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Music Education and the COVID-19 Pandemic: Reflections of Teaching Music Theory Online

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Abstract

Objectives: This paper aims to identify the challenges that music theory teachers and students have faced upon the sudden educational shift from traditional face-to-face learning environments to virtual instruction due to the COVID-19 pandemic. The research also investigates the social, cognitive, and learning obstacles that students may have experienced throughout the pandemic.

Methods: Using the author's own experience in teaching music theory during the pandemic as a primary resource for the study, in addition to existing literature on pedagogy, music theory education, and E-learning as secondary data, the researcher uses a descriptive approach to achieve the main objectives of the study.

Results: The study reveals several interactive, educational, and cognitive-based difficulties that students and teachers have encountered during distance learning. The research highlights the challenges of teaching music theory via online platforms and existing software programs that lack the technical features needed for the effective instruction of this quasi-mathematical, musically-centered subject.

Conclusion: The researcher suggests a number of pedagogical strategies that can assist online music theory instructors during and after the pandemic. The author concludes by recognizing the urgent need for institutional and technological interference to ensure that future online learning endeavors are effective and successful.

Keywords: COVID-19 pandemic, music theory, music pedagogy, online learning.

التربية الموسيقية وجائحة كورونا: دراسة حول تعليم مادة النظريات الموسيقية عبر الإنترنت

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ملخّص

الأهداف: يهدف هذا البحث إلى توضيح التحديات والصعوبات التي ظهرت في أثناء جائحة كورونا على تعليم مادة النظريات الموسيقية في الجامعات، التي واجهها المعلمون والطلاب بعد التحوّل الطارئ على طريقة سير العملية التعليمية من التعلّم التقليدي الوجاهي إلى التعلم الإلكتروني الإفتراضي. كما يركّز هذا البحث على تحديد العقبات الاجتماعية والمعرفية والتعليمية التي قد تكون واجهت الطلاب بسبب هذه الجائحة.

المنهجية: جرى استخدام منهجًا وصفيًا لتحقيق الأهداف الرئيسية للبحث، وقد تمّ استخدام التجربة الفعليّة التي خاضتها الباحثة في تدريس مبادئ النظريات الموسيقية خلال الجائحة كمصدر أساسي للدراسة، بالإضافة إلى استخدام الدراسات السابقة حول "البيداغوجيا" وتعليم النظريّات الموسيقية والتعلّم الإلكتروني كمصادر ثانوية.

النتائج: تكشف الدراسة عن العديد من الصعوبات التفاعلية والتعليمية والمعرفية التي واجهها الطلاب والمعلمون في أثناء التعلّم عن بعد، كما تسلّط الضوء على تحديات تدريس مادة النظريات الموسيقية عبر المنصات الإلكترونية وبرامج التواصل المتوافرة والمفتقِرة إلى المِيّزات التقنية التي تتناسب مع أسلوب تدريس وطبيعة هذه المادة شبه الرياضية والمتمحورة حول الموسيقى.

التوصيات: تقترح الباحثة عددًا من الاستراتيجيات التربوية التي بإمكانها مساعدة المعلّمين في تدريس مبادئ النّظريات الموسيقية في أثناء- وما بعد الجائحة. وتختتم البحث بإبراز أهميّة التدخل المؤسسي والتكنولوجي في العملية التعليمية الإلكترونية؛ وذلك لضمان فاعليتها وفعاليتها ونجاحها في المستقبل.

الكلمات الدالة: جائحة كورونا، نظريات الموسيقى، التربية الموسيقية، التعليم الإلكتروني.

Introduction

The COVID-19 pandemic has profoundly affected education systems worldwide. The United Nations policy brief issued in August 2020 stated that "the COVID-19 pandemic has created the largest disruption of education systems in history, affecting nearly 1.6 billion learners in more than 190 countries and all continents" (United Nations, 2020, p. 2). In response to the crisis, most governments have imposed restrictions that have led to the temporary closures of schools, colleges, universities, and other educational institutions. These unforeseen circumstances have forced a rapid shift in education from the traditional face-to-face course format to online instruction. Most universities, including those that were already offering blended or distance learning courses before the pandemic, have faced significant challenges following lockdowns and restrictions. Studies have shown that web-based learning requires a great deal of preparation, as well as more guidance and support to teachers, administrative staff, and most of all, students (Marshall, 2016; Perreault et al., 2002). Nonetheless, as the pandemic has unfolded, many universities have managed to swiftly develop distance learning solutions to maintain quality education, albeit with some challenges. With the continuing persistence of the COVID-19 crisis, it is becoming increasingly difficult to label these learning solutions as 'temporary'. Educators should consider the likelihood that precautionary measures, and therefore, online teaching may endure for a considerable amount of time. In this regard, it is critical that learning institutions employ new teaching methodologies and software that contribute to effective virtual learning experiences.

The proliferation of online learning programs in higher education in the past two decades insinuates that the future of education is exclusively virtual. This trajectory hints to the unparalleled advantages of online learning to students and institutions. Allen and Seaman (2007) point out that online programs are integral to facilitating the strategic growth of educational institutions. Recent studies have also demonstrated that the most common rationale for offering online programs is to increase student outreach and enrollment (Ibid., 2017; Ginn and Hammond, 2012). The fact that the motivation for adopting online education is primarily student driven raises the need to highlight the benefits of online programs to students. The main advantage of E-learning is its flexibility and accessibility to students geographically removed from institutions. Furthermore, research suggests that online learning is favored by some students over traditional classes due to its convenience and, in some cases, to the facilitation of interactivity and student engagement via asynchronous formats (Swan et al., Karayan and Crowe, 1997).

Notwithstanding its advantages, online learning does not come without any challenges. Many scholars and educators have addressed the major issues and concerns implicated in online learning. Evidently, there are several factors that impact the potential effectiveness of a virtual learning program, including the ability to establish good student-teacher interaction and collaboration among students (Yu and Brandenburg, 2006; Sherry, 1996; Young, 2006), access to information technologies and internet connectivity (Albert, 2015), the availability of administrative support and training, and the pedagogical strategies and methodologies used (Ni, 2013). Another concern related to virtual learning, as Ni argues, is that "some educational programs may simply not fit into an online setting" (ibid, p. 211). This statement presents a valid point, one that begs the question of whether music theory 'fits' into an online teaching environment. Before answering this question, one must understand the issues and debates implicated in the discipline of music theory education.

The study of music theory is considered a core subject of most music curricula and is acknowledged as a fundamental element for training students to become versatile, professional musicians. As a scholarly discipline, music theory covers a broad spectrum of topics, including pedagogy, history, curriculum design, and the integration of the theory with other musical fields (e.g., performance, musicology, and composition) – all of which have been addressed by scholars over the past century. Howard notes that "both by definition and tradition, theory stands apart from most other musical disciplines in its freedom to place fingers in every musical pie" (Howard, 1974, p. 53). The practicality of music theory as a subject that relates to a vast scope of other disciplines has both elevated the status of theory as a subject and contributed to the proliferation of literature related to music theory. Notwithstanding its status amongst educators, students tend consider music theory a difficult and demanding subject, and often regard it as "objective, mathematical, and uncreative" (Bribitzer-Stull, 2003, p. 21-22). Many scholars have attempted to address this issue by expanding the scope of music theory curricula

to include a more encompassing range of musical styles and idioms (Howard, 1974; Kang, 2006), designing a musically structured curriculum (Bland, 1977), or building bridges across music disciplines (Clague et al., 2009/2010).

Existing literature on the discipline of music theory focuses on identifying methodologies for teaching music theory, developing effective curricula, and making theory more 'musical'. Despite the abundance of research on the discipline, there is a relative scarcity of literature on online music theory education, with the exceptions of Lively's 2016 article and McConvile and Murphy's case study in music theory (Lively, 2016; McConvile and Murphy, 2017). Lively maintains that teachers must develop a different approach to music theory education in a virtual environment (Lively, 2016). As Hardy and Bower also put it, "teaching online requires a different pedagogy from that of the traditional classroom, as well as a unique set of skills" (Hardy and Bower 2004, p. 47). Given the recent shift of education to online environments due to the pandemic, one cannot help but wonder how educators have managed to adopt different pedagogies in such a limited time. In other words, if music theory does not necessarily 'fit' into a virtual setting, what resources and skills could be employed to change that perspective?

Whether anticipated for or not, music theory, as one of the main subjects offered in any musical program, has shifted to an online setting due to the pandemic, and could potentially remain to be taught virtually. For this reason, a study exploring the difficulties of online education with specific focus on music theory is highly necessary. The present study aims to highlight the impact and challenges of distance learning on music theory educators and students, and proposes strategies that teachers can employ as solutions to these challenges. By using the author's own reflections on teaching the principles of music theory online, as an undergraduate course and existing literature on virtual learning as secondary resources, the following questions are addressed: What challenges have music theory educators faced, and continue to face, following the educational shift from traditional to online settings? What is the impact of the pandemic on students' learning experiences? Finally, how can educators effectively teach music theory online? The research tackles these questions and, accordingly, formulates pedagogical strategies and recommendations to assist music theory educators in their virtual teaching endeavors.

Challenges for Teachers

Teaching in an online environment requires a great deal of effort, preparation, and training. It is safe to say that educators cannot guarantee the success of an online course based solely on the experience of teaching a particular subject in a traditional setting. Research has shown that teaching in a traditional setting is different to web-based instruction and requires openness to continually experiment with different approaches to learning (Yu and Brandenburg, 2015). Paraphrasing Bozarth's remarks, Marshall notes that "online instruction encourages people to redefine terms such as *learning, content coverage,* and even *teaching* itself" (Marshall, 2016, p. 49). Therefore, educators must redefine 'teaching' to successfully manage an online course. Approaching pedagogy from a different lens, one that considers the implications of online learning, requires an investigation of the common issues discussed amongst online educators.

One of the leading challenges that educators encounter in E-learning is the ability to interact and communicate effectively with students – a notion that is more naturally achieved in a traditional class setting. As Sherbon and Kish argue, "the quality and efficiency of communication are two of the most critical elements contributing to the success or failure of distance learning endeavors" (Sherbon and Kish, 2005, p. 39). Throughout the pandemic, many educational institutions have used platforms such as Microsoft Teams, Zoom, and Moodle to facilitate communication between students and instructors. Virtual meetings have, to a large extent, served as a good alternative to traditional student-teacher encounters during the crisis. However, establishing quality communication requires educators to build relationships with their students and a social foundation in which students can freely engage and participate. In some cases, particularly where students may feel uncomfortable opening their cameras during class, virtual meetings could create communication barriers between the teacher and student. Not only do these barriers affect the students' learning experiences, but they also require further effort from educators who, without being able to see the students' facial reactions and body language, cannot easily determine the level of understanding reached. Indeed, institutions could declare that students must open their cameras during virtual meetings, however, one must take into consideration that not all students are privileged with having a quiet, isolated space

in which to attend meetings. Furthermore, other issues may affect students' ability to participate in video conferencing, such as the right to privacy and confidentiality, access to devices with camera, as well as cultural beliefs and norms in some societies associated with the modesty of one's household.

Another challenge that teachers have faced with the educational online shift is time management. Many scholars observe that web-based learning requires extended working hours on the part of educators and employees in educational institutions, with increased time dedicated to course preparation, technical training, and responding to emails and student queries (Yu and Brandenburg, 2015; Young, 2006; Barth, 2004). For music theory instructors, the most time-consuming task is inherent in the subject's theoretical nature, which entails solving various exercises that help foster and improve students' ability to read and write music notation, and understand the rudiments of music, including intervals, pitches, scales, key signatures, rhythm, and meter. From my experience in teaching the subject both in traditional and online environments, I have observed that the former setting allows students to solve exercises simultaneously while I monitor or correct their answers. Meanwhile, E-Learning offers no such advantage. Instead, instructors must allocate a significant amount of time to allow each student a chance to participate in solving exercises.

In his 2016 study, Lively notes that the lack of "commercially available courseware packages for college or university level music theory classes that are intended to be used as the primary electronic textbook for an entirely online method of delivery and that are designed to seamlessly integrate with the most widely used LMS [Learning Management Systems] software" creates a major challenge for instructors (Lively, 2016, para.14). At present, there are existing programs like 'Auralia and Musition' that offer tools for training, assessing, and tracking progress of students in music theory, and can be integrated with LMS software. However, the adoption and use of these programs by educational institutions requires considerable administrative and technical planning, as well as intensive preparation and training on the part of teachers. For many institutions, integrating this software with existing E-learning platforms during the pandemic was largely infeasible due to the lack adequate preparation time and limited financial resources. Furthermore, this software only offers courses in English, thereby limiting its use by educational institutions internationally where English is not the first language of study or of its students.

The most common method for online music theory instruction is music notation programs, such as Sibelius, Finale, or MuseScore. But these software programs also require training and, in some cases, additional hardware (e.g., a MIDI keyboard) to speed-up the process of inputting notes – an otherwise highly strenuous task, considering the substantial number of musical extracts present in a music theory syllabus.

A further difficulty for online music theory educators reflects a wider concern that has been long debated in the discipline of music theory education: how to design a music theory curriculum that instills a sense of musicality in students and deepens their understanding of musical works. Toyne argues that "there is no space in curriculum music for theory lessons for their own sake – music exists through sound, and we teach staff notation to allow students to experience more music and to do so ultimately without the need for a teacher (Toyne, 2021, pp.114-115). In my experience of virtual teaching, I found that the challenge lies not in the curriculum itself, but in its method of delivery. Music theory lessons must allow students to engage with music through listening, which is usually achieved through playing prerecorded tracks or through a live performance by the instructor in a face-to-face environment. Although online instructors can share audio files with their students during a virtual meeting, some music theory concepts, such as emphasizing the auditory difference in meters, scales, intervals, or harmonic progressions, for example, are better understood through live, descriptive performance. There are many other obstacles that educators experience in online environments including a change in hierarchy between the instructor and the learner (Bozarth, 2006), institutional-related issues such as incentives and administrative support (Williams, 2003; Ginn and Hammond 2012), and, particularly prevalent during the pandemic, emotional distress that can affect the educators' performance and engagement with the students.

The Impact of the Pandemic on Students

Students are at the heart of any educational institution; their academic and professional success contributes to improving and advancing the institution's reputation and economic growth. The sudden shift in education and the nationwide

lockdowns have significantly impacted students in several ways. The impact of the COVID-19 pandemic on students can be divided into three main categories: social, cognitive, and learning.

Social Impact

As mentioned earlier, communication is key for effective learning, not only between the instructor and the students, but also between students and their peers. In conventional learning environments, students tend to naturally form connections with their colleagues. As Palloff and Pratt point out: "social presence is something we rarely consider in the face-to-face classroom. When students see one another within a physical space, we simply assume that presence will occur; students will develop a sense of who their colleagues are simply by being around them" (Palloff and Pratt, 2007, p. 30). This is not the case with online learning as students and leaders do not occupy the same *physical* space, and are inclined to exert additional effort to develop a sense of community, as opposed to that community emerging naturally, as Palloff and Pratt suggest. According to Scheg increased academic success is achieved "when online classrooms are not just groups of individuals but a learning community in which each student is personally invested and valued" (Scheg, 2014, p. 29). It is fair to say that not all students are equally invested in engaging with their instructors or peers, and for some, building relations with other learners whom they have only ever met virtually could be challenging. I found this to be true during the online courses I supervised, as despite my efforts to create a friendly, web-based environment for students, I discovered that many students were struggling to connect with their peers. Thus, distance education largely impacted their abilities to form relationships amongst each other, and a 'community' through which they can learn, formulate discussions, and become socially and emotionally interconnected through their academic commonalities. Furthermore, as an educator, I found it difficult to reach students on a deeper level via E-learning, to get to know them as individuals with unique personalities, backgrounds, and ways of thinking – aspects that are vital to fostering a sense of trust between a student and a teacher, hence, a community.

Failing to connect with instructors and other students not only potentially affects learners on psychological and emotional levels, but also influences their academic performance. Learning is not merely a cognitive process: it is a form of social practice that depends on the participants' relationships, experiences, shared goals and values, and sense of belonging (Lave and Wenger, 1991). In their research on communication in the virtual classroom, Swan et al. observe that certain characteristics such as gender and age influence students' interaction in the classroom, which in turn, affects their satisfaction and learning experience (Swan et al, 2000). During the online music theory courses I supervised, some students reported that they felt anxious about engaging in group discussions and were hesitant to participate in solving exercises during the lessons, particularly because they felt socially distanced from their classmates and instructor. Moreover, I observed that students who were interactive during the lesson achieved higher learning outcomes than the more socially reserved students. Therefore, given the significance of building social relationships within a classroom, one must highlight the need for educators to find methods to improve students' learning experiences and academic performance by nurturing a learning community in an online setting where students are not physically together, but are so virtually.

Cognitive Impact

Most higher education institutions focus on cultivating the intellectual capacity of students by providing effective educational programs in optimal learning environments. In his research on understanding undergraduate music education majors, Brand references William Perry's cognitive development model that divides students' intellectual maturity to several successive developmental stages, the final one of which is 'commitment with relativism' (Brand, 1988, p. 26). In this final stage, students are able to make good career decisions, acknowledge their professors as experienced mentors rather than idolizing or undermining them, understand value judgement, and are willing accept new challenges (ibid.). According to Brand, teachers can help their students achieve and commit to relativism through the employment of multiple teaching techniques including group discussions, exposure to diversity, and assignments that encourage critical thinking, to name a few (ibid). Whether or not Perry's scheme presents a valid method of assessing students' cognitive maturity is beyond the scope

of this current paper, but one must consider the potential ramifications when this developmental process is hindered. The reality is that during the coronavirus pandemic, students have not had a 'normal university experience' that allows them to engage with different people and diverse groups daily, formulate in-depth discussions with others, and learn through analyzing and tackling issues from different perspectives. Such unforeseen circumstances present a new challenge that teachers must face to encourage their students' intellectual development and enhance the trajectory of learning. With regards to the discipline of music theory, or music, more generally, it is essential that students reach the intellectual maturity that enables them to examine musical concepts and analyze musical works from different viewpoints as future musicologists, ethnomusicologists, composers, or performers. Postmodernist approaches to the discipline of music heavily rely on critical theory, wherein different ideologies and grand narratives are constantly explored in relation to the field of music. Of course, developing the critical thinking skills necessary for music professionals begins with understanding the concepts and technical rules of music theory. As Kang notes, "theory helps students to develop critical thinking skills unique to the study of music" (Kang, 2006, p. 61). Therefore, helping students to attain the intended pedagogical objectives of music theory and progress intellectually, particularly during these challenging times, is vital for their overall academic and professional success.

Surely, testing the cognitive impact of the coronavirus pandemic and distance learning on students requires an in-depth investigation over the course of students' undergraduate education that cannot be fully covered in this study. However, from personal experience, I witnessed an overall decline in students' intellectual focus throughout the pandemic, particularly those who began learning theory in the traditional setting, before shifting online. This specific group of students developed good analytical and thinking skills prior to the pandemic and showed future promise to critically relate music theory with other disciplines, yet, many of them were discouraged to delve into such areas in a virtual environment that does not necessarily provide a chance for students to formulate discussions with others and expose them to different disciplines within the field of music.

Learning Impact

Research has demonstrated that music theory courses are often considered difficult courses that "students tend to treat as a 'duty' to be fulfilled" (Kang, 2006, p. 46). It is therefore logical to assume that the remote teaching of music theory presents further challenges for students.

I observed several additional challenges regarding students' reception and understanding of the music theory course that I taught online during the pandemic. At the introductory stages of the course, I found that students easily understood the basic principles of music theory (e.g., pitch, clefs, common time signatures, regular meter, …etc.) in a virtual setting using Microsoft Teams, PowerPoint presentations, notation software, and virtual pianos. However, as the course progressed and more advanced concepts were introduced, many students expressed that they felt 'confused' and 'frustrated'. This feedback was partly associated with the fact that students needed a visual and auditory explanation to fully comprehend the conceptual rationale for the theoretical rules under discussion. For example, the students found difficulty in understanding how particular concepts such as transposition, meter, and phrase structure are applied in musical compositions. Furthermore, certain quasi-mathematical musical exercises, such as grouping notes in specific time signatures, particularly the less common ones (e.g., 12/16, 6/4, 9/4) were perceived as 'complicated tasks' by students, predominantly because they needed a detailed explanation of the steps taken to analyze rhythmic values – a process that cannot be clearly elucidated on notation software. As an instructor, I had to constantly re-examine the methodologies used in response to the students' feedback and provide them with additional resources, such as recording step-by-step videos to guide students on solving exercises, to ensure that the learning objectives were met. Overall, the learning obstacles that students experienced throughout the course were therefore largely associated with the fact that each student has a different learning style that had to be taken into consideration. As such, instructors should consider these individual learning approaches when designing a course.

Pedagogical Strategies for Teaching Music Theory Online

The design and implementation of an online theory course require a great deal of effort, planning, research, and technical

proficiency. Lively (2016) suggests a number of issues that should be considered during the development and implementation of a music theory class, and examines the pros and cons of integrating an LMS based music theory curriculum with existing digitized resources specialized in music theory instruction, such as 'musictheory.net'. At present, it is extremely critical that these suggestions are considered for implementation in the higher education industry, and in light of the current crisis. For any online music theory course to succeed, a clear pedagogical framework needs to be established. As Bauer argues, "teachers and students make learning happen. Technology by itself does not, regardless of the technological tool involved" (Bauer, 2014, p. 23). This perspective is pertinent given the proliferation of web-based learning resources, as well as music production and live streaming technologies – all of which have proliferated in number and scope throughout the pandemic. Kang notes that "in a world where one could ostensibly own any music product at the click of a button, the type of pedagogy that music theory can offer within a college classroom is perhaps more crucial now than ever before" (Kang, 2006, p. 62). The current COVID circumstances press the need for developing new methodologies for teaching music theory online even more so. I suggest that the following pedagogical strategies can assist educators in leading successful web-based music theory courses.

Know your audience. To improve students' learning experiences, instructors should develop a clear understanding of whom they are teaching. Basic information about students, such as their prior knowledge on the subject, age, gender, language, musical background, learning styles, and the presence of any learning disabilities and differences could massively impact the course of the pedagogy used. Conducting a simple survey before a course commences would help instructors to identify the optimal methodologies to use with a specific group of students. For example, asking students to describe their musical background assists instructors in identifying and understanding students' strengths and weaknesses, as well as musical and learning interests. A significant issue that may negatively affect students in remote learning is the failure to accommodate different learning styles in the course design. It is a well acknowledged fact that learners process information differently and, as Yu and Brandenburg maintain, "a general course design may not meet each student's learning needs, especially without eye contact, body language, or voice inflection as with face-to-face courses (Yu and Brandenburg, 2006, p.46). Therefore, implementing innovative learning techniques in a course design is crucial for achieving better learning outcomes.

Ensure the compatibility of the course plan with the online mode of instruction. There are several factors that online music theory instructors should consider during course planning. First, they should select a software or platform to serve as the main source of instruction. Providing students with a well-structured source of information that they can refer to at any point during the course, such as a PDF file, PowerPoint presentation, or online textbook, for example, is essential for their progressive development. Second, instructors should organize the lesson content and assign learning techniques in anticipation of students' reception of the material. For example, to assist students in learning chord progressions, instructors should envision whether students would benefit more by constructing the chords using notation software, examining the chords written on a document, watching an instructional video, or a combination of these techniques. Third, instructors should devise lesson plans based on the likelihood that there will be technical or other interruptions that may disrupt the originally set time frame for the lesson. Computer malfunctions, external interpersonal interruptions (e.g., family/friends, text messaging, …etc.), and other visual and auditory distractions, can largely impact the students' focus. Therefore, instructors should allocate some time to accommodate these interruptions, and should utilize learning techniques that imaginatively capture students' attention. Finally, educators should formulate assessment methods that are suitable for an online setting. This issue is particularly challenging for music theory instructors who do not have institutional access to existing platforms specialized for designing a music theory assessment online. Some institutions conduct theory assessments using a multiple-choice format, however, an inherent weakness in this approach is that it does not demonstrate the students' abilities to write music notation.

Relate the music theory course to other musical disciplines. The main purpose for including music theory in university curricula is to help students build a musical foundation which they can employ in their music specializations. As Fournier, paraphrasing Stull notes, "our ultimate objective as theory instructors should be to develop strong *analytical* skills so the undergraduate musicians in our classes can understand "how pieces work" (Clague et al., 2009/2010, p. 141). It is safe to say that only a minority of students in a theory classroom choose to major in music theory, and that most students treat the subject as 'a means to an end'. Therefore, as instructors, we should assist students in finding the link between the theoretical principles they learn and their areas of specialization, be that performance, composition, music production, or musicology. To adopt a more holistic approach to music theory, educators should constantly relate the theoretical concepts being explained, whether they are simple or more complex, to existing musical works. Even though many instructors use extracts from renowned compositions as examples during their lessons, they tend to approach them as mere 'texts', rather than situating them into the broader context of the musical work. This methodology tends to detract from students' learning experience, as Bland argues: "the theory instructor cannot realistically expect maintain interest for very long if students are forced to deal almost exclusively with details without some applications in broader context" (Bland, 1977, p. 167). Therefore, when applicable, theory teachers should discuss the historical context of a musical work, encourage students to listen to and explore a piece from various analytical and theoretical perspectives, and mention some of the musicological approaches to a certain theoretical concept or composition. Drawing parallels between music theory and other sub-disciplines in the field of music brings students closer to gaining a holistic understanding of musical pieces, thereby equipping them with the interpretive and critical thinking skills required for their professional development.

Employ collaborative and active learning approaches. Students learn more effectively when they are active participants, rather than passive recipients of the learning process. Cultivating student engagement through group-oriented activities is integral for the success of an online learning course. Group endeavors allow students to become experimentally involved in the learning process through problem-solving, discussions, group projects, and other instructional delivery methods. Educators should also identify the epistemological dimensions of instructions (objectivist vs. constructivist) best suited for the nature of the course, as well as the mode of delivery. With regards to music theory, adopting a constructivist approach – where knowledge is 'constructed' on individual or social dimensions (see Hung and Nichani, 2001) – is ineffective considering the theoretical and quasi-mathematical concepts that comprise the course material. Arbaugh and Benbunan-Fich observe that "knowledge transmission, typical of objectivist courses, combined with the benefits of group collaboration, produces the highest perceptions of learning" (Arbaugh and Benbunan-Fich, 2006, p. 443). Implementing this approach in online music theory classes could be achieved by, first, introducing the new concepts or rules through direct instruction, and then asking students to collaborate in solving exercises, providing examples by referring to musical works, or discussing musicological issues related to the subject. Many communication technology platforms, such as Zoom or Microsoft Teams, include a 'breakout rooms' feature that enables instructors to assign participants into groups during a video conference to facilitate group-learning activities.

Employing collaborative learning techniques reinforces the development of a learning community, which according to Kowch and Schwier, encompasses "collections of autonomous, independent individuals who are engaged by influencing each other within a learning environment" (Kowch and Shwier, 1997, p. 3). By using group collaboration as a pedagogical strategy, one can indeed nurture an online learning community, as in face-to-face learning environments, where students are encouraged to support each other in their learning endeavors. The role of the instructor in fostering a sense of community among students via collaborative approaches is particularly important. In a virtual learning environment, instructors should make special efforts to be 'present' for students, offering regular and consistent communication and support with students via a number of different communication technologies, including email but also more commonly used social media platforms such as WhatsApp and other instant messaging services.

***Demonstrate pedagogical flexibility*.** Teaching music theory in a web-based setting is a relatively new educational practice. As such, it is only natural that instructors continue to experiment with different methodologies, technological resources, and curriculum designs. Gerardi notes that "flexibility is imperative as is the openness to continually assess current approaches and implement new ideas all the while keeping a few core concepts in mind" (Gerardi, 2016, p. 62). Assessing the efficacy of teaching approaches primarily depends on student satisfaction and perceived learning. Therefore, instructors should repeatedly request student feedback regarding methods of delivery and invest time and resources to maintaining a friendly relationship with students so that they feel comfortable sharing their comments. Moreover, students, especially those of today's so-called 'internet generation', could provide valuable input on technology related issues that should be taken into account by instructors to facilitate student learning experiences.

Flexibility should also be exercised in curriculum design. Snodgrass argues that "there is no one size fits all curriculum nor will any curriculum grow if it remains stagnant and unaware of the developing trends and studies of the field" (Snodgrass, 2016, p. 9). A change in the educational mode of instruction impacts the ways in which students exhibit musical creativity, their way of thinking, and their general understanding of music education. Therefore, instructors should develop a program that accommodates these changes while ensuring that fundamental course content is covered. Moreover, educators should seize this opportunity of change to online education to integrate the latest disciplinary trends in the music theory curriculum.

Foster students' creativity. Chennete notes: "Many of us assume that the study of music inherently involves creativity. Yet merely interacting with a creative art does not guarantee creative practice" (Chennete, 2016, para.1). As music theory educators, we must find ways to stimulate student creativity in both virtual and traditional learning environments. Commonly used musical activities to foster creativity focus on composition, harmonization of melodies, and improvisation – the latter of which is exhibited through the recent proliferation of popular music in music theory curricula (Snodgrass, 2016). Other activities that could be used to encourage the creative thinking of students include group work and team analysis, problem solving, interpretation through performance, and rhythmic analysis of repertory pieces, to name but a few. Vempala suggests employing automated composition software programs to increase students' creativity, arguing that the "randomness" inherent in the software "contributes to the level of novelty" (Vempala, 2014, p. 7). Even though these activities can indeed develop students' creative thinking skills, the process cannot be fully achieved without the guidance and support of instructors. Providing students with constructive feedback, directing them in ways that could broaden their knowledge and understanding of musical concepts, and allowing them to experience and experiment with musical projects is integral in order to maximize their creativity.

Conclusion

It is clear that the COVID-19 pandemic has had a significant impact on students, teachers, and educational systems across the globe, bringing about new concerns, debates, and areas of interest that require continued exploration and research. This paper has highlighted the major issues implicated in adapting music theory education to virtual modes of instruction during the coronavirus pandemic, highlighting the social, cognitive, and learning impacts of the COVID-19 crisis. Through the author's own reflection on teaching music theory online during the pandemic, it has become clear that many students struggled to interact with their instructor and peers via E-Learning, which has not only affected students on an emotional level, but has also resulted in a decline in their academic performance. On a cognitive level, many students have shown a disinterest in engaging in analytical discussions related to the topic of music theory – a reality that poses a threat on students' future academic and professional endeavors. Many aspects specific to the music theory curriculum and the unique methodical techniques required to teach it, have posed learning challenges for students that were difficult to overcome with limited availability and access to technological advancements designed for music theory education. As such, it is particularly important that educational institutions provide access to existing music education software programs to help instructors to design curriculums, train students, and formulate effective assessments in an online setting.

Some of the difficulties that online learning participants in music theory encounter could be largely resolved using the pedagogical tools and strategies that have been suggested in this paper. Such strategies would not only be useful for music theory instructors and students during the ongoing pandemic, but also in the future where online learning approaches will no doubt become more prevalent in higher education institutions. If music theory instruction during the corona virus pandemic has demonstrated anything, it is that there is an urgent need for technological, institutional, and literary intervention to address the issues of online education. Approaches to online music theory instruction require therefore further research and, most pressingly, technological developments. Perhaps, after the development of suitable software programs and technologies, the question of whether music theory 'fits' into a virtual learning environment, will have an easier response.

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