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A Case Study Exploring the Use of Garageband™ and an Electronic Bulletin Board in Preservice Music Education

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Abstract

This qualitative research study is an exploration of the merit and shortcomings of using a combination of the music software GarageBand™ and an electronic bulletin board to facilitate musical and peer learning in a 3-month elementary music methods curriculum and instruction course. A pedagogical objective of this assignment was to increase the interaction among preservice teachers for the purpose of improving the following: (a) their understanding of musical vernacular, genres, and cultures; (b) their appreciation of the relationships among personal, social, and cultural identities; and (c) an introduction to digital learning technologies as a platform for community building. Specifically, sharing their playlists online (as well as their thoughts, feelings, and images about these musical selections) encouraged reflective practice and a process of peer learning, providing opportunities for students to learn about their peers and broaden their participation in a community of inquiry.

Overview

This qualitative research study is an exploration of the merit and shortcomings of using a combination of GarageBand™ and an electronic bulletin board to facilitate musical and peer learning in a 3-month elementary music methods curriculum and instruction course.

A pedagogical objective of this assignment was to increase the interaction among preservice teachers for the purpose of improving the following: (a) their understanding of musical vernacular, genres, and cultures; (b) their appreciation of the relationships among personal, social, and cultural identities; and (c) an introduction to digital learning technologies as a platform for community building. Specifically, sharing their playlists online (as well as their thoughts, feelings, and images about these musical selections) encouraged reflective practice and a process of peer learning, providing opportunities for students to learn about their peers and broaden their participation in a "community of inquiry."

This study was designed to examine whether the integration of digital learning technologies in teacher education programs enhances a larger educational mission to foster preservice teachers' understanding of music and digital literacy. The core of all communities is their literacies: "In each of these communities, and sometimes across them, we speak, write and compute in certain ways because we share common literate practices" (Gomez, Sherin, Griesdon, & Finn, 2008, p. 121). Accordingly, one responsibility of teacher education programs is to encourage an understanding of literacy across (subject) content areas, including both traditional and emergent literacies (Selfe & Hawisher, 2004).

Conceptual Framework

Extending Notions of Literacy

Consensus has grown among researchers and educators about the inadequacy of conventional notions of literacy for describing cultural, visual, aural, music, and digital literacies, as well as related practice informing daily life (Cope & Kalantzis, 2000). In this paper we explore the complexity of digital literacy (i.e., digital communication and expression) as the ability to construct and represent meaning from multiple sign systems: aural, visual, and linguistic. Responding to this broadened concept of literacy, the New London Group (1996) suggested that a model of pedagogy is required that positions learners as "active designers of meaning" (p. 65). We suggest that a sociocultural approach to teaching and learning is requisite to broadening students' traditional conceptions of literacy to include a process of negotiating multiple literacies in both face-to-face and online environments.

Sociocultural Theory

Sociocutural theorists have described learning as a process of purposeful, social interaction (Lave & Wenger, 1991; Vygotsky, 1978, 1986; Wertsch, 1985). *Purposeful* here is understood to describe interaction that is not simply casual but rather provides opportunities to learn outside the context of directed learning. Learning and development are not independent of social, cultural, and historical contexts (Kong & Pearson, 2003). Learning is a process whereby individuals purposefully interact with others who are more knowledgeable as a way of reconstructing their own understanding. This process of sharing and negotiating meaning is how higher (internal) psychological processes are achieved (Vygotsky, 1978). Therefore, learning is both an individual and social practice.

The notion of learning as an individual and social practice is broadened in this study to include subject-centered and collective learning as "co-emergent processes" (Davis, Sumara, & Luce-Kapler, 2008, p. 829). For instance, the public arena of an electronic bulletin board can be used to encourage individual, subject-specific, and collective (social) "purposeful" learning. Davis and colleagues elucidated the relationship between

individual and collective, social learning through a description of how language is used. Language is not simply social in nature; it is a collective phenomenon:

> Cognition is always collective: embedded in, enabled by, and constrained by the social phenomenon of language; caught up in layers of history and tradition; confined by well-established boundaries of acceptability; defined by joint interests, shared assumptions, and common sense. (pp. 102-103)

This view encourages a notion of literacy as a set of social and cultural practices or skills, learned not simply through formal schooling at the level of individual cognition, detached from social interaction (Street, 1995, 2005), but also through sociocultural practices internal and external to school. For example, students arrive at school already equipped with multiple ways of constructing and representing meaning (i.e., experiencing literacy) in their daily lives—phone calls, instant messaging, playing an instrument, and playing video games, to name a few. However, schools continue to perpetuate philosophies of teaching and habits of mind that privilege linguistic systems of meaning making. Such habits of mind are informed by traditional pedagogy and practice, including a view of digital learning technologies as not holding significant educational gains (McGrail, 2005).

Music Literacy

Within traditional curricula, music literacy is understood as an ability to read and write—more specifically, an ability to read and write music notation (Colwell, 2008; Gudmundsdottir, 2010; Propst, 2003). Music education curricula are often heavily invested in developing music literacy from early elementary experiences to high school band and, finally, to postsecondary programs, including curriculum and instruction courses in teacher education (Gauthier & McCrary, 1999). A common objective in training to become a music education specialist and, by extension, in training young music students is to cultivate the ability to "hear" what is seen on the page as musical notation. Conversely, the goal is also mentally to "see" in musical notation what is heard.

The scope and purpose for developing music literacy is often coached in terms of artistic, cognitive, social, and political objectives (Pietra & Bidner, 2010). Choksy (1999) explained the significance of developing musical literacy based upon the philosophy of a Hungarian composer and educator, Zoltán Kodály. Choksy stated that teaching music literacy is critical to "the well-balanced social and artistic development of the child... literate in the fullest sense of being able to look at a musical score and 'think' sound, to read and write music as easily as words" (p. 9). Expanding upon the common definition, many music educators ground their work in a perception of music literacy as "the ability to read, write, and *think* music" [italics added] (Nolet, 2007, p. 6).

Swanwick (1999) observed that Suzuki, Orff, and Jacques-Dalcroze are all music educators who believed that fostering aural/oral and technical skills should precede literacy curricula. He placed Kodály within another category where the pedagogical focus is on developing music literacy, both earlier in the learning process and ultimately as an artistic and cultural goal of music education (p. 56). For scholarly supporters of Kodály, such as Choksy, the aim is not simply literacy, but ultimately rendering music accessible to all. Secondary to this goal but also important is the understanding of the utilitarian role of music education in sustaining musical heritage and national unity (Kodály, 1939/1974). Thus, the development of music literacy, as with other types of literacy, appeals to both utilitarian and aesthetic ideals (Labuta & Smith, 1997).

Music education programs teach students how to read and write music to varying degrees and along different developmental timelines. Researchers have suggested that fostering music literacy has also commonly supported the development of music understanding, specifically "to make meaning out of musical experiences and to use music as a means of personal expression" (Nolet, 2007, p. 1). Yet, others within the field of music education have suggested that musical notation can inhibit the early and intuitive inclination of children to explore musical creativity, expression, and imagination.

Pure notation offers few opportunities for increasing musical understanding through the examination of the sociocultural contexts of music. The challenge rests in competing notions of literacy: (a) literacy as a means of empowerment, creativity, and expression and (b) literacy as conventional practice void of sociocultural contexts. Wiggins (2001) suggested that music literacy is a means of developing "musical understanding,"which seeks to "empower students so that they can become musically proficient and eventually musically independent of their teachers" (p. 3).

This current study hypothesizes that digital learning technologies (DLT), such as the GarageBand™ computer application combined with electronic bulletin boards, can be used to support the conventional understanding of music literacy while fostering the aesthetic and creative enterprise of developing music literacy. This objective would be accomplished through digital modes of music composition and expression, as well as public platforms for communication and reflection.

In this paper we expand the existing research literature exploring the role that digital technologies can play in broadening (potentially disrupting) existing conceptions of (music and digital) literacy. Particular attention is placed on discussion within an online forum as well as audio editors. For instance, specific to the affordances of the electronic bulletin board, learners can manipulate how others view them through the use of symbols and characters on a keyboard. As stated by Myers (1987), the electronic bulletin boards require that student "meanings are continually negotiated through symbolic interaction" (p. 251). This negotiation is different than during a face-to-face interaction, during which humans have learned to pick up social, behavioral cues as part of our everyday communicative process (Garcia & Jacbos, 1999; Hale, 1992; Jones, 1998).

Findings in this paper are consistent with current research studies that demonstrate how learners often struggle to negotiate "emotion" or "an emotive state" or any type of "social norm" within an online forum (Hutchby, 2001; Vratulis & Dobson, 2008). The process of negotiating responses to music selections within an online forum encourages learners to represent their ideas and emotions via symbolic representation; such a process disrupts and extends existing processes of social negotiation.

Discussion via an online forum also disrupts existing processes of identity construction. There are no existing studies that explore identity construction within online forums within a music methods course; however, there is a growing body of research literature investigating the ways in which identity construction is renegotiated within online forums in other fields. For instance, there are studies that explore the way in which language use impacts identity construction amongst second language learners (Bloch, 2004; Hanh & Kellogg, 2005; Lam, 2004; Turkle, 1995; Warschauer, 1999), K-12 students (Hughes, McLeod, Brown, Maeda, & Choi, 2005; Whitlock, Powers, & Eckenrode, 2006), preservice teachers (King, Hollins, & Hayman, 2001; Slovacek & Doyle-Nichols, 1991), and other adults (King et al., 2001; Weisskirch, Milburn, & Seidman, 2003).

Electronic bulletin boards have a greater impact on identity construction amongst students than what typically occurs in a face-to-face learning environment

(Spiliotopoulos & Carey, 2005). The majority of these studies explore how electronic bulletin boards can be used to empower learners (Pena-Shaff & Nicholls, 2004; Suzuki & Calzo, 2004).

A growing number of studies have explored how the public forum of the electronic bulletin board may create anxiety or even silence learners; a significant number of these studies focus on English language learners (Groen & Li, 2005; Keller, 2005). Preservice teachers' comments in this study reveal how electronic bulletin boards can perpetuate patterns of negotiation that silence, not empower, preservice teachers. However, an abundance of studies demonstrate ways electronic bulletin boards can empower learners (Hoadley & Linn, 2000; Lantolf, 2000; Murray, 2000), improve students' critical thinking skills (Yang, Newby, & Robert, 2007), and positively impact learner disposition (Rowley & Urquhart, 2007). Research reveals that electronic bulletin boards are also beneficial to learners who prefer writing to speaking for the purpose of sharing their ideas (Repman, Zinskie, & Carlson, 2005; Zha, Kelly, Part, & Fitzgerald, 2006).

Existing assumptions about music literacy are disrupted because audio editors allow students to become both the creators and consumers of musical composition. Audio editors afford an opportunity for individuals to create music without any background in music education, experience with playing a musical instrument, or understanding of how to read musical notation. Davis (2010) stated that the process of using audio editors such as GarageBand™ creates a more authentic experience for students, as the process repositions them as composers and not just passive recipients of existing (typically canonical) music selections. Gouzouasis (2005) suggested that a "dilemma" currently exists in music education (and music literacy) because software packages such as GarageBand™ "enable any person to seemingly compose music without traditional forms of music knowledge and music literacy" (p. 2). Such preconceptions about music literacy need to be disrupted because all forms of literacy are now renegotiated within the digital realm.

Curricular Context

The prescribed learning outcomes for music education within British Columbian public elementary schools (British Columbia Ministry of Education, 1998) are organized in three categories: (a) structure; (b) thoughts, images, and feelings; and (c) context. Structural elements focus exclusively on fostering traditional music literacy skills (i.e., how to read, write, and think elements of rhythm and elements of melody). Curriculum and instruction courses for preservice elementary teachers present these categories as a key component of every class. Music education specialists also incorporate structural elements as a key aspect of their classroom instruction. Their own musical training focuses on literacy development, and it is a priority in their teacher training.

The question then emerges as to who is best trained to teach the other two categories of learning outcomes. Young students also need instructional time focused on helping them to articulate, understand, and appreciate the emotional, kinesthetic cultural, and political import of music. Consequently, the elementary teacher education instructional methods course for music in which this study was situated included an assignment to explore thoughts, images, and feelings surrounding musical selections. This strategy afforded students the opportunity to experience various contexts of musical reception: specifically, the context of self and community, as well as historical and cultural contexts. The primary objectives of the course were articulated as emphasizing the importance of cultivating critical-thinking skills in students, as this ability relates to the social context within which individuals create, share, and appreciate music. The course also sought to teach students

how to examine and articulate the educational implications of diversity within the context of music creation and reception.

Methodology

Disrupting existing, traditional belief systems is requisite both to changing teacher-centered pedagogy still prominent in schools and to broadening traditional conceptions of literacy to include music and digital literacy practice. An objective of this study was to broaden notions of literacy practice by examining music and digital literacies in a music education course for preservice teachers.

Research Questions

1. What are preservice teachers' existing notions of music literacy teaching and learning?
2. How do preservice teachers experience digital literacy in the context of their music methods course?

    - How do preservice teachers experience audio editing via GarageBand™ in ways that interact with their notions of music literacy and digital literacy?
    - How do preservice teachers experience discussion via an online forum in ways that interact with their notions of music literacy and digital literacy?

Population Sample and Setting

This study was conducted within an elementary teacher-education cohort known as CITE: A Community of Inquiry in Teacher Education. The CITE cohort was composed of 36 preservice elementary teachers and their teacher education instructors, including the authors. The study analyzes data from 17 of the 36 students. All students were invited to participate; however, only 17 students consented to participate in the end-of-project focus groups. Criterion for inclusion included enrollment in CITE and in the music methods course where the study took place.

DLT is a strong initiative for CITE instructors and preservice teachers and DLT instruction was delivered in a separate weekly class as well as integrated in various courses. Throughout the year, instructors assigned mandatory and optional projects that encouraged the preservice teachers to apply what they learned within the context of their DLT class to their coursework for eventual application within their prospective classrooms. In many states elementary teachers do not receive training in arts education; it is not a mandatory part of their teacher preparation program. In British Columbia, music education is a mandatory part of teacher preparation.

In keeping with the cohort focus on DLT integration, the music education course had the support of a graduate research assistant (GRA) who introduced preservice teachers to the GarageBand™ application and the online bulletin board at the onset of the school year. As one of their assignments, preservice teachers were asked to upload 1-minute excerpts (in accordance with copyright regulations) from three favorite musical selections to a shared electronic bulletin board. Without the bulletin board, the assignment would have been cumbersome, if not impossible. Each student participated in three 1-hour labs where they learned to rip 1-minute sections from their favorite recordings using the GarageBand™ software application, splice the segments, and upload them to the class

bulletin board. They were required to upload three reflective musical reviews of approximately 200 words for each selection they chose to highlight.

One objective of this exercise was to facilitate community building through exploring the musical identities of the preservice teachers. Another aim was to provide an opportunity for practice with using musical vernacular and social insights to describe, in this case, the significance of their personal selections. Another objective was to provide an environment conducive to community learning. The ultimate purpose of sharing musical tastes and insight within the forum of an online public bulletin board was to encourage peer learning, community building, and a broader understanding of musical literacy.

Three class periods were devoted to the DLT instruction in split sessions, allowing for smaller classes and providing a total of 3 hours of instruction over 3 weeks to enable the preservice teachers to post their playlists and comments. They were also required to respond to the music and comments of two classmates; however, they were free to listen and respond to any of the other postings, as well, upon completion of their assigned responses. The GRA was available for additional assistance outside class time; many students availed themselves of the opportunity for assistance. The intent of the online bulletin board was to introduce the participating preservice teachers to a communicative tool they could subsequently employ during their extended practicum. They would be able to compose and post music excerpts with the expectation of peer response. These features encouraged both an individual and social (i.e., collaborative) model of learning, where the instructor was not the sole audience for their work

Data Sources, Collection, and Analysis

Participants for this study included the music education instructor and 17 of the 36 preservice teachers enrolled in her class. All 36 preservice teachers were interviewed as part of a larger study exploring their use of DLT during their 12-month teacher preparation program. However, only 17 of the 36 preservice teachers specifically focused on GarageBand™ during these exit interviews.

Findings from this study are based primarily on these 17 preservice teachers' final exit interviews, as well as the exit interview conducted with the instructor. Field notes were used as a point of reference to further contextualize preservice teacher and instructor comments during exit interviews. Exit interviews with preservice teachers took place at the end of their teacher preparation program. Preservice teacher exit interviews took place over 3 weeks; preservice teachers were asked open-ended questions in response to their use of digital technologies during teacher preparation. Preservice teachers were also invited to comment on any aspect of digital technologies use (areas of success and improvement, for instance). These interviews lasted between 30 and 40 minutes. The instructor also participated in an end-of-year exit interview. This interview lasted 2 hours and was digitally recorded. For the purpose of member checking, ongoing drafts (including the final draft of this paper) were made available to preservice teachers; the instructor is the second author of this paper.

Data analysis for this study was an inductive process (Creswell, 1998; Miles & Huberman, 1994). Erickson (1986) said that researchers conducting case study should draw from a number of different perspectives. The first step of analysis involved developing a set of categories loosely based on organizing data from preservice teachers' interviews, separating, for example, comments about preservice teachers' use of GarageBand™ and the electronic bulletin board. These were then reviewed in order to identify subcategories for further analysis.

Subcategories specific to preservice teachers' comments about GarageBand™ included the following: purpose of DLT, role of music educators, perspectives on music education and notions of music production and recreation. Specific to the electronic bulletin board, subcategories included notions of role (i.e., role of the teacher, role of technology, etc.), benefits, challenges, comfort with DLT, writing (i.e., process, negotiation, convention, postings, power), and identity (i.e., negotiation, musician, and professionals). This process for creating categories and subcategories was outlined by Creswell (1998) and Stake (1995). Transcripts were analyzed for emergent themes within each category. Each of the quotations included in the findings section of this paper are from preservice teacher exit interviews.

Findings

In this section we describe how preservice teachers' use of digital tools (audio editing via GarageBand™ and discussion via an online forum) interacted with their notions of music and digital literacy. The section is organized according to the research questions outlined in the methodology section of this paper. Preservice teachers' existing notions of (music) literacy teaching and learning are described first and then their experiences with digital literacy in the context of their music methods course.

Student Conceptions of Music Literacy Teaching and Learning

Introducing GarageBand™ in the context of music methods forced preservice teachers' assumptions about music literacy to come into play—in particular, their comments about the possibilities for composition helped elucidate what they identified as problematic and inspiring about the affordances of GarageBand™. For instance, preservice teachers who stated that the traditional use of instruments was an integral component of music education were skeptical about exploring the possibilities of composition with GarageBand™. Several students who enjoyed the process stated that they felt too much would be lost in replacing instruments with digital software. In particular, these students suggested that "putting sounds together" using GarageBand™ was not composing: "It doesn't take any skill, well at least musical skill, to compose. Actually, it is not composing but mish mashing with GarageBand™ (Farah; all names used in this paper are pseudonyms).

Participating preservice teachers also expressed anxiety over using GarageBand™ within the context of music education due to fear of losing what Amy referred to as "our cultural heritage." Tara remarked, "What if students aren't taught the violin anymore, and instead, they only know how to use GarageBand™? Mozart will be 'rolling in his grave,' you know?" Kelly explained that "Music class is how kids learn about our cultural heritage. We can't lose that because it can never be replaced. Besides, what would we perform?" Another student stated that she was

> not sure about all the technology.... I love it. I think the kids would love it, but I mean that would be like replacing Shakespeare with some online, unknown author. Can we do that? Do we want to do that?" (Helen)

Exploring Discussion Via an Online Forum

Preservice teachers initially welcomed the prospect of peer review and sharing their music selections through this online collaborative venue. Laura observed, "It is great. We would be able to hear what everyone else came up with. That is cool, you know." However, challenges emerged in negotiating the written component of assignments.

Although 15 of the 17 preservice teachers perceived value in sharing their work on the online bulletin board, they resented the requirement to write within the context of a music methods course. Sarah explained that "it was really cool to see what everyone did, but writing—that has no place in a music methods course. I get using blogs in English, but in [a] music class, I don't get it."

The concern about writing reviews and responses was apparently grounded in fears about what the documentation might reveal in terms of their status as prospective educators. One preservice teacher observed,

> I get stressed whenever I have to write...when other people are going to read my writing. With a teacher you know what to do, but doing this, I don't know, it's like casual and formal at the same time...besides, I don't want them to think I am clueless as a teacher because I am not a writer like [student name]. (Tania)

The written component of the bulletin board assignments also created stress as the concerns of the participants shifted from posting their music to evaluating their writing. A persistent focus on the expected length of their responses, which was defined within the course outline, also emerged, along with concern over whether evaluation would consider grammar. Comparatively less concern was voiced regarding the content of their responses. Doug explained that "once we knew that we weren't going to be writing essays and stuff about music, then I think we felt pretty OK about just writing what we thought." However, the sensitivity of the preservice teachers toward their peers did, at times, cause them to question the manner in which they critiqued the work of colleagues on the bulletin board:

> If I wanted to say something and wasn't sure if it would be construed as negative, then it took me forever to post it up. I mean, on a bulletin board, the person can't see that you are smiling, so it might come across rude or something. I didn't want that. (Tamara)

For two other preservice teachers, their uncertainty about how their posts would be received resulted in the use of e-mail as a way to replicate some of the nonverbal communication that would have taken place in a face-to-face interaction. They used e-mail to ask other preservice teachers in the class if they were comfortable with the critique or if they wanted anything changed. The following excerpt provides an example of this moment in the interview:

E. That night I sent an e-mail. I didn't write anything in the post that was bad, but with all this online stuff you get a bit paranoid. It's up there forever, you know.
V. By any chance, do you remember what you wrote in the e-mail?
E. I could probably find it for you, but it was something like, "Hey, wanted to send you this YouTube" or something like that. Then, I would have asked her if she wanted to change anything that I wrote. I probably did a smiley face thing after.
V. So then the smiley face would let [name] know...
E. Just that we're friends, or happy, or something. Weird. Never really thought of it, what it means. I use it all the time, though. But I wouldn't really want to use it on the bulletin board.
V. Why not?
E. Maybe because I wouldn't want to be smiling at everyone, you know? Seriously, I think it is more about the smiley face being between us, the two of us. On the message board thing, that is more about completing an assignment with everyone, everyone can see what is up there.

Preservice teachers were also uncertain as to how to respond critically to the musical selections of their peers. Craig asked, "What are we supposed to look for? I mean, as a musician, I might have different things to say than someone who is looking at it from the position of, 'Would this work for my Grade 4 class?'" This sentiment demonstrates how preservice teachers are constantly in a state of negotiating their roles (and identity) within the community in relation to their peers and instructors' expectations and the task at hand.

A number of preservice teachers struggled to distinguish between responding to music created with traditional instruments and responding to music "spliced" together with the GarageBand™ application. These preservice teachers were uncertain as to how to negotiate their understanding of music in relation to GarageBand™. They were not convinced that the resulting sound could be perceived as "music," as the following comment reveals:

> You can't just create music. Calling GarageBand™ music is like picking up a fork and banging it on the table and creating a beat and then saying, "Yeah, that is music" — but it's not, you know? That doesn't mean you can't use it to teach students things about music, like how to create a beat. But it is not music. (Ellis)

When asked what would make it music, Ellis responded, "Well, a piano in the background." This, of course, is a highly conservative perspective. For centuries people have been known to use found objects to play music. Music is not dependent on the availability of a classical instrument; music composition is about intent and creation (Barry, Taylor & Hair, 2001).

The preservice teachers participating in this study suggested four benefits for using a bulletin board as a community space for postings intended for peer review.

1. It encouraged them to think more critically about a variety of music genres, as well as their own biases or assumptions about music education and literacy in general:

> It was really cool because [student named] originally put up folk music, and I wasn't expecting it. I would have been embarrassed to say I like folk music, but then, well, now I will use [it] in the class. We all loved it. (Marcy)

Ellis commented that "[the instructor] forced me to think of folk music in a different way. I don't even think she meant to, [it] just happened." Kelly offered the following thoughts:

> I have always thought of writing as an English class thing, never would have thought to use it in music class, but then weren't we taught in [our English] class that expressing yourself in more than [one] way improves learning. We definitely wouldn't have learned as much if we just talked about it in groups. Well, maybe that's because we wouldn't really have talked about it. (Kelly)

2. Writing responses to the music postings of their peers nurtured collaborative support within the music education course. Although they were aware of the priority for assignment completion, they were also sensitive to the reactions of their colleagues:

> I knew that if I wanted to say something that could [in] any way be taken negatively, I wanted to make sure that there was already something awesome written. If not, I would put it in. You want to make sure there is a balance, especially when everyone is watching. (Kelly)

3. The online venue facilitated the creation of a learning experience that shifted the role of the teacher from a "top-down" director to a facilitator and guide:

> We couldn't just bug the instructor about answering all our questions. You know, even my Grade 5 students do that all the time. You give an assignment, and if you want them to have some ownership over it, it's a big problem. They want you to tell them how to [do] everything, even what color of pen to use... If the teacher gives the assignment and you are forced to look to the rest of the students in your class for answers, well, that makes a difference. We saw that quite a few times in the program with BBs, with the wiki. It is one of those things that you don't get it until it is done, you know? (Jody)

4. They were all accessible outside of class hours. Ellis observed that "sometimes you are just having an off day, or you just aren't done with the music part. So it's great to know you can go home and enter the discussion, or hook up with the class at any time." Danielle added that "sometimes I was surprised that someone else was reading a post at 3:00 a.m. That was really cool, I mean to have a chat at that time." Laura explained,

> I found that because I could access it at any time, I would check it at weird hours, like 1:00 in the morning, more 'cause I was curious if anyone had responded to my work, but also what was posted about someone else's work.

This comment speaks to the personalized nature of the electronic bulletin board. Preservice teachers felt invested because they had posted work that was personal to them—their selections of music and their written rationales. However, as noted by Caswell (2001), one of the drawbacks then becomes increased workload resulting from online accessibility.

Twelve of the 17 preservice teachers participating in this study changed their opinion about using online bulletin boards. After the project they conceded that the pedagogical and social relevance of the exercise became significant only as they worked through the assignments and completed the process. Although they were initially frustrated, they understood the value of the process after experiencing their classrooms during practica:

> At first, I just remember being really stressed out that I was going to have to write in front of my peers. There is so much judgment with writing, or maybe that is just me, but then reading all the responses, and making the three responses, or evaluations of whatever, then I got it. It was really cool. That's what it should be about, figuring out your own opinion and not having to look at a teacher to tell you what to do. Anyhow, I would use bulletin boards again, or blogs or something. (Mary)

> I didn't really get it until I got into my school. Then I was like, OK, now I get how this does everything we talked about in the program. How better to get kids thinking about music literacy than having an online debate, or something. I will definitely use it and GarageBand™ in my own classroom. (Craig)

Exploring Audio Editing Via GarageBand

Eleven of the 17 participating preservice teachers in this study stated that the traditional use of instruments was an integral component of music education. Nine of these 11 participants also revealed that they were initially skeptical with regard to exploring the digital composition capabilities of the GarageBand™ application. They were, in fact,

introduced to both traditional instruments and digital software; nevertheless, 11 of the preservice teachers complained that an important component of their music instruction—that is, learning to teach with traditional instruments—had been eliminated by the introduction of the GarageBand™ application. They raised specific concerns about abandoning what they identified as a central objective to music education—teaching students to read and write music. As one preservice teacher stated,

> How are they going to learn to play classical pieces if they never learn to read music? That is the purpose of music class, so I still don't get where the technology stuff fits in, or at least I didn't until the end. (Lorna)

The interview respondents referred to digital and traditional music literacy as though they exist in diametric opposition, adopting a rhetoric of how "the new" is replacing "the old" (Marsh, 2002). One preservice teacher commented,

> I think there is always that worry. Working with GarageBand™ is really fun and kids would love it, but we are working on GarageBand™ instead of what? Working with instruments? Isn't that like replacing books with, I don't know, a Leap Frog™? (Randy)

These comments reveal that Randy was uncertain of the educational benefits of using DLT, particularly in school settings. As well, he exhibited a highly conservative attitude in relation to what constitutes appropriate disciplinary knowledge.

Music Selection and Identity Construction

Two factors guided the music selections of the participants: their familiarity with the selections and the anticipated response from their peers. The majority of the preservice teachers invested time outside their formal classes to explore music selections for their projects pertaining to this study. However, they typically selected music with which they were already familiar. Only four participants selected music they identified as unfamiliar, which they chose based upon the suggestion of friends. As Lisa explained, "I would never have used something so 'punk,' but then, well, [peer name] recommended it to me and I thought it would work well."

The assignment required an exploration of at least two genres of music, which was intended to encourage the participants to explore music beyond their routine repertoire; yet, the selections demonstrated a degree of preservice teacher resistance to this particular criterion. (This perspective provides a contrasting view to the other preservice teachers for whom the class appeared to support their appreciation of the masters of music education.) Tania stated,

> I know that [the music course GRA] suggested that I listen to some classical music, but no way. I would find something that was rock and roll that would fit. There was no way I was going to spend time on classical.

In some cases this concern over music selection clearly stemmed from personal insecurities in regard to what the music might imply about an individual's character. For example, Kelly decided to change her music selection after discovering that the composer may be a Communist.

> I thought the music was great but I don't want people thinking I am a Communist. They didn't really know me then. "Punk rocker," I wouldn't have

> cared, but Communist, no. There was something in the back of my head telling me that was wrong. I also wasn't sure if I would use that in the classroom, with kids. I still struggle with how I want kids to see me. (Kelly)

Of the 17 preservice teachers in this study, 13 mentioned that they selected music with which they were already familiar; 10 of these 13, however, did not select music they personally enjoyed or listened to on a regular basis. Rather, their selection was guided by the image they hoped to convey to peers. For example, Cindy stated that "I couldn't use Barry Manilow, even though it would fit. I don't know if I would want [student named] knowing that I listen to Barry on my spare time, you know?" Laura remarked, "I actually really like Britney Spears, but no way. I wasn't going to set myself up for that at the start of the year."

The majority of the preservice teachers in this study selected music they felt would glean a positive reaction from peers or create a contrasting image to how they imagined they were perceived by colleagues. For example, Mary was concerned at the onset of the year as to whether she came across as too shy or quiet. Consequently, she selected music she felt was controversial:

> I could easily have just selected Bob Marley, but then, I bet that is what everyone would expect me to pick. I was talking to a friend of mine and decided to include this band that would, I don't know, make them [peers] think about if they really knew me.

Amanda revealed a similar motive in her selections:

> I just wanted to include something that would make them go, "I don't know. I didn't expect that," you know? That early on we were trying to figure each other out, and music is such a great way to do that.

A final challenge faced by the participating preservice teachers was trying to establish a process of negotiation in determining whose music to include within their final small-group presentations. While their individual selections were partially driven by a process of identity construction, their group selections became a process of social negotiation. Deciding whose selection to include became a point of contention for a number of preservice teachers, partly because they felt personally invested in the music they selected. The preservice teachers who were invested in constructing a particular image struggled to negotiate a new identity on behalf of the group. This was especially true for groups who wished to include music that conflicted with the values and beliefs of individual members:

> At first I was so excited to be working in groups because it was such a great way to get to know everyone...I felt sometimes that if I picked something really personal it would reveal too much about me. It was tricky to work in groups because we didn't know each others' music that well. In our group I found out that one of the songs [peer] wanted to include was really a Communist rock band. I didn't want that. But then they also really didn't want to use my Bob Marley rendition. So it was tricky. (Tania)

Preservice teachers participating in this study had varied and, at times, even conflicting understandings of the educational merit or purpose of school music programs. For instance, 10 of the 17 preservice teachers cared more about developing student appreciation of the social and cultural significance of music education. These participants

were primarily invested in teaching notation and introducing students to "the greats" of the western tradition for the purpose of eventual imitation:

> I remember spending 3 months in school learning, what's his name again? The famous one by Schubert? That's what students need to know coming out—who he was and how to play that piece, but I guess trying to learn that piece also taught me I will never be a musician. (Heather)

In contrast, 7 of the 17 preservice teachers felt that school music was a vehicle for positive socialization and a way of creating opportunities for collaboration with peers:

> You don't really have to even know music to teach music these days. What you need to know is how to build community, or at least that is what my sponsor teacher would say, but maybe that was because none of us could play an instrument. She was really kind. (Jody)

In these scenarios, preservice teachers identified two views of music education: one includes the development of social and cultural understanding of music; the other focuses on imitation of the (European) masters. As one student remarked,

> You have to know what you're teaching. Do you want them to know who the great musical composers are, or is it more important to use music as a way to connect? I don't think we can have it both ways. (Risa)

Even though the preservice teachers were encouraged to think outside of the traditional model of music education and music literacy, their tendency was to default to Western notions of music literacy inherited from their early (music) education. In other words, "practice makes practice," in that it is difficult to implement new ideas or change habits of mind once they are established (Britzman, 1991).

Discussion

In this study, the majority of participating preservice teachers subscribed to an understanding of music literacy based upon traditional values of developing students' notation skills—reading and writing—and fostering their appreciation of "the classics" and "the masters." This perspective is devoid of a sociocultural understanding of music literacy that includes cultural and historical constructs of music. It upholds a process of learning to play and read music by conventional means common in Western cultures, especially using musical instruments.

This problem resonates with Jorgensen's (2002) statement that, although there is a "practical component of training in music education, which directly relates to the role of musicians, it is the teacher-directed, hierarchical structure that prevents the inclusion of reflection, analysis, and speculation" (p. 12). She pointed to enculturation, which "involves two sometimes conflicting processes, transmission and acculturation, the first emphasizing tradition and the second underscoring change" (p. 24), as representing an improved model for contemporary music-education classrooms.

Leonhard (1999), contemplating such conventional attitudes, said, "Many music educators have been unable to adjust to a changing social structure, the revolution in communication, and contemporary developments in music itself" (p. 4). He added that many educators have struggled to conform to a notion of music education intended for the general public, rather than the education of a talented few. The challenge is to allow a

shift in the purpose of education away from what Leonhard referred to as "the elitist virus" (p. 7).

> [This] affects the implementation of school music programs so that the music is no longer for all children; it is for those who choose to specialize and perform....[In particular] this virus is present in too many departments and schools of music, and it contributes to the development of students who learn only to perform and rarely develop the broad understanding of music that constitutes music literacy. (pp. 6–8)

However, such perspectives must change. In current times, access to the Internet implies that individuals have almost unlimited access to music from around the world. It is easy to download software in order to compose professional sounding music within a relatively short time frame. Individuals can post a clip on YouTube and share their music with the world. In many ways, digital technologies have created the possibility for hybrid forms of music. For instance, students can use GarageBand™ to recompose or "mash up" music from a variety of genres. Extraordinary potential to reconceptualize the very concept of music has been created, and almost unlimited possibilities exist for creativity and innovation in the field of music education.

Exploring Discussion Via an Online Forum

The selection of music material became important to the study participants in terms of defining themselves as prospective educators. Roger stated, "I just wanted something to show that I was a bit controversial....Not just for the class, but also if I were to use it in the classroom. I mean, that is how I would want my students to see me." Such comments are consistent with an already existing body of literature focused on exploring the relationship between music selection and identity. For instance, music education students often struggle to reconcile tensions in their identity as musicians and as prospective teachers (Bouij, 1998; L'Roy, 1983; Prescesky, 1997; Woodford, 2002).

Bernard (2005) explored how one's personal understanding of *audience* and *role* contributes to the process of identity construction. In her article, "Making Music, Making Selves," she placed considerable attention on the complexity of preparing preservice teachers for their prospective role as music educators. She identified the way in which preservice teachers struggle amongst various personas, uncertain of how to adapt or recreate their persona to fit their emergent role as a teacher. Bernard suggested that a central challenge for instructors and their students is that in our attempts to navigate multiple identities we tend to "compartmentalize our various identities" (p. 4).

Moments of Disruption Using an Online Forum

Two preservice teachers voiced concern over the lack of response to their posts. Although all participants were required to respond to a minimum of three music selections, the postings of these two preservice teachers did not receive a response until nearly the end of the required time period. These participants posting their selections for peer critique felt concern and anxiety. One preservice teacher, Farah, expressed feeling a degree of embarrassment: "It was probably just in my head, and it probably wasn't even on purpose, but it just bugged me, you know. For about a week my post was sitting there while other students' music was responded to right away." The instructor, however, suggested two reasons for some delayed responses: First, some of the musical selections were musically challenging (i.e., unfamiliar to their ears). Second, some of the reviews were of a personal nature and required more time to compose a thoughtful response. This

reason was revealed in the interview with the instructor. “I know when [student] came to me, I was relieved to know that she was just thinking of what to write. It was personal to her so it took a while.”

Three participating preservice teachers voiced a concern that written communication is not appealing to all learning styles. While some are empowered through written modes of expression, others are intimidated about writing or being evaluated in a public venue. Consequently, bulletin boards might unintentionally disempower student voices, as one student said:

> I love the idea of the bulletin board, or like what we did with the wiki, but writing is just so stressful for me. I never think what I am thinking is actually going on paper, you know. That is a problem because then I sometimes just don’t end up saying anything, or at least not what I meant. (Risa)

This response is consistent with the research literature on how electronic bulletin boards appeal to many different learning styles and can facilitate or inhibit student writing (Carey & Guo, 2003; Carey & Morgan, 2005), communication (Ebenezer, Lugo, Beirnacka, & Puviraja, 2003) and peer relations (Weisskirch, Milburn, & Seidman, 2003).

Conclusion

Although a framework for learning was in place, the process was designed as organic, developing with each exchange of musical selections and accompanying reviews and responses. For those accustomed to teacher-centered instruction, this created a measure of initial anxiety. Furthermore, although the majority of the preservice teachers viewed the process as a valuable experience and acknowledged the potential for GarageBand™ and electronic bulletin boards, 13 of the 17 participants commented on the time required to learn the software and adjust to the notion of using DLT within their music methods course, as well as for the independent learning process as a whole.

Another necessary shift in perspective was a reevaluation of the purpose of music education, as well as subject-specific literacy practice. The necessity to disrupt existing conceptions of music literacy becomes evident if the intent is to encourage preservice teachers to develop music literacy in all children rather than performance ability in a few. However, this shift would require an improved understanding for how to develop critical listening and thinking about diverse musical samples and to participate in musical communities of inquiry (with or without DLT) to encourage a democratic, collaborative approach to music education. As Leonhard (1999) stated,

> Unfortunately, music educators have not been fully prepared by music teacher education programs to accommodate these developments. Many music educators and programs are unfamiliar with African American music and other ethnic music, popular music, contemporary art music, and jazz. Also, few are up-to-date on the contemporary popular music from which their students are gaining a musical education outside school through MTV, VH1, radio, and CDs. In that extra-school phase of their music education, children and young people are doing on their own what we should have been helping them do in school through the music we teach; that is, they are experiencing a variety of music, responding naturally to its expressive effect, thinking about it, talking about it, serving as critics of it, making choices about it, and using it to enrich their lives. (p. 14)

An awareness of the ways in which learners can now access, share and experience music from around the world is not enough. Instead, teachers must develop an awareness of the affordances of the various DLT now used to *compose* music (e.g., GarageBand™). Developing critical awareness and engaging in reflective thinking about music requires time. In order to foster communities of inquiry across curricula and to disrupt conventional notions of literacy, preservice teachers as well as their future students will require greater control over opportunities to express and develop ideas using multiple literacies, including musical and digital literacy.

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