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Soundtrap and the Standards

Music educators have sought to expand curricular opportunities since the 20th century. This led to including music offerings beyond traditional large ensembles, like steel band (Williams, 2008) and mariachi (Clark, 2005). In addition to music from other cultures, educators have advocated to incorporate youth popular culture.

At the Tanglewood Symposium, music educators agreed that all music belongs in the curriculum, including "currently popular teenage music" (Choate, 1968, p. 3). Thirty years later, the Housewright Declaration stated that "all music has a place in the curriculum," and "music educators need to be aware of other music that people experience and be able to integrate it into classroom music instruction" (Madsen, 2000, p. 206).

More recently, music technology and popular music have overlapped. Digital Audio Workstations (DAWs), like ProTools and Garage Band, allow students to engage in contemporary musical practices that blend performance and creativity. As music technology becomes more affordable, it is more widely used in classrooms and homes (Clauhs, 2020). With mobile phones, tablets, and inexpensive laptops, many students have access to an all-in-one musical instrument recording studio in their pocket or on their desks (bell, 2015).

With this abundance of opportunities, the question becomes how to use technology effectively and for what purposes. Music educators have argued that including technology allows a greater focus on creativity, as students can shift away from performing precomposed music (Thibeault, 2014). Moreover, using technology within a creative curriculum has the potential to "appeal to a wide range of students, many of whom might not participate in music-making otherwise" (Walzer, 2016, p. 24).

Soundtrap: cloud-based DAW

Soundtrap is a cloud-based Digital Audio Workstation, accessed through a web browser or an app. Students can select loops from an ever-expanding library of sounds, record their own MIDI clips, and even record audio. Because it is cloud-based, students can log in through a web browser at school to begin a project and continue work on their own devices wherever they choose.

Being cloud-based also allows students to collaborate. The pandemic brought an avalanche of new users to Soundtrap (Knapp et al., 2023). Yet, teachers who were suddenly forced to move instruction online were often in unfamiliar territory, using new technology and instructional practices (Cayari, 2020; Dockan et al., in press).

Soundtrap and the standards

In 2022, we were awarded an Action Research Project Grant from the New York State School Music Association (NYSSMA). David was a music education professor at Syracuse University, and Alexandra was a middle and high school music teacher at Syracuse Academy of Science. We had previously worked together informally and visited each other's classrooms. David had taught digital music making for several years. Alexandra had used web-based DAWs, including Soundtrap, in the past but not extensively in classes.

Alexandra wanted to integrate Soundtrap into two existing units. In the first, previous students had learned about binary form by playing different chord progressions on the guitar. In Alexandra's reimagined unit, students pursued the same learning objectives using Soundtrap instead. In the second, students had previously listened to and reflected on pieces of world music. In the new lesson, students incorporated world music samples into a beat they produced within Soundtrap (see Table 1).

Table 1
Central Foci from Two 8th Grade General Music Assignments

Assignment 1: Binary Form	Assignment 2: World Music Beat
Students create beats with two contrasting sections in Soundtrap using teacher-provided classical samples and the loop library.	Students examine instruments and rhythms from around the world and incorporate them into a self-created beat.

Alexandra wanted to begin slowly integrating Soundtrap to see if it could increase student learning and engagement in 8th grade general music. Based on principles of gradual release of responsibility (Fisher & Frey, 2021), she began by showing students example projects she created. Using whole-class instruction, she modeled using Soundtrap and the fundamentals of the user interface. She then had students create their own projects mirroring her process and assisted them individually.

Puentedura (2013) outlines four levels of technology integration in the classroom: substitution, augmentation, modification, and replacement (SAMR). In the first two levels, technology enhances learning activities. In the higher levels, technology replaces learning activities. In Alexandra's first lesson, Soundtrap was a substitute for prior learning activities. In the second, using Soundtrap was a modification to the learning tasks.

Purpose and research questions

The purpose of the present study was to examine the adoption of Soundtrap as a teaching tool for existing units in an 8th grade general music class. Additionally, we wanted to understand teaching and learning experiences by understanding a new teacher's experience through qualitative inquiry. Research questions were 1) what are students' experiences using Soundtrap in an 8th grade general music setting, and 2) what are a teacher's experiences integrating Soundtrap into an 8th grade general music curriculum?

Method

Because this research project was embedded within existing learning units, we examined assessment data generated from students' projects (n = 36). These included self-reflection questionnaires and peer responses for both units, as well as written teacher feedback. Responses were anonymized to David and we received human subjects approval from the appropriate Institutional Review Board. Data were analyzed by David using a grounded theory method that consisted of an initial coding phase that examined participants' responses, followed by a second coding phase where responses were organized by theme (Saldaña, 2013).

Results

When asked in their self-reflection if they enjoyed using Soundtrap and what they enjoyed about it, students were mostly positive. These positive responses were typically in three related areas: the joy of making, their interest in beats, and student-centered assignments.

These typical responses were organized thematically as culturally responsive (see Figure 1). Student responses often included one or two of these areas, and some responses connected all three areas: "My favorite part about the world beat project was how I was able to combine samples and sound to make my own personal beat."

Figure 1
Culturally Responsive Thematic Map
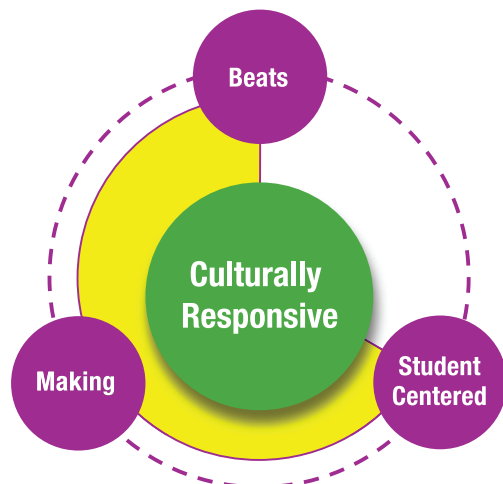
Though most students enjoyed the culturally responsive and student-centered aspects of the assignments, students also expressed frustration. Many had difficulties getting the timing the way they wanted. When asked about difficulties, responses included "making the beats fit" and "getting the timing right." Some also felt overwhelmed by the choices within Soundtrap and had difficulties, including "it was complicated to find certain sounds" and "deciding what type of beat I wanted" (see Figure 2).

Figure 2
Platform Difficulties Thematic Map
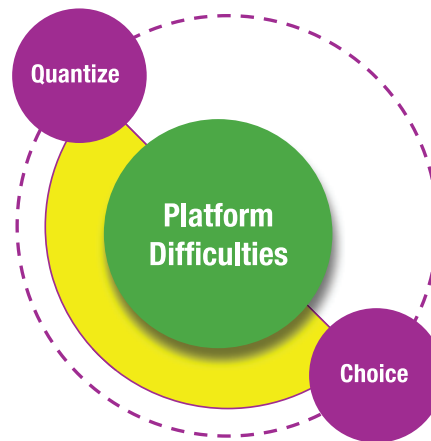
Beyond the platform difficulties, some were critical of the assignments because they wanted to do more with the platform. Some wanted to know more about form to build an entire track. Others wanted to learn about effects and transitions to mix their track better (see Figure 3).

Figure 3
Putting it All Together Thematic Map
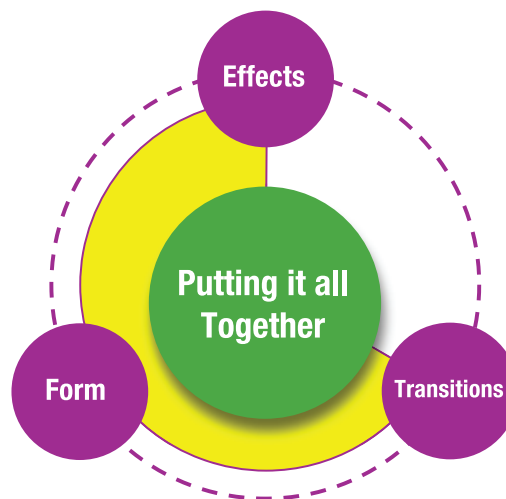
Alexandra provided two main areas of critique to students: students not following the assignment instructions, and students not revising their work. Alexandra believed students had greater difficulty following instructions and adequately revising on these Soundtrap assignments as compared to the previous assignments.

Discussion

During and after this research project, Alexandra felt frustration in implementing Soundtrap. Her students sometimes faced difficulties succeeding in school, in and outside of music. By innovating her curriculum, Alexandra hoped to retain greater attention from them and achieve greater learning outcomes. Based on student feedback, her reflections, and some student responses, she believed students did not demonstrate greater achievement. Despite Alexandra's efforts to teach Soundtrap skills, students faced difficulties in terms of making musical choices and fundamental familiarity with the interface.

Yet the majority of students expressed positive sentiments about the assignments. They felt empowered to make beats in a student-centered way. Some wanted to continue beat-making beyond the classroom. Some of the critical feedback seemed to indicate a desire to do more within Soundtrap, including knowing more about form, effects, and transitions.

DAWs are promising additions to the music curriculum. Yet the question remains: how can music teachers who are new to these platforms use them effectively? The present study identified a gap between knowing how to use platforms and designing learning experiences for them. Bauer (2013) identifies three areas of knowledge (technological, pedagogical, and content) for successfully integrating technology in the music classroom. In the present study, Alexandra demonstrated technological and content knowledge. Though she had pedagogical knowledge regarding the prior iterations of these assignments, the new context of Soundtrap caused some difficulties in the learning tasks.

As Music Education embraces these platforms more fully, we must consider ways to develop and disseminate pedagogical knowledge for these contexts to support teachers and students (Clauhs, 2020; Knapp et al., 2023). Music educators should consider how to support preservice and in-service teachers. Teacher education programs could help preservice teachers use technology and design meaningful learning experiences that use technology. Similarly, professional development could help in-service teachers explore teaching with technology. Finally, platform creators could work alongside teachers to improve learning experiences. By working with teachers to disseminate effective teaching practices, platforms would invest in students' learning outcomes and likely increase their product's salience within Music Education.

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