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USING A MOBILE APP TO CREATE RELEVANT AND PARTICIPATORY MUSIC LEARNING SPACES

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ABSTRACT

This case study features pedagogical strategies that were used in the context of a mobile app for learning to encourage relevant engagement and participation. For 20 weeks, a group of 18 piano students, ages 10 through 15, used a mobile app known as PracticeCactus. This self-contained social media platform allowed young participants to create and post audio recordings of their piano practice to share with their peers, which could then be 'liked' and commented on. Giving the mobile app to music learners without any direction at first, to provide them with freedom to engage with the app as they chose, resulted in limited engagement, due to individualism and a performance-based mindset. To encourage participatory engagement with the app, four pedagogical strategies were enacted, including: a) inviting students to take on the identity of 'content creator;' b) celebrating process over product; c) initiating goal-setting projects; and d) scaffolded instruction. These strategies resulted in the students using the app more frequently, but more importantly, fostered a different type of engagement, i.e., new opportunities for musical thinking and learning. Teachers who want to foster participatory engagement in music learning may benefit from this discussion of pedagogical strategies in the context of a mobile app.

KEYWORDS

Music Education, Participatory Culture, Students as Content Creators, Affordances of Mobile Tech, Pedagogical Strategies

1. INTRODUCTION

Mobile apps designed to facilitate learning are often insufficient, in themselves, to guarantee that relevant and participatory learning takes place. The pedagogical strategies a teacher uses to guide and direct students' use of a mobile app can have a crucial impact. This paper articulates the value of using a mobile app as a learning tool in the context of formal music learning to foster a sense relevance and participatory practice among learners, where each person feels they can be fully engaged, and has a voice as a content creator. In this case study, a mobile app was used as the learning context and over time, there were changes in how the students engaged with the app for learning. The students were a group of piano students, (n=18), ranging in age from 10 to 15. For 20 weeks, they used a mobile app called PracticeCactus—a self-contained social media platform accessible by the students and their music teacher. The mobile app allowed the students to share musical creations and musical thinking with their peers. Over time, the students began to use the app in ways that were more frequent, more creative, and more deeply engaged with the learning content. The mobile app itself was not solely responsible for these positive trends. Rather, the affordances of the app, in combination with the pedagogical strategies that were employed, resulted in increased opportunities for learning. The research question in this qualitative study was: 'What social and cultural practices do piano students enact when invited to use a mobile app designed to facilitate music learning'? The findings and discussion are meant to support teachers as they consider ways to use a mobile app as a learning context, keeping in mind some limiting factors that could hinder meaningful engagement, and suggesting pedagogical strategies that may be effective for fostering participation and socially engaged music learning.

2. LITERATURE REVIEW

Educational technology is not neutral, and the choice to integrate a digital tool into an educational space has impacts on what can and what will take place in that space (Scardamalia & Bereiter, 2008). Many mobile apps designed to facilitate music learning are focused on tracking errors such as wrong notes and rhythms, and testing to see if users, once their errors are identified, can correct them. These mobile apps convey a specific message about what music learning is. The mobile app used in this study was intended to go beyond the conceptualization of music learning as building skill to play the right notes at the right time, and to encourage meaningful music making in ways that are relevant to students' social and cultural contexts.

2.1 Theoretical Foundation

This study assumes the epistemological stance that meaning is constructed (Confrey, 1990; Dart et al., 2000), and that meaning-making happens when learners actively explore, in relation to others (Nurrenbern, 2001). Constructivist theory, as applied to music learning, expands the possibilities for learning beyond building technical skill, and envisions music learning as musical inquiry, musical connections, and musical discoveries (Garnett, 2013; Shively, 2015). Sociocultural learning, as a lens in this study, understands learning to be embedded within interactions themselves, in that space which is between the self and others (Glăveanu, 2010). Knowledge, then, does not simply exist within the mind of an individual, but also exists between people and in cultural contexts; it exists within social practices themselves (Gee & Green, 1998; Lave & Wenger, 1991). As described by Gaztambide-Fernández (2013), the production of culture, or cultural production, is the way that humans represent themselves, the way they perceive others, and the way they think about and experience the world through symbolic means.

In the world of music, distinct cultural and social practices take place in different musical genres (e.g., jazz and rock), and within different musical contexts (e.g., school music classes, Indigenous pow wows, or hip-hop concerts). Music learning, then, consists of making use of a rich set of tools to understand and create music (Wallerstedt, 2013) within various social contexts. Over the course of this study, participants were encouraged to engage in music learning in social and culturally situated ways, to foster this type of meaningful, situated learning.

2.2 Relevant and Participatory Learning

Students live in a world of user-generated content, i.e., content created and shared on social media by any individual who is part of the general public (Daugherty et al., 2008) for the purposes of self-expression and actualization (Buf & Ştefăniţă, 2020; Stoeckl et al., 2007). Empowering students toward production and interaction is possible because of accessible, affordable, and user-friendly digital tools (Gee, 2010; O'Hear & Sefton-Green, 2004). Therefore, creating a learning environment where students are invited into the world of user-generated content is a way of providing relevant, culturally situated experiences for students. Music students, as they engage in authentic creation and sharing, are empowered to be part of participatory culture.

The significant role of music in the life of young people today is heightened by unprecedented access to all music, any time, thus increasing opportunities and urges to 'participate' with music (Allsup et al., 2012; Tobias, 2014). Participating with music includes spending time practicing to develop technical skill, but also includes improvising, composing, listening, and dancing (Folkestad, 2006; Green, 2005; Tobias, 2014). Small (1998) describes the act of engagement with music as participating in relationships that bring meaning to the act of music-making. Relationships are embedded between musical notes, between musical ideas, and between people who enact and facilitate a musical performance. Music educators, then, have an opportunity to create opportunities for learners to experience these relationships. Mobile technology is ideally suited to fostering such relationships, in partnership with supportive pedagogical practices. Within the mobile app used in this study, students took on various musical roles and engaged in various ways, through relationships with music and with one another.

3. METHODS

3.1 Research Design Overview

The research design is an instrumental, qualitative case study, as described by Stake (1995). The case is bounded by a particular mobile app for learning which was used by a group of 18 music students over a period of 20 weeks. The goal of examining this case was to investigate the musical artifacts that students created, shared, and interacted with, as well as the students' reflections on what they created and shared, and then to use rich description to illustrate the case. The researcher, a music teacher who also took on the role of app designer, wanted to explore how piano students would choose to use a mobile app when it was provided to them as a context for their learning. Halfway through the study, it became apparent that the students had not used the app very often, and only in limited ways. Therefore, some specific pedagogical strategies were enacted to encourage further and more meaningful involvement.

3.2 Participants

The researcher, along with all the participants in the study, reside in a medium-sized town in Ontario, Canada. Before proceeding with this study, ethical clearance from the researcher's University was obtained, and then a colleague of the researcher, (another music teacher), along with 18 of her students, 9 females and 9 males ages 10 through 15, were recruited to participate. The students agreed to use a mobile app as part of their musical instrument practice sessions which they routinely engaged in at home between weekly, in-person lessons with their teacher. The researcher and the music teacher worked together to communicate with the student participants to ensure that ethical protocols were faithfully enacted, and that the students knew they could opt out of participation at any time, as well as to monitor and guide the students' musical participation within the app.

3.3 Data Collection

The primary data collection source was the set of audio recordings, 'likes,' and comments that students contributed to the mobile app. The students used the mobile app, (which was a self-contained social media platform), while they were practicing at home as a way of sharing some of the things that were happening as they practiced, with their peers. As they posted audio recordings of their practice sessions for others to hear, these posts appeared in the app's news feed, and others responded with 'likes' and comments. The other data source consisted of four, in-person music-sharing sessions where all the participants met at their music teacher's house for one hour. These were modified focus group sessions, which included opportunities for musical games and snacks, as well as group discussions about the students' experiences of using the app. Some activities and discussions at the music-sharing sessions were planned in advance, while others evolved according to the students' queries and emerging needs. These sessions were audio-recorded and transcribed.

3.4 Data Analysis

The semiotic signs created and enacted by the participants were observed, collected, and analyzed for patterns and themes. These signs included posts, comments, and 'likes' that the participants added within the mobile app, and these were examined holistically (Baxter & Jack, 2008). In addition, transcripts of the music-sharing sessions were analyzed to determine common themes that were part of the students' experiences. Each piece of data, taken together, was a source that led toward understanding the behaviour of the community, and to a nuanced understanding of the case. Patterns that emerged regarding when students posted, and what they posted, were noticed and described. While this single case is not meant to be definitive, knowledge of a certain case does provide a tangible, real-life example of general principals of human behaviour which can prompt reflection and imagination—of what was and what might be (Flyvbjerg, 2018). The phenomenon presented by the analysis of the case may be useful to teachers who are seeking information about ways to foster relevant and participatory learning environments in the context of music education, or other content areas where sociocultural production is part of the learning process.

4. RESULTS

There were three main findings, in answer to the question, 'What social and cultural practices do piano students enact when invited to use a mobile app designed to facilitate music learning'? First, it became evident that when left to decide how they would engage with the app, participants contributed rarely, and in specific limited ways. Second, it was discovered that there were two specific reasons that seemed to be the cause of this limited participation. Third, it was found that, with the enactment of four pedagogical strategies, the participants experienced some freedom the limiting beliefs that had hindered meaningful participation with the app, and as a result, engaged more frequently and meaningfully in music learning.

4.1 Participation Patterns

Throughout the study, a total of 74 audio recordings were shared within the mobile app. Over the first 10 weeks of the study, 12 recordings were posted by participants, most of which were full musical pieces, i.e., an entire song played from beginning to end without stopping. After week 10, the participants posted 62 audio recordings, and these posts included partial pieces, technical exercises, tutorials, and invitations to respond. Partial pieces were excerpts of songs that students recorded and shared, either because they wanted to highlight a particular section they were doing well, or that they needed more work on. Technical exercises are often assigned by music teachers as required practice items for warming up and developing facility on a musical instrument in specific skill areas. Participants shared audio recordings of these exercises, including scales and chords in various keys. Invitations to respond were those audio recordings posted by students where they invited a response from their listeners. For example, they asked their audience to listen to their playing and to try to identify the tune or attempt to find a mistake.

By Week 10 of the study, two factors that were limiting the students' participation were identified, including their mentality of individualism, and their focus on performance. To address these limiting mindsets, four pedagogical strategies were initiated during music-sharing sessions, including: a) inviting students to take on the identity of 'content creator;' b) celebrating process over product; c) initiating goal-setting projects; and d) scaffolded instruction. These strategies will be described more fully in the Discussion section. When these strategies were put in place by the researcher and the music teacher, the students' use of the mobile app increased, as previously illustrated, in both number and creativity. Students began to post more, and they also began to post a variety of different types of recordings, according to their emerging needs and interests.

4.2 Limiting Mindsets

Through conversations with the participants during focus group sessions, it was revealed that these students came to the research study with two limiting mindsets, including individualism and an emphasis on performance. It is not surprising that the students in the study had an individualistic view of piano practice. They had been practicing for years, mostly at home, alone, likely without many experiences that allowed them to view their piano practice as a community activity. When these young participants were asked why they had not posted in the app, they did not give excuses such as running out of time or forgetting. Rather, it seemed that they did not know why they were not posting, since they could not articulate a reason. But neither could they articulate a reason why they would choose to record something from their piano practice and post it for the community to see and hear. They did not have, as part of their understanding of music learning, that practice, before a piece is ready to be performed, could be understood as a socially engaged act that is situated within a community experience.

Students also came to the study with a performance mindset, which limited their participation with the app. They began the research study by only posting full pieces that they deemed ready to perform for their peers, or in other words, pieces they could play from beginning to end without stopping. When students came to the mobile app with this narrow perspective on what kinds of audio recordings could be shared, they were limited to only performance-ready pieces. Just as the individualistic mindset was not surprising to encounter, this focus on performance was not surprising either. Some music teachers might only invite certain students to perform in public, because they want these performances to reflect well on them and their teaching skill, and those who are invited may only be asked to share their very 'best' performances publicly (Webster,

1993). Even though the mobile app used in this study was a self-contained learning environment where only the students of one music teacher could hear the audio recordings posted, the idea that only those who had something worthy of public performance pervaded.

4.3 Pedagogical Strategies

Four pedagogical strategies were introduced to help students overcome these limiting mindsets – two in relation to individualism, and two in relation to valuing performance-based participation.

To empower learners to engage more deeply with using the app, and to interact with one another in ways that resulted in musical listening and thinking, it was first decided that the mindset of individualism would be addressed, using two pedagogical strategies. First, to prompt students to participate in the learning community, they were invited to take on the identity of 'content creator.' This pedagogical strategy may resonate with young learners who are immersed in the world of rich media-sharing, whereby one's social and cultural capital can be defined by the content that one creates and shares. At first, the students had difficulty conceiving of how their independent musical practice sessions at home might be thought of as part of a community experience, and so a new identity was offered for them to take on, which could make content creation and sharing a part of their lived experience. At a focus group session, the researcher led a discussion with the young learners about the difference between content consumers and content creators. As a group, they brainstormed a list of some typical habits and identifiers that would be part of each of these roles. The intent of the discussion was to help students explicitly realize and acknowledge that nothing is going to happen in a learning community if there aren't any content creators. This discussion, then, was meant to empower each participant to, going forward, take on the task of creating content, not just for what benefit they might have perceived for themselves, but also because of the benefit that others in the community might experience through hearing their posts and seeing their comments.

Second, the individualistic mindset was addressed through introducing small group goal setting. At the next focus group session, the students divided themselves into five small groups, and each group decided how often, how many, and what types of posts they would like to share with one another within the mobile app. They wrote down their group goals on paper, signed their names, and handed these plans to the researcher. This second pedagogical strategy, then, was meant to address the individualistic mindset by encouraging the participants to work together, and to creatively imagine how they might use an app for music learning. This empowered the students to create recordings and post them in the app, as part of a group, and as a team effort, instead of having to come up with their own ideas about what to record and post, and then posting on their own.

To overcome the performance mindset that was limiting students' participation with the app, two pedagogical strategies were invoked. First, the celebration of process over product was introduced. At one of the focus group sessions, the researcher facilitated a discussion of how the process of musical learning is just as valuable as the final product of musical instrument practice. Examples of audio recordings that contained excerpts of piano pieces and imperfect recordings were shared, and the students were asked what would happen if they heard something like this posted within the mobile app. The students listened to one another share how they would add a comment to encourage the person, cheer them on to keep practicing, or suggest a helpful practice technique. Because the sharing in the group was positive, it built a feeling of trust whereby each participant realized that they had the freedom to post musical progress, and they were not required to have a perfect offering to share. After this discussion, they were ready to share parts of pieces (e.g., only the left hand of a piece or only one section of a piece), and they shared pieces where they were clearly having difficulty with one or more aspects of the piece.

Second, to address the performance mindset, (because the students did not have much practice hearing others' in-progress music), time at a focus group session was devoted to scaffolded instruction about what to do when you encounter a post that someone else has shared, which clearly has mistakes, an uneven tempo, or some other musical challenge. We wanted to prompt the students to use their musical listening skills as they heard a recording, and to use their musical thinking skills to construct a comment that would be valuable to the person who had posted that recording. The music students, ages 10 through 15, did not necessarily already have this skill. To scaffold the instruction, as a group, we brainstormed ideas for different types of comments that could be posted, which might prove helpful. Then we crafted a list of sample comments that they could use, as is, if they found an audio recording where they wanted to express one of those sentiments. We also encouraged the participants to create their own comments based on this learning.

5. DISCUSSION

When the study began, the students were intentionally given a minimal amount of instruction with regard to how often and in what ways they should use the app. This was part of the study design, in that naturally emerging choices, interactions, and patterns were anticipated and hoped for. When it became clear that students were posting in a singular, traditional manner (full, performance-ready pieces), and many were not posting at all, mainly due to two limiting mindsets, four pedagogical strategies were introduced to increase student involvement and interaction. This highlights the fact that the affordances of a mobile app do not always reside within the app itself, but rather, come forth as various activities enabled by the app are enacted (Beach, 2017). Simply introducing a mobile app and hoping that learners will use it in rich and meaningful ways puts too much onus on the learners who, while they may be digitally proficient, need guidance to know how to use mobile apps for learning. This study demonstrates that even in a content area such as music, where performance is an integrated social practice in many genres and contexts, a mobile app, paired with pedagogical strategies, has the potential to change the mindset of the learners to adopt new, participatory social practices.

5.1 Relevant Mobile Learning

This study uses the term 'content creator,' which may evoke ideas of vloggers and famous Instagram influencers, and this is intentional. A survey of 3000 children in the US, UK, and China revealed that 30% indicated 'YouTuber' as their career aspiration (The Harris Poll, 2019). The career of a content creator is not without challenges. Some of these challenges include being subject to manipulation by brands (Harms et al., 2022) and by social media companies (Arriagada & Ibáñez, 2020), and feeling pressure to relentlessly post content and cater to viewers' desires (Törhönen et al., 2018). But content creators want to communicate something valuable to an audience in creative and productive ways (Buf & Ştefăniţă, 2020), to build self-confidence (Snelson, 2015), and to imagine new identities and statuses (Berryman & Kavka, 2017; Choi & Behm-Morawitz, 2017), and this is something that teachers can play a role in supporting among their students. Learning to be a content creator usually happens through social interactions in distributed, online communities (Harlan et al., 2012). Educators who take on some responsibility for teaching learners about the role of content creators can potentially help their students toward critical reflection and wise decisions regarding content creation, perhaps as a career for some, but also, as a regular part of life for anyone who is active on social media and creates and shares content. Ultimately, encouraging music students to create and learn about music within a social community, as part of cultural expression, can happen within the context of a mobile app with affordances that reflect the values of socially engaged music learning.

5.2 Participatory Mobile Learning

The mobile app in this study became a useful tool, not only for engaging students, but for shifting students' conceptualization of musical identity and musical participation. The app was a social media platform that facilitated creation and sharing of content. That alone may not be powerful for learning. But students in this study realized that sharing in the mobile app could be a different kind of sharing than they were used to, i.e., mostly in performance contexts. This shift from purely performance-oriented sharing to the progress-focused sharing is significant because it allowed students to enact music making in a participatory fashion such that they were sharing their 'doing' of music on a regular basis. More opportunities to represent the self throughout the stages of learning rather than waiting until some final product is reached provides more practice of authentic, consistent cultural expressions. Being freed from sharing only final products provides more access for students to participate with music and does not restrict the amount of sharing and expressing someone can do based on their ability to reach certain skill or technical levels. Understanding how to support one another's music learning, through the messy parts of progress, before performance-level is reached, can empower learners to recognize the value of the process of learning, and engage in meaningful musical thinking as they reflect on their own in-progress learning, as well as others.'

6. CONCLUSION

At the outset, participants were given a mobile app to use for learning, but without any details or direct guidance. This was intentional, to determine if the students had ideas about the social and cultural practices they would like to enact together as a group. When little to no engagement happened, and some limiting mindsets were discovered, instruction and strategies were implemented to support the learners. Therefore, this study may provide ideas to instructors who want to conduct learning within mobile spaces, and who want to positively influence social engagement.

This study discusses pedagogical strategies that can be used in the context of a mobile app for learning that empowers students to engage deeply with learning, and to participate meaningfully with the learning content. One typical way to increase engagement in a learning environment is to link participation to assessment. For example, to earn 10% of their grade in a course, a student may be required to post a certain number of times. What is assessed is what students do. But this study suggests a different approach, including offering a new identity for learners, and scaffolded instruction to empower students to participate as a socially and culturally connected experience.

A study about content creators has shown that they tend to represent a singular, privileged socioeconomic group (Brake, 2014). Therefore, empowering all students with the critical thinking skills and practical skills necessary to engage in content creation and sharing has the potential to disrupt this imbalance, and provide more equitable access to the career of content creator for all learners. Admittedly, this study was limited in that it made use of a self-contained social media platform that only facilitated the sharing of audio content and text, and not video, which is currently the most popular mode for content creation sharing. Future studies could investigate the impact of a mobile app for music learning, in tandem with pedagogical strategies that facilitate a shift from performance-oriented to participatory-oriented engagement, on the mental health of music learners.

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