such as the Tertiary Education Qualification Standards Agency (2015) have been met.

In this section, we present three interrelated areas of instructional design that can incorporate online collaborative approaches and enhance creativity in a music course:

1. Constructivist learning theory;
2. Communities of practice; and
3. Constructive alignment.

We also investigate the ways in which an understanding of research around creativity models—such as the person, process, product, and press (4P) model by Rhodes (1961)—can be a useful guide to fostering creativity in online music education. The combination of these learning perspectives provides guidance toward a constructively aligned course, where learning and teaching activities, assessment, and learning outcomes are supported and students are encouraged to develop and create their own knowledge, while heightening meta-skills required for a career as an artist in the 21st century.

3.1 Constructivist Learning Theory

In constructivist learning, the learning is student centered and created by accessible and multiple interchanging sources of information. Constructivist learning relies on a student-centered approach to the construction of understanding, integration of prior knowledge and experience, and self-reflection. Often, it is project or activity based and incorporates collaborative learning (Bauer & Daugherty, 2001; Keast, 2004). Students construct knowledge through their own activities and experiences; teachers engage students in active learning and encourage them to build their knowledge in terms of what they already understand (Biggs & Tang, 2011). The role of the teacher also shifts from that of instructor to one of facilitator, where he/she guides and mentors students through their studies. The myriad of online tools and resources means that using this approach to teaching accommodates students with different cognitive styles and intellects; this pedagogical method suits online teaching because Web 2.0 and mobile technology can facilitate a variety of constructivist ideals, including adaptive learning, building on prior knowledge, and social interaction. Online sources “promote student exploration and problem-solving and allow students to construct knowledge from these experiences” (Brewster, 2005, p.

11). Collaborative tools such as blogs, wikis, collaborative composition tools, and online ensembles provide opportunities for students to engage with technology, develop communities of practice and social cohesion, and problem solve through a variety of media. They are then able to take this newly constructed knowledge out to their local communities in real-life contexts without the limitations of the classroom.

3.2 Communities of Practice

The constructivist approach of teacher as facilitator allows communities of practice to form a foundation for learning. Communities of practice in the online space can be formed by people who engage in a process of collective learning. There are three crucial characteristics (Wenger, 1998):

- The domain, which is a field of interest that is shared among members.
- The community, which evolves from shared learning in joint activities and discussions.
- The practice, where members of a community of practice are practitioners that have a shared practice. They develop a combined collection of resources including experiences, stories, and tools and cooperatively find ways to address recurring problems.

The teacher or lecturer needs to develop a community of practice within the online space. Students interact and develop networks with each other in a shared practice; which can also lead to strengthening their broader community. Within the curriculum, this can be done through a variety of activities related to problem solving, sharing information with each other, seeking and learning from others' experiences, mapping knowledge and identifying gaps, and collaborating through coordination and synergy.

3.3 Constructive Alignment

The learning outcomes of a unit (subject or course) are central to the design of teaching and assessment. Although generally understood, by shifting the teaching mode, context, and pedagogies, the intended learning outcomes need to be developed to reflect this; what was applicable in a face-to-face environment may not be suitable for online instruction. Constructive alignment is a principle used for planning teaching and learning activities and assessment tasks that directly address the learning outcomes in a way not typically achieved in traditional lectures, tutorial classes, and examinations. This design allows students to bridge the gap between abstract, declarative university knowledge and functioning professional knowledge (Biggs & Tang, 2011, p. 97). Online teaching is not about replicating lectures and tutorials—i.e., passing down information to students—it is about designing learning activities that provide a deeper learning experience and then

aligning these activities with assessment that reflects the professional knowledge within the context of the student's experience. These activities can include project-based exercises, such as proposals and planning; reflective components that consider personal growth and learning as well as peer feedback; and project diaries and log books that capture work done within the course, which is then applied to real-world experiences. This design provides flexibility in student learning, which is a best practice approach in online instruction.

4. DEVELOPING CREATIVE AND PROFESSIONAL SKILLS IN COLLABORATION IN THE ONLINE/OFFLINE ENVIRONMENT

For some decades now, online technologies have been developed to foster and support online music collaboration (Théberge, 1997). These technologies are being more widely adopted by educators and musicians to enhance collaboration and to enable wider, more inclusive and more meaningful engagement for geographically displaced collaborators. Harasim (1990) argued that “online environments are particularly appropriate for collaborative learning approaches because they emphasize group interaction,” and according to Ruthmann (2010), the familiarity of students with Web 2.0 technologies outside of formal education settings increases the likelihood of successful uptake of collaborative music experiences.

Collaborative activities fall into three main categories: real-time, offline, and file sharing; each form of interaction has positives and negatives (Pejrolo, 2014). Virtual music performance communities engage in a range of music-making activities, including geographically displaced music rehearsals, network group improvisations, dislocated jamming sessions, remote collaborative music compositional sessions, network music master classes, and network-enabled music learning sessions (Alexandraki & Valsamakis, 2009).

5. ONLINE PERFORMING ENVIRONMENTS

One of the least understood aspects of online music programs is how students might engage in solo and collaborative performance. These learning activities may be carried out either virtually in the online space or in real-world environments. Individual and group performance activities can easily be filmed and uploaded asynchronously for sharing online, which is commonplace in online programs.

Online tools for synchronous performance collaboration exist in the form of network music performance (NMP) systems. These systems are designed to facilitate synchronous engagement for collaborative performance. However, the use of NMP systems is still marred by the issue of latency, which remains the primary hindrance for the perceived success of these types of collaborations, especially in situations in which the music

requires tight synch and timing requirements. Performers must also adapt to working without the physical and gestural cues they are accustomed to in face-to-face performance situations. Renaud et al. (2007) provided an overview of the state-of-the-art research in NMP systems and classified existing efforts in three categories, namely:

- The realistic jam approach (RJA)—systems aimed at latency and audio quality optimization, feasible only in the context of the Internet 2 backbone;
- The latency accepting approach (LAA)—systems that are accepting of latency in the transmission of signals and attempt to investigate performance under circumstances of high latencies (200 ms); and
- The remote recording approach—systems in which the bandwidth demanding channel is unidirectional and based on the concept of remote recording (Renaud et al., 2007).

A recent collaborative performance by the authors with the Ethernet Orchestra presented opportunities for collaboration between UNE Armidale and UNE Sydney campuses, where the internet speeds are conducive to RJA systems. For students unable to access these facilities, internet speeds are typically unreliable, and thus the LAA is the primary form of engagement with NMP. The LAA approach places some limitations on the kinds of music that work successfully in high latency situations.

However, limitations are essential to the development of creative thinking among musicians, and these sorts of limitations encourage the development of new creative forms and musical directions for musicians. The importance of this kind of thinking has become ever more prevalent with the isolation requirements of the COVID-19 pandemic in 2020; these limitations encourage musicians to consider their options for collaboration, to explore and utilize remote collaborative technologies, and to adapt their forms of music making to suit the constraints of online environments.

It is important to recognize that an online program is not confined to engagement only with these virtual tools in the online space. Through careful design, the learning around collaboration can readily extend outside of the classroom and into the community, taking advantage of both online and offline environments. Therefore, the lack of access to a physical campus, facilities, and community for remote and online students necessitates that students seek opportunities within their communities or create specifically for an online audience. UNE programs foster and facilitate this activity. In many traditional music education programs there is less emphasis on the student to source collaborators, consider resourcing, and organize their own events or performances, and audiences are often provided within the university campus setting, thus students are typically more passively engaged with this aspect of creativity. Students are encouraged to think

creatively and actively about how to make their art connect and be of use to their communities.

Collaborative creative practice encourages students to not only work with musicians within their program, but also potentially with other artists from outside of the program and from different fields; one of the unique aspects of online education is that it opens up the possibility of international collaboration. Encouraging collaborative creative practice inspires students to form networks both in the online space and outside the classroom in the students' community. This skill demonstrates social networking and enterprise, two of the meta-capabilities identified by Bartleet et al. (2012), who defined social networking as “the ability to develop and navigate social networks in a strategic and enterprising (and yet genuine) manner. In the twenty-first-century context, social network capability includes the capacity to exploit the affordances of social media and other digital platforms,” and enterprise as “the skills associated with outward focus—identifying and taking advantage of creative opportunities, and adding value through music work. Broadly speaking, enterprise skills are those involved with the application and distribution, as opposed to the generation or making, of creative work. This includes skills for venture start-up and management (whether for social, commercial or cultural ends), and a cluster of enterprise sub-skills to do with creative opportunity recognition, design, risk management, resilience, and effectuation” (p. 36).

By taking collaboration outside the classroom, students are also developing discipline agility: the ability to move between and among disciplines and performance contexts including online, community, and educational settings (Bartleet et al., 2012). This has been recognized by student projects that involve composers working with performers and story writers to compose accompanying music for children's stories and record music for therapeutic purposes, and performers working with primary school teachers in the community to provide instrumental showcases and develop awareness of music and the creative arts.

6. THEORETICAL FRAMEWORK: THE 4P MODEL

The meta-capabilities identified by Bartleet et al. (2012) encompass a range of creative activities that also reflect models of creativity such as the Rhodes (1961) 4P model. The 4P descriptors provide useful categories and areas of focus for fostering creativity in educational settings, particularly for facilitating creative music practice. Among creativity scholars, it is widely recognized that creativity comprises multiple aspects, not just the creative product or outcome. Over 50 years ago, Rhodes (1961) introduced the idea that approaches to studying creativity can be categorized into four main areas. This model

continues to be widely cited, and subsequent scholars continue to build upon this basic model (Simonton, 1995; Runco, 2007).

The 4P model is used as a theoretical framework to analyze the creative work presented in this article by students in collaborative units of study. It can also assist in structuring creative practice units of study in terms of teaching and learning activities and assessment, and can be used to facilitate students in preparation for real-life scenarios, assess problem-solving skills, and address life-long learning. The four areas identified by Rhodes (1961) include the creative person, the creative process, the creative product, and the creative environment (i.e., the creative press):

- Person describes “understanding the traits, characteristics or attributes and values of the creative personality” (Zhang et al., 2016). These can be enhanced through encouraging students to take on projects that involve entrepreneurial skills, divergent thinking, and promote idea generation.
- Process describes “the stages of thinking that creative people use to invent or create something new and useful” (Zhang et al., 2016). These stages can be described as motivation, perception, learning, thinking, and communicating. Self-directed activities strengthen these skills and develop discipline agility and social networking capabilities. Students can document their creative processes as a form of self-reflective learning and future development. Students also learn about their own process through sharing and communicating their processes with peers.
- Product refers to “the qualities of a product which make it creative” (Zhang et al., 2016), i.e., that which is created when an idea becomes embodied in tangible form. Flexibility in assessment and allowing students to make creative choices ensures that their ideas will be manifested into meaningful projects through personal expression.
- Press refers to “the environment in which the person works which may be conducive to or inhibitive of creativity” (Zhang et al., 2016). It is the environment and climate in which people operate and promote ideas and the impact these ideas have on the environment. Successful creative practitioners are typically skilled in communicating and promoting ideas; another meta-capability, career self-management, was discussed in Bartleet et al. (2012, p. 37). Students can enhance skills in these areas through practice in pitching projects in various forms to stakeholders, peers, and staff. By taking projects into their own communities, students confront the relevant parameters of real-world environments and must adapt to ensure the success (or failure) of their projects.

Hasirci and Demirkan (2002) suggested that these four categories also interact with each other, and Gruszka and Tang (2016) asserted that creativity can be stimulated by attending to each of these components.

It is our view that there is benefit in ensuring we address all of these categories in the design of music programs. Historically, music education programs have emphasized some of these areas more than others. The fourth category, known as press, has traditionally been neglected in many music education programs, and only in recent years have programs begun to place greater focus on this aspect of creativity. Press is an area that lends itself well to online education, and there has been considerable emphasis placed on this within the fully online music programs at UNE. An important component of this category is having the ability to communicate and convince others of the worth and value of an idea; without this, creative products do not reach an audience or make an impact in the wider environment. To this end, in applied music subjects that are project based students are encouraged from the outset of their project designs to consider their audience and the context in which they will present their music, and many of the tasks require students to develop a pitch around their projects. This may take the form of a verbal or written pitch, or a combination of these two forms such as a pre-recorded video pitch that students use to explain and promote their project ideas. Students are able to make choices about the environments and performance contexts in which they create, perform, and present their creative product, and whether this will be done collaboratively online or in their own community. Ideas are tested within the educational online settings through forums and tutorials as well as in the community settings.

Within the context of online learning and constructivism, allowing students to create their own network in terms of composition and performance hones these social skills both in real life and virtually. For example, such as writing music to accompany a photographer's exhibition, or a collaborative venture that includes roles of project management, production, composition, and performance working with performing artists to produce and release a public publication. Students are encouraged to develop knowledge through integration of prior knowledge, exploration, and reflective practice. Students interact and collaborate with peers in their online educational community seeking support, feedback, and frameworks for their activities. Online education also necessitates active engagement with community and community resources. By incorporating the four creative areas identified by Rhodes (1961) into student learning activities, the creativity can be facilitated, developed, and assessed within the student's own learning experiences and as part of an online community of practice.

7. EMPHASIS ON RECORDED PERFORMANCE

Online music performance programs necessitate a shift to the documentation of live performance and place an emphasis on the role of audio-visual recording of student work. As a result, students must adopt broader skills in video production, music technology, and online presence; all of which are essential areas and prominent components of professional careers for musicians in the 21st century. When students undertake asynchronous performance activities, the role of documentation becomes paramount since they must share their live performance events with their peers and lecturers for feedback and assessment. This requires students to think about faithful reproduction and representation of their performance work in what is essentially a different creative medium. Recorded performances are important strategies used by professional musicians to extend the life of their live performances and to enhance their online presence and audience engagement. Developing these skills is deemed essential for artists. Also, both the engagement with video and the development of an expanded skill set encourage students by opening up a world of creative possibilities that the video medium itself brings. Music video is a significant part of the culture of our consumption of music, art, and entertainment, and thus it is essential for students to not just build awareness but also develop strong skill sets around this.

While there are perceived limitations that exist around music performance in an online music education environment, at times the parameters brought about by the requirement to operate in the online environment can be seen to inspire a great deal of problem solving and creativity among the student cohort. To date, there are numerous examples of these so-called limitations inspiring creativity among the student cohort. For example, one student wrote and produced a series of original songs, in which she played, recorded, and produced all of the parts. She created a “One Woman Band” video, where she used a green screen to enable her to play all of the parts in her video clip. The assessment design behind this project can be seen to address the 4Ps in numerous ways. From the outset, skills relating to “person” and “press” are exercised through generation of the project concept and design by the student. The subsequent pitching of the project directly develops the student's skills in relation to both person and press, and this pitching phase of the project ensures substantial peer and staff feedback to assist the student's learning. The student then carries out the project to generate the creative product and any relevant support materials such as program notes, artwork, promotional materials, reviews, etc. The student must document and reflect upon the process both individually and through peer communication and collaboration.

Another example of working positively with limitations can be seen in the songwriting unit where students are required to write and perform a song. One student solved the limitation

of access to collaborators by recording the remote collaborator on video, and then building a hologram to allow the projection of the remote collaborator's pre-recorded performance via a holographic prism. The student was then able to perform in sync along with the collaborator in addition to producing a video documenting this performance. The theme of the original song was related to the tyranny of distance and of long-distance love, thus the student thought conceptually about the limitations and parameters of the task and used the limitations of online performance to frame the art in a holistic way. This unique project demonstrated a form of personal expression (a quality of the creative product). The student was able to work within the limitations of working remotely and use this as stimuli for creative practice.

Lack of venue and live audience opportunities can be challenging for geographically isolated students; however, through the development of the project *Musica Mobilis* (stationary vehicle installation), a student was able to overcome this limitation. In this project, the student performed an original song on guitar in a car that had been set up as a performance space complete with projection onto the car window, which was used as a screen to create the illusion of a moving vehicle. The student also incorporated the sound of the car radio static as part of the performance production. Students have demonstrated their creativity and resourcefulness through the use of low fidelity and domestically available equipment to produce creative outcomes. For example, a home setup of a green screen and lighting effects with large domestic liquid-crystal display screens can be used creatively to generate performance settings with background projections as part of a live performance. One particular project resulted in a professional and engaging video that aligned conceptually with the themes of the music. Other students also used green screen technology to project video effects behind them during their performances; once again enhancing the cross-disciplinary creative possibilities of their projects. The students in these examples are reacting to the environment they are working in and producing creative productions that are communicated to audiences in innovative ways.

All of these examples demonstrate the Bartleet et al. (2012) meta-capabilities around enterprise and disciplinary agility while also exhibiting the characteristics of a creative practitioner (Zhang et al., 2016). The work produced by these students was student led and mentored and facilitated by staff with summative feedback provided during the process via online interaction. The green screen setup shown in Fig. 1 was a collaborative effort among students: the students pooled their resources and worked on the setup in one student's home, and then used this same setup to record their individual performances, producing diverse creative outputs/products. The design of these collaborative project units are examples of constructivist learning, whereby students take the lead and learn from their environment. Summative feedback through assessment and documenting the



FIG. 1: Home green screen setup

creative process ensure students develop independent learning, while reflective practice ensures they gain a deeper learning experience that reflects the professional knowledge they need to be life-long learners.

8. CONCLUSIONS

The examples provided here of student activities and projects produced within an online course demonstrate creative thinking and explore the possibilities that exceed the perceived limitations placed on collaboration and music making in a fully online music course. By using these pedagogical theories and methodologies within a model of creativity, we can construct an online program that promotes creativity and allows lecturers to act as facilitators in student-led project-based learning. Through either online tools or facilitated through online technology, students are encouraged to be active rather than passive participants in the music creation process. A constructively aligned course ensures that all teaching and learning activities meet particular learning outcomes designed for an online environment, and are assessed in a way that promotes life-long

learning and develops meta-capabilities that are required of portfolio musicians. Learning to pitch, create, and realize their own projects in their area of interest ensures students have agency in their learning and creative practice. By developing online and offline communities, students are guided toward developing this process, starting out with small-scale projects and building toward larger ones that closely model real-world artistic practice.

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