A CONCEPTUAL MODEL FOR TEACHING MUSIC ONLINE

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Teaching music online requires a focused approach when moving from its face-to-face counterpart to the online environment. However, online teaching frameworks for music have yet to surface. Using key design elements from the fields of education, education technology, and music education, this paper addresses this limitation by identifying an innovative conceptual model for consideration. Critical elements considered include: teaching approach; ways of learning; online technology environment; and student skills and knowledge. Together, these elements provide the basis for a conceptual model as a means for supposition of process rather than a codified process.

KEY WORDS: online music education, higher education, teaching music online, music, pedagogy, conceptual model

1. INTRODUCTION AND BACKGROUND

With the steady increase of higher education institutions adopting online courses and programs (Allen et al., 2012), the understanding of the process and outcomes of online course design become integral for both student satisfaction and learning outcomes. Merging constructivism with educational technology (Bandura, 1993; Jonassen, 1999; Molenda and Boling, 2009; Vygotsky, 1978), this paper explores instructional design (i.e., methods and construction components), supplemental tools for online learning, and possible assessment methods and activities to support the development of a conceptual model for teaching music online.

It has been established that an online course has “at least 80 percent of the course content” (Allen and Seaman, 2008, p. 4) online. To accomplish this, a learning management system (LMS), such as Blackboard, Moodle, Canvas, or DesireToLearn, is used as the interactive learning area for students as well as the housing space for learning content. Applications may be used to support the use of additional learning tools for learning and assessment within the LMS. Asynchronous and synchronous tools can also be used to support communication between students and students and instructor. The use of an LMS to present course content, along with possible application tools, may seem like

a simple transition from face-to-face music teaching to the online learning environment; however, there is a notable pedagogical shift required.

1.1 Online Teaching Paradigm

The shift of knowing how to teach in one platform versus another (i.e., the transformation from face-to-face teaching to blended teaching) requires a paradigm shift (Johnson, 2017). As we look to the development of post-secondary online music education, an isolated understanding of how to transition from the traditional studio teaching experience to an online format can be daunting. The complexity of teaching a music-based subject online may be present for some subject experts who are more familiar with face-to-face teaching experiences. This complexity of teaching music online may also be felt by instructional designers and department administration. However, this need not be the case.

The shared specialized knowledge of online learning by researchers, educational technologists, course designers, facilitators, and students can begin to alleviate many of the questioned complexities facing hopeful online music educators. This sharing of multiple perspectives and learned experiences can help address the challenging perspectives and needs of all online learning stakeholders (i.e., students, teachers, administrators, instructional designers, etc.). It is posited that such knowledge transformation could produce a meaningful and flexible online educational design model. It is this suggestion of trans-disciplinary teaching and learning components that will be used to outline the intricate and complex workings of an online learning design concept within the field of musical arts.

1.2 A Paradigm Shift

Akin to the traditional classroom, a variety of online instructional methods exist for today's online instructor. Ranging from student focused to teacher focused and subject focused to teaching focused, the design approach of the online world is varied. With many benefits available from the variety of foci, it is important for online instructors to first know the objectives of their course and then locate an approach that will be effective in connecting the student in meaningful learning opportunities.

As identified previously, the constructivist approach as developed by Vygotsky (1978) and Bandura (1981, 1993), and later furthered for educational technology by Jonassen (1992, 1999), will be the lens through which learning is viewed. This use of constructivism learning theory will allow for the connections to both individual and collaborative learning experiences. Together, these processes elicit the potential of rich, meaningful learning that involves higher-level thinking. This type of learning also implies that with the incorporation of digital technologies, students benefit by experiencing their learning firsthand through action and continue to build upon their active mental, physical, and emotional constructs

by seeking resolution or solution through a project or problem inquiry. Attuned to "authenticity" (Jonassen et al., 1995, p. 21), the progress of constructivism with educational technology highlights the shift from the objectivist notion of teaching to building learning through interaction with the increased use of online technology. This altered the teacher involvement in learning interaction from upward of 80% learning interactions to shift toward 10%–15% when observed with online technology use. Such an extreme paradigm shift has aptly set the stage for online learning to embrace the necessity of effective online instructional design.

In an online course framework, a constructivist paradigm posits that students should have the opportunity to create, analyze, and apply their learning as connected to the higher-level learning constructs in the revised Bloom's taxonomy for learning (Anderson and Krathwohl, 2001). Given a diverse choice of learning activities for students to engage with various multimedia applications, constructivism provides a wide palette for students to actively explore learning in a more personalized manner.

Even though the arena of technology tools and online activities is exciting and constantly growing, the implementation of such tools and activities can solicit intimidation for the online instructor. With this in mind, it is integral that the instructor understands the implications and limitations of online system configurations and the various approaches to online course design, as well as the choice of tools available for active online learning.

2. TEACHING MODELS

To enhance the design of instruction, it is helpful for an instructor to not only understand the various approaches to teaching, but also to choose a model that will be used for his or her online course structure. Researchers (Carmody and Berge, 2005; Joyce and Weil, 2008) have presented a variety of diverse models for online learning that can aid emotional connections within a learning design: teacher centered, teaching centered, student centered, and, subject centered. While these models are used for different learning outcomes, Carmody and Berge (2005) cited that the ideal online course should be able to address the five dimensions of learning (i.e., physical, social, emotional, intellectual, and spiritual), as presented in Hettler (1984); plus, their inclusion of the psychological dimension for a strong learning experience. More specifically, Carmody and Berge (2005) and others (Jonassen, 1999; Jonassen et al., 1995; Moallem, 2003; Park and Bonk, 2007) have identified the student-centered model as a helpful approach for engaging the learner through problem-based and inquiry learning.

2.1 Student-Centered Model

According to Carmody and Berge (2005), the student-centered model engages all six of the dimensions outlined previously, and therefore may be best suited for online learning.

Portrayed more as facilitation, the student becomes responsible for the direction of learning and forthwith the means through which learning will develop. Learning activities in the student-centered model focus on social collaboration and interactive activities (Jonassen, 1992; Moallem, 2003; Vygotsky, 1978). This environment may include the increased use of tools, such as discussion boards and wikis, and the collaboration of learning through online group projects and presentations. There is a need to maintain focus on content and position students as the primary target audience. This interplay of social, personal, and emotional characteristics that emerge through the ease of using technology becomes integral for developing appropriate online course construction (Liaw, 2004).

2.2 Teacher (as Expert)-Centered Model

Based on the work of Knowles (1977), the teacher-centered model identifies the teacher as responsible for developing course content, *how* the learning takes place, and *what* the students will learn. With very little ability to change learning outcomes, this model identifies the teacher as the knowledge source and positions lecture as the primary delivery method for teaching. This primary delivery method is associated with the emotional, social, psychological, and intellectual dimensions of learning and becomes highly dependent on the instructor's abilities (Carmody and Berge, 2005; Joyce and Weil, 2008).

Some subject areas (i.e., music performance and other demonstration subjects) have been proven to benefit from this specific type of teaching. To this end, the teaching-centered model focuses on *how* the exploration of learning is guided: by instructors enabling learners. In the teaching-centered learning environment, the instructor or facilitator is present as a guide and is tasked with giving the teaching content and overall learning experience (Carmody and Berge, 2005). Examples of this type of online learning can be demonstrated through shared student leadership in discussion groups, online projects, and presentations of learning material.

2.3 Subject-Centered Model

Subject-centered models are based on essentialist philosophy and further by referentialist thought (Reimer, 1989). In this model, students and instructors engage with the subject and are motivated to learn more about the subject due to their interest in the subject. Attributed to the Columbia University professor, William Chandler Bagley, subject-centered models position the subject as central and the participants (i.e., students and instructors) are motivated by the subject topic in and of itself (Ediger, 1995). In terms of online learning, the subject-centered model welcomes various online tools and activities such as watching videos, discussing the subject between students, group projects, and creating podcasts for exploring the subject.

The use of a single model in a semester-long class scenario could diminish the depth of personalized learning for each student. Through the inclusion of each model in a purposefully and carefully scaffolded course design, students can experience a well-rounded learning environment that allows for instructor-led sharing of expertise, personalization of student learning, gradual scaffolding of student leadership, and increase in discipline-specific responsibilities.

3. COMPONENTS OF AN ONLINE COURSE

Online course design consists of a variety of components that are integral to successful teaching and learning processes. Activities are used to demonstrate student knowledge and understanding in conjunction with the inclusion of synchronous and asynchronous tools; they play an important role in online learning. These components allow students to not only retrieve, explore, and analyze learning information but to display, present, create, and demonstrate. Together, these components are a student's essential elements for acquiring, processing, and validating learning.

3.1 Learning Activities

The learning activities placed within an online course require not only the higher-level learning skills of “applying” and “creating” (Anderson and Krathwohl, 2001) but also the lower-level skills of remembering and understanding, which play a key role in developing firm foundations in conceptual learning. Furthermore, the learning activities used should be appropriately aligned to connect the student to the technology tools used for learning. As students are better able to concentrate on learning activities, rather than distraction of technology, the learning activity becomes a platform for students to fully engage with their learning through exploration, play, and identification (Kim and Reeves, 2007).

Not all learning activities are rated equal in learning outcomes. Using the constructivist framework, cognitive and social interactions are components of effective learning outcomes (Jonassen, 1999; McGrath, 1992). The use of scaffolding, graduated learning activities, and coordination of coaching with scaffolding (i.e., cognitive apprenticeship) helps deepen constructivist student learning over course duration (Collins et al., 1991; Gagné and Driscoll, 1988; Park and Bonk, 2007)

3.2 Asynchronous Tools

Asynchronous tools are tools that can be used without the need for stakeholders to access the tool at the same time. While you may be able to use asynchronous tools at the same time, synchronicity is not a requirement for use. These online tools allow students and teachers to interact with content or communicate with each other regardless of time. Such tools provide users with flexibility, or access, which allows users to take time to read or

view the content. Examples of these tools include email, web sites, graphics, videos, and a variety of social media-based applications.

However, in an online classroom, the use of asynchronous tools requires instructors to create asynchronous content items prior to students being able to access them. Moore and Kearsley (2005) suggested that instructors may find the creation of audio and video artifacts problematic due to the requirements of time and finances to produce quality products. While the costs of video application software (such as QuickTime) and tablet apps (such as Videopix) may be relatively low, the development of video scripts, creating graphics for presentation slides, and overall videography may be a challenge for some instructors. As found throughout higher education professional development courses, the collaboration of educators may be a helpful resource for reciprocal assistance to combat the issue of development (Kelly, 2009).

3.3 Synchronous Tools

Synchronous tools require users to connect with the tool at the same moment in time. Tools may have a “real-time” focus that permits users to communicate via video or audio conference in real time. Examples of synchronous tools include: video conferencing software such as Zoom or Skype and audio software such as VOIP and telephony. Park and Bonk (2007) have provided ample suggestions on ways for instructors to effectively prepare for active and meaningful engagement in synchronous sessions. Summarized suggestions by Park and Bonk (2007, p. 10) include: clarification of required technology in advance of meeting time; define student outcomes and provide a guideline for synchronous activity; practice using the synchronous tool and activities prior to the actual event; and incorporate flexibility into each session to accommodate real-time learning. While preparation is a key element in the many technical issues of synchronous tools, Moore and Kearsley (2005) and Palloff and Pratt (2011) identified facilitator skills as relevant challenges for both asynchronous and synchronous online learning engagement. With the known deficiencies of facilitator technical skills and understanding, it becomes important that online instructors become familiar with established online course technology tools.

Examples of synchronous tools in an online course include video conferencing tools (e.g., Zoom web conferencing software). These tools include video conferencing with an online whiteboard as well as the use of video conferencing with web touring (Park and Bonk, 2007). Synchronous tools have been identified as providing positive impact on music learning outcomes (Dye, 2007; Murphy, 2005) and overall student satisfaction when group members implement the use of verbal and nonverbal interactions such as video, audio, text chat, and emoticons (Park and Bonk, 2007). While there are still technological

challenges for faculty to overcome (Pratt, 2008), it is posited that challenges due to lack of faculty skills, intermittent broadband connections, and technology tool limitations will decrease with appropriate professional development and technology improvements.

To date, there is limited literature on the development of a conceptual model for teaching music online. With the need for online music learning and teaching to support a social-constructivist learning model (Johnson, 2017), one will need to draw on online learning approaches (such as outlined previously) that can build students' learning through social experiences, while also permitting students to perform music as appropriate.

4. A PROPOSED CONCEPTUAL MODEL

The literature demonstrates that an articulate combination of teaching model, instructional design, and technology tools can result in a positive learning environment for online learners. While specific online models for music performance education have yet to be detailed in research there is an expressed call for current research as outlined by Ruthmann and Hebert (2012, p. 580): What kinds of musical learning can be effectively facilitated in online and virtual environments, and what kinds of musical activities are best suited to traditional face-to-face instruction? Furthermore, from the established literature in online course design, it can be posited that music students can benefit from the combined use of online course structures and technology tools.

While music performance can be described as an artistic subject that is individual in expression, it has teaching components that require pedagogical strategies (i.e., scaffolding of technique proficiency, repertoire, artistic interpretation, etc.), problem-solving skills (i.e., determining note choice in improvisation, instrument inventions, etc.), language acquisition (i.e., understanding musical notation, transposition, orchestral arranging, etc.), and historical context (i.e., historical performance practices, instrument history, etc.). While faculty may question the limitations of an online learning medium for the arts, perhaps such limitations have been assumptive. With the legitimacy of online academic learning now firmly founded by research studies, it is time to break open the barriers to online arts education in higher education and explore the avenues to authentic design of online music performance learning experience at the bachelor level.

4.1 Design Approach

The design of any structure, model, or framework is, in itself, both a stationary visual object and a vehicle of progression. Purposed for observation by various angles and made for testing in declarative process, the creation of a design involves many components that are assembled, reconfigured, and repurposed for the benefit of easier explanation to music faculty, deployment, and practical implications. To this extent, this paper will seek to

develop a conceptual model with components suited for online music performance education.

4.2 Assumptions

For the creation of an operative conceptual model, there are a few assumptions that need to be addressed. First, it is assumed that the music students benefiting from online education have already acquired a level of proficiency with their musical instrument (or voice) and are being taught at the bachelor's level of instrument mastery. Second, it is understood that one of the centerpieces of music performance learning revolves around the need for authenticity of apprenticeship under an expert musician. While this interactive component will be explored subsequently, the importance of the instructor as expert in the expert/learner relationship is identified as integral in both philosophical underpinnings and pragmatic function. Due to necessary brevity, the background of music education philosophy is not explored. However, it is acknowledged that music education should be accessible to all and embrace music as personal, artistic, cultural, and historical experiences and practices (Allsup and Benedict, 2008; Alperson, 1991; Csikszentmihalyi, 1988; Elliot, 1995; Jones, 2005; Reimer, 2003). The final assumption is that this conceptual model is agile and in constant motion. Bearing in mind that many of the “layers” may appear to be separable and delineated processes, they are in fact permeable membrane markings that welcome flow both inward and outward for optimal flexibility and benefit of learning.

5. THE DESIGN

Figure 1 purposely displays the concentric design of a stratified process, with all layers influencing the common middle point: learning. In this section, there are four specified layers that will be discussed with action descriptors for assistive word associations along with examples of implementation. It should be noted in Fig. 1 that each layer influences both its internal and external layers and permits a free-flowing flexibility of directional process in order to best solicit the learning outcome. The timing for the flow from outward to inner-most layer is undefined since it is dependent on numerous human and technological factors associated with each layer. Table 1 highlights the layers of the conceptual model, and identifies the approaches or concepts used with key descriptors.

5.1 Teaching Approach

The initial outer-most layer concerns the teaching approach. Defined by the many details of the desired learning outcome and the unique music student, this layer proposes three components for the approach: student centered, expert centered, and subject centered.

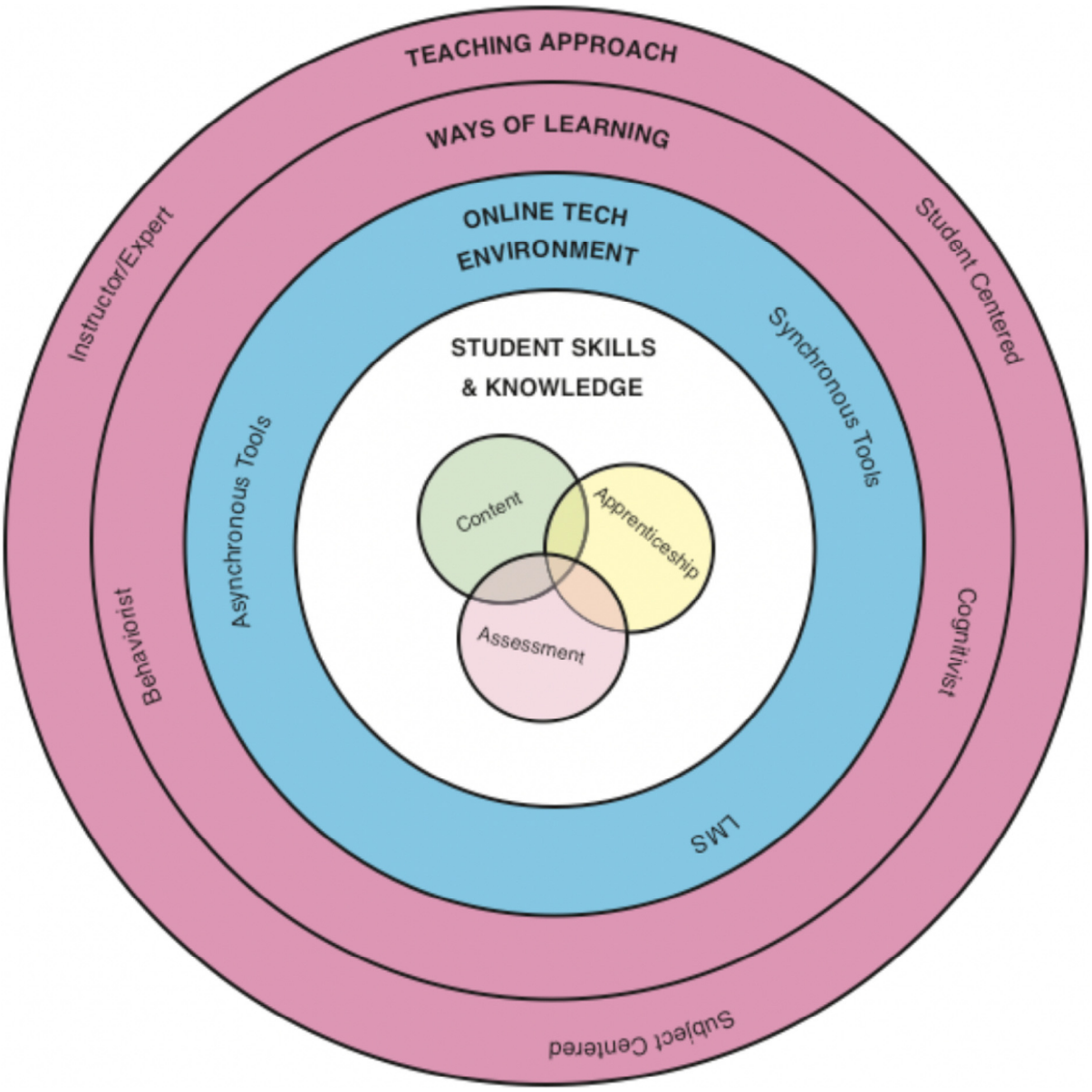

FIG. 1: Conceptual model for teaching music online

Because of the need for fluidity in the layers and between the layers, each approach may not be used in isolation.

Drawing upon the work of various scholars in the field of teaching and learning (Carmody and Berge, 2005; Hettler, 1984; Jonassen, 1999; Jonassen et al., 1995; Joyce and Weil, 2008; Moallem, 2003; Molenda and Boling, 2009; Park and Bonk, 2007), the choice of teaching approach is generally initiated by the expert instructor in relation to keeping pace with larger student goals and performance skills. As outlined subsequently, the three components position the instructor and student at different postures and experiential positions of learning.

TABLE 1: Key elements for teaching music online

Conceptual Model Layers	Elements within Layer with Descriptors	Elements within Layer with Descriptors	Elements within Layer with Descriptors
Teaching approach	Student-centered: building; creating; reflecting; experiencing; sharing; modifying; experimenting	Expert-centered: modeling; assisting; lecturing; demonstrating; facilitating; assessing; pacing; leading; scaffolding; bridging learning	Subject-centered: focused constructing; generations interacting; responding; experiencing; studying past disciplines; resourcing; experience sharing; chronicling
Ways of learning	Constructivist: building; creating; reflecting; experiencing; sharing; modifying; experimenting	Behaviorist: practicing; modeling; exhibiting; reacting; isolating behaviors; producing; detailing	Cognitivist: thinking; connecting; conceptualizing; processing; analyzing
Online technology environment	Synchronous tools: set-time interaction; listening; presenting; highlighting; lecturing; collaborating; facilitating; conversing; drawing; writing; performing; connecting; cueing	Asynchronous tools: flexible interaction; listening; reviewing; responding; composing; writing; recoding; discussing; presenting; capturing; mashing; writing; collaborating; archiving	LMS: planning; archiving; retrieving; uploading; downloading; sharing; disseminating; announcing; connecting; assessing; viewing; communicating; managing; organizing
Student skills and knowledge	Content: conceptualizing; connecting; trying; practicing; exploring; understanding	Assessment: tracking; self-reflecting; peer-reviewing; portfolio making; recording; grading; describing; refining	Apprenticeship: modeling; mentoring; scaffolding; disciplining; filling in learning gaps; committing; communicating

5.2 Student-Centered Approach

The student-centered approach charges the student with determining how to move toward a predetermined learning objective. For example, in the student-centered approach, the instructor may have pre-identified that a specific classical work is required for performance. There are a number of aspects that will need to be learned to reach performance level (i.e., learning the musical notes, listening to other performers, learning to personalize the performance, etc.). Therefore, the student will be the navigator through the layers of choices on how best to reach the desired performance goal. As this example

demonstrates, the time transition between layers may be quick and the student may opt to use a variety of components to begin working toward that goal. However, specific to the student-centered approach is the involvement of student choice and exploration toward the goal. It would be in error to say that the student was alone in her learning goal since she would always have the option to consider peers for collaborative learning or her expert instructor.

It is important to keep in mind that the model is in constant motion. If the student incurs a point at which a difficulty cannot be overcome, the expert instructor may step in and take leadership in helping the student overcome the difficulty, resulting in a fluid shift to the expert-centered approach.

5.3 Expert-Centered Approach

In the case of music performance, there are times when the instructor as expert needs to assist the student in “filling in learning gaps” and must, therefore, determine the focus of a lesson or learning outcome. Since the instructor is identified as an expert musician, the label of “expert centered” rather than “instructor centered” is given in the model. Following our earlier example, the expert instructor has now taken leadership and may be demonstrating or modeling a specific technique to assist the student in achieving her performance learning goal. Once the expert instructor has taken the leadership role, it is now up to the expert instructor to navigate through the layers.

5.4 Subject-Centered Approach

There are times within many courses when the subject being studied takes a leadership role. If a subject is current and constantly being updated (i.e., the field of app development), both the expert and the student may be directed by the immediacy of the subject matter's update. If we move back to our performance example, the ramifications of a newly discovered work by Bach or Beethoven could shift the teaching approach to subject centered if the course context was classical music performance.

5.5 Ways of Learning

The model is lacking forward motion if one considers only the outer layer's navigator, or teaching approach. Once the teaching approach is determined some type of action is required to move the student toward the learning goal. Therefore, the second layer, “ways of learning,” can be considered the vehicle that will be used to get the student further toward the goal. The action descriptors at this level may seem to reflect one specific type of teaching approach; however, experience dictates that may not always be the case.

Recalling the movement within the outer layer, the components in the ways of learning can also rotate when seeking the most effective path to learning. This type of toggling solicits a

myriad of learning connections as described by experiential learning, scaffolding, expert modeling, cognitive learning, creativity, and learning through play. Each of these individual concepts in and of itself is a rich connector for student learning, as described by various context-focused researchers (Anderson and Krathwohl, 2001; Bruner, 1960; Csikszentmihalyi, 1988; Dewey, 1926; Gardner, 1983; Jonassen, 1999; Mishra, 2012). Used in tandem, these connectors become exponential learning interactions for a diverse range of students, skill sets, and aptitudes. Since there are a number of connectors available, they have been categorized into larger overarching themes according to their epistemological underpinnings, as described by Dabbaugh (2014).

5.5.1 Constructivism

Constructivism is regularly paired with social constructivism (Bandura, 1993; Vygotsky, 1978) and speaks to the learning that happens among collaboration. Music performance is generally a collaborative effort (e.g., symphony, band, choir, etc.) and holds the process of communication and musical collaboration as integral to the final musical outcome. Situated within the interpretivist paradigm, constructivism develops learning based on personal experiences and brings forth meaning and interpretation from the learner herself. Within the music performance realm, the learning through constructivism heightens many affordances, such as increased recognition of note patterns, appropriate stylistic interpretations, and forthright collaborative performing skills. Each student can build upon her previous performance experiences to enable better overall musicianship.

Employing the student-centered approach and then navigating toward constructivism may position a student within a group project. Explorations on historical performance practice could lead to learning about musical notation from the Renaissance period (e.g., church modes, trochaic rhythm, etc.). Furthering the collaborative nature of constructivism, students could perform a motet or chanson from that era using their experience from the group work.

5.5.2 Behaviorism

Although the learning theory of behaviorism, and its objectivist undercurrent, has been viewed negatively by some to include only the operant conditioning of Skinner (1974), the field of music performance addresses practicing, modeling, and conditioning as necessary to the rigorous discipline. For example, the raising of the conductor's baton signals to the instrumentalists that the music is about to begin and that each player should be in “set position†.” Additionally, the achievement of agility and accuracy on an instrument is usually the result of hours of practicing smaller portions of music (e.g., scales or passages), which provoke an instantaneous synapse link that facilitates reading music to performing music.

Couched within all of the requirements for accuracy, tone quality, and finger placement is the realm of artistic subjectivity and "intrinsically expressive qualities of sound" (Reimer, 1989, p. 53) that drive the musician to create and perform music. Without such objectivist moorings, musical art could appear bland to all and repel emotional associations and feelings. A student herself could opt for using behaviorism when practicing. The simple practice of putting together an instrument in a specific sequence or warming up in the practice room to an outlined regiment calls upon points of conditioning for performance betterment. While an expert-centered approach may elicit a sound picture of "call and response‡" when using behaviorist learning, the length of time engaged in this focus is usually small in duration and seeks to model technique or needed technical adjustments.

5.5.3 Cognitivism

The brain fields many questions and routes many avenues for connecting student learning through activity and thinking. From this standpoint, the cognitivist, pragmatic aspect of learning supports the mental actions of solving problems, starting ideas, and collecting information to organize, restructure, and derive meaning. For the music student, the cognitivist aspect provides the fortitude to agilely create improvised melodic lines through a Jazz piece using chord symbols as guidance points. Organized thoughts of chord spellings and sequential understandings of chord structures bring the student through the exquisite garden of musical sounds to pick and choose to her heart's delight. How, then, is cognitivist learning instigated by a teaching approach? Perhaps the student has chosen to explore a student-centered approach to learning and begins to transcribe a Miles Davis trumpet solo. If the teacher approach is chosen, an outline of how chords are grouped and aligned to scales could be demonstrated.

Leaning heavily on the cognitive model of Bloom (1956), the use of cognitivist learning can be found at all levels of music performance learning since the model provides multiple entry points for learning. Now in a revised model (Anderson and Krathwohl, 2001), the increments of reflecting, understanding, applying, analyzing, evaluating, and creating welcome both beginner students and professionals to cognitively engage in learning.

5.6 Instructional Design—Outer Layers

The outer layers (i.e., the teaching approach and ways of learning) are categories belonging to the broad arch of instructional design. While some models of instructional design (i.e., ADDIE model, Rapid Prototype Model, Clark and Mayer, etc.) pose a systemized structure for course development, the subject of music education itself abounds with creativity in both subject matter and learning process.

Teaching music online requires both adaptability and flexibility in terms of choosing learning approaches and components, while moving toward learning outcomes. When a

non-systems–based model aims for such a fresh approach one can view the “creative mindset as an ‘envelope’ or contextual wrap that should surround the entire process” (Clinton and Hokanson, 2012, p. 120). In this light, the model described in this paper seeks to wrap creativity around the model to assist expert music instructors in transitioning to online teaching; all the while, giving room for creativity and connection with individual students and their artistic bents.

5.7 Online Technology Environment

The choice of taking a bachelor of music performance course online requires that the student and expert have a certain level of technological ability. Low-level computer tasks (e.g., using a text application, email, or browser) is required and an online learning orientation would likely be mandated by the institution. The knowledge of web cams and headset use would be a key component in establishing seamless online sessions—which would be part of the synchronistic course elements. Once the teaching approach and ways of learning have been determined, it seems reasonable that how and where the learning exchange is to take place needs to be determined. Since it is assumed that all learning exchanges between the student and expert (or student and other collaborators) are within the online environment, options for face-to-face meetings (e.g., in a studio or office) are not available.

The components within the technology layer consist of asynchronous tools, synchronous tools, and a learning management system. It is noted that while a LMS could be declared part of both asynchronous and synchronous tools, it is separated due to its central function for course planning and reiterations for future courses. As noted previously, this layer is open to shifting between components within the layer itself as well as between layers. Since creativity is surrounding the model, the choice of which components to use at any time is up to the discretion of the navigator and his or her comfort with the components.

5.7.1 Synchronous Tools

Due to the artistic nature of music performance, the use of synchronous tools is an important communication connection for the student and expert. This “same time” technology permits communication over the Internet using a variety of video or audio conferencing tools. Synchronous tools may be a plugin within the LMS or external tools. Some external tools, e.g. Skype (http://skype.com), provide audio and video conferencing without the use of a collaborative whiteboard§. While being able to communicate via audio and video can be helpful, there are times when viewing documents or music at the same time, or writing on music notation, becomes a helpful teaching technique. Synchronous tools that showcase such technology include: Blackboard Collaborate, Zoom, Google Plus Hangout, and Adobe Connect.

Knowing the technology skills and comfort level of both music expert and music student may determine which synchronous tool to use. Ensuring that music learning is the focus of the course content becomes critical since an additional cognitive load can become both distracting and deterring in online or traditional learning.

Once familiar with the audio and video conferencing capabilities of a synchronous tool, other extensions of the tool should be explored. Helpful synchronous tool additions may include the ability to upload slideshow presentations, interactive web touring, and even voting or polling for seminar groups. Keeping in mind that the choice of technology use is determined by the learning approach taken, many helpful synchronous tools can enrich the online learning experience.

Some positive outcomes from using a synchronous tool include immediacy of response for students (Park and Bonk, 2007); community connection between expert and student, such as teacher presence (Kanuka et al., 2006); and the possibility of future reviewing of a session if recorded. With practice, and organization that schedules “planned” flexibility, the use of a synchronous session can advance the learning of a distance music student across time zones and geographic regions.

5.7.2 Asynchronous Tools

The incorporation of asynchronous tools provides students with access to learning content anywhere and anytime that Internet access is available. Enabling communication with peer collaborators across varying time zones for collaborative writing with tools like Google Docs (http://docs.google.com) provides additional assessment through peer review or self-reflection. Further use of blogs or web pages such as WordPress (http://www.wordpress.com) or slide sharing applications such as Voice Thread (http://www.voicethread.com) create the opportunity for broader student understanding through external visitors' comments as well as possible development of student as performer, composer, and researcher.

Students and experts can benefit from the use of asynchronous tools to demonstrate specific performance techniques or skills. Audio recording tools such as Apple's Garage Band (http://www.garageband.com) or Source Forge's Audacity (http://audacity.sourceforge.net) provide simple recording applications that can export .mp3 or .aiff files for later viewing or assessment. Similarly, video-recording applications, e.g., iMovie (https://www.apple.com/au/imovie/) can provide students with helpful visuals and demonstrations or become archived video performance journals. Furthermore, all-in-one applications such as Evernote (http://www.evernote.com) can provide cloud server technology that permits note taking, recording of audio and video, file archiving, and email exporting through one application.

While the list of asynchronous tools is constantly growing, it is important to consider the outcomes of learning *prior* to choosing a tool. Many tools can help facilitate the same learning outcomes (e.g., reflecting, discussing, and composing). However, if students (and experts) can identify one or two tools that can help accomplish the same outcome, then efficient time management will result due to decreased learning of new interfaces and technological knowledge.

5.7.3 Learning Management System

The learning management system may be chosen by the institution due to licensing agreements or other administrative mandates, left up to the instructor's choice. Whichever the case, the regular use of the LMS can be beneficial to both the student and instructor. Housing information in the same place promotes predictability for the student and possible decreased frustration, and provides a reusable benefit for the instructor to “grow” online course content area for future courses.

Within the LMS reside standard tools that permit the instructor to create web pages with text, graphics and URLs, and assessments (i.e., quiz tools), as well as some type of method for student communication (i.e., discussion board) for contributions by instructor and students. Many LMSs exist and can include a diverse range from tool availability and plugins (e.g., Blackboard or Moodle) to platforms with basic features (e.g., Edmodo). Ensuring that the LMS chosen has the appropriate tools needed for an online music performance course decreases the need for the use of external asynchronous tools.

LMS tools used in an academic online course can be helpful for the online music performance course (Johnson, 2017). Tools commonly used in an academic online course include the following:

- Content pages with text;
- Graphics;
- Video and audio;
- Announcement board;
- Calendar;
- Discussion forums;
- Quiz tool;
- Drop box;

- Text chat;
- Video/audio conferencing; and
- Grade tool.

Those new to teaching online may start by using the content pages with text only, announcement board, and discussion forums; more advanced users may opt to add in time-released content, wikis, blogs, glossaries, and self-assessments. Relating once again back to the model, many of these online technologies can be used in tandem, or alone, depending on the desired learning outcome and previous layer determinants.

5.8 Student Skills and Knowledge

The focus of the model is around the central outcome of student skills and knowledge. This area is filled with the actions and reactions that take place within the constant activity and complexities of learning. Although the inner circles have an affinity of space, *content*, *apprenticeship*, or *assessment*, may take a more central position over another from time to time, depending on the learning task at hand. For example, a student practicing an entire solo work may call for more assessment of self-reflection than the apprenticeship nexus.

From this inner core it can be observed that the choices determined by the previous layers result in varying outcomes of skill and knowledge for the student. It may be that a learning objective, or required skill, is quickly reached by a student and the student and expert are found once again at the outside layer with a new objective. At other times, it may be that additional time and energy is spent between the core area and the online technology environments layer to better address a learning skill or objective.

It would be difficult to have total isolation between the spheres. For example, content and assessment relate to each other in that the music performance student is engaged in self-assessment for auditory acuity and personal creative exploration. Furthermore, the sphere of apprenticeship would likely be continually invoked because elements from the content area may need to be reaffirmed by the expert (e.g., locating a specific recording or confirming a musical technique). While the spheres work in conjunction with each other, there are unique qualities to each.

5.8.1 Content

The interaction of the student with content, or knowledge, in an online music course can take many forms. Using the various technology tools available, in conjunction with the components found in the ways of learning layer, a student may find herself moving through the *content* sphere using skills from the Anderson and Krathwohl (2001) revised taxonomy (i.e., remembering, understanding, applying, etc.). Or, perhaps, small segments of a

musical work are being practiced using a more behaviorist approach for accuracy and technical conditioning. It is within this circle of content that the student is interacting with her knowledge and skills, while continually widening her understanding of music and deeper artistic development.

5.8.2 Assessment

Akin to assessments found in academic online learning, and yet connected to the music learning process, *assessment* can be informal (i.e., lesson comments from experts, self-reflection, peer comments, etc.) or formal (i.e., recital grade, performance juries, etc.). The formal aspects of assessment generally have attachments to grades or performance outcomes. For example, an online music student may submit a recording of playing a prescribed set of major and minor scales and sequence of chord tones at mid-point of the semester. The instructor would assess the submission according to a rubric or set of guidelines and assign a grade value to the performance. From this formal assessment, the student would be able to pinpoint areas for improvement and then seek further interaction with content (e.g., practicing scales, etc.) to improve technical facility. Informal assessment may involve the student recording herself playing a segment of a work and listening back to the recording for self-assessment and reflection. While this type of assessment is not associated with formal grades, upon review it can prompt the student to connect back to the content sphere for further development of skill or content.

As mentioned previously, in the online technology environment layer there are many technology tools that can assist in formal and informal assessment. Significant student improvements can be encouraged through both planned assessment strategies and informal commenting when attention is given to communication delivery and tone (Palloff and Pratt, 2011). For example, the use of an informal discussion forum for students to connect with other like-minded students not only assists in student motivation but develops a peer community for informal assessment.

5.8.3 Apprenticeship

Elements that link to motivation can prove very helpful in the online learning context. If a student is motivated, many frustrations and challenges can be overcome. Considering the large body of literature that has enriched the field of online learning as addressed previously, the area of motivation with online community is integral for both keeping the student enrolled and exploring meaningful learning (Jones, 2005; Picciano, 2002). It is this connection to motivation and community that places the role of *apprenticeship* central in this model.

Apprenticeship requires two people—the apprentice and the mentor. It is a bi-directional relationship with foci on commitment, shared subject (e.g., musical instrument and genre),

and communication. The apprenticeship model was a common teaching approach during the Greek and Roman eras of antiquity and has started to become vogue once again in the 21st century with virtual mentoring (Vey, 2011). Also termed coaching, or mentoring, the student as apprentice denotes both a posture of learning and commitment to the outcome. It can be reasoned that the pairing within an apprentice model is usually chosen from the artistic stature of the expert and the fortitude of the student. Given that a developing musician can expect to encounter challenge, defeat, fear, and anxiety, as well as success, the professional ties between expert and student move through a gamut of exchanges. Therefore, the mooring of apprenticeship to this model is significant; without commitment to mentoring, or being mentored, the artistic learning objectives may not be met, if attained at all.

The apprenticeship sphere intersects easily with both content and assessment. For example, the details of musical performance may be discussed together by the expert and student, demonstrated by the expert, reflected upon by the student, and then tried by the student. This continual bouncing back and forth between the spheres is a seemingly natural rhythm to learning within community. The apprenticeship sphere permits deeper connection to the musical art form since the expert herself has renown in the field and has made significant contributions to the music community. Such an opportunity to “steep” in dialogue and performance exchanges can continue to make the musical content alive and relevant to the student's learning.

6. CONCLUSIONS

The model proposed in this paper considers key elements for teaching music online. Future research can explore how these areas interact with each other and how the movement between layers is further verified. However, the relegation of music learning to a model can be both helpful and restrictive. It is hoped that the “envelope” of creativity as previously described by Clinton and Hokanson (2012) welcomes the freedom to flow between the layers such that authentic musical learning is achieved. Options for choice within the layers are identified, yet many more ideas, postulations, and theories could be embedded to this creative medley of components for online music performance teaching. To this extent, the model is not a codified texture but a supposition of processes to better assist those new to online music teaching.

As post-secondary music performance continues to grow, the understanding of the intricacies of music performance interactions within an online educational environment is warranted. The complexities of combining the teaching of artistic skills and freedom of artistry within an online structure can be overwhelming for future music experts should some type of pathway not be hewn for informed guidance. It is understood that this model

involves further research and pilot studies. Birthed within experience and aligned to research literature, this model welcomes further discussion and discourse.

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†Set position is the trained posture, placement of hands, etc., on the instrument, and focused mindset that signals the performer is ready to begin.↩

‡Call and response is a form of singing used in Blues playing, and is also used as a teaching technique to solicit specific notes, tone, and lyrical quality as performed by the expert and then repeated by the student.↩

§A collaborative whiteboard is an online tool or conference extension, which permits all parties to write or draw in a prescribed space that is then visible by all collaborative parties.↩