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# Teen playlist: music discovery, production, and sharing among a group of high school students

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*Boston University*

BOSTON UNIVERSITY  
COLLEGE OF FINE ARTS

Dissertation

**TEEN PLAYLIST:  
MUSIC DISCOVERY, PRODUCTION, AND SHARING  
AMONG A GROUP OF HIGH SCHOOL STUDENTS**

by

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*This document is dedicated to Ron Elliston and Ronnie Wells, who inspired me as role models for a life filled with love and music.*

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**Abstract**

The purpose of this investigation was to determine if a select group of adolescents exhibited behaviors and practices regarding digital music discovery, production, and sharing that influenced their classroom music instruction. The qualitative study focused on ways in which a group of adolescents informally engaged with digital music in relationship to learning music in their classroom. A constructivist–interpretivist viewpoint framed the theoretical perspective that a person’s knowledge constructions take place within the context of social interaction. In the early 21st century, young people interacting via digital social networking can experience and share music in ways previous generations could not imagine. Peer learning and exchange occur when adolescents share musical ideas and digital artifacts. In addition, autonomous learning takes place while



interacting with a digital device. I used Mayer's (2002) cognitive theory of multimedia learning to support an understanding of the learning effects associated with content-rich digital experiences. Linking social-constructivist and multimedia educational theories provided the conceptual framework needed to extrapolate meaning from adolescents' preferences, influences, and feelings regarding digital musicking.

In an instrumental case study, I followed four high school participants and their music teacher over the course of 6 months. The data consisted of participants' detailed reflections and perspectives regarding digital music media discovery, production, and sharing. Detailed accounts collected from interviews and observations illustrated the behaviors of the participants, building a thick description. Although the research focused on adolescents, viewpoints of others emerged throughout the study, including those of peers, colleagues, and family members. Consequently, the investigation also considered what music teachers understood about their students' out of school digital music discovery, production, and sharing.

Findings show the convergence and divergence of digital music engagement in a high school music setting. Themes of experiencing music for personal identity, creativity, and popular culture intermix in classroom and

informal learning environments. I present outcomes indicating direct implications for music curriculum development and suggest paths to connect in school and out of school music learning via digital music experiences. This study might help contemporary music teachers take advantage of students' out of school digital music media practices to strengthen in school music programs.

## Preface

On a given school day in a public high school in the State of New Jersey, a teenager prepares for a full day of learning and social interaction. Most likely accompanying her throughout the day is her own private music playlist—digital music files stored on a handheld personal digital device, such as a smartphone, iPod, or tablet computer. At school, the student attends a required Music Appreciation class. In class, she enjoys listening to classical music and learning about the composers. The student loves music and singing, so she takes private voice lessons after school. Music is also a big part of her social life. Often she meets with friends after school to record and post music videos on YouTube, or shares comments about music on social media sites, such as Facebook and Snapchat. Some of her friends have their own bands and recording equipment, so they can record and post music files on specialized music sites, such as SoundCloud.

In Music Appreciation class, the teacher planned a unit on Baroque music and Bach fugues. The teacher adopted the most recent curriculum materials, including an online textbook with accompanying PowerPoint files. The classroom is equipped with an interactive whiteboard and student laptops. Certainly, the teacher has access to modern educational technologies and makes

every effort to make the lessons engaging and meaningful. The teacher notices that students come to class wearing headphones, or earbuds that attach to their smartphones. At times, students even share the earbuds as they gather around handheld devices to view videos in the hallways or lunchroom. The teacher wonders, “What are they listening to, what are they watching?” The next day, she asks her students, and they respond excitedly with a variety of interests, including popular bands, student videos, television shows, movies, games, and texts. For many students, this content is accessible during school via Internet connections on handheld digital devices.

After school, the young student attends her private voice lesson. Although the vocal instructor uses some technology resources in the studio, such as a CD player and recording equipment, the focus of the hour is primarily on vocal training and classical music repertoire. The instructor recognizes her young student’s love of popular music, but feels it is important to learn traditional exercises to build a solid vocal technique. Later in the evening, the teenager will spend several hours on her laptop, not only studying for school, but also interacting with social media for entertainment and social purposes, such as texting with friends and posting music, images, and videos to social networks.

These online musical and creative social interactions are an important part of the teenager's emerging self-identity.

The music teachers recognize the existence of their student's content-rich, independent digital lifestyle, knowing that the student's time and focus is highly intertwined with digital interactions for educational and social purposes. The teenager is committed to music study and vocal performance as a component of her high school program. The teachers realize their student's musical endeavors extend beyond the classroom into the digital realm, yet the teachers might not know how the student's digital musical activities influence her formal music training. For this young person, there is a lived space between school and social media for musical connections—and intersections—that influences her musical identity. What are the areas of convergence and divergence between a teenager's in school and out of school digital music interactions?

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## Chapter 1: American Adolescents and Digital Music

Music education researchers recognized the effects of listening to music in everyday life as means to make social connections (DeNora, 2000; Partti & Karlsen, 2010; Sloboda, 1985), acknowledging that busy adolescents might engage in various musical experiences throughout the day. Listening to music, especially popular music, plays a significant role in youth culture (Bennett, 2000). In the first decades of the 21st century, music delivery systems have undergone a fundamental technological transformation. Today, consumable recorded music is available in various dematerialized digital formats (Magaudda, 2011; Ruthmann, 2007). Wireless interactive technologies permeate the early 21st century lifestyle of North Americans (McCarthy & Wright, 2004), facilitating new modes of music production, sharing, and distribution.

Access to digitally delivered music is a relatively new consumer phenomenon among North American adolescents. Since 2005, the development and availability of wireless music delivery systems has transformed personal interaction with music media. The ubiquity of digitally distributed media makes understanding how music functions in the life of adolescents essential for music educators (Burnard, 2008; DeNora, 2000; DeNora & Adorno, 2003; North, Hargreaves, & Jon 2004; Sloboda, 2005). As public school music instruction

strives to keep pace with the rapidly transforming “mediatization” of students (Gruhn & Regelski, 2006), music educators will benefit from understanding how adolescents engage with digital music when they are not in school.

Even 50 years ago, questioning how students related to music in and out of school was an important topic for music educators. During the 1967 Tanglewood Symposium, organized by what was then the Music Educators National Conference, the professional consensus was that there was an increasing gap between real world music experiences and public school music programs (Choate, Fowler, Brown, & Wersen, 1967; DeVries, 2010; Isbell, 2007). The conference leaders proposed strategies to bridge the gap between in school and out of school music learning. The resulting directive was to design a North American music curriculum encompassing all styles, genres, eras, and cultures of music, with emphasis on popular music appealing to adolescents (Choate et al., 1967).

### **Digital Learning Environments**

Today, in the early 21st century, listening to music accessed through handheld mobile devices provides an experience previous generations could not envision. Furthermore, music remains a vital part of young people’s lives (Partti & Karlsen, 2010; Rinsema, 2012; Tobias, 2013). Particular examples of

adolescents' digital music practices include listening to recorded music on personal devices, such as smartphones, laptops, and tablets; controlling digital music data through software interfaces; transmitting digital music via social media; and creating music with recording and editing software.

**Millennials and music learning.** Strauss and Howe (1991) labeled the children born after 1982 as "millennials" because this group would reach adulthood at the turn of the 21st century. Due to the commercial influence of online social networking, among other traits (Perrin & Duggan, 2015), millennials in the United States experience music discovery and consumption in ways that differ from past generations. Prensky (2001) invented the term "digital natives" to describe the population born after 1980 who interact with others via online transactions as well as face to face. Prensky suggested that teachers have a particularly difficult role educating digital natives due to the social and cultural changes driven by the expanded use of networking technologies.

Researchers discovered that millennials, despite their inherent interest in music, disengaged from learning music in a formal classroom setting. According to the studies, students viewed academic music study as irrelevant and out of touch with their personal music preferences (Burnard, 2008; DeVries, 2010; Green, 2008; Hargreaves & Marshall, 2003). There is evidence, however, that

adolescents whose music teachers integrated technology in the classroom were more likely to continue with music lessons in high school (Mellor, 2008).

**Digital musicking.** Musicking, as defined by Small (2011), includes participating in a musical performance in any capacity, whether performing, listening, or providing any material support for the music. Researchers inquiring about students' out of school musicking found that adolescents expressed positive feelings of autonomy, self-image, self-esteem, and emotional expression through music engagement (Barrett & Smigiel, 2007; Cremata, Pignato, Powell, & Smith, 2015; Green, 2008; Griffin, 2009; Larson, 1995; Snead, 2009). Some researchers suggested that music educators should connect their students' out of school music experiences with their classroom learning (Campbell, Connell, & Beegle, 2007; Green, 2008; Heath, 2001; McTavish, 2009). Although these studies offered insight about adolescents' experiences with music outside of school music contexts, additional research investigating how adolescent engagement with digitally mediated music as a non-material entity differs from live musicking (Tobias, 2014). Therefore, I wanted to know about students' behaviors and practices with digital music media. To prepare for the study, I extended Small's (2011) definition of musicking to include discovering, listening to, and making music using personal digital devices, or *digital* musicking.



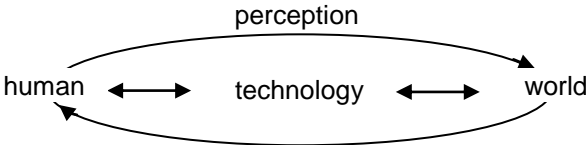
**Technological mediation.** Researchers offered explanation to the ways that digital music consumption differs from interacting with acoustically sourced music. Mansfield (2004) suggested that the ideas forming the digital musical object appear to have no source, destination, or end. This phenomenon occurs because digital information is a non-material entity (Cubitt, 1998). Digital data consists of binary code, which is a series of ones and zeroes (or pluses or minuses) in a computer's programming language. Portability and repeatability characterize the ephemeral nature of digital data. Humans can interact with digital data forming the musical object by using personal digital devices.

In 2002, Webster envisioned that music teachers would use smaller, accessible personal digital devices to "assist children in understanding music" (Webster, 2002, p. 43). Personal digital devices encompass a range of commercially available computing machines. A feature of most personal digital devices is that they can electronically capture and manipulate the non-entity musical object. Such devices include laptop computers, tablet computers, .mp3 players (devices specifically programmed to store and play audio files), and, most recently, smartphones. As telecommunications merged with Internet access, mobile phones developed into smartphones that featured telephone technology, wireless Internet capability, and a miniaturized computer operating

system.

Technological mediation, which is a phenomenon that occurs when a person uses a digital device to understand a concept or to present an idea, creates a relationship between the user’s perceptions and consequent reactions (Tripathi, 2005). Figure 1 diagrams the relationship between people and technology devices:

Figure 1. Technological mediation



Adapted from *Culture of Embodiment and Technology Reflection*, (p. 10), by A. K. Tripathi, (2005), *Ethics and aesthetics of technologies*, EDITORIAL, *AI & Soc* 25:5–9 DOI 10.1007/s00146-010-0265-7, Springer-Verlag London Limited 2010. Adapted with permission.

Technology mediates the transference of information between humans and the world, connecting our perceptions and actions (Tripathi, 2005). Considering the ubiquity of the digital culture (Ihde, 2003; Tripathi, 2005), further investigation may clarify the relationship between user and digital media, especially regarding the non-physical digital file as object.

**Characteristics of digital music practices.** The following table summarizes distinguishing actions and characteristics associated with digitized music and some of the ways adolescents interact with digital music media.

---

**Table 1. Musical Actions and Characteristics of Digitized Music**

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	Consumption	Production	Distribution
Musical Action	Listening	Creating	Sharing
Digitized Music	Customizable	Programmable	Accessible
	Transferable	Malleable	Discoverable
	Reproducible	Non-linear Indestructible	Socially Connected

---

**Digital music consumption.** The experience of digital music consumption is described as sharing digital music files in a collective or collaborative manner (Carlisle, 2011) via devices and software designed to interpret those data. Digital files are transferrable and reproducible without any loss of quality. Accessibility via the Internet affords personalized searching and consumption of media. Consequently, listeners have much more choice in customizing and controlling their listening experiences.

**Digital music production.** Digital music production is the creation of music by capturing, editing, or manipulating digitized audio using software or hardware tools specifically designed to encode or interpret the resultant data. Non-linear digital music production can be described as structured music events, comprising a complete composition, unfolding over an asynchronous timeframe (Vickery, 2011). Because digital data is reproducible and non-destructible, the content creator has greater manipulative control over the creative process than in analogue production. Digital devices, such as the personal computer and tablet,

facilitate music production in process and product. Using these devices, digital music production might include, but not be limited to, recording original works, sampling beat tracks, creating mash-ups, editing multimedia video clips, and bricolage with loops created in GarageBand or similar software.

*Digital music sharing.* Adolescents can share music not only in the traditional sense of physically making music together, but also through sharing digital files, streaming links, and other ephemeral forms of digitized music. Sharing digital music files or streams engenders collective experiences. Synchronous and asynchronous digital transference occurs in a myriad of activities, such as exchanging .mp3 files, creating a mutually shared YouTube video, burning a DVD for a friend, or listening to Pandora, Spotify, or iTunes, among other interactive music listening services. This specialized sharing relates directly to technological advances affecting music as a social practice (Regelski, 2008; Sloboda, 2005; Spearman, 1999).

**Continuum of learning.** For millennials, accessibility to digital content blurs the lines between in school and out of school learning (Mesch, 2009). Additionally, online exchange plays a central role in adolescents' social lives (Partti & Karlsen, 2010). Whether in or out of school, social media helps adolescents establish relationships in highly participatory cultural exchanges

(Jenkins, 2009; Livingstone, 2008). Social media, described as widely available networking websites and mobile application software, allows users to exchange information and multimedia content via digital devices. Additionally, social media perpetuates a “bedroom culture” (Baker, 2004, p. 76) by providing adolescents with an interactive platform allowing autonomous input and feedback (Ma, Yuen, Park, Lau, & Deng, 2015). Pilgrim, Bledsoe, and Reilly (2012) urged educators to take advantage of the vast potential of social media to transform the nature of teaching and learning.

Acquisition of technology skills appears as an elemental standard in the Framework for 21st Century Learning (Garrison, 2011). Within the framework, multimedia is defined as a combination of audio-video components delivered via computerized transmission (Ely, 1992). Mayer and Moreno (2003) described multimedia instruction as learning from digitally delivered words and images with the aim of promoting learning. Furthermore, there seemed to be a difference between the ways adolescents use multimedia in formal learning and how they experienced digital multimedia outside of school (Ruthmann, 2007).

Informal music learning differs from learning in a structured classroom environment in that the learners guide themselves from a holistic, formative starting place (Green, 2002; Green, 2008). For millennials, the ability to interact

with digital music media may be a component of their informal music learning. Even though educators acknowledge the Internet's impact in learning, references to adolescents' out of school digital music practices have only recently emerged in the literature (Pignato, 2015; Rinsema, 2012; Tobias, 2014). Characteristics of informal music learning include peer-directed interactions involving listening, performing, improvising, and composing (Green, 2008). Coupled with these characteristics, interacting with digitally delivered media is a lived experience (Brushwood-Rose, 2003; Mansfield, 2004).

### **Need for the Study**

Today, the majority of music consumed by high school students is recorded music played back in a digital format (Katz, 2009; Magaudda, 2011; Tobias, 2014). According to recent studies, more than 90% of United States adolescents used computers and .mp3 players, and 91% reported going online at least daily (Lenhart, 2015). Handheld devices, such as iPods, iPads, laptops, and smartphones, are adolescents' preferred devices for digital media consumption (Lenhart, 2015). These devices, combined with Internet accessibility, provide listeners with an untethered, programmable "global digital jukebox" (Katz, 2009, p. 36). Downloadable software applications allow for the individualized manipulation of the data. The "phonograph effect" (Katz, 1999, p. 3), so named

from the devices providing tangible support of the listening experience, features prominently in adolescents' music consumption. Considering the complexities of digital culture (Ihde, 2003; McCarthy & Wright, 2004; Tripathi, 2005), I was curious about the relationship between students, music teachers, and digital devices, especially concerning users' perception of the musical object.

The nuanced and subjective nature of technological mediation, countered with immediacy of delivery, creates a musical response that can seem unique to each listener (Brushwood-Rose, 2003). To bind this sensation to an epistemological foundation, the millennials' perception of digital music engagement can be understood as "lived experience" (Bogdan & Biklen, 2007; Dewey, 2005). In reaction to accessibility of new media artifacts, digital natives expressed "different values, attitudes, and behavior than previous generations" (Mesch, 2009, p. 51). This digitally mediated experience, or the sense of "nearly-now" (Whitby, 2010), is a complex, personal phenomenon encompassing written text, symbols, and musical sounds, mediated with technical devices and wireless transmissions. Immersion and interactivity with the computer-generated object comprise the technological mediation experience. My objective was to look specifically at music's role in the lives of a select group of digital natives regarding music discovery, production, and sharing. This study was necessary

because timely and relevant information guides music curriculum and helps teachers prepare for the next generation of learners. It is important for the music education profession to keep pace with the evolving parameters of educational and consumerist technologies.

### **Theoretical Framework**

The integration of educational technology into learning environments is a prevalent topic across academic subject areas (Pilgrim, Bledsoe, & Reilly, 2012; Warschauer & Matuchniak, 2010). Some researchers speculate that technological changes influence the social practices of adolescents (Livingstone, 2008; Mesch, 2009). In the field of music education, the complex relationship between music and technology is consistently evolving.

**Dichotomies in modern music education.** Examining the use and effectiveness of music in educational technology is an emerging field. At the 2009 Research in Music Education Conference, Espeland (2010) addressed this issue by exposing dichotomies in modern music education. The author referred to three proposed contradictory states: (1) technology/digital proponents versus non-technology/analogue proponents, (2) a formal stance versus an informal stance, and (3) teacher perspectives versus student musician perspectives.

Binding Espeland's theorized dichotomies to my research, I was able to uncover



subtle differences in teachers' pedagogical choices and students' cultural practices.

**Cognitive theory of multimedia learning.** A contemporary theory guiding my research was the cognitive theory of multimedia learning (Mayer, 2002; Mayer & Moreno, 2003; Moreno & Mayer, 1999). Mayer's cognitive theory of multimedia learning (2002) asserted that students build connections between verbal and visual information. By experiencing words and sounds simultaneously, students achieved meaningful learning, or a "deep understanding of the material" (Mayer & Moreno, 2003, p. 43). The learning process consisted of paying attention to important facets of the material by "mentally organizing it into a coherent cognitive structure, and integrating it with relevant existing knowledge" (Mayer & Moreno, 2003, p. 43). By employing the cognitive theory of multimedia learning, I linked my understanding of students' digital music discovery, production, and sharing to how they perceived instruction in a digitally mediated classroom.

Carlisle's (2011) conceptualization of a "secondary aurality" (p. 241) extended Mayer and Moreno's cognitive theory of multimedia learning by including kinesthetic interactions with wireless digital devices. According to Carlisle (2011), the encompassing experience of secondary aurality is "based on

relationships between humans and human relationship with technology” (p. 244). Individual as well as collaborative music making occurs in settings mediated by digital devices and online communications. As the boundaries for digital music production and sharing become increasingly blurred, Carlisle’s findings supported an expanded definition of multimodal music learning.

**Social constructivism.** A second learning theory framing my research was social constructivism. Relevant to the experience of how humans perceive digitized music, social constructivism helped explain how individuals build, or construct, knowledge from interaction with digital music artifacts. Drawing upon social constructivism theories espoused by Dewey (2005), I was able to account for adolescents’ emerging behaviors and practices as they interacted with digital music. Dewey’s (2005) philosophy of education provided a framework for understanding collaboration, discourse, and modeling among adolescents as they acquired knowledge. The sustained, systematic, and critical implications of Dewey’s theory informed my study of the students’ music perception and production as individualized, artistic experiences.

Built upon social concepts stemming from philosophical naturalism, Dewey’s (2005) pragmatic argument suggested that physical interaction with the environment stimulates authentic reactions. Dewey expanded on the meaning

behind these human perceptions in *Art as Experience*, in which he described artistic interactions as driven by passion, excitement, and an expression of the self in the world. In stating, “art is a quality of activity” (p. 224), Dewey created a broad paradigm that applies to a wide range of education studies. Dewey (2005) argued that personal artistic growth demanded exposure to and practice with the art form. Given these points, I was able to apply Dewey’s philosophy to my understandings of adolescents’ interactions with digitized music. Building upon Dewey’s principles, Pilgrim, Bledsoe, and Reilly (2012) encouraged educators to take advantage of the vast potential of new technologies to transform the nature of teaching and learning.

### **Purpose of the Study**

The purpose of the study was to determine if a select group of adolescents exhibited behaviors and practices regarding informal digital musicking that influenced their classroom music instruction. Specifically, the research focused on the emerging cultural and social behaviors created by technological mediation and the educational implications faced by a music teacher and four of her students. I justified the need for the study with three distinct suggestions. First, technological innovations effect profound changes to the ways in which music is consumed (Lamont & Greasley, 2011; Livingstone, 2008; North, Hargreaves, &

Jon, 2004; Tobias, 2014). Secondly, even though there has been an increase in music teacher technology training in the last 15 years (Burnard, 2012), very little professional development exists in context with students' digital technology usages outside the classroom (Folkestad, 2006; Jorgensen, 2009). Music educators have recently been challenged to reconsider how they approach educational technology in the classroom (Finney & Burnard, 2010). Finally, by observing how the acquisition and sharing of music takes place outside the classroom (Green, 2002; Green, 2011; McTavish, 2009; Pugh & Bergin, 2005; Ruthmann, 2007), teachers might strengthen connections to their students' formal learning. By deeply exploring these three scholarly positions, I sought to establish if human perceptions had any significance or impact on music learning in school.

### **Research Questions**

Maintaining these presuppositions, I developed the following three research questions:

1. What were the behaviors and practices of the participants as they engaged with digital media in the music classroom?
2. What were the behaviors and practices of the participants as they discovered, produced, and shared music using digital devices in their out of school lives?

3. How did the student participants' out of school digital media engagement converge and diverge in the music classroom?

### **Orientation of the Study**

I sought an in-depth understanding of the very recent phenomena in students' behaviors and practices with digital music production, consumption, and sharing. Supported by a social constructivist framework that placed digital music interchange within the context of verbal and visual multimedia learning and social interaction, I posed questions about how adolescents perceived digital music media on their own terms, and to what extent teachers realized it.

Chapter 2 consists of the literature associated with music teaching and learning in formal and informal settings. It includes a review of social constructivism and digital interactions as it relates to recent findings about adolescents' musicking out of school. Selected studies support the growing connection between in school and out of school music learning. The literature addresses the processes and mechanisms of digital music in terms of consumption, production, and sharing. The chapter concludes with a synthesis of findings in the literature.

In Chapter 3, I present the instrumental case study design. I followed four student participants and their music teacher and collected descriptions,

interviews, and observations. This chapter contains my procedures for preparing, collecting, compiling, analyzing, interpreting, and reporting the data. Codes and themes, questionnaires, field note guides, and release forms comprise the research instruments guiding the data collection.

In Chapter 4, I introduce Elinor Overton-Price, music teacher at North Beach High School, and four of Elinor's music appreciation students: T.J., Jamie, Evelyn, and Alexio. Richly detailed descriptions illustrate the participants' behaviors with digital music. Observations of Elinor's music class capture teacher and student interactions.

Chapter 5 is my discussion of the student participants' viewpoints relevant to teen culture and digital devices. In the second part of Chapter 5, I compare and contrast the participants' connections between in school and out of school musical engagement, summarizing common themes and differing viewpoints.

In Chapter 6, I expose similar and conflicting behaviors and practices regarding digital music discovery, production, and sharing. I analyze the participants' varying perceptions of digital music interactions in and out of school offering a model for understanding digital media in school music contexts. I relate the findings to my original research questions in Chapter 7,

reaching conclusions and discussion implications of the study for music teaching and learning . I determine that multimodal learning seems to occur in the students' experiences. Social implications, formal and informal learning culture, and generational perceptions of musical response are other important outcomes.

Examining the current state of adolescents' informal digital musicking revealed a shift in students' listening and creative perceptions, and a better understanding of how teens perceive digital music. Findings may inspire subsequent studies investigating different ages, genders, and socio-economic statuses. Enlightened with updated research inclusive of students' engagement with digital music production, consumption, and sharing, music educators can design curriculum that considers the powerful out of school musical lives of students.

## Chapter 2: Review of Literature

In the literature review, I discuss the research on adolescents' music learning in formal and informal learning environments with a specific focus on digital music discovery, production, and sharing. A discussion of Mayer's (2002) cognitive theory of multimedia learning provides an understanding of how humans construct knowledge through moving images and sound. Carlisle's (2011) concept of a secondary aurality in multimedia perception lends context to the phenomenon of the multimodal experience. Affirming that knowledge acquisition occurs informally through social interactions (Dewey, 2005), I selected studies focusing on digital media engagement and informal music interactions in the daily lives of young people. The investigations included qualitative and quantitative methodologies. Related studies include a growing body of music education literature pertaining to digital music in the classroom. Several researchers presented a relatively new trend in music education research by studying adolescents' musical interactions outside the classroom (Green, 2002; Green, 2008; Heath, 2001; Jorgensen, 2009). Recently published case studies, narratives and ethnographies, and empirical research are most applicable to the research presented in this document (Boyd, 2014; Rinsema, 2012; Ruthmann, 2007; Tobias, 2013). Consequently, I omitted older survey-based reports such as



Gantz, Gartenberg, Pearson, and Schilling (1978) and Roe (1985), as they were outdated in their technological scope.

The publications reviewed here gave context to the study and informed my data analysis. I organized the publications in five distinct categories: Cognitive theory of multimedia learning, social constructivism, teaching and learning music in informal environments, connections between in school and out of school musicking, and processes and mechanisms of adolescents' digital music usages. After reviewing the articles, I concluded with an evaluation and synthesis of issue and authors.

### **Cognitive Theory of Multimedia Learning**

Mayer's (2002) cognitive theory of multimedia learning and instruction outlined the integration of multimedia instruction in learning. According to Mayer (2002), the cognitive multimedia theory provides three assumptions of how individuals learn from words and pictures: the *dual channel assumption*, the *limited capacity assumption*, and the *active processing assumption*. The dual channel premise involves the human cognitive process of two distinct channels: a visual-pictorial channel and an auditory-verbal channel, respectively processing information as graphic and verbal representations. The limited capacity assumption posits that each of the auditory and visual channels has a threshold

capability of storing and processing knowledge. When confronted with an excessive amount of auditory or visual stimuli, learners can become overloaded. Mayer and Moreno (2003) offered several strategies for reducing cognitive load for optimum learning via multimedia. Central to the active processing assumption is the theme that meaningful learning takes place when students remain engaged, using a process that encompasses choosing relevant words and images, arranging them into coherent graphic and verbal models, and integrating them with each other as well as with prior knowledge (Mayer, 2002).

Grounded on these three cognitive assumptions and organized further into eight design parameters, Mayer's (2002) theory of multimedia learning helped explain how people absorb and process digital audio and visual information. The first principle, the *multimedia principle*, states that students learn more effectively from multimedia presentations than from verbal presentations. Yu, Lai, Tsai, and Chang (2010) investigated this principle in a study involving fourth graders at a Taiwan elementary school. Students were randomly assigned to a dual-channel multimedia learning system (DML) comprised of slideshow files, word processing documents, websites, images, films, and real time videos, or to a control group. The music appreciation class was relatively conventional in that the class listened mainly to classical music while following a listening map

and viewing the multimedia presentation. For the control group, the teacher only used slideshow software to present musical notation.

Yu et al. (2010) offered conclusions that appeared to favor learning via multimedia design over verbal instruction. The participants in the experimental group far surpassed the control group in retention and motivation. In open-ended responses, the experimental group articulated how DML helped them to better comprehend and portray the elements of music and learn music in a variety of ways. The experimental group described their learning experiences as interesting and engaging (Yu et al., 2010). In answering survey questions, students expressed better understanding of the learning task when presented through a variety of media. Researchers concluded that the variety afforded by multimedia learning appealed to diverse learning preferences among the participants. In accordance with Mayer's (2002) principles, the multimodal presentation promoted deep and meaningful learning in young music students. The DML described by Yu et al. (2010) embodies the interactive multimodal learning environment.

Mayer and Moreno (2003) expounded upon the creation of interactive multimodal learning environments, which are characterized by responsiveness to the actions of the learner over the course of the learning experience. The

authors framed interactivity in terms of a continuum from highly interactive to non-interactive based on the degree of communication between the learner and the learning system. One of the most important principles of multimedia instruction is the interactivity principle, whereby students have some control over presentations (Mayer, 2002).

According to Mayer and Moreno's (2003) theory, there are five main types of interactivity in multimodal learning environments: *dialoguing*, whereby learners receive questions, answers, and feedback in response to their input; *controlling*, in which learners decide the pace or order or presentation; *manipulating*, such as zooming in and out or moving objects around the screen; *searching*; and *navigating*.

Using five design principles, Moreno and Mayer (2007) continued to outline an ideal interactive learning environment. The first principle, *guided activity*, posits that students learn best when they have opportunities for interacting with a "pedagogical agent" that facilitates cognitive processing (p. 316). *Reflection* is built into the design of the learning environment on the premise that learning is maximized when teachers ask students to reflect upon correct answers as they integrate what they have learned (Moreno & Mayer, 2007).

The final three principles are *feedback*, *pacing*, and *pretraining* (Moreno &

Mayer, 2007). According to the feedback principle, students learn better when presented with explanatory feedback rather than by corrective feedback alone. Corrective feedback by itself can have a negative impact on self-confidence whereas feedback that is encouraging and explanatory boosts self-efficacy and performance (Bandura, 1997). The *pacing* principle states that students absorb more when they can control the tempo of the learning materials presented (Moreno & Mayer, 2007). From its inception, a major advantage of computer-based learning is that software programs allow students to control the pace of the learning experience. Moreno and Mayer point out that self-pacing enables the students to process smaller segments of information in working memory. Lastly, the *pretraining* principle presumes that students learn more effectively with targeted pretraining that provides or activates pertinent prior knowledge. As described by Moreno and Mayer (2007), pretraining facilitates learning by presenting elements of prior knowledge for the learner to integrate with new information.

Carlisle's (2011) conceptualization of *secondary aurality* seems ideally connected to multimedia learning. Carlisle defined secondary aurality as:

A twenty-first century phenomenon whereby a convergence of media and sensory modalities has shifted aural expression toward the centre of a vernacular and mobile culture in search of

participation, interaction, interpretation, production, development, and performance of collective intelligence. (p. 246)

In applying secondary aurality to music education for children and adolescents, Carlisle (2011) positioned school music education as the ideal venue for the fusion of technology and the arts. These enriching experiences capitalize on the potential for creativity, exploration, and performance made possible by multimedia technologies.

With a mobile device and Internet connection, students can access learning materials anywhere. Adolescents engage in learning tasks at school, in cafes, at friends' houses, and alone, experiencing their environment in ways augmented by local and distant connections. Across subject areas, new trends in education technology motivated teachers to reflect on their pedagogical practices. Music educators must keep pace with students' informal online music consumption in an informal learning environment, knowing that digitally mediated learning spaces are flexible and ever changing.

### **Social Constructivism**

As a guiding framework for much education research, social constructivism seemed uniquely suited for the present study because it applies to learning within social settings. Dewey's (2005) theory helped explain how

children learn and how they adapted intellectually within groups. In digital music consumption, production, and sharing, learning opportunities arise in social settings within online cultures. Responsiveness to learning via online interactions is consistent with experiential learning, by which teachers or facilitators assist learners beyond what they can accomplish alone. If social constructivism explains how learning is an active process of attaining skills and knowledge through interaction within a community, then researchers must consider the ubiquity of technological mediation in the lives of young people. Therefore, significant learning takes place in digitally mediated environments.

Isbell (2007) argued that contemporary music educators should have a nuanced understanding of their students' out of school musical activities. In 1994, the US National Standards for Music Education called for the teaching of various musical genres and styles. Isbell examined the debate about teaching popular music, pointing to weakness of school music programs that disengaged young learners (Isbell, 2007). Isbell extended upon Green's (2002) research on informal learning and the ways in which popular musicians learn, explaining that teachers are adept at tailoring their instruction to individual learners. As reviewed by Isbell (2007), the music teacher in the constructivist classroom provided students with opportunities to interact with peers and materials in a

meaningful manner. Isbell recognized that music educators needed to be flexible in designing instructional practices.

Teachers should be capable of adapting their instruction to a particular group. Purpose driven musical activities, whether in classrooms or informal environments, help students develop individual identity and gain a sense of ownership over their music learning processes (DeVries, 2010; Stålhammar, 2003). Barrett (2007) shared ideals with Dewey's (2005) conception of art as experience, viewing students and teachers as working in partnership to create a rich and stimulating learning environment.

In summary, there are three theoretical positions stemming from the cognitive theory of multimedia learning and social constructivism that are relevant to how technological mediation—the transference of musical consumption via digital networks—takes place in informal learning environments. First, Mayer and Moreno's (2003) principles of multimedia learning break the learning into five observable and discrete phenomena. Secondly, Carlisle's (2011) theory supports Mayer and Moreno's findings by defining students as content developers demonstrating *secondary aurality*, which manifests itself as a collective of behaviors while interacting in a digital setting. Lastly, Dewey's (2005) theory asserts that learners derive meaning and



knowledge from shared experiences. By applying these theoretical principles to an examination of students' discovery, consumption, and sharing of digitally mediated music, I posit that young people learn music from each other online and from their interaction with devices and software.

### **Teaching and Learning Music in Informal Environments**

Only recently have researchers considered the relationships between adolescent music making outside of school and experiences with in school music learning. Research conducted in the 21st century increasingly focused on students' after school musical lives. DeNora (2000) considered music's significance as the backdrop of everyday life. Observing the contrast in traditional versus contemporary cultures, DeNora posited that the relationship of music to listener seemed to emanate from music's production, or the source of the music's creation. In ethnographical studies, the author clarified parameters to identify the origin of music production and distribution (or sharing). DeNora stated, "The matter is critical in modern times, when mechanically reproduced, mass-distributed music is as ubiquitous as temperature control and lighting" (p. 19).

Sloboda (2005) called for a closer examination into the musical and socio-cultural environment of youth:

The details of the intimate hour-by-hour musical lives of children in contemporary society are almost unknown to us. We really need to know much more about what children autonomously use music for in their everyday lives. In particular, we need to know the “natural” varieties of performance that give meaning within their solitary, family, and social settings. Then we can begin to understand better how formal instrumental playing maps (or fails to map) onto the natural categories. (p. 366)

Stating that most research took place within adult populations, Sloboda urged researchers to examine adolescents’ emotional responses to informal music making. The knowledge gained from young people’s perceptions of music, Sloboda reasoned, could affect change in music curriculum.

Green (2002) inquired about the application of learning and performance techniques used by popular musicians in traditional school music settings. Working with a small group ( $N = 14$ ), Green found a clear distinction between what the musicians perceived as *learning music* versus *receiving music instruction*. Most of the participants refined their skills through peer learning and by imitating recordings, not in a hierarchal classroom setting. Many popular musicians in the study had not received formal music training. They listened attentively and purposively while playing popular music outside of school. Green suggested that the practice habits of popular musicians could transfer into classroom learning contexts.

According to Green (2008), reflection is an ongoing process that unfolds naturally. The author emphasized that a holistic music curriculum integrates formal and informal learning, which complement one another (Green, 2002, 2008). In a 2008 study, Green (2008a) adapted popular musicians' learning techniques for a lesson that successfully engaged disadvantaged adolescents, including students who were alienated by the traditional music curriculum. Numerous schools and community venues have since adopted Green's innovative music education principles. A notable viewpoint shared by Green and Dewey is the incorporation of technology in the music classroom and the power to create *inclusive* learning environments that appealed to students of various ability levels and learning styles (Dewey, 2005; Green, 2008). A common conclusion is that students learn best using technology in a teacher-facilitated environment.

Providing students with choices regarding repertoire, instruments, and learning practices was the focus of Green's (2008) research. Green launched an extensive project outlining the application of popular musicians' practice techniques upon a traditional British school music program. Over a 4-year period, the teachers in Green's (2008) study implemented strategies drawn from informal music learning practices into their school music curricula. With over

1500 participants, Green concluded that students acquired popular music skills through such interactions as friendships, peer modeling, and gathering expertise among their communities. Green suggested educators could improve classroom teaching techniques by applying five broad principles of popular musicianship. The principles stated that learners choose their own music, acquire skill by copying recordings, engage in peer-learning, assimilate music knowledge in a non-linear fashion, and integrate music learning by listening, improvising, and composing simultaneously.

Listening with intent, paying attention to detail of sound quality, and having students work closely with recorded music played prominent roles in Green's (2008) research. Green concluded that it was possible to focus on the quality of students' music making by incorporating techniques found in informal music practice, as well as cooperative skills and knowledge sharing that accompanied them (2008). Green's findings illustrated ways in which students proactively and independently learned music via listening to recorded popular music. The results of Green's study helped establish that informal learning happens in peer-group interactions.

Extracurricular pursuits can enrich the overall educational experiences of adolescents. Heath (2001) described the structured environments of after school

hours as a “third space” for learning, extending beyond the boundaries of school and home (p. 10). Education researchers report that students engaged in extracurricular arts programs build collaborative learning and creative thinking skills, and develop music practice techniques (Burnard, 2008; Griffin, 2011). Moreover, a personal incentive to improve motivates student musicians (McPherson & O'Neill, 2010). Some students have demonstrated interest in starting music businesses as their high school extracurricular activity (McTavish, 2009). The acquisition of such experiential proficiencies speaks to complex and competitive skill sets needed by students who will soon enter the work force (Pugh & Bergin, 2005).

Lamont, Hargreaves, Marshall, and Tarrant (2003) suggested that as children enter adolescence, their experiences with music outside the purview of school become more influential than those in school. Lamont et al. investigated traditional teaching strategies during students' out of school music activities. In a study with a participant pool drawn from students aged 8 to 14 years old ( $N = 1,479$ ), researchers surveyed teachers' and students' attitudes toward learning music. Using open-ended questions, the investigation revealed diversity among attitudes, including teachers' feelings about lack of access to music technology and students' feelings about lack of motivation. Although attitudes varied,

teacher and student participants felt positively about active music making during school. Only 30% of the student group took music lessons outside of school (Lamont et al., 2003). The student participants listened to CDs, cassettes, and radio after school, and frequented venues where they heard recorded music.

According to Lamont et al., recognizing the importance of students' out of school music activities influenced the effectiveness of classroom music teaching (2003). Researchers suggested that students' attitudes toward learning music in school are generally positive but their level of interest declined as the students advanced through the school's music education program.

Several researchers solicited students' perspectives regarding connections between their formal and informal music learning. In such studies, student participants often pointed to a gap between their music experiences in school and out of school (Bosacki, Francis-Murray, Pollon, & Elliott, 2006; Campbell, Connell, & Beegle, 2007; DeVries, 2010; Hargreaves & Marshall, 2003; Snead, 2009). Adolescents' musical preferences reinforce identity and self-image, playing an important role in friendships and sense of belonging (Campbell, Connell, & Beegle, 2007; Davis, 2005; Hargreaves & Marshall, 2003; North & Hargreaves, 2007; Nuttal, 2009; Nuttall & Tinson, 2005; Rentfrow & Gosling, 2003; Selfhout, Branje, Bogt, & Meeus, 2009; Snead, 2009). More recently, scholars

ascertained ways in which technology, particularly social networking, expanded the interrelationships of music, identity, and community (Partti & Karlsen, 2010).

Campbell, Connell, and Beegle (2007) investigated the significance of music education in the lives of middle and high school students using responses drawn from a national essay contest called "Ban the Elimination of Music Education in Schools." The contest, posted on a popular website, attracted 1,155 participants and resulted in a large, self-selected, and non-representative sample. Females comprised more than three quarters (78%) of the participants, with two thirds of those participants between the ages of 14 and 16 years old. According to the responses, some students participated in school music programs while others did not. More than one third of the essays explicitly referenced formal music instruction, although researchers noted that most essays conveyed the impression that the participants had some type of musical training. The participants articulated numerous benefits of music instruction, including developing the ability to play musical instruments, acquiring musical knowledge, social and emotional benefits, enhancement of concentration and self-discipline, as well as envisioning music as a future career.

Campbell et al. (2007) found that some participants expressed negative comments about music, referring to the absence of popular music in school

music settings. Although Campbell et al. (2007) noted that it was difficult to discern the context of the complaints, some of the students seemed frustrated by critical teachers when students expected to enjoy music instruction. Results of Campbell et al. presented three key points. First, music provided the participants with a sense of belonging and a means of social participation. Secondly, the participants identified with music as a way to reflect feelings about their own identities. Lastly, the authors found that the participants desired rich and rewarding musical experiences in and out of school. The findings confirmed the tremendous value of music in young people's lives.

Boundaries between in school and out of school learning overlap with new ways to access and understand information (McTavish, 2009). As United States educators develop more discovery focused learning methods, curricula begin to incorporate learning practices reflecting student engagement outside the classroom (Davis, 2005; Hickey, 2009; Ruthmann, 2007). This trend may occur because of technological connections bridging students' in school and out of school musical experiences.

According to a study conducted by Barrett and Smigiel (2007), children aged 6 to 17 in Australia perceived music making and participation in musical activities as highly relevant to their growth and wellbeing. The study of 25 child



participants gathered information about music experiences from youthful perspectives. The researchers documented three emergent themes: personal fulfillment, desire to perform, and pursuit of individual challenge. The authors of this study established that students regarded participating in school music class as separate from their out of school musical activities. Even though the participants reported a difference in perspective, school aged children found meaning in formal and informal musical involvement. The researchers sought to understand children's active music making. Conclusions drawn from the analysis of the data implied that digital music consumption is a byproduct of students' informal, after school music making.

### **Connecting In School and Out of School Music Learning**

**In school music learning.** Further studies investigated environmental effects on learning music in school. Burnard (2008) concluded that a music teacher's innovations and motivations guided much of the creativity in students' digital technology usage. Burnard (2008) wanted to know if economically and socially disadvantaged youths used music to establish identities in school and if they engaged musically out of school in vastly different ways. Burnard's findings suggested that the most effective music lessons are those that emphasize individuality and event-based creative projects. Using a multiple case study

approach, Burnard examined the phenomenon of teachers' experiences in the classroom with their students. Student participants exercised independence and creativity in composition by combining popular music styles, such as hip-hop and R&B (rhythm & blues), with digital sampling. The teachers in the study demonstrated innovative techniques stretching far beyond the curricular requirements of their institutions. Music educators in the study also expressed the opinion that technology helped them create an engaging and inclusive learning environment (2008). Teachers claimed they were doing so in order to keep their disaffected students engaged in the learning process. Therefore, the digital configuration of the classroom influenced the attitudes and expectations of teachers and students. Burnard's findings supported the phenomenon of multidimensional cognition in a digital learning environment, and the sense of autonomy and individual choice characteristic of today's learners.

Learning content is also a factor. Thibeault (2009) asserted that "score-centered" and "setting-centered" music instruction help define the musical identities of young people (p. 270). In a year-long ethnographic study, Thibeault followed a United States adolescent violinist who was equally skilled in classical violin playing and bluegrass fiddle playing. Thibeault found that the participant's comprehensive abilities in music performance resulted from formal

music training as well as the influence of informal music experiences. Thibeault's account of two distinct spheres of music experience, representing two cultures of music learning, underscored the need for further examination of adolescents' out of school musical activities.

Some researchers considered the combination of environment and music content in response to creative tasks among students. Hickey (2009) studied the perceptions of adolescents engaging in a music composition task. Hickey sought to assess the feasibility of using music technology to teach composition to students possessing little or no formal music training. Using music sequencing software and digital sampling, Hickey facilitated a composition class for adolescent boys. Participants drew upon musical inspirations experienced in their everyday lives, including household sounds, music from local venues, and recorded samples of popular songs. Hickey discerned that formal classroom lessons were not the fundamental learning agents, but that participant exploration and creation in the computer lab led to greater musical discovery (2009). Thibeault (2009) and Hickey (2009) reported similar conclusions about teachers' desires for structured lessons. The researchers surmised that structured lessons might be counterintuitive to the musical inspirations drawn from adolescents' out of school environments. Additionally, Thibeault and Hickey

urged music teachers to design more creative, inclusive technology tasks to connect students to classroom learning.

**Out of school music learning.** Informal music making allows for personal expression in ways that engender feelings of ownership and enthusiasm. Davis (2005) studied United States high school seniors and first year college students as they played music in a rock band. Davis observed participants acquiring musical knowledge through peer directed instruction and aural music learning. Davis noted a pattern in which the participants would listen, reflect, and then improvise. Themes of self-identity, self-esteem, and the joy of playing in small ensembles emerged. Davis observed that the adolescent musicians in this study developed technical abilities and social friendships. In the research report's summary, Davis concluded, "Music education has much to learn from ways that young people make and learn music informally outside the walls of the classrooms" (2005, p. 10).

Miell and Littleton (2008) studied collaborative music making in pop and rock band cultures as it related to in school and out of school settings. The language and attitude, passion, and energy that the young people brought to their music making was very different in a rock band setting (Miell & Littleton, 2008). Students participating in the study noticed varying levels of musical

abilities when they were together in school. Yet outside of school, when playing in a rock band, the participants appeared more accepting of such discrepancies among their peers. The student participants played music for extended periods of time in order to reach a group consensus. Miell and Littleton (2008) concluded that exposure to informal music making, in addition to traditional school music programs, opens up a broader range of creative possibilities.

Griffin's (2009) ethnographic study of elementary students focused on how children, ages 7 to 8, experienced music in daily life. Narrative descriptions provided insight into the ways participants interacted with music in and out of school. When asked by teachers to demonstrate their musicianship, most participants seemed to apply their informal music making style in school. Although the participants in this study indicated that they enjoyed many aspects of their musical lives, they made a distinction between the musical choices allowed in school and the perceived freedoms of experiencing music outside of school. Participants viewed autonomous choice simultaneously as an expectation and a liberty. During interviews, participants disclosed many aspects of their musical activities, including what they listened to on their playlists and how older siblings influenced their music preferences. Griffin (2009) concluded that

most out of school musical preferences did not reflect the music that participants learned in school.

In a subsequent study, Griffin (2011) identified discrepancies between formal music instruction in a school setting and the perceptions of a group of elementary students regarding music in their personal lives. Participants in Griffin's study, 2nd and 3rd grade students, seemed acquainted with the role of technology in contemporary music. Additionally, the participants seemed to relate listening to music with digital devices as incompatible with the type of listening that takes place in their music classrooms. Griffin wondered why informal listening, which was an essential part of the participants' everyday lives, was absent from the music classroom.

Griffin (2011) observed a dichotomy between the participants' conceptions of classroom music instruction and out of school music experiences. The students in the study routinely engaged in music activities such as singing, moving, creating, and listening to music during the school day, but not in the music classroom.

Griffin (2011) noted that the teacher participating in the study effectively engaged the student participants in a variety of musical activities which they enjoyed. Nonetheless, the teacher felt constrained by a music curriculum that

differed from the realities of the participants' everyday musical experiences. Griffin (2011) relied upon similar suppositions as Green (2005), particularly the notion that children are natural music learners. In doing so, Griffin called upon music teachers to provide young learners with ongoing opportunities to discuss their musical preferences, and to engage students as active participants in developing music programs reflecting personal experience with music.

**Music and youth culture.** Students often make distinctions between the styles of music they personally favor, such as rock, pop, rap, and classical music genres, which they associate with school music curricula. Stålhammar (2003) studied the music experiences of two groups of 15-year-old students, one group in England and another in Sweden. The study grew out of the Experience and Music Teaching research project of the Department of Music Education and Artistic Development Work at the College of Music, University of Orebro, Sweden. Stålhammar explored young people's experiences of music outside of school and related those experiences to learning music in the schools. Student participants associated music with the values of community, relaxation, and lifestyle, while adults emphasized technical knowledge related to reading music notation and performance standards. Rock and pop music provided a source of enjoyment for student participants, which they associated with social activities

such as listening with friends, dancing, and sports. Stålhammar observed that the school and the “adult world” perceived musical experience and knowledge differently than the student participants (p. 63). From the viewpoints of the student participants, the main musical elements valued by the adult world were *form and behavior* (2003).

United Kingdom researchers Hargreaves and Marshall (2003) conducted research with English secondary school students in the midst of the changes taking place in the national music curriculum discussed in the previous paragraph. The researchers discovered that, despite the criticism of school music programs, participants expressed positive opinions of their school music activities. The musical, artistic, and social experiences combined to create a sense of overall enjoyment. These findings suggested that the recommended changes to the school music curriculum happened because the teachers placed students’ self-identity at the center of the new music curriculum model. The engagement and motivation of the student participants seemed contingent on a sense of ownership over the music making, on their degree of autonomy, and their abilities to exercise control over the process.

Ruthmann (2007) analyzed the complexities between a United States middle school teacher and her students during a music composition task.



Employing a qualitative approach, Ruthmann focused on the participants' lived experiences as they interacted in a computer lab. Interviews and observations continued over a 10-week period. The participant pool included a teacher and 16 students ages 10 to 11. Ruthmann decoded the tensions and successes of the teacher-student interactions. Findings supported inclusion of the students' musical thoughts and input, many of which emanated from out of school music experiences. Ruthmann's research added relevance to my investigation because it represented a qualitative study among a young American participant pool.

More recently, DeVries (2010) investigated the music preferences and experiences of Australian students aged 12 to 13. The participants expressed an overriding preference for contemporary popular music, which they desired to listen to at school. The study, conducted at an urban primary school, consisted of 86 participants in 6th grade, 12 of whom participated in focus groups and 34 of whom participated in observation and interviews. More than half the focus group participants were involved in the school instrumental and choral music programs. The participants felt critical of the school's policy prohibiting iPods and other handheld digital music devices. Paradoxically, the school did not ban cellphones, which the students used at school to share music in groups. The majority of adolescents in the study (81%) regularly engaged in media

multitasking. YouTube emerged frequently in discussions and interviews, reflecting its growing prominence as a venue for accessing music (DeVries, 2010).

DeVries (2010) found the participants enjoyed their school music experiences but would have preferred if teachers incorporated popular music. According to DeVries (2010), excluding the students' personal music preferences from traditional classroom lessons presented obstacles to fully engaging the students in general music instruction. DeVries concluded that participants enrolled in the school's bands and choirs identified these programs as important sources of identity, friendship, and satisfaction. The author noted that the teacher made changes to the curriculum because of the study outcomes.

Tobias (2014) investigated music learning as participatory culture. In a single case study structured over 4 weeks, Tobias followed a group of adolescents in their songwriting and technology class within a United States high school. Tobias wanted to know if the participants' out of school musical activities influenced the outcome of songwriting and technology instruction in school. If so, perhaps the relationship between informal music making and in school instruction allowed students to make stronger connections as composers. Findings suggested that releasing some academic restrictions facilitated the transition between in school and out of school music engagement.

## **Processes and Mechanisms of Digital Music Usage Among Adolescents**

Digitally distributed and consumed music influences the musical preferences of youth and positions music as an integral part of their social experience (DeNora & Adorno, 2003; Green, 2011; Kerchner & Abril, 2009). Interacting with music on social media seems to be a way for youth to build connections via digital channels (Kerchner & Abril, 2009; Ma, Yuen, Park, Lau, & Deng, 2015). Most adolescents spend a great deal of time listening to music (Campbell, Connell, & Beegle, 2007; North & Hargreaves, 2007). These informal music listening experiences may have some transference effect on the music they are learning in and out of school.

The literature defining relationships between Internet and youth culture underscores the complexity of social and cultural response to technologic innovations. For example, when Prensky (2001) offered the term “digital natives,” he was describing the first generation to grow up in a digitally mediated environment. According to Prensky, the adult instructors, or “digital immigrants,” did not “speak the language” (2001, p. 2) of this new generation, indicating that the “language” was interactive, digitally consumed content. As social researchers strove to keep pace with educational change, music education researchers examined specific issues surrounding the influence of popular

culture on digitally consumed media. Frith (2007) and Livingstone (2008) considered new value sets impacting adolescents and their music consumption experiences. Music delivery systems, according to Frith, affected the way a listener might process music and build a personal identity with the musical object.

In a study conducted in the greater London area, Livingstone (2008) explored social networking practices, including the ways adolescents shared music. Using qualitative methods, Livingstone interviewed 16 participants ages 13 to 16. The study focused on adolescents' opportunity for self-expression online. Adolescents exchanged not only photos but also audio content and messages on MySpace, and designed their own profile sites, including digital music, in a display of self-expression. Livingstone observed that the participants appreciated the opportunity to share their personal expressions online as a means of building self-identity (Livingstone, 2008).

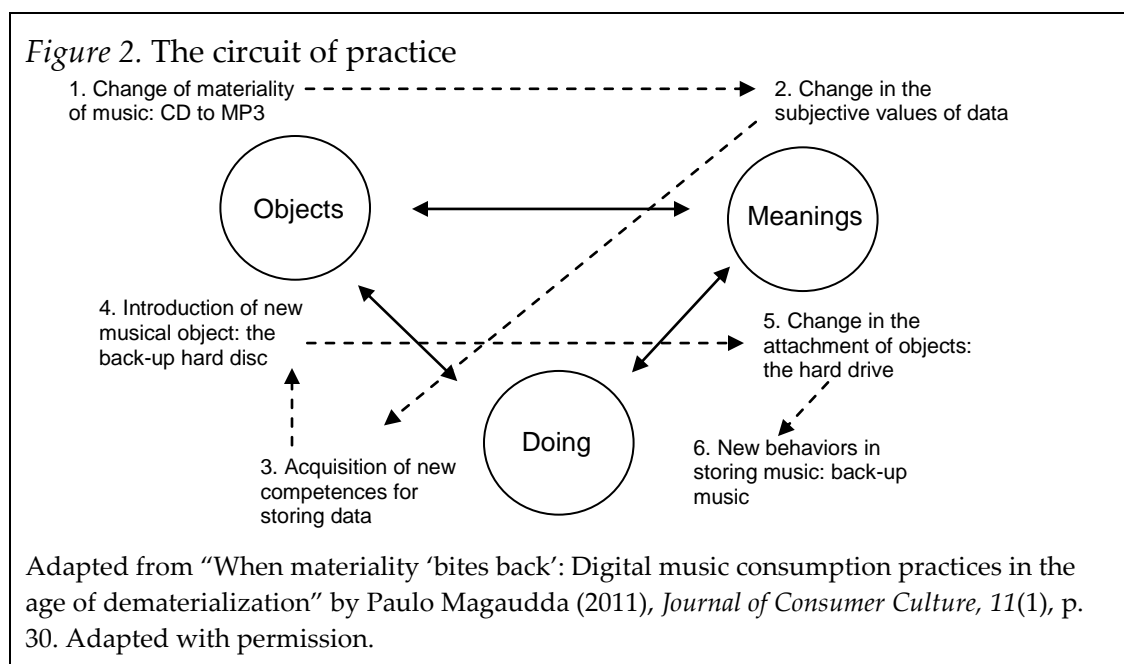
Boyd (2014) added to the field of media studies with a collection of monographs capturing the experiences and reflections of adolescents engaging on social media networks. While the issues surrounding adolescent digital media usage and formal education seemed complex, Boyd recognized the dichotomy between educational technology and students' out of school learning

experiences. Boyd stated: "Most formal educational settings do not prioritize digital competency, in part because of the assumption that teens natively understand anything connected to technology" (2014, p. 180). Prensky (2001), Livingstone (2008), and Boyd (2014) presented wide-ranging concepts and issues surrounding adolescents and digital media interactions, many of them beyond the scope of this dissertation. The researchers, however, represent a growing number of authors challenging misinformation about youth and media consumption.

**Adolescents' digital music consumption.** To understand and account for adolescents' digital music consumption, educators must distinguish between students' listening to audio files and watching digital video. The first experience is aural while the second is aural, visual, and sometimes interactive (Campbell, Connell, & Beegle, 2007; Lamont, Hargreaves, Marshall, & Tarrant, 2003). Literature focusing on experience as learning and self-expression abounds (Dewey, 2005; Folkestad, 2006; Sloboda, 2005), yet music education literature on the specific processes of multimedia consumption among adolescents remains scarce. Sloboda (2005) called for more focused and detailed research using a range of methods to track the everyday uses of music. The researcher suggested

that the many ways people interact with music in contemporary culture warrants further investigation.

Recorded music has transformed from a physical entity to dematerialized digital data (Magaudda, 2011). Digital music files stored on .mp3 players, iPods, or hard drives require consumers to interact with non-material media. Based on empirical research, Magaudda (2011) proposed a “circuit of practice” to describe the cognitive and physical interactions with dematerialized intellectual property via digital devices (p. 16). Figure 2, adapted from Magaudda (2011), traces the path of a digital music object through its relationship with the user, or subject. Magaudda’s “circuit of practice” illustrates the characteristics of digital data’s transferability and malleability.



Magaudda (2011) designed a narrative study with a group of young people, ages 15 to 30 ( $N=25$ ). Participants spoke about their digital music consumption habits. Magaudda noted that the devices and activities associated with listening to digitally recorded music, and in particular, interaction with a computer screen, had a great impact on how and when the participants listened. Magaudda concluded that dematerialization of the musical object, or digitized music delivery systems, affected the attitudes and perceptions of the personalized listening experience. Magaudda's discursive viewpoint related to the constructivist framework of my study, supporting how adolescents learn music informally using digital media.

Several scholars followed the daily lives of adolescents to learn how they consumed music throughout the day (Baker, 2004; Larson, 1995; North & Hargreaves, 2007). Such studies provided evidence that music listening practices changed in the latter part of the 20th century. Larson (1995) conducted an ethnographic study of music listening habits among a group of adolescents located in the United States. Larson confirmed that adolescents listened to music in their personal spaces in order to build their senses of self and to connect with their emotions. Larson delineated between music media, which he categorized as recorded and broadcasted music, and print media, in terms of newspapers,

magazines, and personal computers. Although Larson did not specify participants' listening devices in the study, participants had access to phonographs, CD players, and cassette players at home. Larson confirmed that participants migrated away from television use around the ages of 11 and 12, and turned to more individualized music listening.

Baker (2004) presented a detailed account of adolescent music consumption. In a case study, Baker observed seven girls, between ages 8 and 11, as they engaged in musical activities in their bedrooms. The participants listened to radio, CDs, and cassette tapes. Participants in the study often pretended to be DJs, made mix tapes, recorded music from the radio, and sang into toy microphones. The girls engaged in playful music behaviors, wrote lyrics, and put on shows for one another. Baker observed the participants' private lives to attain a sense of authentic musical engagement. Baker concluded that it was important to the girls to have control of their musical preferences and devices, with minimal interference from adults.

Due to the fast pace of technological transformation in the final two decades of the 20th century, fundamental changes in the nature of musical experience and value appear even more pronounced. To discover how young adults used music in their everyday lives, North, Hargreaves, and Jon (2004)



collected data on their listening behaviors and analyzed the effects of technological development alongside existing empirical literature. North et al. posited that music was much more available in the 21st century because of the development of digital consumable goods (2004). In a study of young, predominantly white middle-class adults ( $N=346$ ), North et al. (2004) collected participants' text messages once a day to record their music listening experiences. The researchers combined text data with participant questionnaires about listening habits. Findings were that 38.6% of participants had exposure to music throughout a period of 14 days. Participants reported a low incidence (3%) of listening to classical music in their leisure time; most listened to popular music (67%). Participants reported that music served a motivational purpose during the workday. Like Sloboda (2005), North et al. found that most participants listened to music in isolation. The data sets were analyzed to determine the "who, what, when, and where" of musical usages in everyday life. Although the findings from the young adults in the North et al. (2004) study may not prove immediately generalizable to my study of 17-year-old participants, a sampling of older teens, age 18 and 19, also participated in this study.

Adolescents' interest-driven pursuits often influence their personal digital preferences (Magaudda, 2011). Music accompanies adolescent gameplay, video

viewing, online sharing, and digital story-telling (Griffin, 2009; McTavish, 2009). On popular social media websites such as YouTube or Facebook, users can post to a private or public channel, controlling the access, organization, and naming of the content. These asynchronous social exchanges may help adolescents develop a music identity as content creator (Boyd, 2014; Lingel & Naaman, 2012; Tobias, 2014).

Lingel and Naaman (2012) studied attitudes and motivations among a group of young people posting content to social media sites. Specifically, researchers examined the relatively new phenomenon of taking video at live music concerts and posting it to YouTube as the live music event unfolded. In Lingel and Naaman's (2012) study, participants acknowledged that videotaping events diminished their enjoyment of the live event but provided them with enduring artifacts. Participants experienced private gain in the ability to relive the moment at any time they chose and the public advantage of sharing their video with other fans.

Some researchers explained that consumers turn to social networking sites for music (Forde, 2009; Olenick, 2009). In the United States, the United Kingdom, and Europe, music streaming overshadowed CD sales and digital download purchases. Olenick (2009) reported a marked increase in online and satellite radio

listening. Online music listening increased from 34% in 2007 to 52% in 2008, while satellite radio listening soared from 19% to 31%. The dominance of radio and social networking sites were reaffirmed by the Nielsen Music 360 Report (2012). In this report, approximately half the respondents (48%) cited radio as the main medium by which they discovered music. Recommendations by friends or relatives were second but far behind at 10%, followed by YouTube (7%).

Among adolescents, however, YouTube predominated as the main channel for listening to music, cited by 64% of that age group (Nielsen, 2012). Cayari (2011) pointed out that since its inception in 2005, YouTube experienced phenomenal growth, becoming the world's third most visited website, surpassed only by Google and Facebook. Lingel and Naaman's (2012) study of YouTube users who post videos of live music events provided an intriguing illustration of the idea that digital possessions are surpassing physical possessions in value. In effect, the exercise of recording events and posting to YouTube existed as something of a tradeoff in which digital documentation outweighed immersion in the live event.

According to Nielsen (2012), radio was the second choice for adolescents' music listening preferences (56%), followed by iTunes (53%) and CDs (50%). Recommendations from peers were the primary influence on adolescents'

purchasing decisions (54%). This finding is not surprising given the powerful role played by music preferences and sense of identity in adolescent friendships (Campbell, Connell, & Beegle, 2007; Hargreaves & Marshall, 2003; North, Hargreaves, & Jon, 2004; Selfhout, Branje, Bogt, & Meeus, 2009). The survey results confirmed that at least in terms of music purchasing, participants expressed that owning digital media held a higher value to them than possessing items of physical media (Greengard, 2012). Although the difference was not substantial, 61% and 63% of consumers identified digital albums and digital tracks as very or fairly good value, respectively, compared to 55% who ascribed the same value to CDs (Nielsen, 2012). Among adolescents, 51% said they purchased some type of music download within the last year versus 36% who bought a CD. The ability to buy music in individual downloads certainly contributed to the difference of CDs purchases and album downloads. Adolescents seemed inclined to buy new music immediately after its public release, a practice reported by roughly one third of the youngest group of consumers.

Digital downloads now exceed the sales of physical books and CDs, and audio and video streaming services such as Netflix, Pandora, and Spotify deliver material on demand. According to Greengard (2012), "Virtual possessions are

changing our world—and our perception of reality” (p. 14). Greengard offered evidence that adolescents attribute more value to digital possessions than physical possessions. Today, digital content exchanges occur almost immediately and to an unprecedented degree. Specifically, digital artifacts describe a person’s identity, keep others informed about their lives, create some type of value or status, and endow the individual with “a sense of bounded control” (p. 15) that may not be possible to achieve in the physical realm (Greengard, 2012).

Music listening and purchasing preferences, particularly those of adolescents and young adults, are a prominent focus of marketers as well as scholarly researchers interested in how technology is altering people’s lives. Although CD sales have declined, a 2008 survey of 4,000 consumers undertaken by the National Purchase Diary disclosed that sales of digital downloads among adolescents decreased as well (Olenick, 2009). When sales decreased for CDs as well as digital downloads (26% versus 13%), the researchers were surprised to see a 6% drop in the number of digital tracks downloaded from peer-to-peer music sites and a 28% drop in CDs borrowed from friends. Respondents cited that they already possessed an adequate music collection (23%) and a general scaling back in spending for entertainment (24%).

Bahanovich and Collopy (2009), in conjunction with the University of Hertfordshire, UK, studied how young music fans, ages 14 to 24, shared music. According to Bahanovich and Collopy's large-scale 2008 survey, 61% of respondents reported downloading illegally obtained music files, 75% sent music files to one another via Bluetooth, 57% copied a friend's entire digital music collection, and 38% ripped digital media from an Internet stream. Bahanovich and Collopy reported that the growth of popular free services, such as YouTube, might ease the appeal of illegally downloading .mp3 files rather than purchasing them online. Even though participants under the age of 18 found it difficult to purchase music legally because they did not have access to credit cards, adolescents found other ways of acquiring the files, such as exchanging on social media. When asked how they felt about accessing .mp3 files, some of the participants expressed frustration with transferring files and having adults monitor their online activities (2009).

Bahanovich and Collopy's (2009) study highlighted the dominance of digital music consumption; more than two thirds of respondents (68%) listened to music on their computer on a daily basis, while only 15% listened to CDs every day. Nonetheless, the respondents still desired to own music on physical formats. Regarding digital music, the concept of "ownership" was somewhat

vague, as there was a definite “value gap” between the importance ascribed to music, which was by far the most popular form of entertainment, and the money that respondents were willing to spend on music, especially in comparison with other modes of entertainment. Notably, 61% of the respondents acknowledged engaging in filesharing via a peer-to-peer (P2P) network, and out of that group, 83% did that on a weekly or even a daily basis. The main reason for filesharing was that it was free of cost. P2P networks served as a venue for accessing music that was not commercially available and allowed prospective consumers to hear new music prior to deciding to purchase it. The overwhelming majority of P2P downloaders (85%) expressed interest in paying for an unlimited digital download service, and more than half (57%) said if that service were available, they would stop using unlicensed P2P sites. Additionally, most (77%) said that they would still purchase CDs.

In Bahanovich and Collopy’s (2009) study, a number of paradoxical responses emerged. For example, respondents simultaneously acknowledged illegal download of digital music files with cavalier disregard for copyright laws, as well as the gap between the values ascribed to music and their willingness to pay for it. The authors highlighted the increasing complexity of digital music consumption. Even beyond the sheer volume of digital music that adolescents

and young adults possessed in their personal libraries and listened to on a regular basis, the numerous channels utilized for transmitting and sharing digital material illustrated the central position of digital technology in 21st century music.

With the introduction of handheld digital music devices, researchers considered how listeners physically and emotionally respond to personalized musical experiences. Rinsema (2012) investigated the role of .mp3 players in forming listener experiences and musical reactions. Using phenomenology as a framework, Rinsema followed 10 United States college students as they interacted with handheld .mp3 players. Participants kept a journal of feelings, reactions, and musical and non-musical sensations while listening. When describing the experiences, participants reported the differences between listening to music with headphones or through speakers. Additionally, participants felt positively about structuring their thoughts through the ability to organize music playlists (Rinsema, 2012). I intend to build upon Rinsema's research with my investigation into adolescents' digital musical responses, drawing upon Rinsema's findings and applying the research to a younger pool of students.



The existing research on adolescents' music consumption provides evidence that listening to music and making music play large roles in the lives of adolescents (Burnard, 2008; DeVries, 2010; Griffin, 2011; Hickey, 2009; Rinsema, 2012). There is consumer demand for dematerialized intellectual property (Magaudda, 2011). New types of "cultural products" (Sloboda, 2005, p. 320) lead to new ways of using music in an informal environment. Because of increased access to digital media, young people have more control of and exposure to media sources (North, Hargreaves, & Jon, 2004) and the customizable digital data offer an autonomous listening experience. Music education researchers report the significance of digital music consumption in the lives of adolescents, yet connecting this knowledge to classroom learning is not as clear.

**Adolescents' digital music production.** A body of relevant music education literature about students' digital production in the classroom is beginning to emerge. Over the last 15 years, researchers investigated students' acquisition of music technology and digital music production. Music researchers have had greater access to adolescents' formal learning environment than to their private lives. Studies conducted in the classroom revealed some aspects of students' digital music usage; however, the studies did not fully explain how and when students interacted with digital media in private.

In 2001, Stauffer examined the creative processes and compositional products of elementary student composers. Stauffer observed a sample of young students ( $N=26$ ) working with a proprietary music composition program. This case study utilized field methods and observations in a university music lab outfitted with electronic keyboards and computer workstations. Over a 2-year period, student participants worked with the *Making Music* software. The participants were not given any formal music instruction. *Making Music* software was the primary composition tool. Stauffer noted that the beginning of the composition process was exploratory for most of the participants, who ranged in age from 6 to 11. Participants quickly moved into intentional and concentrated work after they developed a portion of their composition. Participants described advantages of the technology as being able to save, manipulate, and edit their compositions. When participants paid great attention to timbre and sound quality, Stauffer noted that the participants demonstrated awareness of musical sounds and functions, and expression. Stauffer's descriptions of "time, tool, and technique" (2001, p. 18) comprised the elements of digital composing, reflecting modern characteristics of programmability, malleability, and ease of student control.

In 2001, Airy and Parr conducted a study of New Zealand high school students and MIDI (musical instrument digital interface) composition. The researchers wanted to know what students thought about the educational effectiveness of composing with MIDI. Most of the participants did not have formal music training before they began working with MIDI. Using semi-structured interviews, Airy and Parr captured students' perceptions of the process. Participants reported that one of the most exciting aspects of the project was having access to so many creative sounds. The process was highly aural, so that reading and writing music notation was not a factor in the compositions. Airy and Parr concluded that composing with MIDI was a faster way to bring students into the compositional process without using music notation. The software and hardware in the classroom provided students a means to create satisfying musical compositions.

Within the field of music education, researchers have called for more teacher training in Information and Communications Technology (ICT). In 2005, Savage investigated how students engaged with digital music in a school's MIDI computer lab. In three separate cases studies, participants worked with sampled sounds, MIDI sequencers, and electronic keyboards to create music compositions. Savage observed the participants' playfulness and

experimentation in the computer lab as they composed within a structured framework. Because participants worked with prerecorded samples, they did not employ note-reading skills. Based on comparative analysis of the three cases, Savage concluded that composing with ICT represented a cultural shift in students' approach to composition, yet the influence of ICT had not permeated the limited sphere of music education (2005).

Bolton (2008) studied student composition processes in New Zealand primary schools. Specifically, Bolton collected observations of students engaged in ICT composition activities and used student narratives to complete the study. Bolton's report involved a single student, Josh. Without any prior composition experience, Josh, a reluctant student, expressed much more motivation for music after his lessons with *Compose*. Sponsored by Apple Computer and featuring GarageBand software, *Compose* is a music curriculum for upper elementary students. The results suggested pathways to engage reluctant students in an open-ended compositional task designed within a personalized, online learning environment. After the observations, Josh expressed a desire to acquire an Apple computer for home use because he wanted to create more music CDs. Although the results of the study were not generalizable and the article highlighted one

particular commercial software package, Bolton's research demonstrated another way to teach composition with computers in school.

Gouzouasis (2005) challenged his students to consider whether composing with GarageBand resulted in valid compositions. Gouzouasis added that many general music teachers might agree that if students are creating original music with digital devices (including non-digital traditional instruments), the music making would be considered composition. Likewise, Snead's (2009) ethnographic study of seven high school musicians and two music teachers was designed to illuminate the interplay between the students' musical lives and the school music education culture. The findings of Snead's study confirmed a discrepancy between the students' "real world" experiences with music and the school music culture, despite the fact that the participants were dedicated musicians.

Snead argued that, to some extent, the gap between the students' perceptions of music in their personal lives and at school reflected a simplistic and stereotypical view of the two music cultures. This narrow thinking was not limited to the students, as was evident in one teacher's dismissal of hip-hop music as "elementary" in structure (2009, p. 195). In contrast, Thibeault (2010)

endorsed the substantial merit in connecting students' out of school music consumption to the school music curriculum.

Snead (2009) observed a marked contrast between the teacher-centered music classroom and the collaborative processes the students used in learning from one another, consistent with Green's (2002) observations of how popular musicians learn. The teachers and students in Snead's study envisioned a broader school music program bridging formal and informal music cultures. The students and teacher participants agreed that informal learning principles should be an integral part of the school music curriculum.

Snead (2009) referred to the interactions between the school music culture and young people's musical lives as a *sharing of musical capital* between teachers and students. In conclusion, Snead observed: "The students had positive, visceral reactions to musical experiences at school when those experiences resonated with their genuine affinity for music" (p. 23). Even if the music program was not ideal, students still gained from their involvement. The teachers' depictions of ways the music program could be improved and expanded upon indicated that the students had an impact on the school music culture. To Snead, the sharpest contrast between the school and the musical lives of the students was the

school's almost exclusive reliance on written notation for learning and sharing music, and the students' reliance on aural transmission.

Mellor (2008) explored the use of the CD-ROM program *Dance eJay* with secondary school students in the UK between the ages of 13 and 15. The qualitative study spanned five theoretical perspectives encompassing creative thinking, the impact of formal instrumental musical training on the process of composing with a computer-based program, the use of musical notation in composition, supplementary and integral uses of the technology, and the use of horizontal and vertical strategies.

The school in Mellor's 2008 study was located in a low-income area of York, England. Based on their expressed interest in music, four girls and four boys participated in the study. Mellor employed a coding system that she had used in prior research with elementary school students, and a similar strategy to Seddon and O'Neill's (2003) video recording in order to capture the full composition process with minimal surveillance (Mellor, 2008). Each student in the Mellor study participated in an individual training session to learn *Dance eJay*. During this segment of research, participants commented on their favorite parts of the program and their most creative moments. In the final part of the

study, participant interviews captured experiences with music at home and with family and friends as well as at school.

Mellor (2008) presented analyses of the creative processes of three of the participants to illustrate varying approaches to vertical composition. One participant started with a definite idea, declaring, and “I wanted to look for a specific sound” (p. 460). The second participant also began with a focus for her compositional sound, and worked systematically on her composition. This student also had extensive experience with music at home. In her approach, she carefully selected increasingly complex sound samples before placing them in her mix. The third student diverged from her classmates in her reliance on exploration rather than working from a fixed idea. Although this student had no formal musical training, she had experimented with DJ mixing at home. She described her approach to DJ mixing by stating, “You pick your sounds out and then you just pick another one to mix in with it so it sounds right—it just comes with it, off the top of your head” (p. 463).

Mellor (2008) surmised that all participants, whether or not they had formal musical instrument training, utilized a vertical strategy to create their mixes. Rather than differences between students with and without formal musical tuition, the study highlighted the individual nature of the strategies the



students used to compose. Mellor conceptualized *creativity* in terms of divergent thinking and problem solving, and from this perspective, all of the students displayed creativity regardless of their musical backgrounds, experiences, or training. According to Mellor (2008), the motivational impact of *Dance eJay* is especially powerful for underperforming students who come to realize the myriad possibilities of working with music technology.

Mellor's (2008) work clearly illustrated that young adolescents are capable of thinking creatively when composing with digital devices. Mellor (2008) and Thibeault (2010) viewed the use of technology in music education as a way of not only providing the students with a high-quality learning experience, but also engaging them in a process of lifelong learning. Thibeault (2012) argued that in a music environment where technology has become integral to creating as well as recording music, the recording studio can be viewed as a musical instrument. For younger students, composing with a program such as *Dance eJay* may offer a recording studio experience as a musical instrument that they are able to manipulate to their creative advantage. These studies addressed how students produce and consume digital music out of school.

The review of research about students' digital music production in an informal environment centers around the manipulation of malleable, non-

destructible digital data (Lamont, Hargreaves, Marshall, & Tarrant, 2003; Mansfield, 2004). Studies observing students using computers in music composition (Airy & Parr, 2001; Savage, 2005; Stauffer, 2001) conclude that a cultural shift exists in students' sound preferences when engaging in digital composition. These studies offer observations from formal classroom environments. Bolton (2008) and Gouzouasis (2005) studied students' musical preferences when composing with digital devices. Researchers have more control over a classroom environment because teachers, computers, and students can all congregate in a formal setting. There are not as many reliable studies of students' digital media production in out of school settings. From knowledge gained about students' music production experiences in the classroom, it is possible to infer some of the characteristics of students' music production in informal environments, such as non-linear editing techniques, the ability to manipulate digital data, and that students have an awareness of their own ability to control musical sound and function (Gouzouasis, 2005; Stauffer, 2001).

**Adolescents' digital music sharing.** The way adolescents consume and share digital music online promotes socializing and creative exchange. Examples of young people sharing digital music range from trading .mp3 files to burning a DVD or creating a mutually viewed YouTube video. These exchanges are by-

products of social networking and are common occurrences among adolescents worldwide. The diverse ways that adolescents share digital media today are not easy to track (Ito, Horst, & Brittany, 2008; North & Hargreaves, 2007; Warschauer & Matuchniak, 2010). Researchers must gather information about access, usage, and outcomes of online interactions. Consequently, music education researchers are beginning to go deeper into social media research, making use of the research already in place by larger interest groups. The Pew Internet and American Life Project reported that 93% of United States adolescents use the Internet (2011), and the Nielsen Report "How Teens Use Media" (2009) stated the average adolescent spent 11 hours per week engaging with online media. Adolescents are very likely to be connected via social media networks (Warschauer & Matuchniak, 2010). These broad statistics inform general aspects of adolescent behavior. Today's adolescents require a new set of communication, collaboration, critical thinking, and problem solving skills.

Reports presented from Lingel and Naaman (2012), Bahanovich and Callopy (2009), Livingstone (2008), and other new media researchers informed the commercial and social agenda among adolescents and young adults. These researchers confirmed that many adolescents engage in online media exchanges. Even though the researchers presented general conclusions, they did not

specifically ask about adolescents' perceptions of music sharing or discuss specific music usages. The music education profession would benefit from knowing more details about online musical exchanges between high school students. Using portions of consumer-oriented research techniques may support a link between children's uploading and sharing of music videos and music learning.

Marontate (2005) raised questions as to whether the ways that students transmit music (or intend to transmit it) influences the music that they create. Using mixed methods research, Marontate explored the intersections of digital recording on live music making. The effect of technological mediation, as described by Tripathi (2005), explained the relationship between humans and their external world when technology acts as an agent of transference.

Accessibility and social connectivity achieved through online music sharing is a common theme among today's adolescents (Jaffurs, 2011; Livingstone, 2008; Marontate, 2005). To explore sharing of student compositions via digital transmission, Jaffurs observed United States Midwestern high school students interacting in SIMPhonic Island, a "metaverse" (2011, p. 295) online space created for meeting and sharing music. Participants in Jaffurs's study described their musical identity online in SIMPhonic Island as compared to what

they thought about their in-person identities. The feelings participants described were somewhere between “the real person and their online presence” (2011, p. 304). This perception is similar to the learning state of “nearly now” as described by Whitby (2010). The third learning space (Green, 2011; Heath, 2001) created by means of a social networking website becomes a dedicated location for the transmission of digital music.

Patchin and Hinduja (2010) accounted for trends in online social networking, with a focus on users who shared digital data. The researchers were interested in the amount and type of personal and private information that adolescents shared in their MySpace profiles. In the sample of approximately 2,423 adolescent profiles, the authors inquired about online communication activities. The researchers looked at the published content, which included sharing music and video files, and written language, or how the participants expressed their written feelings about the music they were sharing. Patchin and Hinduja created a profile of demographic characteristics through studying adolescents’ online behavior at MySpace. The characteristics included using privacy settings, sharing photos and music files with online friends only, and posting less personal information about themselves. Young users customized their MySpace pages and conducted asynchronous written conversations with

friends. These behaviors helped define the distributability, accessibility, and social connectivity associated with the sharing of digital music data.

Partti and Karlsen (2010) studied Western middle-class adolescents in Helsinki, Finland, concluding that adolescents learn music from various sources, and acknowledged new media, Internet, MIDI, and personal music equipment as a part of the music learning environment. The study centered on Mikseri, an online music community where users upload and share their original music compositions. Using an ethnographic approach, the researchers observed interactions of the Mikseri participants in a period between 2006 and 2007. Message boards, chat rooms, social contacts for interaction, and sharing original music created a particularly inviting environment for adolescents to build a musical identity. Participants expressed a sense of time and space separation through memberships in fan groups and maintenance of online friendships.

By analyzing the everyday interactions on Mikseri, Partti and Karlsen described a “community of practice” (2010, p. 376) and found that participants developed musical identities within a digitally mediated environment. The authors asserted that being a part of the Mikseri community offers easy access for self-directed music learning. It is customizable, personable, accessible, and inviting to young people. Partti and Karlsen suggested a focus on social music

learning in schools. It is not enough to introduce popular music in the classroom, but educators can offer informal, guided music practices. The researchers asserted that schools have a responsibility to help students transition from their school learning into their after school learning, particularly in music and online communications.

The selected studies about digital music sharing among adolescents suggested a strong social context, indicating that adolescents with network access are quite involved in online musical activity (Jaffurs, 2011; Lingel & Naaman, 2012; Livingstone, 2008). In exchanging digital audio data files in a collective or collaborative manner (Carlisle, 2011), or passing digital musical information between sender and receiver, individuals interact with each other by transmitting data files via the devices involved. Traditionally, music transmission means the way music passes from one participant to another (Green, 2002). Whether in a traditional or digital manner, the transference of music may occur within a particular social context. Green defined transmission as “the acquisition of musical skills and knowledge by immersion in everyday music and musical practice of one’s social context” (2002, p. 22). There are very few music education studies focusing on the way students share digital music

out of school; however, some media and consumer-based studies are beginning to notice adolescents' sharing and exchange of digital data.

### **Summary and Evaluation of Issues and Authors**

Throughout the literature review, I discussed literature that examined adolescents' music making in and out of school, with a specific look at adolescents' consumption and production of digital music, and how music is shared in that process. The majority of music education research about adolescent interaction with digital music encompasses controlled studies done in formal, in school settings. There is a small yet growing body of research available about adolescents' informal music learning with digital music. Some of the studies compare the formal and informal music learning environments. Adults, not students, control most of the in school research studies involving personal computers and software (Airy & Parr, 2001; Bolton, 2008; Burnard, 2008; Savage, 2005). Student-centered, student-driven research concerns informal, after school learning (Baker, 2004; Green, 2008; Larson, 1995).

In the current body of music education research, there has been little concentration on students' consumer habits, students' musical lives outside of the classroom, and research on very young children. Most of the research literature is also missing a clear distinction between media sources of digital



music, delivered either passively or actively through television, radio, recorded CD, wireless transmission, or Internet-delivered new media (Baker, 2004; Davis, 2005).

More than 40 years ago, music teachers recognized that their classrooms were becoming distant from the musical preferences of their students (Isbell, 2007). Using software tools for composition has the ability to create an exciting learning experience for students with diverse preferences and ability levels (Demski, 2010; Mellor, 2008; Thibeault, 2009). Similarly, providing students with choices, including allowing them to bring their own music to work with, can successfully engage even those students who are alienated from the traditional music classroom. Soliciting input from students is the first essential step in creating a music education curriculum aligned with the lives of the young digital natives.

Over the last two decades in particular, music educators have attempted to bridge the gap between music as taught in the schools and the musical lives of adolescent learners. Green's (2002, 2008) probe into informal learning has gained increasing acceptance, and music technology is increasingly present in the classroom (Demski, 2010). Consequently, studies consistently find that the dichotomy of young people's experiences with music within and outside of

school persists (Campbell, Connell, & Beegle, 2007; DeVries, 2010; Snead, 2009; Stålhammar, 2003). Beyond listening to and sharing audio files, YouTube has emerged as an extremely popular venue for learning, creating, enjoying, and sharing music (Cayari, 2011; Lingel & Naaman, 2012). It is impossible for music educators to ignore the powerful role of digital media in the lives of their students if they are to create a stimulating and meaningful learning environment.

Although research exists to evaluate students' in school music consumption, there is not as much recent research to understand adolescents' consumption of digital music out of school. Music educators realize that adolescents value music in their everyday lives. The ubiquity of digital media brings people in contact with music sources in almost every environment. Throughout the day, adolescents interact musically with live and digitally recorded music, and feel they identify with some form of music listening out of school (Green, 2011; Hickey, 2009; North & Hargreaves, 2007; North, Hargreaves, & Jon, 2004; Regelski, 2008). Out of school musical experiences are highly valued by adolescents, yet the dichotomy between in school and out of school musicking has grown even more pronounced because of the recent rise of commercially available digital media (Barrett & Smigiel, 2007; Kerchner & Abril, 2009).

Many of the studies about digital media usage stemmed from countries that strongly supported music education research, such as the United Kingdom, Canada, and Australia (Green, 2002; Green, 2008; Green, 2011; Griffin, 2009; Heath, 2001; Magaudda, 2011; North & Hargreaves, 2007). There are some studies contributed by United States music education researchers, but the body of literature remains somewhat limited in scope.

Overall, the literature review demonstrated a nascent body of research inquiring about adolescents' mobile music consumption. As the field evolves, more studies become available. The extant studies cover a general understanding of adolescents' out of school musical behaviors, yet the phenomenon of interacting with digital music media is reasonably new (Gouzouasis, 2005; McTavish, 2009; Ter Bogt, Mulder, Raaijmakers, & Nic Gabhainn, 2011). Inferences from a related body of in school research focused on music production in the classroom (Kerchner & Abril, 2009; Sloboda, 2005). Technology has transformed the education profession quickly, so research must be ongoing to keep pace with innovations.

Researchers acknowledged these changes in their observations, yet wondered how to best dispense their ideas to the classroom level (Jorgensen, 2009; Savage, 2005). Music teachers longed to add creative technology lessons to

their programs (Burnard, 2008; Green, 2008; Hickey, 2009) and students sought a connection between their musical expression and what they learned in school (Gouzouasis, 2005; Mellor, 2008; Snead, 2009). According to existing research (Burnard, 2008; Ito, Horst, & Brittany, 2008; Magaudda, 2011), the intersection of adolescents' enjoyment and appreciation of digital media seemed to lie in the temporal and spatial aspect of digital music consumption and production.

Compelling factors of growing accessibility to digital content, desire to make music for self-expression, and delineation between formal and informal music learning substantiate the need to know more about how adolescents consume and produce digital music. Researchers continue to forge paths into the social and cultural intersections created by digitally mediated communities, marking the ways adolescents experience a music community in these perceived and real spaces (Cremata, Pignato, Powell, & Smith, 2015; Pignato, 2015). In conclusion, the literature review uncovered important questions, yet many intriguing questions lie beyond the scope of this research.

### Chapter 3: Research Methods

The purpose of the study was to determine if a select group of adolescents exhibited behaviors and practices regarding informal digital musicking that influenced their classroom music instruction. Specifically, the research focused on the emerging cultural and social behaviors created by technological mediation and the educational implications faced by a classroom music teacher and four of her students. I examined the ways in which a selected group of students within a New Jersey high school engaged with digitally delivered music. The specific phenomenon associated with students' informal digital musicking emerged in social practices when students interacted with digital handheld devices. Human engagement with music can be richly understood when observed in naturalistic environments (Barrett & Smigiel, 2007; DeNora, 2011; Green, 2011; Savage, 2005). Consequently, I chose qualitative research methods to conduct the study.

The following questions guided the research:

1. What were the behaviors and practices of the participants as they engaged with digital media in the music classroom?
2. What were the behaviors and practices of the participants as they discovered, produced, and shared music using digital devices in their out of school lives?

3. How did the student participants' out of school digital media engagement converge and diverge in the music classroom?

### **Research Design**

An instrumental case study design provided the structure for organizing the project. I decided upon an instrumental case study for several reasons. Stake (1995) described the qualitative characteristics of an instrumental study as holistic and interpretive, which would support my investigation of adolescent behavior. Miles, Huberman, and Saldaña (2014) recommended looking at similar and contrasting cases to maintain the trustworthiness of the findings and to build confidence in the results. Additionally, Bresler (1995) advised that qualitative studies assist researchers in clarifying multiple realities, exposing the relationships connecting researcher and respondent. Qualitative methods supported the "exploration of processes, activities and events" (Creswell, 2009, p. 205). In addition, the conceptual aspects of a qualitative study allowed me to interpret emerging themes as they related to my questions (Creswell, 2009).

Because hybridity and multidimensionality characterize the perception of the digital environment (Warschauer & Matuchniak, 2010), the interconnected nature of instrumental case studies suited the examination of the participants' unique behaviors. I searched for verifiable reactions within the cases I observed

(Creswell, 2009; Jorgensen, 2009). By comparing and contrasting cases, I developed interpretive understandings of inter-subjective meanings between the participants.

Forming a theoretical framework supported multiple ways for me to interpret these experiences (Bogdan & Biklen, 2007). I focused on participants' accounts with digital media as a lived experience (Dewey, 2005). Observing and collecting data associated with the unique phenomena was bound to timeframes and locations (Stake, 1995). For each of these accounts, I bracketed specific events to provide theoretical context to the findings (Bogdan & Biklen, 2007). The instrumental case study structure, anchored to a social constructivism framework, gave me insight into the changing nature of participants' perceptions and values (Creswell, 2009).

### **Participants**

I planned to collect data from a small participant pool in order to develop a rich data set from their experiences, perceptions, and actions. Purposive sampling (Creswell, 2008; Orcher, 2005) generated the relatively small sample size. Originally, the research design specified a choral and band teacher in order to elicit information from vocal and instrumental instructional modalities.

Practical considerations compelled me to choose one teacher, once I had secured a teacher willing to participate in the study.

The criteria for students included children between the ages of 15 and 17 years old who used digital media, including personal computers, Internet social media, creative software, video games, and handheld devices such as cellphones. The age range was determined by the focus on a high school population of sophomore, juniors, and seniors who were still minors. I assumed that the children had some technological fluency and independent access to age-appropriate digital music resources due to their experiences in public school. The children needed to be enrolled in a public high school general music class and needed to participate in music lessons enhanced with digital media. The criteria for the teacher was a public high school music teacher who used hardware and software technology resources in his or her lessons, and taught the students participating in the study. I included the teacher as a participant so I could better understand the students' experiences in the context of the school, as well as in the context of their interactions. Additionally, inclusion of the teacher as a study participant afforded me broader insight into the institutional and curricular knowledge of the school.



**Site selection.** Creswell (2008) suggested that purposive sampling standards apply to the participants and the study site. Because I defined the criteria for the participants first, these considerations guided the site selection process. To find a population with the necessary characteristics for this study, I considered large public high schools serving student populations of various socioeconomic backgrounds and family structures. I focused on schools in suburban settings, rather than an urban school or a mostly rural school. For practical reasons, I assembled a list of high schools close to my home in Central New Jersey, ruling out smaller technology and performing arts academies, where students needed to meet certain entrance qualifications. Additionally, I ruled out private, parochial, and charter schools, where students paid tuition, shared common religious beliefs, or followed a specialized course of study, in order to increase diversity of the sample and minimize potential bias.

To maintain a degree of neutrality, I did not include schools where I formerly taught, or the schools of any of my teaching colleagues or former students. Although I had identified several promising sites, gaining access to the students soon proved a challenge. To illustrate the climate of music teachers' reactions to the call for research, I offer an outline of the process I followed to

reach the destination research site. Pseudonyms and fictitious locations appear throughout this dissertation to protect participant identities.

**Getting past the gatekeepers.** As I quickly learned, getting past the gatekeepers proved an unpredictable process (Creswell, 2009; Seidman, 2012). The site search lasted from July 2014 through November 2014. To begin the search, I prepared Letters of Permission to Conduct Research (Appendix B) and Recruitment Letters for Teachers (Appendix C). I asked teachers to participate in two interviews and one classroom observation. Teachers' permission to participate in the study would be secured according to the procedures of the Boston University Institutional Review Board (IRB) before initiating the interviews and observations. In the case of the public schools, the gatekeepers (school principals, superintendents, and teachers) were identified according to their official leadership roles. According to Wanat (2008), a distinction exists between site access and gatekeeper cooperation. In my quest for a study site, several school administrators seemed willing to grant access, but often, the music teachers chose not to participate. With each contact, I attempted to establish a tone of reciprocation and equity toward the project (Creswell, 2008; Seidman, 2012) so that teachers and school officials would feel satisfied with committing to an active research project. During the site selection process, I kept a log of

correspondence with the schools (Appendix K). The inquiries led me to North Beach High School, a site with potential to yield “information rich” data (Creswell, 2008, p. 204).

Although I had attained Boston University IRB approval (Appendix A), and possessed New Jersey State Teacher Licensure and Criminal History review associated with my own teaching practice, the principal of D.H. Sailor High School seemed apprehensive about allowing an outsider on school property (Appendix L). The principal asked me to approach the Board of Education before contacting the music teacher, explaining that Board approval was necessary. Another principal, Mr. Bright, of Williams Middle School, and the general music teacher, Mr. Mack LaMott, liked my research idea, but spoke of the need to develop a presentation for the Board of Education in order to gain full approval to proceed (Appendix L). With these initial contacts, I sensed some resistance to conducting a research project in these schools, so I chose to look further.

Later that month, I received notices from the principals of Markham High School, Central High School, and Grovetown South High School (Appendix L). Principals asked their music teachers, but the teachers responded that they were not interested in participating because the teachers planned to retire that year. After receiving denials from several more school administrators (Appendix L), I

sent emails directly to the music teachers. Wanat (2008) advised that it is often more productive for researchers to approach the lower-level gatekeepers who may have more direct information. When I wrote to the teachers, I considered the teachers needing a sense of purpose as participants in the study (Creswell, 2009).

Teachers who declined to participate gave several reasons for their decision. For any teacher, it may feel uncomfortable to have an unknown person enter their classroom and observe their work (Miles, Matthew B., Huberman, & Saldaña, 2014). Some teachers expressed concern about the extra time commitment and logistics of hosting a researcher (Appendix L). Other teachers felt pressured because they had very little daily planning and preparation time, and most did not want to commit to after school meetings (Appendix L).

In 2014-2015, many New Jersey public schools administered the Partnership for Assessment of Readiness for College and Careers (PARCC). PARCC is a new set of standardized assessments for K-12 students designed to measure student readiness for college and career (Pearson, 2015). During my search for a study site, several teachers I contacted did not want to take on my research project because they were experiencing schedule disruptions due to PARCC test administration (Appendix L). Another factor impeding site selection was that I made my inquiries at the beginning of the academic year. Some

teachers did not want to participate, telling me that they planned to focus on concert music during their first semesters (RL-01, p. 1).

I offer this glimpse into the Central New Jersey school climate at the onset of my research. Furthermore, I wanted to demonstrate the willingness and cooperation of the teacher and school ultimately selected.

**Participant recruitment.** After several months of contacting schools, I received a positive response from Mrs. Elinor Overton-Price, high school music teacher, and her principal at North Beach High School. The principal, Mrs. Attison, willingly agreed to allow research, and Mrs. Price was thrilled to cooperate. I was able to work with Mrs. Price in the selection of the student participants. In considering the student criteria, two students needed to possess music performance skill to ensure representation of performing and non-performing music students.

**Programs.** I chose to focus my research on Mrs. Price's Music Appreciation class for several reasons. First, the course of Music Appreciation study represented the cornerstone of general music for the North Beach students. There were no prerequisites for the class, and music performance and reading music notation were not requirements for the class. The students enrolled in this class most closely represented a cross-section of students at North Beach High

School. Secondly, the curriculum represented a broad survey of Western music history similar to music study offered in other public high schools. Finally, working with educational technology brings the learning into closer relationship with music content—listening to music, making music, and sharing music in a classroom community.

I met with Mrs. Price's Music Appreciation class on December 11, 2014, and introduced the research study to the students. Now that I had an applicant pool, I could select the final participants from the pool. I distributed letters and permission forms to every student, instructing them to have their parents sign and return the forms if they chose to participate. From the 17 forms distributed, I received six signed consent and assent forms. Of the six signed consent and assent forms, I discussed the applications with Mrs. Price, so I could ensure at least two students possessed music performance skills, and to confirm that the students interacted with one another socially. By December 18, I secured four participants for the project: Evelyn, Jaime, T.J., and Alexio.

### **Data Collection**

Data collection occurred from November 2014 to April 2015. During that time, I conducted three 45-minute interviews with each student participant, and three out of school observations of the group. The data collection process from

the teacher consisted of two 45-minute interviews with Elinor Price and one observation of her Music Appreciation class. I did not take field notes during the individual interviews so that I could remain focused on conversation with the participants.

In contrast, I collected descriptive field notes and demographic information during classroom observations, as I assumed a neutral presence in the classroom (Creswell, 2009). All identifying information for participants has been assigned pseudonyms and codes. No personal information about participants appears in the study.

**Interviews.** The location of the interviews was selected for convenience (Creswell, 2009) so participants would feel comfortable being interviewed in a mutually agreed upon site. My interviews with Mrs. Price were conducted at the school, and at her convenience. Student interviews took place at a location where the student participants felt most comfortable in conversation. Some student interviews were conducted at school, and some occurred off campus, as well as in public social settings, such as the local Dunkin' Donuts.

Individual interviews provided first-hand accounts of the participants' musical learning styles. Each interview consisted of a basic set of semi-structured, open-ended questions and lasted 45 minutes. Semi-structured and

open-ended questions were designed for students and their teacher. The interviews were audio recorded. After I transcribed the conversations, I was able to code the transcripts. Participants were assigned pseudonyms to protect their identities (Glesne, 2006).

To the best of my ability, I attempted to transcribe the audio recordings within 48 hours of the interview. Participants had the opportunity to review the transcriptions to verify that the transcriptions were accurate, correct, and complete (Creswell, 2009). In using quotations from the transcriptions as evidence, there are some instances where I have italicized words in order to show the speaker's emphasis (Glesne, 2006).

**Observations.** The observation schedule for student participants included three after school sessions in informal, out of school settings. Parents, students, their teacher, and I exchanged logistic information about the meeting sites. I explained to the student participants that I wanted to meet with them at their "hangout," and that I did not have permission to enter their homes. As I discovered, meeting at the "hangout" was somewhat problematic for the student participants because of their economic and social circumstances, which I address in Chapter 5.



In the summer, teenagers gather outside at North Beach's waterside locations, parks, or amusement area, and ride their bicycles as a means of transportation. The study commenced during a cold and icy winter, so the student participants did not have access to outdoor locations. The student participants suggested to meet at the town's Dunkin' Donuts. With easy walking access and relatively inexpensive food, the coffee shop was frequently visited by the students. Other hangouts included Federico's Pizza and a local Panera Bread Restaurant (a U.S. based fast food chain with stores throughout the country). These locations required transportation and money, to which the student participants had inconsistent access. The student participants explained that they often stayed after school, not necessarily to complete schoolwork, but because the facility offered shelter, Internet access, and adult supervision, which the students seemed to appreciate.

The participants and I agreed on Dunkin' Donuts, Panera Bread, and the school grounds as locations for the observations. Three observations took place throughout a 5-month period. During the observations, I maintained the role as non-biased observer. I compiled descriptive and reflective field notes (Creswell, 2009) and recorded the students' conversations as they informally consumed and shared music.

**Data analysis.** After I collected the data, I analyzed the language to seek emerging information. Before finalizing the codes, I reviewed, scanned, and organized the data to get a sense of overall themes (Creswell, 2009). Several interpretive readings of the data occurred before finalizing the coding process. Within HYPERresearch, I created a case file for each participant so that I could easily develop an instrumental case design, comparing and contrasting the data. I created codes according to germinating and repeating themes, as guided by the data. Seventy-eight codes were organized into seven groups according to themes. Code analysis was completed with HYPERresearch commercial coding software. The complete list of codes and themes are listed in Appendix G. Coding structures followed emergent themes as described by Bogdan and Biklen (2007).

To allow the themes to materialize, I organized and scanned the data for repeating ideas. All information identifying the participants received a code assignment. Interview sheets and observation forms were coded and stored in a secure location in my home, and separate from the participants' names. In addition, the audio recordings of the interviews and observations were transcribed and coded. All digital files associated with the project are stored on a password-protected hard drive, with the login known only to my dissertation advisor and me. Study materials will be destroyed 7 years after the dissertation

publish date, and the participants will be notified that the information has been deleted, in accordance with IRB protocols.

Because the study uses qualitative procedures, I followed Jorgensen's (1992) advice to "ensure that the house of ideas is tidy" (p. 177). I worked conceptually with the language to convey terms, assumptions, and systems of thought. Notes, charts, digital media, links, and published resources comprised the bulk of materials used. Digital devices included a personal computer with peripherals and Internet connectivity, Microsoft Office Suite, and supporting software. The collection process involved deep reading and reflection, careful note taking and documentation, and impartial analysis.

### **Trustworthiness**

Creswell (2009) recommended validating the accuracy of finding. I triangulated the data by reviewing and comparing the data gathered from various sources. In addition, I performed member checks, peer reviews, external audits, and reporting of bias to validate the study's trustworthiness and reliability. Lincoln and Guba (1985) identify credibility, transferability, dependability, and confirmable results as the four criteria for judging the quality of interpretive research. Providing a thick description of the interviews, observations, research context, and discussion facilitates transferability.

**Reporting of bias.** In preparation for research, I adopted the position that interacting with digital music media delivered via handheld devices is a common practice for United States adolescents, and that music plays a meaningful role in young people's lives. As a doctoral student in an online music education program, I have direct experience with multimedia learning. In my work as a performing musician, I manipulate digital multimedia files in a variety of formats for practicing and learning. Previously, I have taught digital media and computer skills classes to middle and high school students. In my current role as an adjunct professor of music at Rowan University, I interact with many students, teachers, and academic community members in face-to-face and online transactions.

To minimize bias in my role as a researcher, I sought a research site and student body with which I had minimal interaction as a teacher or community member. I also operated under an assumption that United States public school music educators and their students have had sufficient exposure to digitally consumed music at school. Although I have many contacts in the music education sector in Central New Jersey, I had no prior knowledge of the music programs at North Beach High School.

**Member checks.** Miles et al. (2014) recommended allowing participants an opportunity to review the study materials in order to improve the quality and reliability of the data. At several points during the data collection period, I asked the participants to verify the accuracy of their statements by having them perform member checks. I allowed the participants to read transcripts of the interviews and the observations, in order to confirm their dialogue. I discussed my observations with them in order to clarify their responses. The act of reviewing the transcripts with participants allowed me to confirm and clarify their statements.

**Reliability.** I established reliability in the data by keeping detailed research notes and recording any changes in the research process (Orcher, 2005). Attending to coding during the data comparison process was independently checked by another peer, keeping a codebook, and writing memos about code definition. Cross-checking of information minimalized potential errors (Miles, Matthew B., Huberman, & Saldaña, 2014).

**External audits.** Throughout the dissertation process, Dr. Joseph Pignato, my dissertation supervisor, performed regular audits of my data, coding, and analysis. Auditing by experienced researchers, as encouraged by Lincoln and Guba (1985) and Creswell (2009), provided an additional measure of reliability to

the data and interpretations presented by this study. To provide academic rigor of qualitative research processes and analytic procedures, I frequently shared my research benchmarks, anonymized data, and emergent coding and themes with an additional auditor, a music education scholar employed at a research university who has extensive experience in qualitative research.

**Peer debriefing.** During the data collection and analysis phase, I sought the input of a faculty colleague at Rowan University, a “disinterested peer” (Burke, 1997) whose thoughts, responses, interpretations, and commentary enhanced my own emerging understandings of the study (Lincoln & Guba, 1985). Those debriefing sessions afforded me greater insight. Revealing multiple ways of interpreting the data helped me consider my own biases and added detail to my analyses. In addition, preliminary findings were presented to a peer review board at Boston University’s Graduate Research Symposium in March 2015.

### **Limitations**

In preparation for the research, I assumed that interacting with digital media in an informal manner is a common practice among North American adolescents. Given that United States public schools have recently undergone rapid reforms in educational technology, I presumed that educators and their

students had sufficient exposure to digitally delivered music in school as well (DeNora, 2011; Magaudda, 2011; Thibeault, 2010). Although the investigation considered perspectives from music education research and the cognitive sciences, I did not inquire about lesson outcomes or learning achieved via any specific educational classroom technology. Classroom instructional technology was not the focus of this study.

Themes of composition music technique, indigenous music, cultural preferences, and learning outcomes emerged during the findings, but did not directly affect the conclusions. The participants were limited to a select group of high school students in a suburban public school in the Northeast United States. I chose the sites for convenience and because it allowed me to focus on specific phenomena, such as the participants' digital music practices. Themes were limited to the students' out of school music making, in terms of digital music media consumption and production, and their teacher's understanding of student media consumption as it reflected on general music education. The findings generated from this qualitative study were limited to the select group of participants and cannot be generalized (Glesne, 2006).

## **Chapter 4: Music Practices at North Beach High School**

In this chapter I provide a description of the music culture at North Beach High School. To support my inquiry into behaviors and practices of the participants as they engaged with digital media in the music classroom, I present details about the school culture and community. The rich description of North Beach High School aids the reader's understanding of the study site. Excerpts from interviews with music teacher Elinor Overton-Price coupled with observations of her Music Appreciation class depict the participants' behaviors and perceptions. By using the participants' own words and actions, I examine the perceptions in relationship to one another (Dewey, 2005). In this manner, portraying the participants' experiences conveys meaning to the reader (Creswell, 2009).

### **North Beach Borough**

Over 10,000 people reside in North Beach Borough, which is a densely populated area of the New Jersey coastal region. According to the United States Census, the 2010 median household income in North Beach was approximately \$41,000, well below the New Jersey State median average of \$71,629. The 2010 U.S. census data indicated that the population was 75% Caucasian, with the remaining 25% a mixture of Hispanic, Black, Asian, and other races. Rocky Inlet



Harbor and Smith's Creek mark natural water boundaries. In 2014, the borough's main socioeconomic activities included construction, commercial fishing, manufacturing, and waterside recreation. Founded as a steamship depot in the early 20th century, North Beach suffered an economic downturn in the early '60s. At that time, a storm destroyed the tourists' steamship dock, and a major freeway diverted commercial and residential traffic away from the city. In 2008, the recession affected local businesses and commuters. Businesses had not yet recovered when Hurricane Sandy struck the community in 2012. The storm destroyed many houses, buildings, roads, and bridges in the borough. At the time of my study, North Beach residents continued to struggle with the effects of storm damage and an unstable economy.

### **North Beach High School**

Serving approximately 380 students in grades 9 through 12, North Beach High School is the only high school within the small, Jersey Shore borough bearing the same name (US Census, 2010). First chartered in 1968, North Beach High School quickly established itself as the town's educational and cultural hub. The large public facility serves as a central meeting point for sports events, town ceremonies, and recreation. There is a long history between the school and town residents, many of whom are alumni (Kamin, 1992). Dedicated teachers plan and

participate in after school programs. The high school offers a college preparatory curriculum as well as an inter-district school choice program. In the school choice program, out-of-district students may attend specialized academy programs in digital arts, pre-engineering, and home healthcare. Even with specialized learning programs and community support, some North Beach high school students continue to struggle academically.

Historically, North Beach High School has had a lower graduation rate than other high schools in its peer group. For example, North Beach's class of 2011 had a 78% graduation rate, 10 points lower than the state average of 88% (NJ Department of Education, 2011). In 2011, the North Beach Board of Education considered the factors of minority student population, income inequality, and lowered graduation rate when redeveloping the school's mission statement. The Board of Education formed a Non-Negotiable committee to craft the school's core beliefs (Non-Negotiable, 2011). To support the core beliefs, the Board provided students with a personal digital device so students could have "competitive advantage" (Non-Negotiable, 2011) in seeking higher education or joining the global workforce. Acting on the Non-Negotiable committee's recommendations, the North Beach Board of Education initiated a 1:1 laptop program in 2011. A 1:1 laptop learning environment refers to a school providing

students with their own laptop computer, creating a one student to one device ratio (Education Reform, 2014). For a small borough with limited financial resources, the 1:1 laptop initiative was a bold move intended to propel its students into 21st century learning. The district decided upon Apple products, and by 2014, North Beach had entered the third year of 1:1 learning with an array of Apple products including MacBooks, iPads, and Apple software.

### **Elinor Overton-Price**

Focused, inquisitive, resourceful, and energetic, music teacher Elinor Overton-Price is passionate about her students' success. Elinor holds a Bachelor of Music degree in instrumental studies and a Master's degree in music education. During her college training, Elinor studied flute and voice. She obtained a New Jersey teaching certificate with Advanced Standing, which means she is highly qualified to teach in the state public schools. Elinor is active in many professional organizations, such as the New Jersey Music Educators Association, the National Association for Music Education, the All Shore Directors Association, and TI:ME (Technology in Music Education).

Elinor has been teaching at North Beach High School for 6 years. In the 2014 – 2015 academic year, her teaching responsibilities included two sections of Concert Band—one standard and one advanced, or honors, section—one section

of Chorus, one section of Music Appreciation elective, and one section of Music Technology elective. Elinor oversees and advises the performing arts extracurricular activities, including Pep Band, Jazz Band, Music Theater, Tri-M Music Honor Society, and talent shows, which she described as “monthly events” (I-EOP1, p. 2) of student music held at the school. Elinor mentors students in regional honors ensembles, such as All Shore Chorus and All Shore Band. When Elinor decided to involve students in honors ensembles outside of school, she chose established community organizations. “I try to keep it local,” she laughs, indicating her allegiance to regional music education programs.

Over the past 6 years, Elinor made it her mission to increase student participation in North Beach High School’s choral and instrumental music programs. Elinor’s positive, persistent, and charismatic nature attracted students to her music classes and programs. She is a magnet for students who are curious about music, as indicated by the rising enrollments in her music classes. In 3 years, the band program grew from 11 students to 66 students. Alexio, a North Beach senior and a participant in this study, described Elinor’s teaching style: “She’ll see that sometimes we might not be interested in learning certain things about Bach, so she’ll make it fun. We’ll engage in activities that make it more enjoyable for us” (I-SAS2, p. 22). Elinor encouraged Alexio to sing in school

ensembles. Alexio shared, “I never really took voice lessons. I remember in my sophomore year, Mrs. Price introduced me to All Shore Chorus. She said, ‘You should try for it.’ So, I did, and I got in!” (I-SAS2, p. 22). According to the student participants, the quality of performing ensembles improved year after year due to Elinor’s attention to individual student needs. Jaime, a student participant who plays tuba at school, spent extra hours with her teacher. Jaime told me, “I’ve never taken private lessons, but if I need to work on something for an audition, I’ll stay after school with Mrs. Price. She’ll always help me out” (I-SAS2, p. 8). For T.J., peers motivated his interest in music class. T.J. described his interest in music study: “For me, I heard about [Music Appreciation] class in my sophomore year. My friend talked about all the people that you learn about historically, like people in music who are significant. It just sounded interesting, so I just ended up taking it” (I-SAS2, p. 22). Elinor explained how the musical connection between town and school promulgated the growth:

There are a lot of kids interested in what’s going on in the music department and the classes I’m teaching. They’ll say, ‘Oh, maybe I’ll try to take that next year.’ For the culture of the school—it’s a small school and they all live in town, it’s only one square mile, so everyone knows each other—it can be a good and a bad thing. [The music program] is prominent, so the kids that are involved in music are involved in a lot of other things, too. (I-EOP1, p. 3)

Mostly, school music growth stemmed from students and teachers' grassroots involvement.

Elinor carries a full course load at North Beach and advises extracurricular activities. In the initial interview, Elinor expressed feeling overworked: "I am a one-person department," she laughed nervously, "so I do a lot" (I-EOP8, p. 6). Still, Elinor enjoys performing as a member of a local community wind ensemble and teaching private flute and voice students. Even with an advanced music education degree, she felt that higher education did not prepare her to teach music technology classes. Elinor explained, "I had one undergraduate class in music technology, which I didn't find very comprehensive or helpful" (I-EOP1, p. 3). Elinor is dedicated to improving her knowledge of education technology. The Apple laptops issued to students and teachers came equipped with GarageBand, an application that allows users to create digital music. The teachers had not received prior GarageBand training; however, Elinor saw an opportunity to use GarageBand in many of her classes. Of her current music education technology training, Elinor claimed, "I taught myself GarageBand so I could teach it to my students, for the most part" (I-EOP1, p. 4).

As the only music teacher at North Beach High School, Elinor is the school's educational authority for the performing arts curriculum. When I asked

about her philosophy of general music education, Elinor eagerly replied, “I think music education is important for everyone. To me, it is such a universal thing. Let’s make sure [students] are in touch with this thing that they are going to encounter for the rest of their lives” (I-EOP1, p. 11). With a strong intellectual curiosity, Elinor considers herself a lifelong learner, expressing a desire to continue professional development. “I feel like there’s always more to do, more to learn, and always more experiences to provide, and I like being a part of that. It keeps [teaching] interesting; it’s not the same thing all the time” (I-EOP1, p. 13).

### **Technology at North Beach High School**

When I asked Elinor about North Beach High School’s education technology, she offered details about what it felt like to teach and learn in a 1:1 laptop environment. Elinor acknowledged that laptops are the common learning device among students. Elinor realized that some students lacked the resources at home to explore the Internet, and, for some, the school-issued laptops provided their families’ only Internet access. In school, students used the devices in highly specific ways to address a variety of learning tasks. For example, the Band class recorded their performances on laptops, and the Music Appreciation

students accessed instructional websites. The students accessed Edmodo, which is a web portal for capturing group responses to written questions.

Elinor offered her view of North Beach's educational technology program. "We are fortunate to be in a one-to-one laptop student environment," she said. "They [the students] are all issued their own laptops over the summer and they take them home with them every night" (I-EOP1, p. 4). She explained that the administration provided teacher training, and that she was satisfied with the school's implementation plan. Elinor felt that the school offered teachers adequate support, training, and services. Yet, when the laptops and new equipment arrived, Elinor chose to improve her technology skills because she wanted to learn specific music technology techniques:

I'm in the technology clique. I volunteered to receive extra training so I'm Apple-Trained. I'm in a cohort of six super-users right now, and we've had the most training, so far. And we turn-key all the technology information to other faculty. So, I've had a little extra training. (I-EOP1, p. 5)

Overall, Elinor seemed pleased with the school's technology support staff. When needed, she received help and advice on the software and equipment available. She explained: "We have a pretty quick technology team [at North Beach], which is nice, so if there is something that I know I need for class, I can put a help desk ticket in" (I-EOP1, p. 5).



When I asked Elinor about the school's technology infrastructure and plans for integrating audio and video equipment, Elinor explained, "We have a digital media [academy] now, but that's an academy so they [the students] have to enroll in the academy and then take the...tracked courses over the period of time" (I-EOP8, p. 3). The inter-district consortium obtained funding to launch a new digital media academy, designed as a specialized technical training program within the high school. The digital media academy program would offer music and video production components. Even with this improvement, Elinor felt conflicted about the availability of facilities and hardware for her performing arts program versus the new digital media academy. She continued, "I don't really have a lot of training in it [audio video production]. I'm self-taught," she told me, "so I'm comfortable with the programs I know, so getting new programs would be another [training]" (I-EOP8, p. 4).

Elinor claimed that funding and facilities for music technology equipment remained challenging. Elinor explained, "We have laptops, which is cool, but I feel like it would be a burden to ask for Pro Tools, or digital keyboards, or accessories to go with that to make it more of a professional environment," she said. Elinor continued, "I wish I had space. I wish I had a lab instead of my big multipurpose room, so that's kind of a challenge" (I-EOP1, p. 12).

Because Elinor has been teaching at North Beach High School for 6 years, she knows her students well. She is now on her second cycle of students working their way through the North Beach High School curriculum. For families living in town, Elinor confirmed that fluctuating income, combined with unstable housing and transportation, affect students' learning at school. In the classroom, Elinor learned about some of North Beach's hardships through her students' daily lives. "We're in an area where finances are tight, pretty much across the board, in town" (I-EOP8, p. 9), she added. "The priority is *not* for those students to be taking music lessons; it's to get jobs on the weekend so they can help their families [*italics indicate participant emphasis*]" (I-EOP8, p. 9). Elinor continued, "A lot of the students were hit by Hurricane Sandy, and a lot of families are still recovering. Some are still displaced, some are just moving back into their homes" (I-EOP8, p. 9).

Reliable transportation presented another difficulty. Elinor described instances when students could not participate in extracurricular programs because they did not have a ride. "I had one poor kid who missed a performance this year because he was driving his mother home from work, and he got stuck in traffic," she recalled. "There was nowhere else for him to go, because they're responsible to their families as well, and they have to share a car" (I-EOP8, p. 9).

### **Elinor's Perceptions of Students**

Because Elinor is a keen observer of her students' digital music consumption behaviors, she was able to speak in detail about the role of peer influence on the music listening habits of North Beach students. When discussing her students' choices of musical content, she felt the need to make students aware of the nature and source of musical content.

I think they [the students] are trying to take social cues from what they are listening to, which, in some cases, is really unfortunate. I think that some of what our students are listening to is teaching them how to be something that they are not. It's giving them some kind of negative influence, whereas, sometimes, students are really exploring on the opposite end of things. They are really exploring what's out there, and then come to me saying 'Hey have you heard of this band...?' and I'll say, 'Yes, they are wonderful musicians, go listen to them more, go. (I-EOP1, p. 12)

Elinor seemed to recognize that students' musical lives outside of school influence her classroom music teaching.

On a daily basis, Elinor encountered students who created their own digital music content. Sometimes students approached her to share music they created outside of school, using either their laptops or other digital devices. In these informal exchanges, students seemed to view Elinor as an approachable adult who critically and collaboratively listened to their compositions. Alexio described Elinor as "open to everybody" (I-SAS2, p. 21), and Evelyn agreed that

Elinor was “surprisingly patient” (I-SAS2, p. 21). As a willing advisor, Elinor offered positive critique and included a few hints for improvement. Elinor’s approach allowed her to bond with the students. Elinor described these encounters with students:

Sometimes, kids that I don’t have in Music Technology [class] will come to me with something they’re working on by themselves in GarageBand and say, ‘Hey, look what I did,’ or ‘Can you help me update this,’ or ‘Hey, what do you think of this?’ They are just exploring the programs on their own, which is neat. Sometimes they are the kids I have in another class. My band kids say things like, ‘Look at this thing I worked on over the weekend,’ or they are exploring the software for themselves. They have an interest in trying to recreate songs they know, or watching YouTube videos of how to play a particular song on the piano, or using the musical typer in GarageBand to play it and record it, to put it together. It sounds pretty neat! (I-EOP1, p. 6)

Because of the availability of MacBooks, students and teachers developed fluency and troubleshooting skills associated with these devices, and readily shared technology tips and tricks with one another.

North Beach High School has a comprehensive technology acceptable use policy. Throughout the day, students complete much of their coursework using laptops. Students and teachers seem to self-monitor and choose appropriate content and activities for the learning environment regardless of the filtered access. Elinor explained, “Of course, laptops are allowed in class. The cellphone

policy at school is, it can be used for educational purposes, and it's pretty much up to the teacher to enforce and establish ground rules on a class-to-class basis" (I-EOP1, p. 11). According to the students, teachers may choose the implementation of digital devices in their classrooms. Jaime, a senior at North Beach and a participant in this study, described her experience: "Usually students are allowed to wear headphones in class, if the teacher permits. When you're taking a test, you have to ask the teacher, 'Can I put my headphones in?' and most of the time, they'll be like 'Sure.'" (I-SAS2 p. 16).

### **Music Appreciation Class**

North Beach High School students must take a one-credit general education course in music or art. Elinor's Music Appreciation class meets in the band room every other day. North Beach High School adopted block scheduling in the mid 1990s. Instead of a traditional class schedule consisting of seven subject periods per day, block scheduling organizes instruction into four extended academic periods, alternating the subject meeting days. Teachers and students meet for extended periods with four long blocks of academic course time covering each day. Music Appreciation class meets on B days during fourth block, the last period of the day. Instructional time is 80 minutes. The longer

blocks function as a double period. Within this timeframe, Elinor plans in-depth yet short lectures, and reserves the majority of class time for student work.

Although Elinor teaches students in her academic classes and extracurricular music activities, her music listening strategies feature activities in which students compare and analyze the popular music that they consume. In Music Appreciation and Music Technology classes, students participate in listening, writing, discussion, and discovery. Evelyn, a senior at North Beach and a participant in this study, described her teacher's approach toward music listening in class. "She's willing enough to listen to anything, any kind of music, and she's so patient with us, too" (I-SAS2, p. 22). Elinor admits having difficulty measuring whether teaching active listening is effective in the context of the new classes. Nonetheless, Elinor emphasized the importance of providing students with information and encouragement:

I try to just make [the students] listen to a lot of things. I tell them at the beginning, "You don't have to like this, you just have to know it exists," and that it has had an impact and influence on other things that have happened. I will ask them to answer the opinion questions, "Do you think you're going to listen to the same music you listen to now in 20 years?" And some of them say, "Yeah, I'm going to listen to gansta rap [hip-hop music with lyrics focusing on illegal activities]." Then I'll say, "What are you doing?" [laughs]. But we do get through, and we do talk about the development of hip-hop in my music appreciation class. (I-EOP1, p. 10)

We are on old dead white guys right now. Western traditional classical music. And then, after midterms, we start in the 1920s and work up through the '90s. I try to touch on a little bit of everything. Then we try to pull it back in, to compare. I ask them, "What are you listening to now? Does it have anything to do with how this actually started? Do you see a similarity here?" (I-EOP1, p. 10)

Elinor considered herself aware of her students' musical engagement during the school day, and out of school.

### **Students at North Beach High School**

The four student participants in this study elected to take Mrs. Price's Music Appreciation class. As outlined in Chapter 3, the participants met the criteria for this study. Examining the participants' statements about informal musicking with digital media may reveal a shift in listening and creative perceptions, imparting knowledge of how adolescents consume and share digital music. Each participant represents a distinctive musical viewpoint. Other important themes in their stories include social implications, formal and informal learning culture, and generational perceptions of musical responses.

At the beginning of the research phase, the participants' similarities seemed straightforward. The student participants were seniors in Mrs. Price's Music Appreciation class and held leadership roles in their school peer groups. As the interviews and observations progressed, their individual stories emerged.

I learned more about each participant's distinctive musical viewpoint, creating connections to friends, family members, and community, thus enriching the data profiles.

**T.J.** Captain of the varsity football team, T.J. plans on going to college with a goal of studying international business. Based on the recommendation of friends, T.J. chose to take the Music Appreciation class in order to fulfill his arts credit. Although T.J. does not play an instrument, T.J. likes to sing, write, and record his own raps. Outside of school, T.J. enjoys dancing and acting, but is not involved with school music ensembles. T.J.'s older brother, a DJ, records and mixes beats on DJ equipment at home. T.J. described the musical life at home:

When I was growing up, I was really influenced by my older brother because he had a big interest in music, so I listened to hip-hop pretty often. When I got older, I started listening more to R&B, as I kind of became, like, more of an individual. So, yes, I guess there's always an age when you kind of just grow and detach. You become your own person, you know. (I-SAS2, p. 6)

T.J.'s favorite music genre is alternative R&B, a sub-style of rhythm and blues that combines pop, hip-hop, and electronic music. Music is constantly playing at T.J.'s house, especially when his older brothers and sister are at home.



**Jaime.** Jaime excels in many academic and artistic areas. As a performing musician, she plans to study music industry in college. She is reliant on her school-issued MacBook:

I don't think I could live without a computer. Everything's dependent on technology, whether we want it to be or not. If I don't have a laptop, I can't get my assignments done, for example, or listen to new music. So I use my computer to do work and to listen to music and, you know, have fun. (I-SAS6, p. 4.)

As a 4-year member of concert band, Jaime plays baritone saxophone and tuba with high proficiency. Jaime likes to sing and recently took a vocal role in the spring musical. By serving on the theater technical crew and performing at coffee house events, Jaime involves herself in the school's musical life.

After a difficult start to high school due to her rebellious nature, Jaime now holds leadership roles in three honor societies and carries a rigorous academic course load. Jaime claims that music involvement helped her gain confidence, focus, and self-identity. When I asked Jaime about responding to music, she explained:

If a song comes on with powerful lyrics, I'll still be jamming, whether I'm in public or not, that's just the kind of person I am. Like, I'll sit there and rock out to my own concert, while everyone's watching and can't even hear what I'm listening to. I don't care. (I-SAS2, p. 19)

Although Jaime's musical tastes seem eclectic, she prefers alternative rock, alternative R&B, raps, and beats.

**Evelyn.** With a bright personality and academic drive, Evelyn is president of the student council and a member of the varsity cheerleading squad. Evelyn chose to take Music Appreciation to fulfill the arts elective requirement and to expand her musical knowledge. With a dance background, Evelyn helps create the cheerleaders' choreography, yet she does not sing or play instruments. Evelyn did not have a smartphone or Internet access at home until her senior year. When I asked how she would feel today without a phone, Evelyn replied, "Oh my God, I would, like, die!" (I-SAS2, p. 7). Evelyn prefers to listen to country music, while her twin brother prefers hard metal rock and roll music. "Music is just something that plays all the time," Evelyn confided. "It's something I put on in the morning, it's something I put on when I'm doing homework, I would say, the majority of the time it plays out of my phone" (I-SAS7, p. 15).

**Alexio.** Alexio, known to teachers and classmates as "Alex," is musically talented. Alex sings, writes his own songs and raps, acts, and plays guitar, ukulele, trombone, trumpet, and the *cajon*, a Peruvian traditional drum. Alex's mother and father emigrated from Peru to the United States before he was born.

At home, Alex's family members speak Spanish and listen to Spanish language pop music, traditional salsa music, as well as popular English-language music.

Alex discloses his passion for music and singing:

Music definitely gave me a reason to, like, want something for myself. I remember going into chorus my sophomore year, as I had no idea what I was going to do with my life. I didn't care. But then I took Mrs. Price's chorus class and I just got hooked on it. (I-SAS2, p. 24)

Alex plans to audition for college music school and dreams of becoming a music teacher or a performing musician. Mostly, Alex likes to sing jazz, but his listening preferences range from jazz to rock, to R&B and rap. Alex sings in the choir and plays saxophone in Honors Band. Because Alex desired to gain musical experience, Mrs. Price created an internship position for him in the Music Appreciation class. In this capacity, Alex assists Mrs. Price and other students with simple administrative tasks, for example, passing out papers, tidying the music room, preparing digital music files, and mentoring peers. Essentially, Alex attends three music classes per day during school.

### **Observation of Music Appreciation Class**

When I observed the Music Appreciation class, a relaxed atmosphere prevailed as students entered the large, multipurpose music room. The music room hummed with activity. Built in the late 1960s, the music room once

epitomized performing arts education design with its tiered flooring and cinderblock walls. Today, the music room serves as the school's only designated performing arts instruction area. The large room appeared somewhat cramped with music gear. Rows of instrument storage cabinets lined the back walls. Instruments, cases, costumes, and uniforms filled every available storage unit. Band and chorus trophies adorned high shelves, and colorful banners decorated the walls. Two acoustic pianos and several digital keyboards, covered with books and papers, sat in front. A large whiteboard covered the wall. An interactive whiteboard with a ceiling-mounted projector, operated by an Apple laptop docking station, provided Internet access and image projection. A digital music recording cart with a personal computer, small audio speakers, and several peripherals sat near the docking station. Large wall-mounted amplifiers delivered rich, full sound. Because uncovered windows lined the back wall, it was not possible to view the interactive whiteboard. Other than this equipment, no other music education hardware or software served the multipurpose music room.

I first visited North Beach High School on a cold and icy Friday afternoon. Even though students seemed restless and somewhat stressed about upcoming midterm exams, they entered the music room with smiling faces, casual chatting,

and relaxed demeanor (O-CLS5, p. 1). Students carried backpacks, sports gear, and various other high school trappings. Dressed in comfortable clothes, some students wore sports jerseys, some wore short sleeve T-shirts, and others donned high school sweatshirts and colorful scarves. Seventeen students comprise the Music Appreciation class: four freshmen, five sophomores, four juniors, and four seniors. According to Elinor, the students represented a diverse range of written music and performance abilities. The students sat at tablet desks, so they had a place to put their laptops. After the students settled, they took out their laptops and logged onto the school network.

In the second quarter, the class studied Baroque, Classical, and Romantic music. The Music Appreciation curriculum incorporated music notation basics and relevant terminology contextually presented in a survey of Western Music. To begin the session, Elinor asked the students to log onto Edmodo, a free, online collaboration website. Using Edmodo, teachers and students can simultaneously post and share content, take quizzes, and communicate in an online environment. Elinor challenged students to reflect upon how the radio affected people's music listening habits over the last 100 years. Observing the classroom activity, I noticed Elinor prepared an activity for the students that challenged

their thinking about a historical, technological transformation—the evolution of radio.

**Teaching with technology.** As the students dutifully logged onto Edmodo, the ensuing conversation, excerpted below, seemed more revealing than the process of typing their answers:

Mrs. Price: Okay, here you are. Edmodo question today: How do you think the development of the radio changed people's everyday lives when it was popular in the '30s? What kind of role does it play in your life today? Like, do you actually sit and listen to the radio? Where do you hear it? What do you listen to while you're listening to the radio? Take a couple minutes... answer that question.

[Students log onto Edmodo to type in their answers]

Student 1: Does Pandora count? [Pandora is an online radio service]

Mrs. Price: Why don't you write that in your response? The specific type of radio that you use, not the general populous radio...

Student 2: It makes car rides better—

Mrs. Price: Do you listen to Pandora in the car? Write about that...

Student 3: I mean, some of the new cars have Pandora—

Student 4: On the way to school I listen to trap music. ['Trap' music is genre of electronic hip-hop]

Mrs. Price: On the radio?

Student 4: Yeah, Hot 97 [identifying Hot 97 as a radio station]

Mrs. Price: Yes, I was going to ask, is there a radio station for that?

Student 4: Like trap music, or do you mean club music? (O-CLS5, p. 2)

Elinor acknowledged the students' input and attempted to guide their references to answer the given question. After about three minutes, the students completed their answers in Edmodo and Elinor called for a group discussion:

Mrs. Price: Alright, so tell me about it. Let's start the first half of this question. So, how do you think the radio impacted people's lives in the '30s? Tell me about that.

Student 2: It made car rides better.

Mrs. Price: It made car rides better? Well, cars were just becoming a thing, though, in the '30s. Not too many people had cars yet.

Student 1: It's a form of entertainment.

Mrs. Price: What did you say? A form of entertainment? Brought people together by music, because, did everyone have one, like, on their body at all times?

Student 1: No, it was like the block had one and that was the spot.

Student 4: It was how they got most of their information.

Mrs. Price: It's how they got most of their information? Okay, so it was a more immediate source of news than the paper. So, David said it was a source of entertainment. What else did they do for fun? Did they really have TVs back then, did they have video games? Cellphones? Play 'Candy Crush' by candlelight?

Student 3: Trivia Crack? (all laugh) [Trivia Crack is a single-player smartphone quick play game] (O-CLS5, p. 2)

The verbal interchange engaged the students' thought processes about their radio listening habits. Again, Elinor engaged with students through their current entertainment experiences, referencing popular video games and wearable, portable media devices. Sharing between teacher and classmates revealed elements of students' digital consumption. Students discussed familiarity with Pandora, specialized radio stations, trap music genre, and music as a form of entertainment.

**Conventional teaching materials.** As the lesson progressed, Elinor instructed students to take out their music packets. The music packets, compiled by Elinor, contained resource materials for class use. Elinor preferred to create her own learning materials and not follow a Music Appreciation textbook. Students had access to reference materials at any time, including digital or paper resources. Elinor guided the students to turn to page 24 in the packet, which was information about the composer Franz Schubert. To facilitate discussion, Elinor called for volunteers to read Schubert's biographical information aloud. Several students eagerly raised their hands. As one student read aloud, the others followed along. From my vantage point in the room, I observed students actively



engaging in listening while others seemed to engage in a variety of online pursuits.

Even though the discussion seemed lively and focused, some students played with their laptops during the discussion. Some were creating PowerPoint presentations, some were blogging, and most had their fingers on the keyboards and eyes on the screens. The behavior seemed as if they needed to touch and interact with the laptops, even though the teacher did not instruct students to take notes. Elinor did not seem distracted or disturbed by the behavior, and kept the conversation and lesson moving forward.

**Retelling a classic story.** In the next lesson segment, Elinor introduced a Schubert *lied* (a German song form originating in the 18th century), “Die Erbkönig.” A quiet hush came over the room as Elinor told the story of “Die Erbkönig.” Because Elinor is an enchanting storyteller, students paid close attention to the ballad of a spooky supernatural creature chasing a father and his son on a frantic midnight ride. Elinor told the story with a backdrop of lyrics projected on the interactive whiteboard. The students’ eyes followed while reading the projected words:

Mrs. Price: So we’re going to talk a little about a piece by Schubert today. He wrote a lot of German ‘lieder,’ which are just art songs. They are poems set to music, and we’re going to talk about one particular song

today called “Die Erlkönig,” which in German is “The Elf King.” So, Goethe wrote the poem, and then Schubert took it and set it for piano, and it’s only one person who sings this whole thing, but he’s actually singing it as four different people. So, we’ll read the English part of this, and then label which part is which. It starts off—‘Who rides so late in the night and wind, it’s the father with his child. He has the boy well in his arms, he holds him safely, he keeps him warm.’ So who is speaking at this point?

Student 1: ...The narrator?

Mrs. Price: The narrator! So, that’s first. Next step, we have ‘My son, why do you hide your face so anxiously? Father, do you not see the Elf King with the crown and tail?’ So, the first line—‘My son, why do you hide your face so anxiously?’ Who is that going to be?

Student 2: ...A father? –

Mrs. Price: The father... And then, the next line, ‘Father, do you not see the Elf King? The Elf King with the crown and tail?’ Who’s that?

Student 3: The son.

Mrs. Price: The son. So, we have the narrator, the father, and the son. Now, I’m sure you could take a lovely educated guess at the next one. ‘You lovely child, come, go with me, many a beautiful game I’ll play with you, many colorful flowers are on the shore, my mother has many golden robes,’ because that’s really important to a kid.

Students: (laughing)

Student 2: ...His sister?

Student 3: Nice going, man.

Mrs. Price: So, the title of the piece is called ‘The Elf King,’ this is our Elf King here. The Elf King is going to get pretty creepy, really soon...

Student 3: I could be an Elf King!

Mrs. Price: I think you're a little too tall to be an Elf King... (O-CLS5, p. 5)

The observation of students' engagement with the teacher and learning content centered on practical elements of effective instruction. First, the story itself appealed to the students. Secondly, Elinor's presentation demonstrated her mastery of storytelling technique.

There was some usage of instructional technology with the projection of lyrics onto the interactive whiteboard. Elinor continued to the climax of the ballad:

Mrs. Price: Elf King's pulling out all the stops now. 'I love you, your beautiful form entices me, and if you're not willing, I'm going to take you by force!' And now the kid says, 'My father, my father, he's grabbing me now, the Elf King has done me harm! Narrator, last paragraph, —Father shudders, he swiftly rides on. He holds the mourning child in his arms, he's hardly able to reach the farm, in his arms—the child is dead.

Student 2: Wow!

Mrs. Price: That escalated quickly, right?

Student 3: Yeah!

Mrs. Price: So, pretty dramatic? So, Schubert tried to make the music reflect the words going on in the poem. Initially, it was trying to create a lot of tension by using the repetitive horse thing over and over [sings the motive], and then the Elf King comes in, the Elf King is trying to make himself not to be so scary, so he uses music that sounds more pleasing. It changes back and forth, the

more tension that's building in the poem, the more tension builds in the music. So, there's a little bit about Schubert.

Student 4: He's my guy! (O-CLS5, p. 6)

After the students read the poem of the "Elf King," Mrs. Price discussed the musical content of the lied. The students listened to a recording of "Die Erlkönig," sung in German language. Even though Elinor played an animated video of the German song, I noticed the students' interest fading as they turned their attention to their laptops.

As the class continued, Mrs. Price led the students through the music packet, moving into the music of Wagner. At this point, the students listened to "Ride of the Valkyries," or the prelude to Act III of Wagner's opera *Die Walküre*. The powerful amplifiers delivered a loud, crisp, and clear sound. Students recognized the music from its context in popular culture. Even though Elinor instructed the students to listen to the music, students continued to engage in various online activities while listening. The students' laptop engagement did not seem to support the listening experience. It appeared that the students enjoyed manipulating the laptops, seeking random content, or completing homework for another class. After listening to "Ride of the Valkyries," Mrs. Price facilitated a conversation about the piece. Most students recognized the piece, whether they had heard it as background for a commercial, a film, or a video

game. Elinor emphasized that “Ride of the Valkyries” represented an icon of Romantic music, and that Wagner, as a composer, expanded the limits of Romantic composition to express that music’s depth, breadth, and creative value.

**Old dead white guys.** Because the first semester was concluding, Elinor planned a midterm exam. The exam format consisted of a project-based assessment. This type of assessment engages students in problem-solving, decision making, or investigative activities. The students’ task was to create a presentation involving a piece of music or composer from the Baroque, Classical, or Romantic eras. To distribute this information, Mrs. Price posted a “choice board,” which is a document with instructions and categories for the possible number of points to be earned by each project. Project examples included: reporting about a composer by posting to Twitter, a popular microblogging platform; writing a journal of three or four blogs about a composer; creating a travel brochure about the composer’s homeland; creating a “fake” Facebook or Instagram profile for the composer, the composer’s peers, and historical period. For three points, students could re-imagine and remix any of the musical pieces they listened to throughout the unit, write a rap about the composer, the composer’s major work, or a musical idea presented in the unit. To represent the

presentation visually, students could create a “ThingLink,” which is a collection of data and content about the composer on a web page.

Students were given the option to choose their project formats. Because some projects contained more detail, project grades received different weights. It would be possible for a student to choose two smaller projects and combine them, or work with a friend. A student could also choose to work independently on a larger, more complex project.

In the last portion of class, Mrs. Price instructed the students to either submit their final projects or present them to the class. Mrs. Price and I had previously discussed that most students opted for a low-tech version of the project. Elinor believed that it took the students less time and effort to make a poster or to write a conventional paper than to create a digital presentation. Yet, the students choosing to create an individual and highly expressive project demonstrated pride and effort when they presented their projects in class that afternoon, as evidenced by the reactions and support of their classmates.

A rush of activity ensued as students hurried to submit files, or in some cases, attempt to finalize the project itself. Students focused on their laptops, doing something with creative content. Jaime was the first to present her project. She chose to create an imaginary Twitter account for the classical composer

Scarlatti. To submit the files to Elinor, Jaime uploaded screenshots as .jpgs, a common digital image format, to Edmodo. The next student to present was Evelyn. Careful, neat, and organized in her academic endeavors, Evelyn created a biography of J.S. Bach in a PowerPoint slideshow. She shared the slideshow with Elinor and with her classmates through Edmodo. Many students chose to combine classical music with GarageBand beats. Some students seemed quite pleased and proud to play their compositions for the class, as they described the process of combining the classical music file with the GarageBand prerecorded beat tracks. For example, after T.J. played his "Ride of the Valkyries" beat remix in class, Jaime commented, "That was fresh, I'm not gonna lie!" (O-CLS5, p. 14). Elinor introduced GarageBand in the first semester of the class, so students had some exposure to the software. Many students continued to explore the music production program on their own when they took the laptops home. One of the most intriguing pieces was T.J.'s trap beat version of "Ride of the Valkyries." It was powerful, modern, and intricately produced.

Even though Elinor carefully planned and taught the lesson, not all students were successful with their midterm choice board projects. Some students did not finish the project. Others failed to start. Some students showed little effort, creativity, or motivation in the midterm assessment. Elinor

encouraged the struggling students, as well as clearly stating the consequences for not completing the work:

Mrs. Price: This is the test grade for the unit. Come on, let's go! Two points out of six. I would appreciate it if you had something to turn into me in 5 minutes and 30 seconds, after we have been working on the unit for 2 weeks... in the next 5 minutes... so, come on. You told me you were going to have stuff done, don't lie to me... If you're looking for the templates, they're in folders. Social media folders over here... Instagram, Facebook... (pause) You've had two weeks to do this, man!

Student 1: Okay. I'm going to make an Instagram and a Twitter, and I'm done.

Mrs. Price: So, go to our class page on Edmodo and then click on folders, and then click on social media templates.

Student 2: "Wagner"?

Mrs. Price: 'Vaghner,' people. You're saying it so American... well, we're going to start looking at people's projects

Student 1: These are medieval people, right?

Mrs. Price: Nope.

Student 1: Renaissance?

Mrs. Price: Nope. Baroque, Classical, Romantic... Not the same thing. We've been... we just spend 10 weeks on this...

Student 1: 10 weeks?

Mrs. Price: We spent the whole marking period on 'Old Dead White Guys.' (O-CLS5, p. 12)



All study participants chose to present a technical web based project. For example, Jaime created a fake Facebook page for Scarlatti and Bach. T.J. and Alex produced rap versions of classical pieces. Evelyn presented a ThingLink, a web based multimedia presentation, in the report file format. As the class concluded, I observed that not all students completed the assessment, and delivered varying projects in terms of quality and final product.

### **Elinor's Reflections**

Elinor, a resourceful and creative teacher, made use of the teaching tools at her command to deliver a relevant and engaging lesson. When Elinor researched, organized, presented, and re-taught the lesson, she believed she was incorporating purposeful technology tasks to understand and re-imagine historical music content. The lesson design offered students a choice to demonstrate their knowledge. When questioned about her response to underperforming students and in-class distractions, Elinor replied:

It's frustrating! But honestly, it comes down to the fact that that's going to be their grade. I'm not going to sit there and fight with them. Am I really going to go over there and shut their computers down for them and say "You need to learn this." No, this is a decision they're going to have to make about their education. (I-EOP8, p. 8)

Even though Elinor was not alarmed by her students' dependence on handheld devices, she stressed personal accountability for the students during instructional time. Elinor encouraged the students to explore and create, but firmly stated that students needed to self-monitor.

After the class, Elinor explained her views about students and smartphones in school:

You're going to get the grades you're going to get and if you can get good grades and still be on your phone all the time—God bless you. You know, like, go for it – knock yourself out. But, if this is going to be a huge distraction for you, like if playing games is going to distract you from the midterm or reviewing for the midterm then... this is obviously where we're having an issue. (I-EOP8, p. 17)

### **Summary of Music Practices at North Beach High School**

Elinor Price is aware of her students' musical behaviors and practices as they consume and produce music in her classroom, and for those students with whom she has a closer relationship and has some knowledge of their out of school musical lives. Elinor is a music teacher who "does it all" and, at times, feels overworked and overwhelmed. Factors influencing Elinor's awareness of students' digital music engagement include students' use of MacBooks and social media sites during school hours.

With its close-knit and resilient community, and dedicated music instructor, students and teacher discovered ways to work and communicate using common digital devices and Internet resources. Yet, the presence of digital devices in the classroom and a highly trained teacher cannot guarantee instructional effectiveness. In Elinor's case, she pursues new ways to facilitate students' connections to the wider range of musical experiences.

Although Elinor continues refining and developing digital music media in the performing arts curriculum, administrative hurdles exist around video, digital media, and music curriculum. Elinor pushes to experiment with interdisciplinary projects even though she feels conflicted about the availability of specific digital media hardware and software for her programs. For a small high school, a wide range of musical interests exists among students. Elinor's best students are selective, idealistic, and strive to do their best, yet she must also assist and mentor low-achieving students in the same class.

Perhaps Elinor's greatest accomplishment in effective digital music media instruction is realizing that music plays a huge individualistic role in the students' lives. She strives to make music instruction relevant, and that means she must take into account students' digital interactions. Students expressed a high awareness of how popular culture permeated their lives. In Chapter 5 of

this document, I examine behaviors and practices among the participants as they consume, share, and produce music via digital media in their out of school lives.

## Chapter 5: Student Participant Perspectives

The purpose of this chapter is to present the student participants' perspectives of learning music in formal and informal environments. I used Mayer's cognitive theory of multimedia learning (2002) to guide my interpretation of the student participants' preferences, influences, and feelings about learning music via digitized audio and visual content. Furthermore, Carlisle's (2011) research supported my understanding of how the individual participants acquired knowledge via digital media interaction and completed musical tasks online with help from their more experienced peers. Social constructivism provided me with a guideline to the autonomous and transparent digital music exchanges among the adolescents. Following Dewey's (2005) theory that sharing music leads to a transformational experience, I began to see patterns in the participants' changing perceptions of digital music.

To explore issues dealing with emerging themes, I offer rich detail of each case to provide the reader insight into raw data (Orcher, 2005). In the first part of this chapter, I present digital music practices and viewpoints of the four high school participants I introduced in Chapter 4: Evelyn, T.J., Alexio, and Jaime. In the second part of this chapter, I compare and contrast the participants'

connections between in school and out of school musical engagement, summarizing their common themes and differing viewpoints.

#### **Four Unique Student Perspectives**

When I first met Evelyn, T.J., Alex, and Jaime at the local Dunkin' Donuts, Evelyn explained that, in the context of everyday life, this coffee shop was a place that the classmates would normally meet to socialize. "Finding a place to hang out is a problem" (I-SAS2, p. 4), she explained. T.J. agreed, "Yes, finding a place to meet is problematic" (I-SAS2, p. 4). Even though the social, environmental, and economic factors of living in North Beach influenced students' musical lives, each participant presented a highly individualized musical persona. During the interviews and observations, the student participants exhibited unique music identities, yet were highly aware of each other's musical preferences and practices.

**Evelyn's ultimate icebreaker.** Evelyn, an inquisitive and friendly young woman, spoke openly about how music played a role in her life. I wanted to know how Evelyn discovered and shared music via social media. Evelyn explained, "We [the students] pretty much talk on Facebook Messenger every day. Actually I think it's anything technology wise, we talk about it exactly the same" (I-SAS2, p. 15).

By describing her daily music consumption practices, Evelyn indicated the importance of music playing in the background of her daily activities. Evelyn told me, “I feel like music is something that’s always playing. It’s just something that goes on throughout my life” (I-SAF7, p. 15). Evelyn expressed a strong attachment to her smartphone: “I would feel *lost* without it [italics indicate participant emphasis]” (I-SAF7, p. 4), she exclaimed. When I asked her about listening to music every day, Evelyn explained how she manages listening to music across multiple digital devices:

I use the Mac [school-issued laptop], my phone, and I have an iPad. That’s basically the three things I mainly use. I have an iPhone and I feel like, you get an iPhone, and you have music... I would say, the majority of the time music plays out of my phone. With speaker. Yep, I like it right next to me. It’s so much easier to listen to music and to get music on your iPhone. (I-SAF7, p. 4)

Evelyn confirmed that she enjoyed the immediacy of listening through her iPhone.

When I asked Evelyn about her out of school music activities, she explained that she did not play a musical instrument or sing for enjoyment or personal expression. “I don’t take music lessons. If you consider cheerleading musical, but other than that, not really” (I-SAS2, p. 4). Creating choreography with the cheerleaders seemed to be among Evelyn’s means of musical self-

expression. "That eight-count is sort of like a thing," Evelyn explained.

"[Cheerleader] choreography is a mutual thing where we all give our own little part" (I-SAS2, p. 4).

When asked about her music listening habits, Evelyn expressed that her personal music preferences seemed different from her friends. "I feel I'm surrounded by people that have different [musical] tastes than I do. Definitely" (I-SAS7, p. 12). Evelyn described several school friends as emerging rap artists. She knew of students endeavoring to write and record their own raps. "In our town," Evelyn confided, "there's just a lot of people that, like, wanna be rappers" (I-SAS2, p. 7). Evelyn is not a rap music fan; she listens mostly to country music.

Evelyn is sociable and outgoing among her friends in the participant group, yet there were periods when I observed her retreating into her own listening space by using her iPhone with headphones (O-SAF4). When she was not engaged in conversation, the other student participants accepted that she chose to listen with headphones as the conversation ensued. When I asked Evelyn what it felt like to listen to music as the other participants conversed, she described her experience:

I feel like your music just becomes more personal, just when you put headphones in, rather than just playing out loud ... but that's just me. I'm more comfortable where I am listening to something I



know. So, if I am somewhere where I'm not really comfortable, I think it makes me more comfortable when I'm listening to something I'm used to. (I-SAF2, p. 18)

Evelyn felt as if her social life centered on talking about music and listening to music. She spoke about the communicative nature of popular music: "I think music's kind of like the ultimate icebreaker, like, 'oh, you know this song, I know that song, too,' so it always gives you an excuse to talk to someone" (I-SAF7, p. 17).

Evelyn told me that many of her friends described themselves as self-taught musicians. When I asked her about musical sharing, Evelyn's expressions about sharing music in social settings reflected a distinctly social perspective of music production. Although Evelyn exhibited personalized music consumption within her own listening space (O-SAF4), she acknowledged that sharing music in social settings was an important way to bond with others. Going to a live music concert, for example, was something she highly valued. "I feel like everyone should go to an Eminem concert, at least one time" (I-SAS2, p. 9). Overall, Evelyn's musical preferences and influences in digital music consumption and production transcended her experiences in the music classroom.

**T.J.'s family influence.** Charismatic and personable, T.J. willingly offered his views and opinions about his musical interactions in school and out of school. T.J. enjoyed talking about music, as evidenced by the specificity of his interview responses. Listening to music played a significant role in T.J.'s out of school musical experience.

When I was a freshman, I always listened to R&B, but I never really liked a particular artist. So, when I first listened to alternative R&B, it really made me curious. The first time I heard 'The Weeknd' [recording artist], it was like an interesting experience and, as time went on, I heard Frank Ocean [recording artist] and other similar artists, and alternative R&B kind of came over me. (I-SAS2, p. 20)

Listening primarily to alternative R&B genre, T.J. told me, "If it's a song that I like, I'll probably listen to the entire thing." T.J. continued, "If it's a song that a friend showed me, and I don't really know, then I don't want to waste my time" (I-SAS2, p. 19). T.J. described how he and his peers discovered popular alternative R&B artists and trends:

Sometimes you can post a link, like from Facebook, and sometimes it will show the actual song, so you immediately know where it's from, who it's by, and sometimes it might show the link so you go right to the link. Or we have, like, these newsfeeds, and they'll say something on the top right. It will take you to what's extremely recent. It'll tell you what recently came out. (I-SAS7, p. 3)

Overall, T.J. valued the experience of listening to new artists and popular songs.

Many of his digital devices, including smartphone and laptop, included

programs such as Spotify and SoundCloud to search for new music (O-SAF3, O-SAF4).

T.J.'s older brother and sister, who work in the music industry, influenced his out of school musicking in many ways. For example, T.J. had access to his older brother's professional DJ equipment at home. T.J. often experimented with the audio equipment by creating his own beats and raps. "My brother has a mixer and synthesizer. My brother likes to make beats, and I do, too" (I-SAS, p. 3). Like Evelyn, T.J. did not consider himself a performing musician; however, he appreciated the creative expression of recording and mixing music using digital devices. "I don't play instruments now, but I know my way around music. My parents and my brother are involved in production a lot. Besides that, I like singing, but I only do it... recreationally" (I-SAS, p. 3).

Rarely did I observe T.J. without a digital device in his hand. During each interview and observation, he constantly manipulated his smartphone or laptop keyboard (I-SAS2, O-SAF3, O-SAF4, O-CLS5). For T.J., the handheld devices seemed to extend his means of non-verbal communication. When I asked how it would feel without a smartphone, T.J. described his attachment to the device. "I take *really* good care of my phone," he laughed nervously. "It broke once and I had to get a new one. Now I can't be without it, so I take really, *really* good care

of my phone, you have *no* idea...” (I-SAS2, p. 7). Just as Evelyn expressed the seamless transition between conversational talking and text messaging, T.J. indicated similar expectations about the immediacy of text message communications via devices. “If you’re in the chat, you message each other—you basically talk to each other all day” (I-SAS7, p. 2).

Ongoing interaction with digital devices seemed a part of T.J.’s daily routine (O-SAF3, O-SAF4, O-CLS5). T.J. expressed competency at manipulating laptop software, yet, at times, seemed distracted by or overly attentive to images placed before him. For instance, when he was not actively participating in Music Appreciation class, his eyes focused primarily on his laptop screen, and his fingers manipulated the keyboard seemingly without purpose (O-CLS5). Yet, when I questioned him about his aptitude with digital devices, he seemed relaxed and comfortable with the way he used his smartphone. “We use it [smartphone] as more like a source of entertainment, because like, when you’re like, away from like your laptop... your phone really comes in handy” (I-SAS7, p. 3).

At home, T.J. makes his own music compositions, or beats. T.J. participates frequently in social media exchanges, yet chooses not to make or share his music with online peers:

I know I make beats, but I don't think I would really help somebody unless, like (pause), I don't know, like, unless I really enjoy the process, but when I was doing my project, I just, like, researched just a couple of tips and stuff. (I-SAS7, p. 11)

With a preference to make music for his personal enjoyment, T.J. exhibits strong interest in music industry, production, and the discovery of new alternate R&B artists. "I guess that what interests me is, probably that's like something that's up-and-coming" (O-SAF3, p. 9).

**Jaime's Internet dependency.** When I first met 17-year-old Jaime, she immediately identified herself as a performing musician. Jaime described her musical involvement: "I play tuba and bari sax," she exclaimed, "and I sing all the time. I'm not in chorus but, I just always sing" (I-SAS2, p. 4). An active participant in the school's band, chorus, and theater productions, Jaime is an enthusiastic ensemble member. "I love jazz music!" Jaime exclaimed. "Like, Jazz Band makes me *so* happy! Monday, we started Jazz Band, and I was just in a great mood all day. Nothing could bring me down—we started just today!" (O-SAF4, p. 6).

During the interviews, Jaime told me that music is very important to her for several reasons. First, Jaime aspires to study music in college. Secondly, Jaime enrolled in Music Appreciation, Music Technology, and Concert Band class, in

addition to her core academic classes. During her middle school years, Jaime experienced personal hardships; however, she found confidence in music class. Jaime explained how Mrs. Price helped her through a difficult period, and music class made a difference in her life:

In eighth grade, I went through a rough patch. I had some issues, but I've improved myself since. When I got into high school, Mrs. Price helped me improve my behavior. It's going to sound really corny, but every time I had a good day, she gave me a sticker. I don't know what it was, but I would just behave for that sticker. It worked – I improved myself. I improved my attitude, I used to hate going to school, but now I'm the president of three activities. I live at school more than at home. (I-SAS2, p. 24)

Today, peers admire Jaime's leadership, especially in extracurricular activities involving music (O-SAF9). Jaime and Mrs. Price share a close relationship fostered by the school's music program (I-SAF2, O-CLS5, I-SAS6).

Jaime relies on her school-issued MacBook as a primary digital device for discovering and listening to music. With no other personal computer at home, Jaime feels she can live without her smartphone, but not her MacBook.

"Everything's dependent on technology whether we want it to be or not. I don't think I could live without my computer," she explained. "I can't listen to new music without it, you know. So I use my computer to do my work and to listen to music and to have fun" (I-SAS6, p. 3). Jaime described the way she listened to

music through her laptop: "It's like, so normal to me. I'm always listening to music. Like, you just walked in and I had my headphones on my head. I'm just always listening to music. I even listened to music while I took my music exams" (I-SAS6, p. 4).

Out of all the participants in the study, Jaime seemed to create the strongest connections between her in school musicking and out of school music endeavors. Perhaps because most of Jaime's experiences stemmed from her school music participation, such as Jazz Band and Music Technology class. Whether playing school-supplied instruments, or creating beats using GarageBand on a school-supplied laptop, Jaime utilized musical tools and training offered to her through her public school.

When I inquired about ways in which Jaime used the MacBook to discover new popular music artists, she described her process:

I usually find new music on my own, and then I usually show my friends, or they'll show me what they've found. We'll be hanging out and I'd be like "Oh, did you hear this song?" and they'd be like "No." Then I'd be like "Oh, I've got to show you," and then I'll, you know, pull it up on YouTube, and I'll be like "Just listen to the words." (I-SAS6, p. 3)

Jaime's statement suggests she inherently understood that her peers would be able to share with her via digital devices with Internet access, and that the music

source would be immediately available once posted. Like T.J., Jaime seemed to move through her day with an expectation of immediate information transmission, as she frequently accessed the Internet via laptop and smartphone (O-SAF3, O-SAF4, O-CLS5).

As a performing musician, Jaime described the ways in which she used a smartphone, laptop, and social media to record and produce music. Unlike Evelyn and T.J., Jaime chose to share her music with others online. In Band class, Jaime used her smartphone to record her practice: “I record myself on my phone. I’ll take Snapchat videos” (I-SAS6, p. 9). Snapchat is a mobile app allowing users to record and share up to 10 seconds of video. Jaime demonstrated a YouTube video of her recent coffee house performance at school, which she shared on her Snapchat story (I-SAS6, p. 9).

In addition to recording herself playing concert band instruments, Jaime composed her own beats, which she described as “songs with no lyrics” (I-SAS6, p. 9), using GarageBand. Seemingly proud of her accomplishments, Jaime described how she explored GarageBand in her after school hours:

I’ve experimented how different things will sound together. It takes me a while to do my [Garage Band] projects because I have to make sure things go together... Whereas non-musicians kind of will throw things together and not really realize that it doesn’t go together. (I-SAS6, p. 6)



Overall, Jaime exhibited technical fluidity and musicianship throughout her school day and out of school activities.

Jaime seemed confident in her GarageBand fluency. "I'm up there, proficient. I obviously have areas I need to improve, but since I've taken the Music Technology course, I've definitely improved" (I-SAS6, p. 6). This is because Jaime uses her MacBook to teach herself the software programs. "I make things [in GarageBand] for fun. Like, I'll just put beats together, or, like, I'll speak over [the beat]...I just record myself talking and then... I can change how the vocal sounds" (I-SAS6, p. 7).

Even though the technical skill set and digital devices connected her to music preferences throughout the day, Jaime clearly felt that her school music activities and her out of school musical endeavors possessed separate qualities and meanings. When I asked her if she saw any relationship to her preferences for alternate R&B and school Jazz Band, she replied, "There's not really a connection there" (I-SAS6, p. 16).

**Alex's musical ADHD.** When I interviewed 17-year-old Alex, he seemed to exhibit the most independent and developed musical habits of the participants. Alex enthusiastically spoke about his musical activities: "I do a lot of music stuff. I want to be a music teacher when I get older. I also want to be a

marketer in business” (I-SAS2, p. 2). Like Jaime, Alex described himself as a young musician aspiring to study music in college. Alex sings, plays trumpet, trombone, guitar, bass, cajon, and piano. Additionally, he composes and records his own songs and raps. Not only does Alex participate in curricular music classes and the school’s extracurricular music activities, he actively pursues music out of school. For performance training, Alex relies on Mrs. Price to guide his vocal and instrumental technique. “I took [private] lessons... for about a month,” he explained, “but it got too expensive. I sometimes practice trombone after school, or I sing. The music teacher at school helps us prepare for college auditions” (I-SAS2, p. 3).

Alex described his audio recording skill as self-taught. In senior year, he chose not to take Mrs. Price’s Music Technology course, but enrolled in Concert Band, seeking an instrumental music performance experience (I-SAS7). Consequently, Mrs. Price created an intern position for Alex within the Music Appreciation class. Alex explained: “I’m the intern in [Music Appreciation] and the only reason is because I wanted to learn more about what I was going to do, what I was going to learn about when I get to college” (I-SAS2, p. 4).

Like his classmates, Alex relies constantly on his smartphone. When I asked him how he would feel without it, he replied hesitantly, “I think I could

live without my phone... but it would be very hard for me... " (I-SAS2, p. 7).

Connecting wirelessly to peers seemed to affect Alex's social status: "I feel like if I didn't have a phone, no one would talk to me. It would mess me up" (I-SAS2, p. 7). Alex regularly posts his music performances on social media websites, and shares musical ideas and opinions online and face-to-face. Like the other participants, Alex described his seamless and immediate social interchanges through text message conversations. Alex's music discovery and consumption habits seemed to flow through his everyday lifestyle. "There's friends that introduce us to new music, and if we like it or not, we'll say we like it. Sometimes, like, the songs that people show us in real life, and we say if we like it" (I-SAS2, p. 11).

Recently, Alex performed with All Shore Chorus, a highly competitive auditioned honors ensemble for high school vocalists from the Jersey Shore area. Through his participation in All Shore Chorus, Alex met like-minded students who shared his passion for advanced choral singing. When I asked Alex about his most meaningful musical experience, he emphatically replied, "It was All Shore Chorus, because I've never had that kind of music experience before in my life" (I-SAS2, p. 20). Afterwards, he reflected on the difference of participating in All Shore Chorus versus North Beach Chorus. "I've been to chorus concerts at

school before, but they're just so small, and you can't hear all of the harmonies all the time," he stated. "[All Shore Chorus] was so cool... I was so shocked at how awesome it was. I could hear all of the voices all collide at once, and then go back to our school, and not hear it all" (I-SAS2, p. 20).

In describing students' music listening experiences using digital devices, Alex offered his observation about listening habits. According to Rinsema (2012), handheld digital devices such as .mp3 players and smartphones allow users to manipulate audio files with much greater ease than any other music listening technology, thus facilitating the ability to repeat, rewind, and review portions of songs. When I asked Alex about the fragmented listening experience (Rinsema, 2012), he stated his personal reflection:

I believe there is a phenomenon called music ADHD. The people will be like, they will be listening to one song they really, really like, but they won't finish it. Then they'll change to the next song, and they won't finish that song, then they'll change to the next song, and change to the next song, and the next song. I don't do that, I'd rather listen to the whole song. (I-SAS2, p. 19)

Alex sought a linear, connected experience in his personal music listening and chose to listen to longer portions of recorded music.

Out of school, Alex recorded his music performances and posted them on YouTube. Over the past year, Alex purchased a vocal microphone and music

stand in order to use his existing school-issued laptop and smartphone as recording devices. Using a variety of digital devices to produce the best sound possible with the available equipment, Alex cared deeply about the content and quality of his recordings. Alex described how he constructed his home recording studio:

I saved up some money to buy a music stand, a pop filter, and my own microphone. I knew the school was going to give me a laptop, but I also wanted to have a computer for myself, so I bought a computer with my own money. (I-SAS7, p. 6)

With a desire to record jazz standards and self-composed raps, Alex expressed his recording methods using the equipment:

If I want to do something, I want to do something big. Like, I just don't want to get by. I know you have to start somewhere. So, what I did was start making [music] with what I had. So, the microphone I got was a USB microphone, so you just plug it into the computer and just pick up the signal for the microphone. (I-SAS7, p. 6)

Alex's friends, including the study participants, knew about Alex's performance and recording activities. To self-promote his music, Alex posted messages to his online friends via Facebook Messenger (O-SAF9). With a high comfort level for sharing his music online, and a tolerance for critique, Alex enjoyed the online conversation and feedback, whether positive or negative.

### **Hanging Out After School**

Because North Beach is a seaside town, many local shops and eateries open only during the summer season. For teenagers seeking a place to gather after school, North Beach presented few options during the winter. Evelyn, T.J., Alex, and Jaime told me that they, like most students at North Beach, liked “hanging out” at their regular after-school meeting place: Dunkin’ Donuts coffee shop. The participants and I decided to meet at Dunkin’ Donuts. I did not sit with the participants; instead, I chose a booth across the hall. I informed the participants I would be observing and audio recording their normal interactions from afar. At that point, conversations about music shifted from the formal classroom environment to an informal social setting. I observed how the participants exhibited different qualities in their musical communications in formal and informal environments.

When using their digital devices to share information about music listening preferences and choices, the participants exhibited different patterns of expression and communication, such as informal language and avatars. Operating in a distinct Internet space (Livingstone, 2008) helped students more clearly define their musical and social preferences. The participants’ spoken dialogue, combined with digital device interaction, provided evidence for new

patterns of communication. For example, the participants functioned with an understanding that their peers, whether present or not, could respond to their messages immediately (O-SAF3, O-SAF4).

There was little eye contact between the participants during the conversation, as they focused on computer monitors or phone screens. Three laptops, three smartphones, and one iPad covered the small table. Hands stayed busy, touching or manipulating the devices (O-SAF3). Background distractions emitted from several sources. Music played through the restaurant's sound system, and intermittent conversation filled the atmosphere. Yet, the students continued watching videos and listening to music selections via their laptops and smartphones without noticing the background disruption. Later, I asked Jaime to confirm if distracted listening seemed typical of her listening habits and behavior, and she responded positively: "Yeah, like we'll hang out and listen to music, and, like, I'll find, you know, music on YouTube" (I-SAS6, p. 3).

As snow fell softly outside, I observed T.J. and Jaime sharing music and videos by searching on YouTube, SoundCloud, and iTunes libraries, and sharing content with one another. Exchanging smartphones and laptops in order to manipulate the content seemed customary among the participants (O-SAF3). The conversation included details about music technique and vocabulary, as in the

following exchange between Jaime and T.J. Alex recently posted a YouTube video of his jazz singing, and Jaime wanted to share it with T.J.:

Jaime: Do you want to have a listen on Alex's cover of "Come Fly With Me"?

T.J.: Sure.

[Jaime and T.J. watch Alex's music video on Jaime's laptop, listening through the laptop's speaker]

Jaime: By no means do I think it sounds bad, I just think there's other songs that suit his voice a lot better.

T.J.: Yeah, I agree. He doesn't seem to really have a wide vocal range, which is hard to develop but... a song that keeps a more consistent way of singing would suit him better.

Jaime: There is... a certain style, he's not really hitting. Like, when it comes to jazz, ... when we play eighth notes, — it's 'long-short' you know, like, a little different and you could just, you know... he's not really singing it in that jazz style. But I don't think it sounds that bad, it's just, like, the style matters...

[Jaime and T.J. listen to more music on the laptop]

Jaime: So, overall, I thought it was pretty good! I thought it was especially good because of the fact that... in [North Beach] chorus they don't perform jazz pieces and he's in All Shore [Chorus]. So, like, he hasn't really performed jazz, so, you know, keeping that in mind... but his transitions from like, high to low, like, I mean, I'm sure he's worked on it. (O-SAF2, p. 6-7)



As Jaime and T.J. watched the video, they remained focused on their intimate, personal space. The students engaged in an intense, personal conversation about music, technology, and entertainment media (O-SAF3).

In an earlier interview, Evelyn, T.J., and Alex told me about several rap artists living in North Beach whom they described as “Internet-famous,” an informal term broadly describing one’s notoriety gained through social media fame as opposed to conventional media promotion (Choi & Berger, 2010). The North Beach rappers included several former classmates and acquaintances of the participants who achieved local fame through rap music. When I observed the participants talking about and listening to the North Beach rappers, their conversation and musical interest heightened because of the shared personal connection to the rappers’ music and lives (O-SAF4, I-SAS7, p. 19). Evelyn, T.J., Jaime, and Alex followed the rap recordings of Joey B., an aspiring North Beach rapper who seemed to be achieving Internet fame. The students shared their comments about Joey B.’s recent recordings:

Jaime: Oh! Let’s listen to Joey B. We gotta wait for YouTube to decide it wants to work.

[Jaime, T.J., and Evelyn listen to Joey B., watching the screen and laughing, with amazement]

Evelyn: I never heard this! Oh my God, I never heard this!

Jaime: He was in [school] band, so, who knows. Wait, listen to this part, hold on [turns up the sound on her laptop. Audible clicks].

Evelyn: In our town, there's just a lot of people that, like, wanna be rappers.

T.J.: And just like rap, and that's it.

Jaime: Truth, I think he's good, to be completely honest.

T.J.: Yeah! [listening]

Evelyn: Is Nardi on here? [Nardi is another North Beach rapper]

Jaime: Oh, Nardi does Montana of 300.

Evelyn: ...and he includes Sister Faye!

Jaime: Yeah!

Jaime: One second... [Jaime searches on the Internet]

Evelyn: Did he put it on YouTube?

Jaime (searching the Internet): ...maybe it's on SoundCloud. He's pretty lyrically too, but that guy, Joey B., like, he talks about stuff that has happened to him, because... he got locked up for selling drugs in school, so he's saying how that got him in a – bad situation, basically.

T.J.: Really, he had a good story to tell. (O-SAF4, p. 7-9)

Throughout the observations, students gravitated to music discovering and listening activities aligned with their interests in popular culture and, particularly, the musical postings of classmates (Alex and Jaime), and local rap

artists with whom they felt connection (Joey B., Nardi) (O-SAF3, O-SAF4, O-SAF9).

Rap and pop lyrics held a great meaning to the participants. Jaime and Evelyn especially expressed the importance of lyrics in listening to pop and rap (I-SAS6, I-SAS2). Overall, the participants' musical influences and feelings about ways to share music in informal spaces, whether digitally mediated or face to face, incorporated Internet-mediated communications.

### **Assignments in Music Appreciation Class**

In Chapter 4, I gave details of Mrs. Price administering the project-based compositional assignment for Music Appreciation class. Following now are the students' viewpoints on completing the assignment. I asked T.J., Jaime, and Evelyn to share their thoughts and feelings about the midterm assignment. Alex was not responsible for completing the midterm assignment because he was not registered for the class; however, he offered his thoughts about helping the other students understand the assignment:

Since I'm the intern in the class, I know. It was for the students to listen to the tempo, to see how fast the song is - to understand, is that *andante* or is it *piano*? Is it higher - is it lower? What kind of melody is it, what is the tone of his voice? What is he saying? What's the story behind the song? (I-SAS2, p. 22)

For the Music Appreciation class mid-semester project, T.J. was one of four students who chose to submit a digital composition. To do so, T.J. chose to use his brother's DJ mixing software rather than GarageBand. When T.J. wanted to create a bricolage composition combining Wagner's "Ride of the Valkyries" with a hip-hop beat, he considered the digital devices available to him. T.J. had access to not only the DJ equipment, but also to his home PC and the school-issued laptop. He described how he made the recording:

I actually used FruityLoops. ...My sister has this disk that you link and dupe. If you have like, a Mac laptop, you can switch to the Windows side of the computer, so I went to do that and I downloaded FruityLoops.... And, I just figured out like, what like song from that era I wanted to do, and I took that one ["Ride of the Valkyries"] because I guess it kind of sounded like, kind of like dark and mysterious. I just figured 'What can I make out of this?' I sampled out of GarageBand. It just means you take a piece and alter into the actual beats you want to make. So I started actually like, a while before the project, so that is probably why it came out so well. I just sampled it and then I figured out what I wanted to do. (I-SAS7, p. 9)

T.J. admitted that finalizing the composition took more time than he originally envisioned, but he seemed pleased with the results. When he played the final project in class, the sound impressed his classmates as observed by his classmates' reactions. T.J. acknowledged the extra effort of his recording project:

She [Mrs. Price] probably suspects I couldn't do all that with just GarageBand. She probably knew. It took me like, the first day, just to

actually get the process in, and how the music just together like ready to start, it took me three hours. And then, the next time I actually like worked on the beat, because I had to, like, alter it, because it's from 200 years ago, so I had to alter it so it sounded like it flowed from this time. I had to leave out certain audio parts and stuff to make it sound good and, like, clean up like the bad audio. It took, like, another three hours. (I-SAS7, p. 9)

Through the recording process, T.J. explored the use of a variety of recording software, and thus learned recording techniques.

Evelyn's reflection on the Music Appreciation class project seemed to inspire her music knowledge, yet, unlike T.J., she took an academic approach to fulfill the project, but not explore further. She described her experience:

We've made beats in the Music Appreciation class. Like an old beat, like... like strings. We find a classical song and we mix it with something that's more upbeat. Yeah, I enjoyed it. It was easy. When we make it in class, we usually use GarageBand, I think it is, and, like, iMovie. (I-SAS2, p. 13)

T.J. and Evelyn completed the music composition assignment by using digital devices. T.J. explored his composition further because he had more equipment and software. Additionally, T.J.'s personal interests guided his creative inspiration.

Jaime completed the Music Appreciation composition project; however, Jaime and Alex offered their insight into another joint project offered by Mrs. Price and the senior English teachers. Mrs. Price and the English teachers

designed a lesson to teach language arts through rap composition. Jaime's group work helped her understanding of the digital music connection. "We did a combined project where our Music Technology class made a beat and the other class made a rap," explained Jaime. "I was like, 'Okay, well... today I'm feeling upbeat, so I'm going to make an upbeat track'" (I-SAS6, p. 6). Alex reflected positively on this assignment as well: "We combined our classes for, like, a week or two," he told me. "Then, the Music Tech class had to make a beat to three verses and chorus and the English class had to write a rap... on culture, or your personal life, or anything like that" (I-SAS2, p. 12). Jaime and Alex completed this project through their respective academic classes, and offered their insights to a positive learning experience.

When I asked the participants about their music learning experiences at school, all participants responded thoughtfully. Throughout the observation and interview periods, the reflections of the individual participants revealed subtle yet individualistic approaches toward learning music and engaging musically at school. All participants spoke about their relationship with Mrs. Price. Alex and Jaime, as aspiring musicians, developed a close relationship to Mrs. Price. Drawn by her desire to see her students excel, Alex and Jaime relied on Elinor as a performance coach and mentor for their college audition preparation.

Evelyn and T.J., who took Music Appreciation to fulfill the high school arts credit, found the class an enriching experience. Evelyn described her learning process: "I feel like, before this class, I never really analyzed music as much as I do now." She continued, "It made me think more in-depth about music in general" (I-SAS7, p. 24). T.J.'s out of school music listening practices seemed to develop because of his exposure to music examples presented in class, as evidenced by his recording project using "Ride of the Valkyries." When I asked him to reflect on his class experience, he replied that the class left him "musically curious" (I-SAS2, p. 24):

I guess this class [Music Appreciation] kind of made me more...musically curious. I just recognize, you know, things that I learned in the class when listening to music now, so it definitely increased my musical knowledge, I guess. (I-SAS2, p. 24)

Although Evelyn and T.J. did not express levels or degrees of musical awareness attributed to their in-class learning, they continued to exhibit a deep appreciation for music listening in their everyday listening experiences.

### **Summary of Student Preferences, Influences, and Habits**

For the student participants in my study, digital music discovery, production, and sharing transcended informal and formal academic boundaries.

Table 2 summarizes traits and characteristics of students as they consumed

digital music primarily through listening and watching, and created music using a variety of traditional and digital means. Handheld digital devices, such as laptops and smartphones, extended the environment for musicking. Laptops, iPads, and smartphones were the preferred devices for digital media consumption and production. In the case of the participants, MacBooks provided equitable access to digital devices and software.

***Table 2. Traits and Characteristics of Participants' Music Consumption Habits***

Participant	Digital Devices	Smart-phone	Instruments Played	Musical Activities	Genre Preferences	Music Courses	Music Lessons
Evelyn	MacBook iPad	iPhone	None	Choreography	Country Pop	Music Appreciation	None
T.J.	MacBook PC Laptop DJ Equipment	Android OS	None	Records Beats Raps (DJ Equipment)	Alt. R&B Rap Jazz	Music Appreciation	None
Jaime	MacBook	iPhone	Tuba Euphonium Bari Sax	School Band Records Beats	Classical Popular Alt. Rock R&B; Rap	Music Appreciation Music Tech Concert	None
Alex	MacBook PC Microphone	Android OS	Trumpet Guitar Piano Voice Cajon	School Band Sings Records Writes Songs Social Band	Classical Jazz Alt. R&B Rap	Concert Band Chorus	Piano lessons

**Social culture of digital devices.** Digital music played a huge individualistic role in the students' lives. In the case of the student participants in my study, digital music consumption was personally relevant because each participant exhibited a unique reaction and personal story. The participants had



grown up together and developed strong interpersonal relationships. They realized how digital devices and social media influenced their music discovery and listening practices. The students' expressive culture formed outside of their classroom music learning experiences. The stories they told reflected feelings and meanings of musicking that did not necessarily stem from their in class music learning. Yet, participants felt empowered to express their musical preferences and influences in terms of self, others, and relationships that formed with the help of digital devices. Cultural expectations of impressionable adolescents, as described by Hill (2014), permeated the oral responses of the participants. For example, Alex feels pressure to like songs by his peers, and T.J. recalls his friend trying to persuade him with shock rap.

**Language and social exchange.** Throughout generations, adolescents culturally develop their own shorthand language as a means to express ideas and values particular to popular culture (Abrams, 2009; Green, 2011; North, Hargreaves, & Jon, 2004). Today, various digital devices and specific language mediate adolescents' discourse (Jenkins, 2009). Online communication implied that students operated in a separate, simulated space (Mesch, 2009) from their offline activities, such as those found in the day-to-day routines of attending public school. Evidence exists to support the idea that music helps adolescents

form self-identity (Green, 2011; North & Hargreaves, 2007; Tarrant, North, & Hargreaves, 2000). In my study, participants described ways in which they lived their digital experience to musically express and enhance their identities. Much of the identity seems to come through ownership of the digital device. Listening and sharing music integrates into adolescents' everyday lives because of the constant usage of the devices. The student participants understood, as demonstrated by their reactions, that verbal conversation and text messaging one another seemed to have equally expressive powers.

When describing the act of typing a text message, whether via Facebook Messenger or Snapchat, Jaime and Evelyn indicated that the message held equivalent communicative quality to a verbal interchange (I-SAS 2, p. 15). Therefore, when Evelyn and Jaime describe the act of "talking" to their friends, in many cases, they were indicating the exchange of messages via wireless transfer (O-SAF3, O-SAF4).

**Smartphones.** For student participants in my study, possessing a smartphone seemed directly linked to social status and instant communications among their peers. I observed participants engaging in daily peer interaction using their smartphones as Internet connection devices (O-SAF3, O-SAF4, O-CLS5, O-SAF9). Three out of four participants started using a smartphone in

middle school. Each participant expressed distinct ways of discovering, listening to, and sharing music on their phones; for example, Evelyn listened to music played directly from her iPhone speaker, T.J. preferred to search for new music on Spotify, and Alex used his phone in his car, specifically to supply jazz music via Pandora. The participants did not indicate their knowledge of or concern about telecommunication charges or service operational costs. Only Alex offered details about how he paid for musical services and files. Because he worked outside of school, Alex used his own money to purchase items and equipment to support his musical activities. For example, Alex purchased his own iTunes downloads: "When I got my own phone, my first iPhone, I set up my own account," he exclaimed. "I'd use [my mother's] credit card first, and then, when I start getting paid, I'd put my debit card in, and then we just make a transfer" (I-SAS7, p. 14). The participants expressed how they felt connected to the smartphones as objects, when, in fact, the smartphones functioned as connection devices to people and information. Without having the devices, Alex felt that "no one would talk to him" (I-SAS2, p. 7), and Evelyn felt "lost" (I-SAS2, p. 7). T.J. treated his phone with special care so that it would not break (I-SAS2).

**Listening through headphones.** The participants described the sensation of heightened aural response while listening to music through headphones. At

North Beach High School, teachers gave students the option to use headphones in class. Listening with headphones while others conversed seemed socially acceptable, in school and out of school. For example, Jaime seemed comfortable using headphones as a part of her listening routine, which she described as a necessity: “It’s like the way a phone needs a charger, you need to have headphones” (I-SAS2, p. 17). Additionally, Jaime appreciated the musical clarity of the headphone listening experience, which she used to improve her music learning:

[With headphones] you get to hear every part of the song. Like, if you’re playing it out loud, you’re less likely to hear the instruments in the back. When I have my headphones in, I’m like ‘okay’ I can identify what that is. Mrs. Price posted the winter concert for us to evaluate, so like I listened to it with my headphones on specifically so I could hear myself... so I can identify which one’s me, because it’s kind of hard sometimes, with my bari sax. (I-SAS2, p. 17)

The school supplied students with headphones, but, according to T.J, they were “pretty crappy” (I-SAS2, p. 17). The students confirmed they preferred the earbuds that shipped with their smartphones. Alex appreciated listening to music through headphones, and described his enhanced listening experiences as follows:

I don’t know if anyone else does this, but I’ll listen to a song with headphones and I’ll look for, like, the little things, I guess you could say, like the little synth in the background (sings), or the

breaths, they are there, I, I'll look and I'll listen for it, I think that's cool... Yes, like background voices. (I-SAS2, p. 18)

Additionally, Alex acknowledged the private listening environment created when using headphones. Alex felt like personal listening was a universal trait. "People are so passionate about their music," he exclaimed. "I feel like sometimes they play it without headphones, and I want to say 'please stop!' You can listen to it by yourself, but I don't want to hear that" (I-SAS, p. 18).

**The privilege of wireless.** Participants demanded quality in their out of school digital musicking. As selective consumers, they seemed idealistic about their music choices. Most participants seemed aware of the costs associated with Internet connectivity and the purchase of digital media. Alex claimed to have about "a thousand downloads" on iTunes, purchased on his account. Additionally, Alex described his financial plan for saving enough money to purchase recording equipment and a computer. Evelyn demonstrated awareness of the costs, especially in the difference of Android and iPhones. Jaime was not as vocal about the cost of her digital consumption, but relied heavily on the school for her Internet access and devices. T.J. did not disclose his out of pocket costs, but spoke about purchasing items such as CDs, tickets, and digital downloads. Evelyn and Jaime acknowledged several ways to download copyrighted and

commercial digital media, but their choices and preferences seemed driven by the desire to experience the music that personally intrigued and inspired them. Evelyn acknowledged, “There’s ways to get it for free obviously, but that’s illegal” (I-SAS7, p. 5). When I asked Alex if he felt bad for the artists, he replied, “No... If I like, enjoy an album, I’ll buy the album. I’ll buy the album and I’ll support the artist” (I-SAS7, p. 5).

**Beats, flow, rap.** From the participants’ viewpoint, the North Beach rappers presented one of the most intriguing subcultures in the small town. Evelyn stated sincerely: “Yeah, we have a lot of [rappers]” (I-SAS7, p. 18). Evelyn seemed knowledgeable about the rappers’ music. “[They rap about] their life. Things that they find interesting” (I-SAF7, p. 21). The phenomenon of musical language and social behaviors associated with hip-hop culture permeated the participants’ out of school conversation. Moreover, the participants’ association with some of the North Beach rappers—who were former classmates, friends, and neighbors—captured their attention. For example, T.J. followed the North Beach rappers as they posted new material online. He described the North Beach rappers musical culture:

It’s like the bravado of rapping. [The North Beach rappers] take influence from what they hear on the radio, and then they try to relate it to what they can do within North Beach. They’ll say, like,

there's this girl that they know, and they'll rap about that... (I-SAS7, p. 14)

Therefore, the North Beach rappers, as emerging Internet artists, wrote raps directly relating to some of the experiences of living in the small town that closely connected to the participants' experiences.

Essentially, all participants knew about the North Beach rappers, following their artistic offerings as the North Beach rap culture gained fame and notoriety. The concept of "flow," which is essentially the skill of combining of rhyming words, vocal inflections, and rhythm patterns (Rose, 1994), is a fundamental element of rap music. For the participants, the quality of a rapper's flow indicated the level of his or her vocal and artistic abilities. Jaime commented on her former classmate and school band member Joey B., who dropped out of school to become a North Beach rapper. "Compared to other kids who are rappers," Jaime said, "especially, I think he [Joey] has good flow" (O-SAF4, p. 18).

Alex, who wrote and recorded his own raps, does not consider himself a North Beach rapper, but acknowledges his connections to the rappers: "Like I recorded my own rap, so I guess you would consider me a North Beach rapper.

But I never posted it" (I-SAS7, p. 21). Additionally, Alex perceived the rappers as using conventional musical skill to create their compositions:

Without knowing, probably rappers don't know that they are using everyday music knowledge. They wait for a beat to hit (beats out the rhythm) so, say I'm rapping over this I'll sing a verse like [sings rhythm syllables]. (I-SAS7, p. 10)

When the students discussed the North Beach rappers, they exhibited a heightened level of engagement because of the familiarity of person and place.

**Self-learned musicianship.** Jaime and Alex, the participants who played instruments and aspired to enter college music programs, considered many of their technical musical skills as self-taught, even though they were exposed to formal music instruction in school. In consideration of their out of school musical identities, Jaime and Alex described their skills as self-taught and valued the proficiency level gained by their independent efforts. Also, these students possessed an innate desire to learn more about music, choosing to include music making in their everyday lives. Alex spoke of the value of sharing music in informal learning:

If you've got friends who know how to play guitar, or like, play guitar better than you, you can get lessons from them, like, you learn from them. Or like, you meet someone who doesn't know that much, or someone wants to learn the basics of it, and you can teach the basics of it. A never-ending cycle. (I-SAS7, p. 18)



Jaime shared her insight into her self-exploration of instruments. Because she had limited access to music instruction, she valued the time allowed her to explore instruments at school:

One of the people in my Music Appreciation class owns a soprano sax. So, she brought it in one day and, you know, I was like teaching myself how to play. (I-SAS6, p. 9)

Jaime and Alex's viewpoints about self-instruction aligned with Evelyn and T.J.'s desire for personal development through music, as evidenced by their comments about continuing their musical learning.

**Students' desire for music learning.** The participants aspired to learn more about music as a means of self-improvement, but to do so, they gravitated toward the conventional and academic elements associated with music performance. In expressing their thoughts and feelings about developing musical skill, participants did not rely on digital devices or turn to specialized software to improve their skill. In this instance, the participants desired the conventional ability of being able to play or sing music with technical proficiency, which was a goal, they indicated, that was not attainable by digital means. For example, Evelyn wanted to learn how to read music. She felt that reading music would give credibility to her musical learning effort:

I want to learn to read music. I don't think I have the talent to play it, but I would like to learn how to read it, just so I can say 'oh, I can read the music.' I mean, not that I can play it, but I can read it. (I-SAS7, p. 13)

T.J., who demonstrated digital recording proficiency, desired to learn more about playing music instruments with a goal of expanding a skill across several instruments:

If you could just play a typical instrument, I always thought that was cool. I guess the more you pick up one, and you can probably apply like what you've learned from a certain instrument to another. Like, you might learn a bunch of string instruments. You might learn guitar, and you would learn another string instrument and another string instrument. Just learning like, a very general instrument, can kind of lead you into others - that would be cool. (I-SAS7, p. 12)

Even with his dedication and determination, Alex envisioned expanding his skills in music production. Although he benefitted from his experience in school band and chorus, he desired to learn elements of music that, in his own estimation, he thought missing:

I would like to learn about the most recent artists, like we're going to learn about a whole different genre of music, but maybe like, learning how to synth, or using MIDI keyboards, and learning how to do stuff like that, like actual production as well. That's a totally different class, but learning how to do that anyway. (I-SAS7, p. 23)

Jaime considers herself musically advanced, and felt frustrated with the slow learning in her Music Appreciation class, to the point where she "had to put my

headphones in and ignore the rest of the class, instead of yelling out the answers” (I-SAS2, p. 23).

The participants exhibited traits of self-learning and personal experimentation with digital devices to enhance the quality of their informal music activities. The observations exposed personalized ways in which participants viewed the function of music in their daily experiences. Participants’ perspectives on music influenced how they interacted in North Beach High School and the local community. Nevertheless, the participants felt that their musical learning was far from complete. In Chapter 6, I look more closely at the trends and themes emerging from the participants’ actions and responses, in order to form a theory.

## **Chapter 6: Toward a Model of Digital Media in School Music Contexts**

In this chapter I present the major trends, themes, and findings that emerged throughout the course of this study. After I gained insight into the participants' behaviors and practices, I created a model to look for patterns and conceptualize a theory. Analyses of the participants' varying perceptions indicated the verbal and visual ways students perceive digitized music. Mayer's (2002) cognitive theory of multimedia learning helped interpret the way students constructed knowledge via digital media as they learned about music. Dewey's (2005) theory of art as experience applied to understanding student participants' interactions shaping their formal and informal learning.

Previous scholarship from researchers such as Frith (2004), Small (2011), and Lamont et al. (2003) suggested that engaging in musical activities holds high importance for adolescents. This seemed true for the student participants in my study, as they expressed a high level of the importance of music in their lives. In the early 21st century, dematerialized digital music plays a role in social agency (Magaudda, 2011; Ruthmann, 2007), yet adolescents' access to and consumption of digitally delivered music has existed for just over a decade. In my study, the student participants were the first generation to grow up using commercialized Internet.

Although music researchers recognized the effects of mass music consumption in everyday life as a social practice (DeNora, 2000; Magaudda, 2011; Sloboda, 1985), music consumption practices continue to evolve due to technological innovations. In my study, participants' use of wireless laptops, tablets, and smartphones demonstrated the speed of this evolution. In North American culture, broadband connectivity increased from 60% in 2011 to 84% in 2015, and digital device ownership to 68%, up from 35% in 2011 (Perrin & Duggan, 2015). With such rapid changes in access to digital music media, it becomes important for music educators to know about students' music consumption in everyday life.

Working with the data, I looked for three broad areas of musical and social engagement in regard to adolescents' digital media usage. The three areas of engagement included students' perception of digital music reception, self-production, and transmission. I extended my inquiries into participants' cognitive responses to digital media as suggested by Ihde (2003). An existing body of research indicated that adolescents' out of school musical influences helped form their self-identity (Davis, 2005; Green, 2005; Green, 2011; Ruthmann, 2007; Tobias, 2014). According to Bogdan and Biklen (2007), observing human

behavior in a naturalistic environment captured shared patterns and language that develop among a group of people.

I employed Dewey's (2005) pragmatic approach to analyze the participant behaviors and practices collected during my study. With an a priori concept developed from review of existing music education research literature, I was able to show relationships among code categories based on descriptors from participants' responses and my recorded observations. To organize the participants' varying perspectives about their music discovery and sharing, I created conceptually clustered matrices (Miles, Matthew B., Huberman, & Saldaña, 2014). Within the matrices, I grouped the participant responses according to statements about their behaviors, intentions, and central, or recurring, themes. Conditions surrounding the participants' musical behaviors suggested the variability of impact on their digital musicking. Although the participants exhibited a range of behaviors and responses, the data indicated that digital music media had significant influence in their lives, especially when accessing the Internet using personal handheld devices. Overall, the perceived immediacy of Internet connectivity and the inclusivity of media consumerism seemed a major trend in the participants' musical sharing and transmission practices.

### **Behaviors and Practices of Participants Engaging in School Music**

Because Elinor, the music teacher, established close and enduring relationships with her students, she felt she was able to observe her students' music consumerist behaviors in school. Additionally, the teaching conditions at North Beach High School suggested that Elinor had some knowledge of her students' out of school musical activities. In alignment with Dewey's (2005) concept that the sociocultural environment shapes a learner's perception, I found evidence in Elinor's statements that school music instruction affected students' out of school lives.

**One teacher represents the music program.** At North Beach High School, Elinor Price represented the musical and cultural arts leadership of the school. Although Elinor energetically approached her duties, there were times when she felt overworked and overwhelmed. To accomplish various daily tasks, Elinor remained focused and committed to all aspects of the North Beach High School performing arts program. Elinor enjoyed working with students, yet complained about the increase in her administrative tasks. Elinor offered, "I feel like we spend a lot of time collecting data here [North Beach High School]. I feel as though the process in which we collect this data sometimes is tedious and... a little overwhelming" (I-EOP8, p. 6).

Elinor mentioned that the extra paperwork took her away from teaching, and school administrators did not take into account the fact that she taught large class sections and extracurricular activities (I-EOP1). In 2014, North Beach High School transitioned from the High School Proficiency Assessment (HSPA) standardized testing format to the newly mandated PARCC. With more time allotted to school-based reporting and testing, Elinor felt she had less time with students, especially when directing complex after school events such as the musical play and instrumental concerts.

**Divergent tracks in music and technology curriculum.** Elinor expressed frustrations about designing and developing a technology-enhanced music curriculum (I-EOP1, I-EOP8). The conflict centered upon the trajectory of the Music Appreciation, Music Technology, and the new Digital Video Academy curriculum tracks. Because Elinor considered herself a “one-person department” (I-EOP8, p. 7), she cautiously made changes to her curricula (I-EOP8, p. 8). Elinor’s plan was to “pull more of the technology into the Appreciation class, so that there is still a distinction between the classes” (I-EOP1, p. 12). Elinor felt positive about proposing and launching combined projects with other subject teachers; for example, with the History and English teachers. Consequently,



Elinor's apprehension about proposing projects coincided with the launch of the new Digital Video Academy.

Concerning school facilities and resources, Elinor envisioned a potential negative effect on music classes (I-EOP8, p. 2). The Digital Video Academy, recently initiated at North Beach High School, served as an independent, 4-year technical program for in district and out of district (tuition-paying) high school students. Housed in the North Beach High School building, and making use of the available facilities, the vocational academy program offered a career training track for those students interested in audio-video technology careers.

**Creative collaborations.** Elinor described a recent conversation she had with her principal after a classroom observation. When Elinor had the principal's attention, she took the opportunity to discuss interdepartmental collaborations:

At my post-observation conference the other day, we were talking about, you know, things that we do that are collaborative efforts and forming student learning teams, and we had done a collaborative project with the English class and my Music Technology class. They had, you know, provided music, and we were the producers for the English students who have written lyrics and stuff like that. I'm like 'Oh, you know, well...' We are getting into film scoring and stuff like that, that's the goal for technology. (I-EOP, p. 3)

Elinor initiated several collaborative lessons by encouraging other teachers and students to combine digital music and video projects. When Elinor told me about

the projects, it seemed she was the instigator, as Elinor did not indicate that other administrators, teachers, and/or students approached her with ideas.

Examples of Elinor's creative planning included introducing the Music Technology curriculum to "a self-contained, behaviorally disturbed class" (I-EOP1, p. 6). Elinor said she "didn't get through a lot of that" (I-EOP1, p. 6), meaning the course materials challenged the students. At the time of our interview, Elinor told me the Music Technology course served a general population of students.

Another example of a successful collaboration was the combined project between the senior English classes and Elinor's Music Technology class. With the English teachers, Elinor designed a project where "Music Technology students provided music and producers for the English students who have written lyrics" (I-EOP8, p. 2). Jaime and Alex participated in the English and Music Technology collaborative project. As Jaime was a student in the Music Technology class, and Alex was in the English class, they described their learning experience as positive (I-SAS2, I-SAS6). Jaime recalled her involvement: "We did a combined project where our Music Technology class made a beat and the other class made a rap, so we had to make the beat for them" (I-SAS6, p. 5). Alex had the opportunity to participate through his English class. In this manner, he used his skill as a rap

lyricist. “We combined our classes for, like, a week or two, and then the Music Tech class had to make a beat to three verses and chorus and the English class had to write a rap to it on culture, or your personal life” (I-SAS2, p. 12).

Even though Jaime and Alex spoke optimistically about the learning outcomes they experienced through the English and Music Technology project, Elinor felt this project was not suitable for the Music Appreciation class. Offering the project again created a “real curriculum challenge, especially in a small school” and “especially for one person” (I-EOP1, p. 13). “I might come up with this really great idea, but I don’t want to do it with everyone, so they take the other class, and they’re not doing it twice, then they might do it again next time they take the class, or do it again next year, so it’s a curious predicament to be in” (I-EOP1, p. 13).

Even with fastidious member checks, there are limits to qualitative methodologies. I remained conscious of the vulnerabilities of qualitative approaches. An example was my awareness of posturing during some student observations and interviews. At times, some student participants seemed protective of their own musical identities or of their relationship with Mrs. Price. For example, Jaime told me that Elinor did not listen to rap. In Elinor’s defense, Jaime explained: “[Mrs. Price] really doesn’t want to listen to the words, because

[the rappers] like, rap about explicit things” (O-SAF4, p. 9). Elinor spoke about her knowledge of the North Beach rap culture: “I know about the North Beach Rappers, you bet!” (I-EOP8, p. 8), but claimed she did not listen to the rappers’ new songs online. When I asked Elinor if she listened to commercial rap music, she replied, “I don’t know. I don’t want to make assumptions about it” (I-EOP8, p. 11).

**Reflections on Music Appreciation class.** To understand if there were areas of convergence and divergence between participants’ in school and out of school digital music consumption and sharing, I first analyzed the student and teacher perceptions of Music Appreciation class. I wanted to know if students exhibited similar motivations to participate in Music Appreciation and to digitally engaging with music out of school. To set the stage for this exploration, I needed to understand Elinor’s approach to designing the Music Appreciation curriculum and the learning objectives set for her students. Overall, Elinor felt she had some authority and freedom over the Music Appreciation curriculum design; however, she described her limitations as physical, political, and technical aspects of the school environment rather than the potentiality of the students’ desires (I-EOP1). Because the Music Appreciation course was a general education course, Elinor tried to “hit a little bit of everything” (I-EOP1, p. 10),

meaning that she chose to include major works of Western music within a survey-style course. Another factor stemming from the requirement was that not all of Elinor's students exhibited motivation to learn. According to Elinor, "I understand that music history is not often the most riveting topic (laughs) so... I try to make it entertaining. I try to vary delivery, vary activities... But it's difficult when you're trying to put together a whole curriculum" (I-EOP8, p. 20).

### **Motivations, Perceptions, and Central Themes**

By organizing the data in conceptually clustered matrices (Miles, Matthew B., Huberman, & Saldaña, 2014), I sought to analyze and evaluate the significance of the participants' statements. To select the central statements, I considered the emerging and recurring themes in relationship to my research questions (Miles, Matthew B & Huberman, 1984; Miles, Matthew B., Huberman, & Saldaña, 2014). Because I was following the student participants throughout their day, I was able to observe various musical experiences crossing the boundaries of in school and informal music learning. Dewey (2005) suggested that autonomous responses to art possess a "single quality that pervades the entire experience" (p. 206). The central themes indicate remarkable statements and patterns in an effort to capture the quality of the experience.

The participant responses in Table 3.1 provide insight into the daily student and teacher interactions in Music Appreciation class.

**Table 3.1. Participants' Motivations in Music Appreciation Class**

Participant	Motivations	Feelings About	Central / Recurring Theme
Evelyn	"Basically I didn't take an art... so I wanted to venture out into something that's not just academic-wise"	"I feel like we get there eventually in Music Appreciation... don't we eventually get to the 2000's?"	"I feel like, in this group mainly, we just sit there and talk about, like any kind of music you want"
T.J.	"My friend talked about [Music Appreciation]—it just sounded interesting, so I just ended up taking it"	"I guess [Music Appreciation] kind of made me more...musically curious"	"I really don't like learning about old dead white guys"
Jaime	"Well, I dropped AP chemistry, so I looked at the electives that were available"	"We're going over notes names, and it was so hard for me not to yell out the answer. I had to put my headphones in and ignore the rest of the class"	"We all sit together in Music Appreciation"
Alexio	"Since I'm the intern in the class, I know. It was for the students to listen to the tempo, to see how fast the song is, to understand"	"If I was just in Music Appreciation, I would like to learn about the most recent artists, like we're going to learn about a whole different genre of music"	"[Mrs. Price] will see, like, sometimes we might not be interested in learning about certain things about Bach, so, like, she'll make it fun, make it more enjoyable for us"
Elinor	"One of my objectives is to help [students] figure out how to find the answers to things. We take notes in class, we use technology. They know where to find the answers, and then they know how to apply it"	"I feel like a lot of times they don't get an opportunity to do something at the level of their interests, so maybe it would be nice to do it in music"	"I think it's important to meet students at the level of their interests"

Central, recurring themes among student participants indicated that they enjoyed learning music with peers and appreciated the teacher's efforts.

Participants offered mixed responses; however, about whether they felt engaged in the musical content or the class assignments.

Elinor stated a clear learning objective, which was to "explore the topic of the early Romantic period" and review "characteristics of the Romantic era" (O-CLS5, p. 6). Elinor attempted to apply technology-infused activities, such as the lesson about Schubert's "Der Erlkönig" (O-CLS5, p. 4), or offered the students choice boards for project-based learning (O-CLS5, p. 10). From my observations, the sharing convergences emerged in the students' positive feelings about peer-to-peer interaction and a deep appreciation toward their teacher. The divergence appeared in student consumption and production. Mixed responses from Evelyn, Jaime, and Alex exposed their varying degrees of prior musical knowledge.

**Participants' desire to learn music.** The student participant responses seemed to elicit a trend toward learning to perform music. Participants expressed positive feelings about learning to play musical instruments. Using participant responses, I was able to group their perspectives and motivations about Music Appreciation class, as well as their musical experience outside of class.

Table 3.2 demonstrates an identifiable trend toward like thinking among participants' motivations and perceptions.

**Table 3.2. Participants' Motivations in Learning Music**

Participant	Motivations	Feelings About	Central / Recurring Theme
Evelyn	"I would like to learn how to read [music notation], just so I can say 'oh, I can read the music.' I mean, not that I can play it, but I can read it"	"Hopefully with reading music, I'll grow and want to learn how to play something. Something that's interesting maybe piano, maybe guitar"	"I want to learn to read music... I don't think I have the talent to play it"
T.J.	"If you're around music every day, so if you could just play a typical instrument, I always thought that was cool. I guess the more you pick up one, and you can probably apply like what you've learned from a certain instrument to another"	"Like, you might learn a bunch of string instruments. You might learn guitar, and you would learn another string instrument and another string instrument"	"Just learning like, a very general instrument, can kind of lead you into others - that would be cool. Learning music production would be cool, too"
Jaime	"I am here a lot, though. I do practice a lot in school. I have my band class every other day, and I try to come in after school when I'm not busy"	"I've never taken private lessons but if I need to work on something for an audition I'll stay after school with Mrs. Price and she'll help me out"	"So, I do practice a lot"
Alexio	"Music definitely gave me a reason to, like, want something for myself, I'll give you that"	"I would like to actually learn how to play more music"	"Like, to know how to play, you kind of have the desire to show it off. You wouldn't want to put your time into learning music if you you're not going to end up using it"



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Elinor	"I think that's what I'm kind of trying to do...is pull more of the technology into the Music Appreciation class"	"If the students who are really into it and want to try...You know, you want to do well in school so you're going to do whatever. And then it's the opposite in those classes. You know, I have students who... They won't turn anything in."	"We just had our midterms last week, and the grades are widely distributed. I would venture to say that... some of the students who are generally not paying attention did poorly...They did not take the time to even look for it, to answer the questions on the test. Which is very frustrating."
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The small pool of student participants exhibited high desire to learn instrumental music, yet their responses may not be generalized to the class.

Elinor designed technology-enhanced lessons and assessments ("Die Erlkönig" interactive lesson and choice boards midterm project) in order to serve a broad range of Music Appreciation students, including students exhibiting lowered motivation and participation (O-CLS5).

### **Behaviors and Practices in Music Out of School**

Having access to wireless digital devices profoundly changed the ways in which student participants consumed and shared music every day. Smartphones, laptops, and game consoles seemed essential devices for immediate personal communications, Internet connectivity, and entertainment. In the town of North Beach, adolescent musical life encompassed several types of daily interactions. In the case of the four participants, the types of musicking included attending music

classes, privately listening to individualized playlists, recording original compositions, and playing musical instruments alone and with others. Because of her closely established relationships, Elinor seemed aware of her students' digital music consumption and production practices outside the classroom. When I asked Elinor about her awareness of her students' music consumption habits out of school, she replied, "I know most of the time they are definitely accessing music, listening to it, especially on their laptop, especially on YouTube, especially on their phones" (I-EOP1, p. 14).

**Smartphones, connectivity, and social status.** Smartphones appeared to be the most significant communication device influencing the student participants. For most, the smartphone functioned as Internet and telecommunications connector, delivering all types of information and communications, including the music that formed the participants' individualized experiences. Simply stated, the smartphone was the primary device used for Internet accessibility. Social media websites and apps such as Facebook, Snapchat, and SoundCloud served as portals for sharing texted communications as well as music discovery and consumption. By communicating in a digitally mediated space (Mesch, 2009), in which many adolescents shared access, the participants exchanged text messages and, at

times, assumed an alternate persona as indicated by their screen name and avatar image (O-SAF3, O-SAF4, O-SAF9).

All of the participants exhibited autonomous and individualized music consumption behaviors when engaging with their digital devices. Clearly, handheld digital devices and laptops served as delivery agents for music consumption. Engaging in online communications aided discovery and transmission of new music. Ownership of handheld digital devices seemed to promote a stronger musical identity and strengthen relationships among peers. These behaviors correlate to the body of research that examines how adolescents' musical preferences reinforce identity and play a role in developing friendships and sense of belonging (Campbell, Connell, & Beegle, 2007; Davis, 2005; Lamont, Hargreaves, Marshall, & Tarrant, 2003).

**Autonomous music choices.** According to participants, consuming music via handheld devices increased a sense of individuality when exploring music choice. Commonalities included a sense of immediacy afforded by ubiquitous Internet connectivity in an environment where synchronous texting was socially acceptable. Some of the participants discussed ways in which their musical activities became more sophisticated as they progressed in age. T.J. recalled the time when his listening preferences changed:

When I got older, I started listening more to R&B, as I kind of became, more of an individual. So, yes, I guess there's always an age when you kind of just grow and detach; you become your own person. (I-SA2, p. 6)

T.J., like many of the other student participants, recalls his middle school years as formative for music listening preferences.

Jaime remembers her musical choices changing at an earlier age: "When I was like 9 or 10," she stated, "I started listening to Eminem [a rap artist]. And I would walk around my house singing obscenities that I didn't know what they actually meant" (I-SA2, p. 5). Departing from his parents' influence, Alex recalled first listening to rap: "When I was younger, my parents always played the Disney radio... As I got older, like in middle school, I started listening to rap, it's like, the influence of your friends, I guess" (I-SA2, p. 6). Middle school and early adolescence seemed to be the age when the participants first recalled their individualized musical preferences.

Listening through headphones or earbuds further individualized the consumption experience. For the participants, private listening seemed an acceptable social practice in and out of school. In several instances, participants chose to listen privately while in the presence of peers or teachers. For example, Jaime stated, "I listened to music while I took my music exams" (I-SAS6, p. 3),

indicating that she consumed music of her choice while completing the written music exam. In another example, I observed Evelyn listening with earbuds while socializing with friends (O-SAF4). The peers accepted her withdrawn stance as their conversation continued. Elinor observed changes in students wearing headphones: “They get in the zone. Sometimes if it’s just them and headphones they’re very obviously closed off...” (I-EOP1, p. 10). The participants exhibited a deep appreciation for private music listening experiences, especially when they had the opportunity to select and listen to music of their choice (O-SAF3, O-SAF4, O-SAF9).

**Self-directed music learning using digital devices.** The teacher and student participants reported some of their music learning experiences as self-taught, especially when using the school-supplied laptops. The level of digital music exploration correlated to each individual’s personal motivation toward music learning. For example, Evelyn did not claim to use her laptop to compose music; however, Jaime, Alex, T.J., and Elinor all reported that they explored GarageBand and other creative possibilities of the Mac laptops out of school (I-EOP1, I-SAS2, I-SAS7). When discussing professional development to learn about new media technologies, Elinor offered that she attended some specific hands-on technology workshops, but claimed most of what she learned about

GarageBand, digital audio recording, and multimedia production was self-taught (I-EOP8, p. 4). Additionally, she recalled the phenomenon of students approaching her to share examples of music they had self-recorded or composed (I-EOP1, p. 5).

The student participants spoke about instances when they created digital music on their own, especially with GarageBand. Jaime, Alex, and T.J. reported using GarageBand out of school to explore composition. Motivated by the curiosity to play with the creative process, Jaime gave details about how she “made beats” and made her voice “sound like a chipmunk” (I-SAS6, p. 7). Alex and T.J. discussed how they used GarageBand to design and record multi-layered rap compositions (I-SAS7). These participants engaged with GarageBand as autonomous pursuits, learning at their own pace and following their interests. Alex described his feelings toward solo vocal recording: “If I’m alone, yeah, I’m not gonna collaborate with anyone, ‘cause how would I do that? I could go on Skype or something, or maybe have someone come over and jam out” (I-SAS7, p. 15). According to Green (2008), self-directed learning is an important aspect of the informal music learning process, and can include individualized composing and music exploration. The teacher and student participants in my study exhibited behaviors of self-directed music learning using the digital devices

available to them. This finding seems to support the concept of out of school scenarios as individualized learning environments (Folkestad, 2006; Green, 2008; Lamont & Greasley, 2011).

**Discovering new music.** Participants discovered and shared music online in a spectrum of ways. A unique feature of this participant pool was the equivalency of their digital devices because they all had school-issued Mac laptops. The participants described themselves as highly selective music consumers (O-SAF3, O-SAF4), and craved quality in their digital musicking. Elinor felt compelled to assist students in navigating the differences between academic listening in music class and recreational music consumption. In Music Appreciation, Elinor justified the broad range of listening selections: “I try to just make them listen to a lot of things and I tell them at the beginning, I say, you don’t have to like this” (I-EOP1, p. 10).

**Table 3.3. Musical Influences from Participants' Social Media Practices**

Participant	Influences	Behaviors	Central / Recurring Theme
Evelyn	"Like, you get an iPhone and you have music. I feel like iPhone and music go hand-in-hand, I don't know why, I just do. I purposely got an iPhone just so I know I have my music on there"	"We pretty much talk on [Facebook Messenger] every day"	"I think music's kind of like the ultimate icebreaker, like, 'oh you know this song, I know that song, too,' so it always gives you an excuse to talk to someone"
T.J.	"Our friends will talk about a certain song and then you can go right to the link of the song"	"I think that's how most of my friends spread it [music], like, we'll be in a group chat"	"Sometimes you can post a link, like from Facebook, and sometimes it will show the actual song, like there, so you immediately know where it's from, who it's by, and sometimes it might show the link so you go right to the link"
Jaime	"People share on Facebook, or I'll be on YouTube, like, listening to a song, and on the sidebar..." "I talk to my friends in person, like we'll hang out and listen to music, and, like, I'll find, you know, music on YouTube"	"I usually show my friends, or they'll show me what they've found"	"It's like, so normal to me. Like, I'm always listening to music. Like, you walked in and I had my headphones on my head. Like, I'm just always listening to music"
Alexio	"There's friends that introduce us to new music, and if we like it or not, we'll say we like it. Sometimes, it's like the songs that people show us in real life, and we say if we like it"	"There are people that message 'have you heard this guy's album' and you're like 'no'..."	"I don't know, it's weird. If someone is playing a song that you don't like, and somebody says something like, 'you like that song, like yeah I like this song,' and then you two start a conversation"
Elinor	"I think they [the students] are trying to take social cues from what they are listening to, which, in some cases, is really unfortunate"	"I think that some of what our students are listening to is teaching them how to be something that they are not. It's giving them some kind of negative influence"	"...sometimes, students... are really exploring what's out there, and they come to me saying, 'Hey have you heard of this person...' and I'll say yes they are a wonderful musician, go listen to them more, go"



A common theme among participants seemed to be the invitation to new sounds, combined with the sharing of online friendships and friends' musical preferences.

The participants confirmed the frequency of texting and talking (I-SAS2, O-SAF3, O-SAF4). According to Evelyn, "We pretty much talk on [Facebook Messenger] every day" (I-SAS7, p. 2). T.J. added, "Yeah, if you're in the chat, you message each other, you basically talk to each other all day" (I-SAS7, p. 2). Elinor admitted that the proclivity of texting in school was "frustrating" and "annoying" (I-EOP8, p. 14). She stated: "If something happens in school, good or bad: the first thing you see is cellphones out. You know, I can't get through chorus warm-ups without Snapchat!" (I-EOP8, p. 13). The participants acknowledged the social acceptance of texting in North Beach High School, even though regulations governing cellphone and headphone use in class were enforced according to each teacher's preference. Pew Internet and American Life Project (2015) confirms the participants' perspectives toward texting and talking, citing in 2015 that 88% of American adolescents spent time with their friends via text messaging at least occasionally, and 55% communicated via text every day. Accordingly, conversation and exchange about music and media are common occurrences in the lives of adolescents.

**Making and sharing music using digital devices.** Participants exhibited a wide range of making and creating music using digital devices. As makers and creators, the student participants exhibited a variety of ways in which they used digital devices, software, websites, and each other's musicality. Not all participants made music in conventional ways (singing and playing instruments), yet three out of the four student participants experimented with digital music composition, recording, and in some cases, posting their recordings online. The participants' feelings about digital music recording as an in-class assignment differed from their actions associated with out of school digital music explorations, even when using the same equipment in two different environments. For example, Jaime used GarageBand in two of her in school music classes, yet freely experimented with GarageBand by recording her own compositions and raps (I-SAS6). With access to home audio recording equipment, T.J. used his MacBook with GarageBand as a supplement to his out of school composition projects. T.J. seemed motivated to make his own beats, to experiment, and to choose the activity of digital music recording. With the goal of studying music in college and pursuing music performance, Alex desired to broaden his audio recording skills by investing in equipment and developing his talents with his available resources, and using his knowledge acquired from in

school and out of school experiences. Evelyn streamlined her digital systems to make listening more convenient.

**Family influence on out of school musicking.** Family life somewhat affected digital device usage and Internet connectivity, thereby influencing participants' musical preferences. Influences included parents, siblings, and home living conditions. From smartphones to recording equipment, participants reported a variety of ways to access telecommunications at home. Although participants did not directly report that parents influenced their personal music preferences, they reflected on their parents and siblings as sources for supplying equipment, sharing knowledge, and accessing the Internet.

*Table 3.4. Musical Influences from Participants' Families*

Partici- pant	Influences	Reflections	Central / Recurring Theme
Evelyn	"I have a twin brother, and now that I'm in high school, we grew up listening to the same thing all the time. But in our music tastes are... totally different..."	"My parents let me pick which [smartphone] I wanted. I picked the Galaxy first, and then I transferred over to the iPhone, just for the fact that I could put so much music on it. It's so much easier to listen to music"	"I never had Internet outside of the house until this year, in September"
T.J.	"My brother's into music and what he would often do, if my parents weren't home, if it was like a day when like a lot of people weren't around, so she wouldn't mind, like blasting music"	"My sister has this, like, disk that you link and dupe. Like, if you have a Mac desktop, like, I have...you can switch to the Windows side of the computer"	"I knew my way around music. Like with my parents and my brother, he actually is really involved in like production a lot"
Jaime	"My parents are older, so they would play 104.3, so I would sing songs, you know, from the older generation"	"If somebody shows me something new that I maybe don't normally listen to and I like it then I'll listen to it"	"I'll go home and go on YouTube and listen to certain songs. You know, to, see the song because I like it a lot, so I want to listen to it at home."
Alexio	"I went to Peru, over the summer. My mom was like 'I'm going to get you an instrument,' so she went with my uncle, who lives there... they searched all over for this cajon"	"There's a Spanish instrument called a cajon, which is literally a box, I have one, I own one, at home, and if I brought it in [to school], it would be cool"	"My uncle was playing it, and he's a musician over there too, because he wanted to make sure it sounded the right way"
Elinor	"They all live in town, it's only one square mile, so everyone knows each other, it can be a good and a bad thing"	"You want them to be involved in so many things, but you really have to accommodate their schedules, too, because it's really important for them to contribute to their families"	"We're in an area where finances are tight... A lot of the students were hit by Hurricane Sandy. Priority is not for those students to be taking music lessons, it's to get jobs so they can help their families"

For example, Evelyn discussed how she and her twin brother expressed divergent tastes in music. When Evelyn's parents let her choose a cellphone, she chose an iPhone in order to make her music listening experience more accessible. Although Alex embraced his family's traditional Peruvian music culture, he chose to sing jazz music and compose rap music. T.J. offered insight into his very musical family, with father, brothers, and sisters engaging in DJ production. Jaime spoke fondly of her parents but admitted how she developed her own musical identity. An underlying factor among the student participants' families seemed to be that the families encouraged their children to engage with music.

Elinor acknowledged the close family connections in the town of North Beach. The issue of family ties surfaced in several interviews that I had with Elinor. It was apparent that the participants had known each other for a long time, and had grown up together in this small town.

**Sense of place.** The sense of place attributed to North Beach through rap music appealed to the participants, because most of them followed the North Beach rappers. All participants expressed strong opinions about the North Beach rappers. Although the North Beach rap music scene was not necessarily the town's primary community music outlet, the rappers shared a connection to North Beach High School, as most of the rappers were recent alumni. There

seemed little if no overlap in the North Beach rappers' music culture and the North Beach High School music curriculum. Alex described his connection to the North Beach rappers:

Together, [the North Beach rappers] are like a subculture, but they're not all connected. They post on Facebook. They'll post it on YouTube or SoundCloud. Like, I recorded my own rap so I guess you would consider me a North Beach rapper. But I never posted it. (I-SAS7, p. 21)

For the participants, rap music reflected North Beach's youth culture. Rap lyrics told personal and relevant stories; stories relatable to young people living in the town. T.J. offered insight into his interpretation of the North Beach rap lyrics:

It's like the bravado of rapping. [The North Beach rappers] take influence from what they hear on the radio, and then they try to relate it to what they can do within North Beach. They'll say, like, there's this girl that they know, and they'll rap about that. (I-SAS7, p. 21)

When the rappers sing about their lives in North Beach, the local school students identify with the relationships personified in the raps.

In recent years, North Beach garnered a reputation as a working-class community (Graham, 2007). Currently, some of the rappers are gaining notoriety and celebrity within the music industry. Becoming "Internet-famous" and partnering with well-known rap artists attracted the participants' attention. Said Jaime of one of her rapper classmates: "He got a famous rapper in this song. He

paid the rapper to be in the song” (I-SAF3, p. 10).

With the sophistication and individuality of the participants, Elinor felt that the social cues and commercial pressure of the rap music that students chose to listen to was not particularly productive to their development as a musical person. Elinor acknowledged some of North Beach rappers that she taught at school:

I know about the North Beach rappers, you bet! (laughs). Everyone wants to make it big! They want to get out of this town. And I respect them for that, and it’s great that they have dreams and goals and aspirations, and it’s great that technology has evolved as such where anyone can be famous... Everybody wants to be a rapper, so sometimes in Music Technology or in Appreciation, when we’re making something cool they’re like ‘Oh, I’m going to put this on my YouTube channel.’ (I-EOP8, p. 8)

The collaborative project between the English students and the Music Technology students seemed to capture the core subtleties that interested students, or at least emboldened students to feel secure enough to express themselves through rap in the school environment.

**New types of digital musicking.** Out of school, the participants engaged in traditional and contemporary musicking which they personally enhanced using their own handheld digital devices. The participants exhibited many types of creative music making. The ability to self-record audio and video on a

smartphone or laptop accompanied traditional music practicing, such as singing and playing instruments. Contemporary music making among the participants included many creative varieties of digital music enhancement, including writing and recording beats and raps, posting music performance videos on social media websites, and exploring sound design with GarageBand and other creative composition software. Additionally, the musical behaviors and outcomes were highly individualized, and the conversation surrounding listening and viewing led the participants to extend their musical insights.

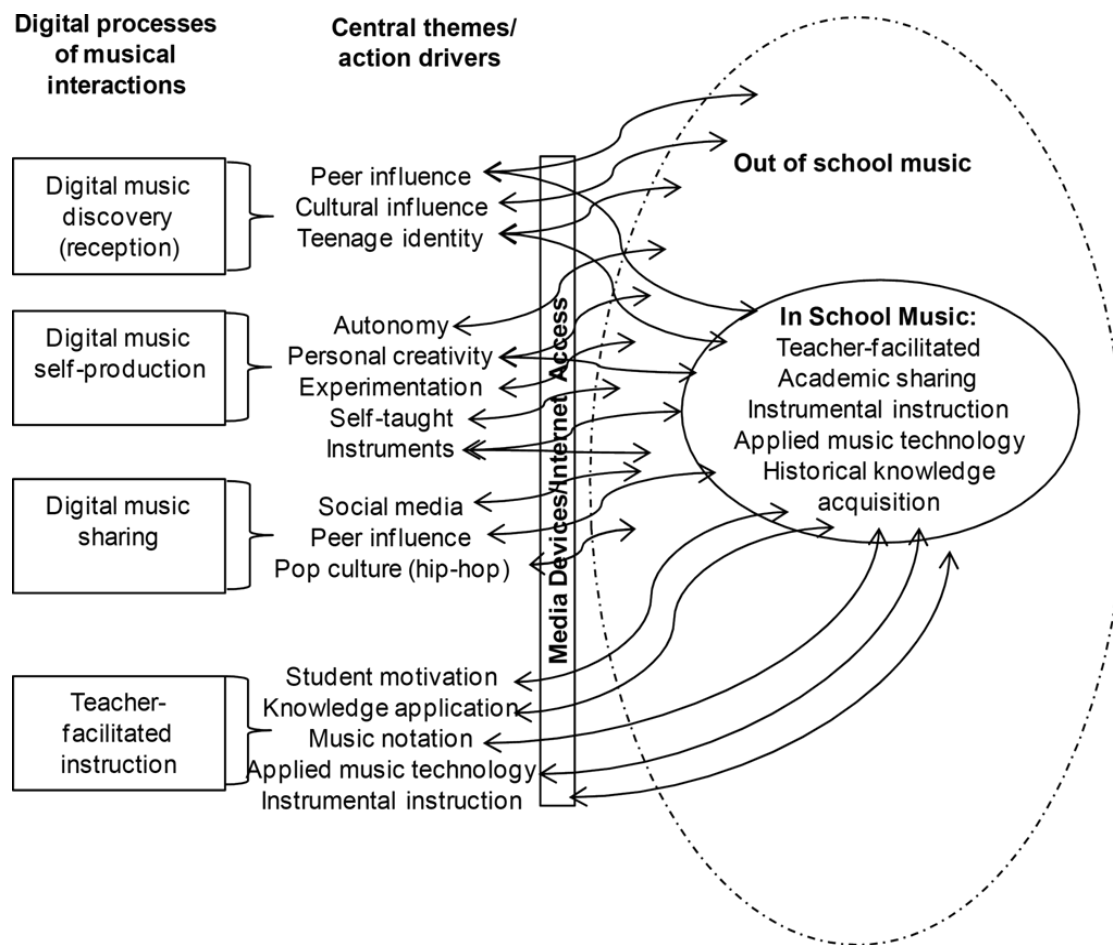
**Future plans to include technology.** Many of North Beach High School's curricular and extracurricular music programs seemed strong and well attended. Elinor spoke about the school's 3-year plan to implement new technology upgrades in the education wing that houses the music rooms. Elinor hoped the music programs would be able to take advantage of the technology upgrades, as music programs will not lose any more rehearsal space. Additionally, Elinor expressed concern that the current 12th graders, which included the study participants, faced a disadvantage because of lack of space, time, and new music technology programs. It seemed Elinor was highly aware of the district's strategic plans and her students' living environments. She relied on this information to inform her daily teaching (I-EOP1, O-CLS5, I-EOP8).



### Dynamics of Digital Media in School Music Contexts

Figure 3 illustrates the dynamics of digital media in school contexts. Using statements from the construct matrices, I created a visual model by clustering student interactions as they engaged with digital music in and out of school. The purpose of clustering is to understand the actions and processes in order to conceptualize the problem (Miles, Matthew B., Huberman, & Saldaña, 2014).

Figure 3. Dynamics of digital media in school music contexts



According to my analysis, the stronger themes of digital music discovery, or reception, were influenced by youth culture. I identified the convergence of peer influence and teenage identity in and out of the classroom. Digital music self-production was evidenced by action drivers of autonomy and individualized musical experimentation. For example, when Jaime told me that she learned how to use GarageBand in Music Technology class, she explained, "Since I've taken this course, I've definitely improved" (I-SAS6, p. 6). I felt her answer might have been contrived, because when I observed Jaime with peers, she claimed she learned GarageBand by experimenting at home. I observed these processes in the student participants' out of school lives.

Participants' personal creativity with music was evident in student learning in and out of school. An example of this was the choice board project in Music Appreciation class. Another strong central theme was participants' positive feelings about traditional musical instruments. Both in and out of the classroom, student participants told me they desired to learn more about playing musical instruments and reading notated music. Alex and Jaime, who played instruments with proficiency, spoke of the value of extended musical practice as they spent time practicing after school using school instruments (I-SAF2).

The strongest evidence of participants' digital media sharing occurred during the out of school observations. Even though the participants shared their digital music projects in class, in an informal setting, there seemed to be a non-linear discourse when listening to music. Evelyn, T.J., and Alex reported that they "chat and post every day" (I-SAS7, p. 2). When I observed the participants during and outside of school, they displayed behaviors of focusing on their screens, manipulating their devices, and wearing earbuds (O-SAF4, O-SAF9). Examples included listening to music on social media such as Facebook, SoundCloud, and Pandora during school, but not necessarily in class (O-CLS5). Jaime indicated that this type of listening behavior was normal at North Beach High School. When I asked Jaime if she was allowed to listen to music during class, she replied, "Of course, if the teacher permits" (I-SAS2, p. 17). For Evelyn, music as a backdrop to her day was "just something that plays all the time" (I-SAS7, p. 15). Participants' music listening choices were not necessarily limited to popular music, but most listening activities involved video viewing or screen manipulation.

T.J. exemplified the immediacy of digital communications when he described the experience of an online "group chat" (I-SAF2, p. 4) and posting links to news feeds that led to "extremely recent" (I-SAF2, p. 7) music. Evelyn

spoke of immediacy when explaining how she viewed Facebook. Alex described the popularity and influence of the North Beach rappers. "There's friends that introduce us to new music," Alex told me. "And if we like it or not, we'll say we like it." Alex felt pressure to record and post high quality music. "You can't just like go on a regular thing and record songs," Alex explained (I-SAS7, p. 7).

In teacher-facilitated instruction, student participants considered Mrs. Price the knowledge expert. Student participants highly valued learning with Mrs. Price. She motivated students, tracked their progression, and organized the learning experience. The systematic, academic application of music theory, history and vocal instrumental technique happened in the classroom.

### **Chapter Summary**

Students' digital music discovery, production, and sharing behaviors differed inside and outside the music classroom. Participants who engaged in individualized digital musicking seemed deeply affected by audiovisual stimuli, thus embodying Mayer's (2002) cognitive theory of multimedia learning. Coupled with personalized music actions and behaviors outside the classroom, participants engaged in digital music as a social practice (DeNora, 2000; Green, 2008; Sloboda, 1985). Practical challenges for teacher and students included maintaining focus on specific learning tasks in the music classroom. The teacher

endeavored to harness the capabilities of ubiquitous Internet access to channel students' learning tasks. Similar and divergent issues surrounding music curriculum pathways seemed to divide information into historical and contemporary pathways. Thibeault (2009) and Tobias (2013) have documented this divergence previously. The teacher needed to address the needs of a highly diverse student body by serving motivated students and those with lowered incentive to learn. Desire to learn to play music was expressed by the participants, noting that they wanted to learn to make music in conventional ways.

Digital devices interlaced the students' lived musical experience throughout the day. The challenges included ambiguities in the school environment regarding personal digital device usages for personal consumption and learning tasks. The benefits of online access throughout a student's day included increased autonomy to build a musical identity and lead a musical existence. Analysis revealed varying behaviors and perceptions among the participants. In the next chapter, I discuss the relevancy of these perceptions to the future direction of music education.

## Chapter 7: Discussion, Conclusions, and Implications

This study focused on the evolving relationships between in school music learning and out of school digital music practices among a group of suburban New Jersey adolescents. I chose North Beach High School because its students represented diversity within a small town, as opposed to students in an urban school or a broader suburb of New York City. Within these parameters, I studied the musical involvement of a group of adolescents as they moved through their day. The findings revealed that the impact of participants' digital music consumption and production represented an increasingly complex set of issues in Mrs. Price's music class. Previous studies (Espeland, 2010; Green, 2008; Tobias, 2014; Yu, Lai, Tsai, & Chang, 2010) indicated contradictory states of understanding between music teachers and their students regarding formal and informal music learning. Additionally, some researchers suggested that commercialized digital media consumption influences classroom music instruction (Bahanovich & Collopy, 2009; Finney & Burnard, 2007; Patchin & Hinduja, 2010). Overall, music educators and their students can benefit from the practical application of multimedia learning theory (Mayer, 2002) coupled with an understanding that digitally delivered moving images and sounds create a third way of knowing (Carlisle, 2011; Green, 2011; Heath, 2001).

Elinor Overton-Price and four of her music students participated in the study. To prepare for the study, I reviewed the literature regarding adolescents' music making in formal and informal learning environments. Examining adolescents' musical lives outside of their school environment is a relatively new trend in music education research (Green 2002, 2008; Heath 2001; Jorgensen, 2009). Employing a qualitative design as described by Creswell (2009) and Orcher (2005) allowed me to examine the interconnected nature of the cases. The participants' behaviors and practices offered a rich description of their out of school music activities. Student participants offered their perspectives involving handheld digital devices, social media interactions, and experiencing music in conventional and digital ways. Data collected from the experience was extrapolated to expose similar and conflicting viewpoints. I determined that, after the data collection process, multimodal learning seemed a part of the students' daily experience. As common themes emerged, I related the findings back to my original research questions.

When I deconstructed the student participants' behaviors to reveal when their musical learning was happening, I discovered the significance of their out of school music experiences. Because I applied a social constructivist approach for understanding students' in school and out of school digital music practices, I

could account for participants' self-learning. When I connected the sampled information, I found evidence of the technology mediation phenomenon (Tripathi, 2005). Under formal and informal learning conditions, digital transference of information affected the participants' musical perceptions and actions. Understanding adolescents' social media practices is important so that teachers can be receptive to students' spontaneous and informal music making.

### **Digital Music Practices in the Music Classroom**

The purpose of Question 1 was to distinguish the behaviors and practices of the participants as they engaged with digital media in the music classroom. Through interviews and observations, Elinor Price's responses guided my goal to connect teacher and student perceptions with what was happening in the music classroom.

**Music technology in instruction.** With North Beach High School's growing interest in vocational education, and Elinor's drive to deliver a strong music curriculum, Elinor felt conflicted about the Music Technology program and the school's plans to launch a new Digital Media academic track. Even though North Beach High School planned to develop digital media instruction, it seemed unclear to Elinor how the school might distinguish elements of audio, video, and music within the curriculum.



Elinor strove to update Music Appreciation class by researching and applying project-based learning using GarageBand software. Yet, when Elinor and the student participants described their experiences with digital music software, hardware, and related social media, they claimed to be self-taught. For Jaime, Alex, and T.J., the self-learning aspect seemed an overarching theme.

In Music Appreciation class, the curriculum followed social and cultural aspects of music, composers, and society. The course covered music notation, the rise of music industry, and recorded music. To incorporate digital technology, Elinor designed projects exploring historical topics by using digital tools. In the classroom, Elinor attempted to reinforce the concept of attentive listening. Although the students required more time to develop connections to complex musical works, Elinor insisted upon repeating listening activities to promote learning, such as her lesson about Schubert's "Die Erlkönig" (O-CLS5). In this manner, Elinor provided students with opportunities to interact meaningfully and musically in the classroom, as recommended by current research findings (Green 2002; Isbell, 2007).

**In school and online.** The student participants spent significant portions of the school day interacting online. Overall, the student participants acknowledged that sharing music in social settings, whether face-to-face or

online, were an important way to bond with peers. Most participants felt the purpose of sharing music was to experience a personal, emotional reaction.

Adolescents' preferences functioned as a means to build self-identity through music. Online, adolescents grasped the perception of what is tasteful in popular culture. Finding supporting the frequent online sharing of digital music media seemed to align with more recent research of Greengard (2012), Rinsema 2012, and Tobias (2014).

### **Discovering, Sharing, and Producing Music Out of School**

To answer Question 2, I sought to understand student behaviors associated with recent phenomena. By clustering the textual data, three broad categories emerged: Digital music reception, self-production, and transmission.

**Students' perceptions of digital reception.** Digital reception encompasses a group of values and behaviors incorporating responses to digital media as a decentralized self (Jameson, 2003). Throughout the day, student participants perceived their online social exchanges as taking place in a simulated space (Finney & Burnard, 2007) where they could interact. The students' behavior correlates with recent findings describing how students navigate between physical and digitally mediated learning spaces (Greengard, 2012). At times, participants created alternate identities, what Mesch called "virtual personas"

(2009, p. 54), as evidenced by their on-screen names or avatars. When texting and messaging in and out of school, participants seemed to respond in the “nearly-now” (Whitby, 2010), which are the non-synchronous moments marking the timeframe of short digital exchanges. Jaime and Evelyn’s behaviors seemed particularly indicative of this phenomenon. For example, Jaime presented several distinct musical personalities as she expressed herself through various social media. Other examples of Jaime’s decentralized musical identity (Mesch, 2009) manifested in many different types of digital musical exchange. These exchanges included recording her tuba practice on her smartphone, exchanging hip-hop music links with a classmate via Snapchat, and posting her talent night performances on YouTube. When I asked Jaime if she felt any connection to making music in the school Jazz Band to listening to alternative R&B at home, she replied, “There’s not really a connection there.” (I-SAS6, p.10).

Like Jaime, Evelyn cultivated an online musical presence through her daily listening choices. Although Evelyn was a focused student, she often retreated to personal listening by using earbuds with her smartphone. Most obviously, if Evelyn chose to listen to music with earbuds, she would not participate in the group conversation. When I observed Evelyn with the group, there were times when she would turn away from the conversation and listen to

music through headphones (O-SAS4). Evelyn's musical activities appeared to be more than multitasking; rather, she simultaneously participated in face to face and digitally mediated conversations at the same time, many of which centered around her music listening choices. Evelyn and Jamie's highly personalized music listening habits seemed to align with current findings in music education research (Green 2002, 2008; DeNora, 2011; Griffin, 2011).

**Students' perceptions of digital self-production.** Alex, Jaime, and T.J. exhibited the most technical fluency in their musical activities. These participants demonstrated skill in manipulating digital audio and video files by posting recorded music on several social media platforms. I observed two distinct approaches as the students worked with digital media. The first approach incorporated highly focused listening, and the second approach involved creative problem solving to meet short-term goals. T.J. and Jaime exhibited the higher engagement approach during an out of school observation (O-SAF3). When listening to music out of school, participants' level of engagement seemed more focused than in Music Appreciation class. T.J. and Jaime intently shared a listening experience on a student laptop while manipulating files and giving each other navigation directions. When speaking about recording and producing their own digital music, T.J. and Alex expressed a heightened sense of musical

ownership. According to Green (2008), a principle in popular music skill acquisition centers around music choices. This principle seemed to apply to Alex, Jaime, and T.J. as they created their own digital music out of school, a process that required them to make purposeful, creative, and aesthetic choices.

Similar to Savage's (2005) research, the student participants in my study exhibited traits of troubleshooting, playfulness, and creative technical problem solving. These traits and skills seemed prominent in the informal observations, but not as pronounced in the formal classroom observation. In the classroom, presenting new content in a structured setting requires time management. In Music Appreciation class, students had the opportunity to apply creative troubleshooting in their choice board projects. Comparable to Snead's (2009) findings, the participants described an authentic engagement with their musical task because of connection to music of their choice. Through experimentation and play, participants taught themselves digital skills in an informal, experimental, and playful setting.

Secondly, participants seemed to approach their musical tasks with a short-term goal in mind. The students expressed a sense of immediacy surrounding the online sharing of student-created musical content. Participants produced, posted, and shared almost instantaneously, and the feedback about

that music would appear in an almost immediate response. This immediacy seemed apparent when Alex shared YouTube videos of his performances. Once he posted his videos online, he notified his friends via social media, and the comments quickly ensued.

Within the group of student participants, the concept of repetitive listening and extended musical preparation, in terms of digital production, did not seem a priority. In observations, the participants sought to listen to recordings and videos of classmates, and commented about the recordings online (O-SAF3, O-SAF4, O-SAF9). Although participants recognized privacy loss by sharing online, they spoke about situations where negative comments violated individual honor. Alex welcomed responses to his online videos by commenting, "For the most part, [online critique] is positive. I'm sure there's people who'll listen to 5 seconds of it and they'll just say 'nah,' but that they'll support me anyway" (I-SAS7, p. 14). Therefore, in online interactions, Alex seemed to want to engage with others via social media. The concept of highly participatory social cultures, as described by Jenkins (2009), fosters various relationships among students. When Alex and the other participants posted music online, they seemed comfortable with intentionally sharing their music with an Internet audience.

**Student perceptions of digital transmission.** Participants perceived social media platforms as simulated environments to transmit ideas, particularly about popular culture. In the classroom, Elinor used Edmodo as a portal for students to post comments in class via laptop. Outside of the classroom, the participants used Facebook Messenger, Snapchat, and other messaging applications to correspond throughout the day. When I asked the student participants to describe where they met after school, the participants replied that transportation problems and North Beach's limited venues left them with few choices (I-SAF2). Yet, instead of feeling isolated because they could not meet face to face, the student participants knew they could message and video chat with their friends online. Additionally, the students could adjust the settings on their digital devices so that the conversation seems private. Using digital devices, student participants exhibited expertise in networking, and seemed comfortable with cultivating close friendships online.

Concerning student behaviors, I found that digital reception, self-production, and transmission influenced the participants' point of view about music and music learning. Digital musicking shaped self-identity and identity within a group. Not only did digital music function as a backdrop for students'

out of school social interactions, it permeated students' musical worldview as they sought to learn music history and theory in their Music Appreciation class.

**Consumption across boundaries.** For student participants, music discovery and listening experiences appeared contextual and highly personalized. With the ability to digitally discover and share music across the physical boundaries of school and social life, it seemed difficult to pinpoint exactly when students acquired self-learned music skills. In their free time, student participants enjoyed almost unlimited Internet access and personal choice in media consumption. Likewise, it seemed difficult to discern when participants went online in an academic capacity, or to seek an entertainment experience.

Participants spoke of finding personal balance in digital and traditional music activities, especially when choosing music for out of school activities. Alex, for example, saved money to purchase his own recording equipment. Evelyn used her iPhone as a music player for many school and social activities. Jaime and T.J. liked to read about music and entertainment by checking news feeds throughout the day. Elinor took advantage of the students' interests by pursuing new connections to a wider range of musical experiences in class. Elinor acknowledged her students' strong connection to commercial media and its



availability during school. Nevertheless, Elinor stressed personal accountability for her students when they chose to access non-instructional media during class.

**Learning with digitally integrated modalities.** To see the convergence and divergence of participants' digital music media usage in the classroom, I considered the participants' learning tasks. Digital music discovery, production, and sharing seemed to possess a nonlinear quality (Juslin & Västfjäll, 2008). Student participants exhibited the ability to interpret content using multiple modalities. I observed T.J., Evelyn, Jaime, and Alex operating in a richly stimulating digital environment. In this manner, learning from digital media became conceptual; there was less deciphering of the written word and more focus on images and sounds. The participants' actions exemplified transmedia navigation, which Jenkins defines as "the ability to follow the flow of stories and information across multiple modalities" (2009, p. xiv). Additionally, the student participants' listening, reading, and comprehension skills seemed to adapt for the amount of time spent with digitally delivered information, correlating with Ma's (2015) findings.

For the student participants, communication via text messaging and email held as much significance as spoken conversation. Overall, the participants' informal music sharing practices, whether digitally mediated or physically

present, incorporated messaging applications. The interactions appeared similar to Carlisle's description of temporal use, or "immersive experience of interacting and making choices through the use of technology" (2011, p. 245). Even though the student participants in this study reflected a geographically limited lived experience, interaction via digital devices heightened their perception of "real, virtual, and hybrid spaces" (Carlisle, 2011, p. 245).

Whether viewing a smartphone screen, laptop monitor, or interactive whiteboard, the student participants often focused on a screen while listening to music. Mayer's cognitive theory of multimedia (2002), incorporating the thought processes of selection, organization, and integration, seemed evident in the participants' behaviors. According to Moreno and Mayer (1999), the verbal system processes auditory information, and the visual system deciphers visual images. For student participants, visual images integrated seamlessly into the consumption of digital music. Even if the visual image did not correspond with the aural prompt, the participants often focused on the screen. Therefore, the physical act of visual media consumption occurred during learning tasks at school, then after school, in casual digital media exchanges. To parse the musical elements from the moving image seems an outdated exercise for music

educators. Instead, music, as an aural expression, embeds in the daily experience of multimedia consumption (Ma, Yuen, Park, Lau, & Deng, 2015).

**The proliferation of digital handheld devices.** Perhaps one of the most intriguing findings involved the students' reliance on smartphones. Whether smartphones served as an agent of change in academic learning remained unclear. For the participants, smartphone ownership seemed directly linked to social status. The use of smartphones was contextual. Participants used the devices for a variety of communication tasks while in and out of school. At times, participants accessed their smartphones during classroom instruction.

Music education research attempts to keep pace with monitoring the effect of handheld digital devices. Katz's inquiry into the "phonograph effect" (1999) and Baker's investigation into girls' cassette recorder usage (2004) are examples of historically notable research exploring adolescents' usage of emerging music delivery systems. North and Hargreaves (2007) added to the body of literature investigating mobile phones in music teaching and learning. Baxter's study of students and mobile phones concluded that "students were happy to have their musical transactions on show as the same device as the music they consume" (2007, p. 61).

More recently, Griffin (2011) and Rinsema (2012) contributed evidence of adolescents' attitudes toward handheld music devices, specifically, iPods and .mp3 players. Greengard (2012) moved the agenda forward by conceptualizing students using digital files on mobile devices as digitally mediated music artifacts. Because modern smartphones offer improved functionality, the research of perceiving smartphones as musical devices continues to evolve.

Elinor cited several instances of student inattention due to accessing smartphones in class. "It's frustrating!" Elinor said. "It's the cellphone on the [music] stand all the time... I'll stop to talk and they're taking selfies... Making kissy faces, [but] not at me... (laughs)" (I-EOP8, p. 15). My classroom observations indicated that student participants used their smartphones as learning tools, yet Elinor did not incorporate the academic use of smartphones in Music Appreciation class (O-CLS5). Even though Elinor did not feel students ignored her instruction, she expressed frustration that smartphones distracted students in class. Elinor confided, "I'm generally lenient with cellphones in class, unless it's really annoying me that day" (I-EOP8, p. 16).

Other research may suggest that smartphones have a place in the music classroom as a useful learning device. Baxter advised teachers to "find ways of utilizing [mobile phones] for positive means, thus continuing to build the bridge

from out of school to in school” (2007, p. 62). Teachers and students can work cooperatively to design a learning experience combining music, smartphones, and creative student input. Specifically in music education, educators may consider taking an expanded role as the technological communications capabilities transform rapidly.

For the student participants, smartphone ownership seemed more important than access to laptop computers. Currently, in the field of music education research, there is nascent data about how adolescents use their smartphones specifically for music consumption. General data about adolescents and mobile phone usage are emerging through social science and industry research. According to Rinsema (2012), handheld digital devices, such as .mp3 players, allow users to manipulate audio files with much greater ease than any other music listening technology. The devices facilitate the ability to repeat, rewind, and review portions of songs. In this manner, listeners organize their autonomous musical experience.

When I asked Alex about adolescents’ fragmented listening experiences, he stated his personal philosophy of “music ADHD” (I-SAS2, p. 20). Alex explained how his friends would search, listen, and skip portions of popular songs, just to hear those portions that appealed in the moment. This behavior

seemed to align to Rinsema's (2012) findings, that adolescents organize and choose their listening behaviors that evoke high degrees of short-term emotional response.

### **Adolescents, Consumerism, and Digital Music Technology**

Access to Internet and digital resources will continue to rise as technologies improve and services become more affordable (Ma, Yuen, Park, Lau, & Deng, 2015). Young people will have an increasing number of choices in digitally delivered entertainment media. For example, commercial advertisements appear in the free versions of Spotify, iTunes, and YouTube, as marketing companies target young consumers. T.J., Alex, and Evelyn discussed with sophistication how they selected and purchased digital music and media artifacts.

Elinor seemed to recognize that her students' musical lives outside of school influenced how they learned in school. Because the participants in my study had Internet access, they were exposed to commercials, advertisements, and marketing campaigns during school. Elinor led conversations about digital media consumerism during Music Appreciation class, yet there was little evidence that media consumerism was taught in the music curriculum (O-CLS5). I did not find much evidence that North Beach High School responded to student

awareness of media consumerism. It was difficult to determine if the music teacher functioned as the only instructor addressing contemporary media consumerism at school. Given that students could access and purchase digitized entertainment artifacts during school, consumption of music for personal entertainment could occur in a formal learning setting. These findings illustrate the complexity of digitally mediated relationships in a school environment and add to the understanding of adolescent consumerist behavior.

### **Implications for School Leaders**

Institutional leaders need to consider whether they can and should mentor students who become involved in posting and publishing their own creative works on the Internet. Even if teachers and students receive training in using laptops for learning, it is difficult for curriculum designers to determine the parameters of social media instruction. Teachers who help students develop creative artifacts realize that this is a challenge, especially when developing guidelines for posting original material online. At North Beach High School, the school supported students by providing them with laptop computers, but did not fully consider the extent of creative media production outside of school.

**Incorporating music technology at school.** As careers in media technology expand, high schools should consider increasing educational

programs specific to music industry and media technology. If schools develop additional programs in communications, journalism, digital media and production, incorporation of musical elements should be included. Additionally, many secondary institutions are moving toward offering music industry and music business degrees. To prepare high school students for music industry fields in college and the workplace, high schools need to keep current with these changes. My observation of North Beach High School suggested the school was planning a Digital Media track, yet not including music instruction.

**Laptop programs and music learning.** In this study, I did not find evidence of an Internet accessibility gap within the student participant pool. Because North Beach High School provided student laptops, the concept prevailed that all students would have equal access to digital resources. Leaders in education might examine school communities utilizing different types of educational technologies, devices, and Internet access.

### **Implications for Teachers**

Within a close-knit and resilient community, Elinor and her students discovered ways to work together using common digital devices and Internet resources. Yet, the presence of digital devices in the classroom and a highly trained, motivated teacher cannot guarantee instructional effectiveness. In



Elinor's capacity as the school's educational authority for performing arts, she carried many responsibilities. Elinor strove to make music instruction relevant by accounting for a continuum of digital interactions. Consequently, Elinor's students expressed a high awareness of how popular culture permeated their lives.

The difference in student participants' viewpoints seemed to emanate from individualized interpretations of music listening experiences. The student participants spoke about their desire to play instruments and improve musicianship skills. Even while focusing on digital media, Jaime and Alex planned to major in music. Evelyn and T.J. enjoyed making music and expressed a desire to better their musical skills. Perhaps the role of the music teacher needs to be specific in teaching conventional music performance.

**Professional development.** Teachers can relate to students' behaviors in an organized way, connecting the knowledge to other practices currently used in the classroom. In building digital technology skills, a goal is to engage music educators in social and cultural thought as well as practical applications. Digital multimedia is a relatively new area for music educators to explore, so the potential for learning and teaching in this realm offers many exciting

possibilities. Writing about and speaking about music in the digital format offer ways in which students may express their thoughts.

**Prior digital musical experience.** Professional development and teacher preparation programs need to consider including music-specific training in educational technology. Music teacher preparation would encompass training in audio and video editing and manipulation and an overview of current music software. Additionally, teachers need time to play and experiment with digital devices. As online administrative tasks increase, it becomes important to preserve teachers' preparation time and music-specific professional development opportunities.

### **Suggestions for Further Research**

Student participants in my study told me their music preferences emerged in middle school. This data aligns with previous research findings from Davis (2005), Burnard (2008) and Griffin (2011). Other suggested studies include examining the effects of smartphones as music composition devices. I learned from the students that they rely on their smartphones as creativity tools. Music education research can venture into the realm of multimodal learning, considering how audio and visual images work together to evoke cognitive, emotional, and social responses. I suggest quantitative methodologies and

survey to measure adolescent media consumption and production. A study to examine the effectiveness of high school general music instructors who are currently teaching with computer-aided instruction is a worthwhile scholarly endeavor.

### **Final Thoughts**

Continuously influenced by cultural transformation, music education research needs to further track technology's impact on music teaching and learning processes. This dissertation adds to the growing body of research illuminating the millennials' perspective during an unprecedented digital technology revolution. Results suggest correlations between the commercialized state of digital media discovery, production, and sharing and its effects on classroom music contexts. Music educators have the opportunity to respond with a heightened understanding of the digital forces shaping the next phase of education. Ubiquity of instant communications exists, even though the lived experience is time-shifted by texting and messaging. Because of the innovative technological marketplace, the delivery method for music is individualized and asynchronous.

Today, teaching and learning music in and out of school is exciting and engaging for students and music educators. Teacher effectiveness requires depth

and detail specific to high school students' informal musicking. Schools make sizable investments in their technology implementation, so it is important to consider the impact of music education on educational technology as a whole. In the field of education, the investment in human and capital resources is one worth protecting and nurturing, because the quality of resources affects the outcome of students' learning.

## Appendix A: Notification of IRB Approval

Boston University Charles River Campus Institutional Review Board

25 Buick Street  
Room 157  
Boston, Massachusetts 02215  
T 617-358-6115  
www.bu.edu/irb



### Notification of IRB Approval: Initial Review

July 30, 2014

Teresa Nielsen  
Doctoral Candidate  
College of Fine Arts  
Department of Music Education

**Protocol Title:** Teen Playlist: Music Discovery, Production, and Sharing Among a Group of High School Students  
**Protocol #:** 3568E  
**Funding Agency:** Unfunded  
**IRB Review Type:** Expedited (6) (7)

Dear Mrs. Nielsen:

On 7/30/14, after review of your initial application received on 6/19/14 and your response to subsequent modification requests, the IRB has approved the above-referenced protocol in accordance with 45 CFR 46.111. Approval for this study is effective from 7/30/14 to 7/29/15.

In accordance with 45 CFR 46.404 and 46 CFR 46.408, the IRB determined that the research did not involve greater than minimal risk, and that the permission of one parent is sufficient. Consent will be obtained from parents and written assent will be obtained from minors.

This approval includes the following:

1. IRB Application. Approval to enroll 6 subjects.
2. Three Consent \ Assent Documents – Two Consent forms and one Assent Form
3. Two Recruitment letters – Teacher and student
4. Letter of Permission Form
5. Field Notes Observation Form
6. Two Interview Guides – Teacher and student

This approval is valid for one year, and will expire on **7/29/15**. Please submit a Continuing Review Application, which is located on our website (<http://www.bu.edu/irb/>), six weeks prior to the expiration of your study.


As the Principal Investigator, you are responsible for ensuring that studies are conducted in accordance with federal regulations, state laws, and institutional policies.

Please note:

- No subjects may be involved in study procedures prior to the IRB approval date or after the expiration date.
- All unanticipated problems or serious adverse events must be reported to the IRB immediately.
- All protocol modifications must be approved by the IRB prior to implementation unless they are necessary to eliminate immediate hazard to subjects.
- All protocol deviations must be reported to the IRB.
- All recruitment materials and methods must be approved by the IRB prior to use.

If you have any questions, please contact me at 617-358-6117.

Sincerely,

A handwritten signature in black ink, appearing to read "Ed Szkutak". The signature is written in a cursive style with a long horizontal stroke at the end.

Ed Szkutak  
Senior IRB Analyst  
Charles River Campus IRB

Enclosures

cc: Professor Joseph Pignato, CFA

## Appendix B: Letter of Permission to Conduct Research

November 13, 2014

RE: Permission to Conduct Research Study

Dear Ms. Attison,

I am writing to request permission to conduct a music education research study at North Beach High School. I am a doctoral candidate at Boston University conducting a dissertation project entitled *Teen Playlist: Music Discovery, Production, and Sharing Among High School Students*. The purpose of this study is to learn more about adolescents' out of school discovery, production, and sharing of digital music. Four students and one teacher will participate in this research study. Participation will occur at school and, for the students, in public social settings, such as the local public library.

Due to the nature of the study, I hope that the school administration will allow me to interview and observe Mrs. Elinor Overton-Price, general music and choral teacher, and her students in class. I am asking for your permission to contact the music teacher with consent forms. The process begins with obtaining the teacher's consent to participate in the study. With your permission, and the teacher's consent, I would like to make an initial visit to the music classroom in November 2014 and distribute a letter to the teacher's students, describing the study. I will then work directly with the students and their parents who wish to participate in the study. Students must be between 15 and 17 years old. Data collection consists of one 45-minute interview between the music teacher and the researcher at the beginning of the research period, regarding the teacher's digital music teaching practices, and one observation of the teacher and students in their general music class.

I am enclosing a copy of the teacher and student consent forms for your review. These letters contain details of the interview and observation procedures. If the study is published, only pseudonyms of the participants will be documented. There are no costs to the school or to the individual participants.

Your approval to conduct this study would be greatly appreciated. I will follow up with an email next week and would be happy to answer any questions or provide more details.

You can call us with any concerns or questions. Our telephone numbers are listed below:

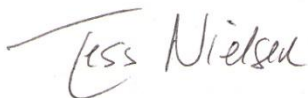
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Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-2811, [jpignato@bu.edu](mailto:jpignato@bu.edu).

If you have questions about your rights as a research subject or want to speak with someone independent of the research team, you may contact the Boston University Institutional Review Board directly at 617-358-6115.

If you agree, kindly sign the permission form and contact me at [t Nielsen@bu.edu](mailto:t Nielsen@bu.edu). I will pick up the forms at school.

Sincerely,



Teresa Nielsen, Boston University DMA Student

Enclosures:

School Permission to Conduct Research  
Consent Form for Teacher Participants  
Recruitment Letter for Students

cc: Dr. Joseph Pignato, Boston University



## Appendix C: Recruitment Letter for Teachers

Date: July 14, 2014

RE: Recruitment of Teacher Participants

Dear Teacher:

I am writing to ask if you would like to participate in a research study at your school. I am a Doctoral student at Boston University conducting a dissertation project entitled *Teen Playlist: Music Discovery, Production, and Sharing Among High School Students*. The purpose of this study is to learn more about adolescents' out of school discovery, production, and sharing of digital music. We are asking you to participate in this study because you are a public high school music teacher who uses hardware and software technology resources in your lessons and you teach the students participating in the study. Four student and two adult teacher participants will take part in this research study. Participation will occur at school and in public social settings.

With permission of your school administration, I hope you will allow me to come into your classroom, tell you and your students about the study, and invite you and your students to participate in the research. During the research period, I would like to interview you and observe you teaching a class. Data collection consists of one 45-minute interview between the music teacher and the researcher at the beginning of the research period, regarding the teachers' digital music teaching practices, and one observation of the teacher and students in their high school music class.

I am enclosing a copy of the teacher consent form for your review. It contains the details of the teacher interview and observation procedures. Should this study be published, only pseudonyms of the participants will be documented. No costs will be incurred by either you or the school. Before beginning the study, I will also attain parental consent of the student participants.

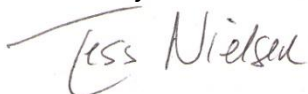
Please contact me at [tnielsen@bu.edu](mailto:tnielsen@bu.edu). Indicate if you would like to participate, or if you will decline. If you would like to participate, you must mail your signed consent form to "Mrs. Teresa Nielsen, 211 Woodland Avenue, Avon-by-the-Sea, NJ 07717." by October 31, 2014. Once I receive your signed consent form, you are considered enrolled in the study.

You can call us with any concerns or questions. Our telephone numbers are listed below:

Principal Investigator: Mrs. Teresa Nielsen, Boston University  
211 Woodland Avenue, Avon-by-the-Sea, NJ 07717  
(732) 925-4974, [tnielsen@bu.edu](mailto:tnielsen@bu.edu)

Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-2811, [jpignato@bu.edu](mailto:jpignato@bu.edu).

Sincerely,



Teresa Nielsen, Boston University

Enclosures:

Consent Form for Teachers

cc: Dr. Joseph Pignato, Boston University

## Appendix D: Recruitment Letter for Students

Date: October 22, 2014

RE: Recruitment of Student Participants

Dear Student:

With permission of your school administration, teacher, and parents, I would like to invite you to participate in a research study at your school. I am a doctoral candidate at Boston University conducting a dissertation project entitled *Teen Playlist: Music Discovery, Production, and Sharing Among High School Students*. The purpose of this study is to learn more about adolescents' out of school discovery, production, and sharing of digital music. We are asking you to participate in this study because

- You are a student who is between 15 and 17 years old.
- You are allowed to use age-appropriate digital media, including personal computers, Internet social media, creative software, video games, and handheld devices including cellphones.
- You can independently access and manipulate age-appropriate digital music resources.
- You are enrolled in your school's music class.
- You participate in music lessons designed with digital media.

During the research period, I would like to interview you and observe you in music class. Also, I will be interviewing you and other students outside of class, at public spaces, such as the local library. I am enclosing a copy of the student assent form and parent consent form for your review. It contains the details of the interview and observation procedures. Should this study be published, only pseudonyms will be documented.

If you would like to participate in the study, please share this letter with your parents. Ask your parents to contact me at [tnielsen@bu.edu](mailto:tnielsen@bu.edu) by November 26. Have them indicate if you would like to participate, or if you will decline. In order to enroll in the study, you will then sign the letter of assent, and your

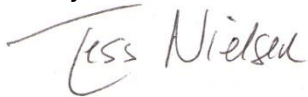
parents must sign the letter of consent. If you would like to participate, I will then expect to receive your signed consent form by December 1. Once you sign and return the assent and consent forms, you are considered enrolled in the study.

You can call us with any concerns or questions. Our telephone numbers are listed below:

Principal Investigator: Mrs. Teresa Nielsen, Boston University  
211 Woodland Avenue, Avon-by-the-Sea, NJ 07717  
(732) 925-XXXX, [t Nielsen@bu.edu](mailto:t Nielsen@bu.edu)

Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-XXXX, [jpignato@bu.edu](mailto:jpignato@bu.edu).

Sincerely,



Teresa Nielsen, Boston University DMA Student

Enclosures:

Consent Form for Student Participants

cc: Dr. Joseph Pignato, Boston University

## **Appendix E: Informed Consent Forms**

### **Consent Form for Teacher Participants**

#### **Introduction**

Please read this form carefully. The purpose of this form is to provide you with important information about taking part in a research study. If any of the statements or words in this form is unclear, please let us know. We would be happy to answer any questions. If you have any questions about the research or any portion of this form, please ask us. Taking part in this research study is up to you. If you decide to take part in this research study, we will ask you to sign this form. We will give you a copy of the signed form.

The person in charge of this study is Mrs. Teresa Nielsen. We will refer to this person as “the researcher” throughout this form. She can be reached at (732) 869-9777, or [tNielsen@bu.edu](mailto:tNielsen@bu.edu). Mrs. Nielsen’s faculty advisor is Dr. Joseph Pignato. He can be reached at (201) 766-2811, [jpignato@bu.edu](mailto:jpignato@bu.edu).

There are a few things you should know about this study:

- You get to decide if you want to be in the study.
- You can say “No” or “Yes.”
- Whatever you decide is OK.
- If you say “Yes” now, you can change your mind and say “No” later.
- No one will be upset if you say “No.”
- You can ask us questions at any time.

#### **Why is this study being done?**

The purpose of this study is to learn more about adolescents’ out of school discovery, production, and sharing of digital music. Participants will include both students and teachers, and data will be collected through interviews and observation of their interaction with digital media. The principal investigator, Mrs. Teresa Nielsen, is a doctoral candidate at Boston University. The project is being completed for her dissertation research. We are asking you to participate in this study because you are a public high school music teacher who uses hardware and software technology resources in your lessons and you teach the students participating in the study.

Four student participants and one teacher participant will take part in this research study. Participation will occur at the public high school site and in

public social settings. There is no funding agency or sponsor paying for this research to be done.

### **How long will I take part in this research study?**

We expect that the research will happen over two months. During this time, we will ask you to participate in one interview and one observation of your music class with the student participants. In order to enter the school, we will have the written consent of the principal and of the student participants' parents.

### **What will happen if I take part in this research study?**

- One 45-minute interview with the researcher at the beginning of the research period, regarding your digital music teaching practices.
- One observation of your music class with the student participants in attendance. The researcher will have written consent of the school principal and the students' parents.

If you agree to take part in this study, we will ask you to sign the consent form before we begin any study procedures.

### **Interview #1**

Interview #1 will take about 45 minutes to complete. At this visit, we will ask you to do the following:

- Ask about your musical and educational training and background.
- Interview you about your experiences with and observations of adolescents' digital music discovery, production, and sharing.

### **Observations**

We will come to your classroom and observe you teaching a lesson in which you use some form of digital media in the instruction.

### **Audio Recording**

We will record the audio portion of interviews and observations during this study. It will not be possible to identify you in the audio recording. We will store these recordings in a locked cabinet and only approved study staff will be able to access them. We will label these recordings with a code instead of your name. The key to the code connects your name to your audio recording. The

researcher will keep the key to the code in a password-protected computer/locked file. The files will be destroyed after the research is completed.

### **How Will You Keep the Study Records Confidential?**

We will keep the records of this study confidential by not using your name or students' names in the research. We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The following people or groups may review your study records for purposes such as quality control or safety:

- The researcher and any member of her research team
- The Institutional Review Board at Boston University. The Institutional Review Board is a group of people who review human research studies for safety and protection of people who take part in the studies.
- Federal and state agencies that oversee or review research

The study data will be stored at 211 Woodland Avenue, Avon-by-the-Sea, New Jersey, 07717. The results of this research study may be published or used for teaching. We will not put identifiable information on data that are used for these purposes.

### **Study Participation and Early Withdrawal**

Taking part in this study is your choice. You are free not to take part or to withdraw at any time for any reason. You will not be offered or receive any special consideration if you take part in this research study. Participants may choose not to be in the study or to stop being in the study at any time. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential.

Also, the researcher may withdraw you from this study without your permission. This may happen because:

- The researcher thinks it is in your best interest
- You cannot make the required study visits
- Other administrative reasons

**What are the risks of taking part in this research study?****Interview or Questionnaire Risks**

You may feel emotional or upset when answering some of the questions. You may tell the interviewer at any time if you want to take a break or stop the interview and observations. You may be uncomfortable with some of the questions and topics. You do not have to answer any questions that make you feel uncomfortable.

**Loss of Confidentiality**

The main risk of allowing us to use and store your information for research is a potential loss of privacy. We will protect your privacy by labeling your information with a code and keeping the key to the code in a password-protected computer.

**Are there any benefits from being in this research study?**

There are no benefits to you from taking part in this research. However, others may benefit in the future from the information learned in this study.

**What alternatives are available?**

You may choose not to take part in this research study.

**Will I get paid for taking part in this research study?**

You will not be paid for taking part in this research study.

**What will it cost me to take part in this research study?**

There are no costs to you for taking part in this research study.

**What happens if I am injured as a result of participating in this research study?**

If you are injured as a result of taking part in this research study, we will assist you in getting medical treatment. However, your insurance company will be responsible for the cost. Boston University does not provide any other form of compensation for injury.



**If I have any questions or concerns about this research study, who can I talk to?**

You can call us with any concerns or questions. Our telephone numbers are listed below:

Principal Investigator: Mrs. Teresa Nielsen, Boston University  
211 Woodland Avenue, Avon-by-the-Sea, NJ 07717  
(732) 925-XXXX, [t Nielsen@bu.edu](mailto:t Nielsen@bu.edu)

Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-XXXX, [jpignato@bu.edu](mailto:jpignato@bu.edu).

## Consent Form for Parents of Student Participants

### Introduction

Please read this form carefully. The purpose of this form is to provide you with important information about taking part in a research study. If any of the statements or words in this form is unclear, please let us know. We would be happy to answer any questions. If you have any questions about the research or any portion of this form, please ask us. Taking part in this research study is up to you. If you decide to take part in this research study, we will ask you to sign this form. We will give you a copy of the signed form.

The person in charge of this study is Mrs. Teresa Nielsen. We will refer to this person as “the researcher” throughout this form. She can be reached at (732) 869-XXXX, or [tnielsen@bu.edu](mailto:tnielsen@bu.edu). Mrs. Nielsen’s faculty advisor is Dr. Joseph Pignato. He can be reached at (201) 766-XXXX, [jpignato@bu.edu](mailto:jpignato@bu.edu).

### Why is this study being done?

The purpose of this study is to learn more about adolescents’ out of school discovery, production, and sharing of digital music. Participants will include both students and teachers, and data will be collected through interviews and observation of students and teachers’ interaction with digital media. The principal investigator, Mrs. Teresa Nielsen, is a Doctoral student at Boston University. The project is being completed for her dissertation research. We are asking for your consent to allow your child to participate in this study.

We are asking you because you are the parent or guardian of a child between the ages of 15 and 17 years old who uses digital media, including personal computers, Internet social media, creative software, video games, and handheld devices including cellphones. Your child has acquired some technological fluency and has some independent access to age-appropriate digital music resources. Your child is enrolled in a public high school general music class or music performance class. Your child uses some digital media in his or her high school music class, and participates in music lessons designed with digital media.

Four student participants and two adult teacher participants will take part in this research study. Participation will occur at the public high school site, and in public social settings. There is no funding agency or sponsor paying for this research to be done.

### **How long will my child take part in this research study?**

We expect that the research will happen over five months. During this time, we will ask your child to participate in two interviews at a mutually convenient location, one observation of his or her music class, and three observations of your child interacting with digital music in a social setting.

### **What will happen if my child takes part in this research study?**

- One 45-minute interview with the researcher at the beginning of the research period, regarding the child's digital music-making experiences.
- One 1-hour observation of your child in music class or private music lesson, to be arranged with the music teacher and parent/guardian.
- Three 2-hour observations of your child using digital music media in a public social setting. The public social setting will be a location where high school students meet socially for extracurricular purposes, such as a public music concert, public library, or after-school event held at the school campus. The location will be arranged with parent or guardian, student, and researcher.
- One 45-minute interview with the researcher at the end of the research period regarding the child's digital music making experiences.
- One meeting at the end of the study period so that the child may read and review what was said in the interviews and observations, and make any additional comments.

If you agree for your child to take part in this study, we will ask you to sign the consent form before we begin any study procedures.

#### **Interview #1**

Interview #1 will take about 45 minutes to complete. At this visit, we will ask your child to do the following:

- Ask about his or her musical and educational background.
- Interview your child about his or her experiences with digital music discovery, production, and sharing.

#### **Interview #2**

Interview #2 will take about 45 minutes to complete. At this visit, we will ask your child to do the following:

- Ask your child about his or her musical and educational background.

- Interview your child about his or her experiences with digital music discovery, production, and sharing.

### **Observations**

We will meet with the students in a public social setting on three occasions and observe your child performing tasks on the computer, and any digital device she or he may have, including cellphone, computer, and video games.

### **Audio Recording**

We will make an audio recording of your child's interviews during this study. It will not be possible to identify your child in the recording. We will store these recordings in a locked cabinet and only approved study staff will be able to listen to them. We will label these recordings with a code instead of your child's name. The key to the code connects your child's name to the recording. The researcher will keep the key to the code in a password-protected computer/locked file. The recordings will be destroyed after completion of the research.

### **How Will You Keep the Study Records Confidential?**

We will keep the records of this study confidential by not using your name or your child's name in the research. Interview sheets, observation forms, and transcripts will be coded, stored, and secured in a location in the researcher's home, specifically in a locked office file cabinet, and separate from the participant names. We will make every effort to keep your family records confidential. However, there are times when federal or state law requires the disclosure of your records.

The following people or groups may review your study records for purposes such as quality control or safety:

- The researcher and any member of her research team.
- The Institutional Review Board at Boston University. The Institutional Review Board is a group of people who review human research studies for safety and protection of people who take part in the studies.
- Federal and state agencies that oversee or review research.

The study data will be stored at 211 Woodland Avenue, Avon-by-the-Sea, New Jersey, 07717. The results of this research study may be published. We will not put identifiable information on data that are used for these purposes.

### **Study Participation and Early Withdrawal**

Taking part in this study is your choice. You are free not to take part or to withdraw at any time for any reason. Your child will not be offered or receive any special consideration if he or she takes part in this research study. Student participants may choose not to be in the study or to stop being in the study at any time. This will not affect their class standing or grades. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw your child from this study, the information that they have already provided will be kept confidential. Also, the researcher may withdraw the child from this study without your permission.

This may happen because:

- The researcher thinks it is in the child's best interest
- You or the child can't make the required study visits
- Other administrative reasons

### **What are the risks of taking part in this research study?**

#### **Interview Risks**

An expected risk is that your child may be uncomfortable with some of the questions and topics. Your child does not have to answer any questions that make him or her feel uncomfortable. You and your child may tell the interviewer at any time if you want to take a break or stop the interview.

#### **Loss of Confidentiality**

The main risk of allowing us to use and store your information for research is a potential loss of privacy. We will protect your and your child's privacy by labeling your information with a code and keeping the key to the code in a password-protected computer.

### **Are there any benefits from being in this research study?**

There are no benefits to you or your child from taking part in this research. However, others may benefit in the future from the information that is learned in this study.

**What alternatives are available?**

You or your child may choose not to take part in this research study.

**Will I be paid for taking part in this research study?**

No. You and your child will not be paid for taking part in this study.

**What will it cost me to take part in this research study?**

There are no costs to you or your child for taking part in this research study.

**If I have any questions or concerns about this research study, who can I talk to?**

You can call us with any concerns or questions:

Principal Investigator: Mrs. Teresa Nielsen, Boston University  
211 Woodland Avenue, Avon-by-the-Sea, NJ 07717  
(732) 925-XXXX, [tnielsen@bu.edu](mailto:tnielsen@bu.edu)

Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-XXXX, [jpignato@bu.edu](mailto:jpignato@bu.edu).

If you have questions about your rights as a research subject or want to speak with someone independent of the research team, you may contact the Boston University IRB directly at 617-358-6115.

## **Assent Form for Minors**

### **What is a Research Study?**

We want to tell you about a research study we are doing. Research studies help us to learn new things and test new ideas. People who work on research studies are called researchers. During research studies, the researchers collect a lot of information so that they can learn more about something. We are doing this study because we would like to learn more about adolescents' out of school discovery, production, and sharing of digital music. We are asking you to take part in this study because you are a public high school student between the ages of 15 and 17 years old who uses digital media, including personal computers, social websites, software programs that let you create or share your own music, video games, and handheld devices including cellphones. You are allowed to go on websites that are appropriate for teenagers, where you can access music and chat about music with others online. You are enrolled in a music class at your school, or you take private music lessons. Your music teacher uses websites, software, or digital recording devices to teach the lessons.

There are a few things you should know about this study:

- You get to decide if you want to be in the study.
- You can say "No" or "Yes."
- Whatever you decide is OK.
- If you say "Yes" now, you can change your mind and say "No" later.
- No one will be upset if you say "No."
- You can ask us questions at any time.

### **What will I do in this research study?**

If you decide to be in this study, we will ask you to take part in:

- One 45-minute interview with the researcher at the beginning of the research period, regarding your digital music-making experiences. I will ask you questions about the ways you discover new music online and the ways you listen to, create, and share music with computers, wireless tablets, and cellphones.
- One 45-minute interview with the researcher, at the end of the research period, regarding your digital music-making experiences. I will ask you questions about how you learn music in school and out of school, using websites, software, and digital recording devices.

- Three 2-hour observations of you using digital music media after school hours, in a public social setting. The public social setting will be a location where high school students meet socially for extracurricular purposes, such as a public music concert, public library, or after-school event held at the school campus. The location will be arranged with you, the researcher, and your parent or guardian.
- One 1-hour observation of you and your teacher in your music class or private music lesson, to be arranged with the teacher and researcher.
- One meeting at the end of the study period so that you may read and review what you said in the interviews and observations, and make any additional comments.

The research will take place over a 6-month period.

### **Audio Recording**

We will record the interview sessions that are part of this study. This will help us to remember what we talked about in the session. You may also ask to stop recording if you feel uncomfortable with any topic.

### **What else could happen to me in this study?**

Some of the questions in the interview might make you feel self-conscious. They might be hard to answer.

### **If I join this study, will it help me?**

- Subjects in the study will receive no benefits from their participation.
- However, we may learn something in the study that will help other students and teachers learn more about teenagers' digital music media usages.
- This study will help us to learn more about how teenagers interact with digital music media.

### **Will I be paid to do this study?**

No, we will not pay you to be in this research study

### **What will happen to my information in this study?**

We do not plan to tell anyone or share your name or other information if you join this study. However, there is a small chance that other people could find



out the information. We will do our best to make sure that does not happen.

### **Taking part in this research study**

You do not have to take part in this research study. You can say “Yes” or “No.” You can say “Yes” now and change your mind later. All you have to do is tell us you want to stop. No one will be mad if you do not want to take part in the study or if you change your mind about taking part in the study. Your parent or guardian can also decide to have you stop taking part in this study.

### **If I have any questions or concerns about this research study, who can I talk to?**

You can call us with any concerns or questions. Our telephone numbers are listed below:

Principal Investigator: Mrs. Teresa Nielsen, Boston University  
211 Woodland Avenue, Avon-by-the-Sea, NJ 07717  
(732) 925-XXXX, [t Nielsen@bu.edu](mailto:t Nielsen@bu.edu)

Faculty Advisor: Dr. Joseph Pignato, Boston University,  
(201) 766-XXXX, [jpignato@bu.edu](mailto:jpignato@bu.edu).

If you have questions about your rights as a research subject or want to speak with someone independent of the research team, you may contact the Boston University IRB directly at 617-358-6115.

### Appendix F: List of Recordings, Transcriptions, and Field Notes

<b>Protocol Code</b>	<b>Date</b>	<b>Action</b>	<b>Data</b>
I-EOP1	Friday, December 19, 2014	First interview with Elinor Price, Teacher Participant	Transcription
I-SAS2	Sunday, December 21, 2014	First interview with student participants	Transcription
O-SAF3	Sunday, January 11, 2015	First Observation of student participants in informal setting	Field Notes; Transcription
O-SAF4	Sunday, January 18, 2015	Second Observation of student participants in informal setting	Field Notes; Transcription
O-CLS5	Friday, January 23, 2015	Observation of Mrs. Price's classroom lesson	Field Notes; Transcription
I-SAS6	Monday, February 2, 2015	Second interview of Jaime	Transcription
I-SAS7	Thursday, February 5, 2015	Second interviews of Alex, T. J. and Evelyn	Transcription
I-EOP8	Friday, February 6, 2015	Second interview of Elinor Price, Teacher	Transcription
O-SAF9	Sunday, February 8, 2015	Third Observation of Students	Field Notes; Transcription
	Wednesday, February 11, 2015	Final meeting with teacher and student participants	Review and fact-checking

## Appendix G: List of Codes

### Group 1 Codes: Musical Actions Among Participants

AP_GB	Students using GarageBand
AP_ML	Taking music lessons
AP_MMI	Students making music with conventional instruments
AP_SAT	Students approaching teacher to share their recordings
AP_SC	Students attending concerts
AP_SD	Students dancing
AP_SE	Students using earbuds
AP_SEI	Students exchanging musical information
AP_SF	Student manipulating audio files
AP_SLY	Students listening on YouTube
AP_SME	Social Media Exchanges: Posting, listening, commenting
AP_SPS	Students performing in front of other students
AP_SR	Students rapping
AP_SRC	Students recording their own music
AP_SS	Students singing

### Group 2 Codes: Community Context

CC_1:1	One-to-one laptop school
CC_AC	Apple computer
CC_CMT	Creating a music technology curriculum
CC_CO	Course offerings - curriculum
CC_CS	Curriculum content standards
CC_DCT	District commitment to technology
CC_IP	Interdisciplinary project
CC_MEC	Music elective courses
CC_MP	Mainstream population
CC_MS	Middle school
CC_MTC	Music technology class
CC_SK	21st century skills
CC_STS	School technology support
CC_TE	Teaching experience
CC_TEC	Teaching extracurricular
CC_TMT	Teacher's musical training

CC\_TPD Teacher's technology training and professional development

Group 3 Codes: Feelings About...

FA\_MAP Positive approach to Music Appreciation class  
 FA\_PMC Pervasiveness of musical content  
 FA\_SACM Student's feeling about classical historical music  
 FA\_SDL Student's desire to learn  
 FA\_SL Student leadership  
 FA\_SLD Student learning differences  
 FA\_SM Student maturity  
 FA\_SMC Student's musical consumption choices  
 FA\_SPC Feelings about smartphones  
 FA\_SSM Sharing on social media  
 FA\_TA Teacher's awareness of students' music consumption  
 FA\_TACM Teacher's feelings about classical historical music  
 FA\_TL Teaching load  
 FA\_TVC Teacher vision for curriculum  
 FA\_VG Video games and video game music

Group 4 Codes: Influences

I\_EI Economic impact  
 I\_FI Family influence  
 I\_PP Peer influence  
 I\_SAD Student access to digital devices  
 I\_SIA Students' Internet access  
 I\_SLY Self-guided music learning with YouTube  
 I\_SR Students' influence by radio  
 I\_STC Small town community  
 I\_STM Self-taught musicianship  
 I\_VD Video games

Group 5 codes: Preferences Among Participants

PP\_AA Alternate assessments  
 PP\_ARB Alternative R&B music genre  
 PP\_HH Hip-hop  
 PP\_P Pandora  
 PP\_RM Rap music genre

PP_SDP	Student digital device preferences
PP_SMC	Student music consumption choices
PP_SMC	Students aspiring to study music in college
PP_SPL	Student personalized music listening

Group 6 Codes: Relationships among Participants

RP_FR	Family relationships
RP_IP	School interdisciplinary project
RP_LU	Students laptop usage
RP_PTP	Peer to peer exchanges
RP_SAT	Students approaching teacher for help
RP_SC	School building provides community space
RP_SDL	Students desire to learn music
RP_SEI	Students' exchanging musical information
RP_SSM	Students sharing on social media
RP_ST	Small town community
RP_TA	Teacher awareness of students' musical life
RP_TSR	Teacher-student relationship

## Appendix H: Sample Interview Questions for Student Participants

Name: \_\_\_\_\_

Time: \_\_\_\_\_ Date: \_\_\_\_\_ Location: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Grade level: \_\_\_\_\_

### Student Interview Questions

**Introduction:** Before we begin, I want to thank you for your time. I also want to clear up any of your concerns and questions and let you know exactly what we are going to do.

1. This interview will take approximately forty-five minutes. During that time, I will ask you a series of questions about you, your family, your friends, and your school. You do not have to answer every question. If you do not want to answer a particular question, simply tell me and that will be fine. If you do not understand a question, simply ask me and I will clear it up for you as best I can.
2. Remember that there are no wrong or right answers. I am looking for your opinions, feelings, and thoughts.
3. All the information you give will be kept strictly confidential. Only my advisors and I will hear this interview. No other people will hear this tape. Your name will not appear on this tape. I am recording so that I can be fully engaged and interact with you in this interview. I do not want to miss anything that you have to say.

Thanks again for participating. Do you have any questions before we begin?

Begin:           \*\*\*Record date, time, location, student code\*\*\*

### **1. Introduction and background**

- Tell me a little bit about yourself.
- How old were you when you started making choices about music you listened to?
- Do you play an instrument? Do you sing, dance, or act?

### **2. Social context and musical identity**

- Do your music interests influence your choices about music activities inside and/or outside of school?
- Do you like to listen to music with friends?
- Do you learn from your friends in real-time or asynchronously?
- How do you find out about new music or artists?

### **3. Learning Environments**

Out of school / Informal Environments

- What do you do musically after school? Do you take lessons?
- When do you usually listen to music?
- Do you like to make your own music?
- How do you learn new things about music?
- Do you think other people influence the music that you like?

### **4. Questions about music consumption and sharing**

- What kinds of music do you like to listen to?
- When do you listen to music?
- Where are you when you are listening to music?
- How do you listen to music—what devices do you use?
- Who, if anyone, do you listen with?
- Do you go to concerts?
- Tell me about your concert-going or live music experiences
- With whom do you play music or sing?
- How do you share music with friends?
- Do you talk about music, either online or face-to-face?
- Do you make songs for your friends? Do they make songs for you?
- Do you make music together? How and when do you collaborate?

**5. Questions about music production**

- Do you make music?
- Do you play an instrument? Do you sing, dance or do any activities with music?
- When do you play and sing? With whom?
- Do you sing or play music when you are alone?
- Do you make recordings of yourself playing music?
- Do you make recordings of anyone else's music?
- How do you make recordings? What devices do you use?
- Do you make your own songs? If so, how do you make and record these songs?

**6. Questions about digital devices**

- What are some of the digital devices that you own or have access to?
- Do you have your own laptop or desktop computer?
- What handheld devices do you have—tablet, phone, iPod?
- Are you a gamer? What gaming systems do you have? Do you play games that involve music?
- Do you have a cellphone? Do you listen to music on your cellphone?
- Do you use headphones? What kinds of headphones?
- What do you listen on—type of media and player?
- What is your favorite way to listen to music?
- How many recordings do you have? Do you have files, CDs, DVDs?
- What do you think of digital handheld devices?

**7. School and Formal Learning Environments**

- What kinds of music do/did you learn about and what kinds of activities do/did you do in music class?
- Do you enjoy your music classes?
- What do you like best about the class or the teachers?
- What digital technologies do you use to make and listen to music in music class?
- What do you think your music teacher wants/wanted you to do and learn in music class?



- How do you make music and listen to music in music class?
- What are your feelings about the music classes at your school?
- If you could have learned or done anything in music class, what would it be?
- Does your music education help you think about what you listen to outside of school?
- Do you take music lessons? Does your teacher use computers in music lessons? Does your teacher record the lesson?

**Closing:**

- Is there anything you would like to add about your musical life or your experiences in school music class or music in your everyday life?

Ending: Thank the student. Record the interviewer's impressions of the interviewee. What did the student look like? Were there any unexpected answers? Did the student seem engaged?

## Appendix I: Interview Questions for Teachers

PROTOCOL CODE: \_\_\_\_\_

Name: \_\_\_\_\_

Time: \_\_\_\_\_ Date: \_\_\_\_\_ Location: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

### 1. Introduction and background

- Tell me a little bit about your teaching practice
- How long have you been teaching at this school?
- What music classes and activities do you teach at the school?
- What is your background as a musician?

### 2. Social context and musical identity

- Tell me about the musical and cultural life of the school
- Does the school present concerts, plays, lectures about music?
- Are there ways outside the music classroom for students to musically engage at the school?

### 3. Learning Environments

#### Classroom Learning Environment

- Do your students make music and listen to music in your classroom? If so, how and in what ways?
- Do you use digital technologies to make and listen to music in your classroom? If so, which ones and how do you use them?
- What do you like best about your current music classroom with regard to technology, e.g., hardware devices and software configurations?
- Do you feel you connect classroom learning with students' out of school musical lives? If so, how and in what ways?
- Do you discuss with students their use of digital music technology?

- What would your ideal music program look/sound like?

#### **4. Out of school and Informal Environment**

- What do you know about your students' consumption, sharing, and production of digital music in the informal environment?
- Do you know which of your students takes private lessons, or who composes their own music?
- What do you think about the musical lives of those students who are very active with social media?
- Do you think other people influence the music that your students listen to?

#### **5. Observing Students**

- What are some of the behaviors that you observe in your students when they are interacting with digital devices?
- What digital devices are allowed at your school? In your classroom?
- Do you often see students with headphones? When are they allowed to use headphones on campus?

**Closing:** Is there anything you would like to add about your musical life or your experiences as a music teacher?

**Appendix J: Sample Interview Transcription with Teacher Participant**

Participant (P.): Elinor Overton-Price

Interviewer (I.): Mrs. Tess Nielsen

Site: North Beach High School

Time: 4:30 P.M. – 5:15 P.M.

Date: Friday, February 6, 2015

Duration: 00:30:00

This interview was recorded on an iPad and saved as  
"08\_interview\_teacher\_02\_06\_01.mp3"  
[00:00:00]

I. I do have a question about the class: What was the percentage of, like, juniors and seniors and sophomores in the class? Do you know?

P. In Music Appreciation?

I. Yeah, Music Appreciation.

P. Uh, let's see: I have... there's fourteen students. I have one, two, three... four, um... I think I have four freshmen in there. Sophomores... one, two, three, four... four-five sophomores... three or four juniors, and one, two three... Yeah. It's pretty split actually, it's about a quarter of each grade in my class.

I. It's really mixed!

P. Yeah, that is pretty mixed.

I. So, just go through with me again how you can take a music class. You have to fulfill your arts elective, or is that...

P. Yep. They have to take a visual or performing art. [00:01:00]

I. Just one.

P. Uhum.

I. One credit.

P. One class, yep, in order to graduate, so five credits of music or arts, and those are the only arts classes offered here. They don't have any more, there's no more, like, hands-on other classes. We used to have auto-shop, and we don't have any of that anymore.

I. Right, or like digital media or something.

P. We have digital media now, but that's an academy so they have to enroll in the academy and then take the... like, the tracked courses over the period of time. Yeah.

I. Oh. So, I was looking at that. With this school there's academy, sort of like RBR has.

P. A bit, yeah. They're trying, they're trying. But only one of them is running right now.

I. Which is the...

P. It's the Digital Video academy.

I. Do they accept out-of-district students?

P. Yes, very few. They—I think they're trying to get more, they're trying to go toward that to offer things that other schools in the area aren't necessarily offering.

I. Like what?

P. They're looking to do, um, like home health care, so you would... and you're... and you graduate with, you know, certification in

being able to work in a nursing home, or be a home [00:02:00] health care aide.

I. Wow. So you could work like that when you're eighteen. You could potentially get a full-time job when you're eighteen.

P. Right, exactly.

I. That's cool.

P. So that's what we have presented, but the only one that's running is digital video. I think we have, like, a pre-teaching one, I think there's a website – pre-teaching. There might be, like, pre-engineering and then, like... I mean, there's a lot more.

I. What interests me though—because I used to teach digital media, coming from the audio side of it: 50% of video is audio. So, do they ever come and talk to you about audio production, audio recording?

P. We were just talking about that today actually, about doing a collaborative project with Digital Video Academy and my Music Technology classes.

## Appendix K: Sample Field Notes – Classroom Observation

### Participants:

Mrs. Elinor Price, Music Teacher  
15 students (10 boys, 5 girls)

Site: North Beach High School

Time: 1:08 P.M. – 2:21 P.M.

Date: Friday, January 23, 2015

Length of Observation: 1 hour

### Essential Questions:

1. What are the participants' behaviors and practices as they consume, share, and produce music via digital media in their out of school lives?
2. To what extent are the participants' music teachers aware of the students' digital music consumption and production practices outside of the classroom?
3. Are there areas of convergence and divergence between participants' out of school digital media consumption, sharing, and production, and teachers' digital music usage in the classroom?

Descriptive Notes	Reflective Notes
<p><b>Classroom</b></p> <ul style="list-style-type: none"> <li>• Very comfortable classroom atmosphere</li> <li>• Band room, multipurpose music room</li> <li>• All students on wireless Mac laptops</li> <li>• Class begins with Edmodo question</li> <li>• Casual—it's Friday—teacher is dressed casually in jeans</li> </ul>	<p><b>A Lively Discussion!</b></p> <ul style="list-style-type: none"> <li>• Each student was looking at a different website during the discussion even though they were participating and listening to discussion</li> <li>• They were on different sites</li> <li>• Some were doing PowerPoint, some were blocking, writing, all had their hands on their laptops</li> </ul> <p><b>Student Engagement and Work Habits</b></p>

<ul style="list-style-type: none"> <li>• Band room posters on walls, some trophies displayed for band honors</li> <li>• SmartBoard, projector in front of classroom</li> <li>• Music staff board</li> <li>• Bell schedules posted on the walls</li> <li>• Yellow cinderblock walls, concrete floors covered with industrial carpet</li> <li>• Storage lockers for instruments in back of room</li> </ul> <p><b>Lesson Opening</b></p> <ul style="list-style-type: none"> <li>• Edmodo question two starts class discussion about radio</li> <li>• Class discussion</li> <li>• Once students started discussion, they were polite, listening to one another</li> <li>• Compare, contrast radio with Pandora</li> <li>• Students prefer Pandora because of the immediacy of response</li> </ul> <p><b>Music History Lesson</b></p> <ul style="list-style-type: none"> <li>• Students had a music packet with Schubert, Wagner</li> <li>• Teacher prepared the packet for the exam</li> <li>• Teacher using interactive whiteboard and projector</li> <li>• Schubert: “Unfinished Symphony,” 600 compositions, comparison of composers</li> </ul>	<ul style="list-style-type: none"> <li>• Some students reading the board, some on their laptops, one kid with headphones</li> <li>• Two students not paying attention at all</li> <li>• One boy is watching another boy do something on his computer screen</li> <li>• Those paying attention really enjoyed the poem</li> <li>• Teacher is hip - in touch with students’ likes and dislikes</li> <li>• Some students doing other homework while listening</li> <li>• They are listening it sounds pretty</li> <li>• Kids checking on phones</li> <li>• Kids sitting very still</li> </ul> <p><b>Connecting to the Lesson</b></p> <ul style="list-style-type: none"> <li>• Connecting to German lyrics?</li> <li>• Are students getting the details and nuance of the story that the teacher is trying to convey?</li> <li>• Teacher uses colloquial language--relating to Looney Tunes, and opera as collective culture</li> <li>• So many of these classical tunes are part of the collective culture do we need to teach/connect the background?</li> <li>• Assessment on even were points based how can you tell the amount of work put into the digital project question</li> <li>• Student asks why are the</li> </ul>
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<ul style="list-style-type: none"> <li>• German “lieder;” Die Erlkönig</li> <li>• Projected: on the board, read the poem describes the story</li> <li>• Play the question</li> <li>• Lights only partially off to watch video</li> <li>• Very good loudspeakers in room</li> <li>• Students were on phone during the listening portion</li> <li>• Did she mention about the German language</li> <li>• Teacher teaching the musical programmatic concept of tension</li> <li>• One kid playing a game in class, the other kid is watching him</li> <li>• Some kids are singing “Die Erlkönig” motifs</li> <li>• Teacher inviting students to read page 24 about Richard Wagner</li> <li>• Students reading from the packet which is also displayed on the board</li> <li>• Terminology –“<i>libretto</i>”</li> <li>• <i>Die Valkyries</i> – ride of the Valkyries</li> <li>• Teacher using appropriate terminology such as “<i>libretto</i>” and “<i>patron</i>”</li> <li>• The lesson is about the business of Opera and Wagner’s self-importance</li> <li>• Students checking on the phone</li> <li>• Although they are listening to the conversations, some are</li> </ul>	<ul style="list-style-type: none"> <li>conductors so intense</li> <li>• Students Snapchat in class</li> </ul> <p><b>Classroom Management</b></p> <ul style="list-style-type: none"> <li>• Picking up on discussion about conducting</li> <li>• It is a large class on Friday afternoon. Teacher urges to send in projects</li> <li>• Teacher hurrying the students along</li> <li>• There’s a group of students who are doing their work and a group of students who are slacking</li> <li>• Teacher walking around checking in with the students, asking individual questions</li> <li>• Students playing Minecraft in class</li> <li>• Animated cartoon time clock is posted on the whiteboard</li> <li>• Some students sending joke photos to her?</li> </ul> <p><b>School Culture</b></p> <ul style="list-style-type: none"> <li>• Rap is huge in the school culture</li> <li>• More talking as students are finishing up their projects</li> <li>• There is music playing in the background as students are working, a student is playing some music from his laptop that doesn’t have to do with the lesson</li> <li>• Obviously not all students are going to pay attention</li> </ul>
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<p>working on other projects</p> <ul style="list-style-type: none"> <li>• Listening to the music makes students perk up</li> <li>• Relating to popular culture</li> <li>• Music that permeates history</li> <li>• Video of acoustical orchestral performance</li> <li>• Edited to demonstrate music instrument groups</li> <li>• Video example of Valkyries</li> </ul> <p><b>Activity</b></p> <ul style="list-style-type: none"> <li>• The activity is the choice board in Edmodo</li> <li>• This is a project that the students have to complete for a project grade</li> <li>• Some students were working ahead on their choice board assignment while the teacher was lecturing</li> <li>• Teaching style teacher presentation/lecture for the first 25 min. of class</li> <li>• Work time in class. Students have 10 to 15 min. to work in class</li> <li>• Can use digital devices</li> <li>• Remix creates a deeper connection</li> </ul> <p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• Administering the choice board as a test grade</li> <li>• Example of project-based learning</li> <li>• Evidence of school spirit</li> </ul>	<ul style="list-style-type: none"> <li>• As a matter of fact, students are having diverging conversations across the room</li> </ul>
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<ul style="list-style-type: none"><li>• Teacher speaks directly to the students</li><li>• Students grouped in informal pairs</li><li>• They spent 10 weeks on “dead white guys”</li><li>• Baroque, classical, romantic</li></ul> <p><b>Sharing Projects</b></p> <ul style="list-style-type: none"><li>• Remix of Mozart piano Sonata with hip-hop beats created on GarageBand. Drums are particularly appealing to students</li><li>• Teacher critique and the students offered casual comments</li><li>• Conversations among students about sampling</li><li>• Other projects included a Chopin “Facebook page”</li><li>• One student finished her project during the time the teacher was giving the lecture in class</li><li>• Perceiving the sensations of music.</li></ul>	
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## Appendix L: Research Log

September 22, 2013 – *First Extension Approved*

Email received from Dr. David Kopp

Tuesday, January 28, 2014 – Assigned dissertation supervisor, Dr. Joseph Pignato

Monday, February 17, 2014 – *Initial Discussion*

Dr. Pignato and I discuss the project, 10:00 A.M.

February 20, 2014 – *Initial Written Feedback*

Dr. Pignato delivers initial written feedback

March 16, 2014 – *Delivery of Completed Proposal*

I deliver the full proposal, complete with IRB paperwork to my advisor

April 1, 2014 – *Delivery of Completed Proposal for Review*

April 22, 2014 – Dr. Kos informs that the IRB submitted is on old forms

May 5, 2015 – Nielsen, Pignato, Kos discuss the use of video in research

May 11, 2014 – *BU Music Education Graduate program announces that IRB materials should be sent directly to BU IRB offices.*

May 30, 2014 – I respond to Dr. Kos' IRB corrections / edits, deciding not to use video in research.

Friday, June 20, 2014 – Attended Mayday Group Colloquium at Gettysburg College

Wednesday, July 30, 2014 – IRB Approved by Edward Szkutak, BU Senior IRB Analyst

Friday, August 7, 2014 – Developed and delivered a list of potential research sites.

August 20 through November 12, 2014 – Inquired with 15 local high school and middle schools.

As of 11/18/2014 – Two schools demonstrated interest and I seek responses from:  
 \*\*High School names anonymized:

Monmouth HS—No	Middletown HS South—No
D.H. Sailor HS—No	Jackson HS—No
Markham HS—No	Central HS—No
Grovetown HS—No response	Brick HS—No response
Tuckahoe Boro HS—No response	Lincoln HS—No
Edison HS—No response	Middletown HS North – No
Point Beach Boro HS – No	Smith Township HS – No
North Beach HS – Maybe	Ravinia HS—No
Long Beach HS—No	Raritan HS—No
Jackson Liberty HS—No	

September 15, 2014 – Began a conducting fellowship with Continuo Arts Foundation, Inc.

September 15, 2014 – Began working at Rowan University as Supervisor of Music Education Student Teachers

Monday, October 13, 2014 – Participated in TI:ME online conference

Thursday, October 23, 2014 – Williams Middle School demonstrates interest

Wednesday, November 12, 2014 – North Beach High School demonstrates interest and signs letters of consent.

### Appendix M: Site Visitation Log

Wednesday, November 12, 2014 – *preparation*

North Beach High School demonstrates interest

Thursday, November 20, 2014 – *preparation*

Mrs. Attison and Mrs. Price sign letters of consent

Thursday, December 11, 2014 – *preparation*

Initial visit to North Beach High School to recruit student participants

Monday, December 15, 2014 – *preparation*

Two letters of parent consent / student assent obtained

Thursday, December 18, 2014 – *preparation*

Two more letters of parent consent / student assent obtained

Friday, December 19, 2014 – *Data Collection*

Second visit to the Music Appreciation Class from 1:08 to 1:30

First Interview with Mrs. Price from 3:00 and 4:30 P.M.

Sunday, December 21, 2014 – *Data Collection*

First interview with student participants

Sunday, January 11, 2015 – *Data Collection*

First observation of student participants from 11:00 A.M and 12:00 noon.

Recorded the conversation and took field notes

Friday, January 23, 2015 – *Data Collection*

Observation of Music Appreciation Class from 1:08 to 2:15

Tuesday, February 2, 2015 – *Data Collection*

Second interview with student participants, part 1

Thursday, February 5, 2015 – *Data Collection*

Second interview with student participants, part 2

Friday, February 6, 2015 – *Data Collection*

Second interview with Mrs. Price

Sunday, February 8, 2015 – *Data Collection*

Third observation of student participants

Wednesday, February 11, 2015 – *Fact Checking*

Final interviews and fact-checking with participants

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## Curriculum Vitae

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### EXPERIENCE

Rowan University  
Professor of Music (Adjunct);  
September 2014 to present

Montclair State University  
Instructor, Gifted & Talented Program  
June 2015 to present

Continuo Arts Foundation, Inc.  
Choral Conducting Fellow  
August 2014 to June 2015

Ranney School  
Performing Arts Director  
August 2002 to July 2014

Hope Presbyterian Church  
Music Director  
January 2011 to present

Key-East, LLC, Interactive Marketing  
Co-Owner / Project Manager  
September 1998 to May 2002

Music Sales/G. Schirmer Music Publisher  
Editorial Associate  
January 1992 to May 1995

### EDUCATION

Boston University  
Doctor of Musical Arts, 2016

New York University  
Book & Magazine Publishing  
Certificate, 1995

Catholic University of America  
MM, Vocal Pedagogy, 1993

Vienna Conservatory of Music  
Operetta and Musical Theatre  
Certificate, 1987

Virginia Commonwealth University  
BME, 1984

### TECHNOLOGY SKILLS

Outstanding educational technology  
leadership  
Excellent verbal, written, and  
presentational skills  
Adobe Creative Cloud; Google for  
Education  
Multimedia audio/video design  
Banner, Canvas, Blackbaud, TK20,  
Agile, HTML 5, Raisers' Edge  
Production workflow &  
troubleshooting

## CERTIFICATIONS & AWARDS

- Fluent in German; conversant in Italian and French
- Educational Testing Service, PRAXIS Music Education Rater, 2014-2016
- Festivals of Music Choral Adjudicator
- Monmouth County Teen Arts Choral Adjudicator
- Basie Award Nomination for Outstanding Musical Direction, 2014
- Ranney School Headmaster's Award for Outstanding Leadership, 2008
- Ranney School Summer Studies Grant, 2003, 2005, 2006
- NJ Certificate of Eligibility with Advanced Standing, Music K-12
- Danielson Framework for Teacher Training, 2014-2016
- Orff-Schulwerk Level 1 Certificate, 2007
- College Board AP Music Theory Teacher, 2008-2011
- Benjamin T. Rome Music Scholarship, Catholic University, 1990, 1991

## MUSICAL PERFORMANCE

Voice: Classical, jazz, and repertoire; 20 years of study and performance

Instructors: Sharon Christman; Elizabeth Kirkpatrick Vrenios.

Piano: Classical, jazz, theory and history; 25 years of study and performance

Instructors: Ron Elliston (Jazz); Landon Bilyeu (Classical)

Dance: Jazz and modern techniques; 10 years of study and performance

Organ: Westminster Choir College, Church Music Certificate, Princeton, NJ, 1996

## PUBLICATIONS AND PRESENTATIONS

(2016) Digital Music Discovery, production, and sharing among a group of high school students. (Doctoral dissertation) Boston University, Boston, MA.

(2015) American Jazz, Rags, and Blues. (Software course) Earmaster ApS, Egaa, DK.

(2014) Challenges and Rewards of Teaching Connected Children. *Two River Times* Red Bank, NJ.

(2012) Video Assessment in Music Education. NJMEA Summer Workshop. College of New Jersey, Ewing, NJ.

(2010) Media Convergence: The Digital Aesthetic and Its Implications in Music Education (presentation). NJAIS, Lawrenceville, NJ.

(2010) The Digital Aesthetic and Its Implications in Music Education (paper), Boston University Regional Conference, New Brunswick, NJ.

(2010) The Digital Aesthetic: Changing the Musical Mindset. *TEMPO Magazine* (January 2010).

(2009) Teaching Music in the Conceptual Age: Responses in Music Education (paper). The Arts Education Conference, Steinhardt School of Education, NYU, New York, NY.

#### PROFESSIONAL ORGANIZATIONS

Member NAFME, MTNA, CMS, ACDA, AGO, TI:ME, NJAIS.