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Hot for Teacher: Using Digital Music to Enhance Students' Experience in Online Courses

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Abstract

This article provides a review of the instructional potential of digital music to enhance postsecondary students' experience in online courses by involving them in music-driven instructional activities. The authors describe how music-driven instructional activities, when used appropriately, can (a) humanize, personalize, and energize online courses by enhancing social presence through student-to-student interaction; (b) tap into students' interests, and elicit positive feelings and associations; and (c) involve students in relevant and meaningful student-to-content interaction by engaging them in active knowledge construction. This article includes descriptions of several music-driven instructional activities that rely on digital music resources to engage students in generative, multisensory student-content interactions that leverage their interest in music, as well as a set of guidelines to support the design and use of music-driven instructional activities in online courses.

Keywords: digital music, eLearning, engagement, interaction, interest, music, online, social presence

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What we call music in our everyday language is only a miniature, which our

intelligence has grasped from that music or harmony of the whole universe which

is working behind everything, and which is the source and origin of nature.

~ Hazrat Pir-O Murshid Inayat Khan (1882-1927)

For many, music is an essential, valued part of life (Colwell & Davidson, 1996),

whether we hear it on the radio, stereo, Internet, or mp3 player, or listen to wind blowing

through the trees. Music surrounds us, and is integral to our experience of the world and

each other. From the dawn of time and for all societies, music has always been connected

to significant events: weddings, rites of passage, funerals, seasonal/cyclical changes,

religious venerations, agricultural activities, and so on (Blacking, 1995). It has also been

used as a way to pass stories on from generation to generation and between cultures (e.g.,

the Iliad and Odyssey were poems often recited to background rhythm and music). Music

has also been used to support work—such as cadences used during rowing and marching,

or the spirituals sung by slaves while working in the fields. Many of us can point to

specific music that identifies who we are (as individuals, members of various

communities, members of a family, and so on), or reveals a detail about ourselves that

others rarely see. Further, whether we recognize it or not, music plays an important role

in our learning and development (Campbell, Connell, & Beegle, 2007).

Music has the potential to humanize, personalize, and energize a learning environment or experience; elicit positive feelings and associations for learners; and engage learners in conceptual learning and knowledge construction. However, even with music's historical and societal context, and clear benefits for learning and human development, we have removed music as an instructional strategy from the postsecondary-education toolbox. The rise of Web 2.0 and social networking technologies, specifically those focused on digital music, provides new opportunities to integrate music into our courses—especially our online courses. In this article, we describe the potential of digital music as an instructional tool in postsecondary learning environments—specifically, online courses—and share specific instructional activities that use music as a catalyst for learning and development.

The Instructional Potential of Music in a Postsecondary Online Course

A-B-C-D, E-F-G... Now I know my A-B-Cs, next time won't you

sing with me. ~ Popular children's song

In postsecondary instructional settings (whether face-to-face or online), music is a powerful, untapped instructional resource with the potential to humanize, personalize, and energize a learning environment or experience; elicit positive feelings and associations for learners; and engage learners in active knowledge construction. Further, as Weinberger (1998) points out, "music offers great opportunities for communication and expression, for creativity and yep it's good for the brain and can enhance learning and intellectual development" (p. 39). Music is fundamentally human with biological roots (Weinberger, 1998, 2004). It has been linked to memory (e.g., Balch, Bowman, &

Mohler, 1992; Hickok, Buchsbaum, Humphries, & Muftuler, 2003; Snyder, 2000),

speech and language acquisition (e.g., Hickok et al., 2003), intelligence (e.g., Rauscher,

Shaw, & Ky, 1993; Schellenberg, 2005), emotion (e.g., Craig, 2007; Krumhansl, 2002;

Sloboda & Juslin, 2001), and identity (e.g., Hargeaves, Miell, & MacDonald, 2002). In

addition, music's potential to enhance students' learning and experience has been

documented in a variety of P-12 classroom settings, including foreign language (e.g.,

Salcedo, 2002), humanities and social sciences (e.g., Stovall, 2006), English as a second

language (ESL) (e.g., Griffee, 1990; Murphey, 1992), and history (e.g., Cooper, 1979).

Unfortunately, there is limited literature specifically addressing the effectiveness of

music as an instructional strategy in the postsecondary classroom (let alone the

postsecondary online classroom); a few examples of postsecondary research include:

- In one study, college students demonstrated improved spatial–temporal task
  performance after listening to Mozart (Rauscher, Shaw, & Ky, 1993). This was
  called the "Mozart effect" in the popular press.

- Adult learners in South Africa, exposed to instrumental music during an intensive
  English course, showed benefits in language learning (Puhl, 1989).

- Another study showed instrumental music as an effective inspiration for writing
  activities in an adult ESL classroom (Eken, 1996).

To complicate matters, the little research that has been conducted (e.g., Rauscher et al.'s)

has been over-generalized, leading people to discount the power of music. While many

would agree that simply listening to Mozart is not going to make someone a genius, more

research is needed to determine the specific benefits music can have (Abbott, 2007).

Despite the limited postsecondary evidence, and much of the controversy about the supposed "Mozart effect," we have found that music provides a means in which to (a) humanize, personalize, and energize online courses by enhancing social presence through student-to-student interaction; (b) tap into students' interests, and elicit positive feelings and associations; and (c) involve students in relevant and meaningful student-to-content interaction by engaging them in active knowledge construction—three attributes of effective student engagement in an online course.

Music and Social Presence

"Learning is a very human activity. The more people feel they are being treated as human beings – that their human needs are being taken into account – the more they are likely to learn and learn to learn" (Knowles, 1990, p. 129). From its inception, people have questioned whether students can be treated as human beings in online courses. Critics argue that the supposed absence of social cues in online courses interfere with the teaching and learning process (Berge & Collins, 1995). Despite reports of loneliness (Grubb & Hines, 2000; Robinson, 2000) and isolation (Bischoff, 2000; Ludwig-Hardman & Dunlap, 2003), online learning can be social, personal, and humanistic (Dunlap & Lowenthal, 2009a, 2009b; Lowenthal, 2009b; Lowenthal & Dunlap, 2010).

Researchers of online learning have argued that social presence—that is, the sense of another person as being "there" and being "real" (Short, Williams, Christie, 1976)—can be cultivated online (Gunawardena, 1995). And while everyone in an online course is responsible for establishing and maintaining social presence (Lowenthal, 2009a, 2009b), faculty have some additional responsibility to help establish and maintain social presence in online courses (Anderson, Rourke, Garrison, & Archer, 2001; Gunawardena, 1995).

When we design and teach online courses, we build in authentic and relevant opportunities for our students to interact, connect, and present themselves as real people (Dunlap, Dobrovolny, & Young, 2008; Dunlap, Furtak, & Tucker, 2008; Dunlap, Sobel & Sands, 2007). Students see these opportunities to socially interact and connect with others as foundational attributes of our courses. Further, research suggests that opportunities like these influence students' perception of the overall learning experience (Richardson & Swan, 2003; Tung & Deng, 2006). As a result, we have been using music as one of a number of ways to help students interact and connect with each other.

While we could not identify specific research on music and social presence in online courses, researchers have found that music can inform people about the presence and mood of others (Röcker & Etter, 2007), provide a sense of presence in educational virtual environments (Robertson, de Quincey, Stapleford, & Wiggins, 1998), and increase people's perceptions about the social richness of a medium (Kallinen, 2004). Further, and perhaps most importantly, music can help promote social interactions (Panksepp & Bernatzky, 2002), specifically the types of social interactions that are needed to connect with others and be perceived as real in online courses.

Music and Interest

Sadly, students rarely relate fun and interest with formal educational experiences. We contend, however, that education can be fun and interesting and that music is one way to get students interested and thinking differently about the subjects of their courses. In John Medina's book, *Brain Rules*, he describes 12 principles—or rules—for surviving and thriving at work, home, and school. Rule #4 is, "We don't pay attention to boring

things" (Medina, 2008, p. 71). He goes on to explain how our attention is influenced by memory (using our previous experience to predict when we should pay attention) and interest (personally important and emotionally arousing events get our attention, and tend to be better remembered than neutral events). Research suggests that music is important to adolescents and gets their attention and interest (Campbell et al., 2007; Stovall 2006); and that it "has its own aesthetic and social values, that it has considerable potential to connect with the everyday lives of adolescents, and that the informal processes of making popular music, such as improvisation and group composition, could make the educational experience more stimulating and more enjoyable to adolescents" (Campbell et al., 2007, p. 222).

Adolescents, however, do not stop listening to music as they age (Voblikova, n.d.). Just as music helps adolescents "construct, negotiate, and modify aspects of their personal and group identities, offering them a range of strategies for knowing themselves and connecting with others" (Campbell et al., 2007, p. 221), music helps people of all ages express their individual identities (Hargreaves, Miell, & MacDonald, 2002). Thus, music is important at every stage of human development (Campbell et al., 2007).

Integrating music into online courses, especially by allowing students some control over and choice in the music used, gives students a chance to begin their new learning with something they are already interested in. Because the context of the learning or assessment activity is based on something they enjoy, they have a real interest in proceeding with the activity, and are intrinsically motivated to work on and complete the activity. Intrinsically motivated students (Kinzie, 1990) are more likely to be engaged in instructional activities because they have a desire and passion to learn, are willing to

attempt more problems and solutions, and are focused on improving the problem-solving process (Condry & Chambers, 1978). Intrinsically motivated students will expend more effort on tasks and activities they find inherently enjoyable and interesting, even when there are no extrinsic incentives (Keller & Burkman, 1993).

Music and Content Interaction

The role and importance of interaction has been well documented in learning theory and research; it is the standard for student engagement and a critical component of learning experiences in both on-campus and online courses (Garrison & Anderson, 2003; Hannafin, Hill, & Land, 1997; Holmberg, 1993; Moore, 1989; Muirhead, 2004; Vygotsky, 1978). Interaction involves an event that takes place between the student and the student's environment, and its purpose is twofold: to change students and to move them toward achieving their goals (Wagner, 1994). Although much attention has been paid to the criticality of student-to-student and student-to-instructor interaction in online courses, student-to-content interaction is equally important because it is the key way in which students acquire new knowledge, skills, and abilities (Northrup, 2001), changing students' understanding or perspective (Dunlap, Sobel, & Sands, 2007; Dunlap, Furtak, & Tucker, 2009). Student-to-content interaction is a defining characteristic of education since it is "the process of intellectually interacting with content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind" (Moore, 1989, para 4).

Music offers a way to involve students in student-to-content interaction through generative learning activities—by having students compile playlists, write lyrics, compose songs, perform songs, create music videos, and so on. These types of music-

driven, generative learning activities require students to be responsible for creating, elaborating, and representing domain knowledge in an organized manner (Cognition and Technology Group at Vanderbilt, 1990, 1993; Hannafin, 1992; Scardamalia, Bereiter, McLean, Swallow, & Woodruff, 1989; Scardamalia & Bereiter, 1991). Through music-driven generative learning activities, students take an active role in forming new understandings through the application of learned content to the creation of musical products. This process of "generating" knowledge—instead of passively receiving information—helps students develop transferable knowledge structures, strategies, and skills (Grabinger & Dunlap, 1995).

Music-driven, student-to-content interaction also involves students in multisensory learning, further supporting knowledge acquisition and construction. Richard Mayer (2001/2007), a cognitive psychologist who has done considerable research exploring the link between multimedia exposure and learning, has consistently found that students in multisensory (e.g., sight and hearing) learning environments do better than students in unisensory environments: students have more accurate and longer-lasting recall and improved problem solving. Regarding music specifically, Mayer conducted several studies on the use of irrelevant background music and sounds in multimedia presentations and found that it leads to poorer student performance on tests of retention and transfer (Mayer, 2001/2007); Mayer refers to this is the coherence effect. However, the results of this research do not hold for meaningful music-driven generative instructional activities; if the music—and what students are asked to do with the music— is relevant and in direct support of learning objectives, the results are very different as illustrated by the research citations previously presented.

Music-driven student-to-content interaction is an effective way to engage students in working with content because it starts with the music itself and the students' relationship with the music as part of their day-to-day experience in the world instead of with the new concept or activity. Music-driven instructional activities support students' construction of conceptual knowledge within a personally relevant and meaningful context, enhancing long-term memory and transfer.

Music-driven Instructional Activities

We don't need no education. We don't need no thought control.

~ Pink Floyd's *Another Brick in the Wall, Part 2*

Music is tightly woven into the tapestry of our students' everyday lives, aided by the rapid technological developments of anytime-anywhere-anything digital music access (Hargreaves, Miell, & MacDonald, 2002). In fact, the timing is perfect for integrating music-driven instructional activities into online courses because of the advent of streaming digital music sites—or Internet jukeboxes—such as Finetune (http://www.finetune.com), Songza (http://www.songza.com), and Blip.fm (http://blip.fm), and the availability of free digital music downloads to showcase new artists (e.g., http://music.download.com) and creative commons licensed music for noncommercial or educational use (e.g., http://creativecommons.org/audio, http://www.beatpick.com) (see Table 1 for a list of some of the more popular music sites and a summary of their main features).

[PLACE TABLE 1 ABOUT HERE]

In this section, we describe specific instructional activities that draw on Web 2.0 applications and the patterns of behavior that are prevalent with social networking tools to support learning objectives and instructional goals in an online learning environment. Used to fulfill both learning and assessment needs in our graduate-level instructional design and technology courses (although, colleagues in other areas of education, computer science, arts and media, English, geology, history, and public administration—teaching at both the undergraduate and graduate level—have recently adopted some of these strategies, and report positive results), all of these music-driven instructional activities engage students in generative, multisensory student-content interactions involving authentic cognitive processing (e.g., summarization, extrapolation, assessment, evaluation, application, creation) that leverage their interest in music while enhancing social presence. When helpful to illustrate flexibility and compatibility, we describe ways in which the music-driven instructional activities can be used in disciplines other than education.

Activities for Enhancing Social Presence

Most online courses include biography-sharing activities as a way to help students get to know each other so they become more comfortable with working with each other and as a starting place for building online community. In our experience, the biographies students share via typical biography-sharing activities—while informative—can be dry and boring, lacking the engagement and level of personal sharing and connection needed to support the social-presence objectives of trust- and community-building. Instead, as a way for students to get to know each other in a more compelling and meaningful way, we

use music-driven instructional activities as a context for student biography sharing and storytelling throughout our online courses.

Soundtrack of your life. For the *soundtrack of your life* activity we ask students to share (a) a set of five to ten songs that represent the soundtrack of their life (see Figure 1); or (b) a set of six songs with two representing their past, two representing their present, and two representing their future. With their soundtracks, we ask students to share a brief explanation of why each song is included. Alternatively, we have had students compile and share their playlists, and then encouraged the group to ask questions to ferret out why each student selected the songs she or he did. Finally, we use students' playlists to consider the group's shared interests, differences, and so on (e.g., how many folks like jazz, or female songwriters, or sad songs) (see Figure 2). Through the playlists, students can learn the same information about each other they would have during a bio-sharing activity (e.g., employment status, marital/family status, generational status). However, they do this learning in a playful and engaging way. It is interesting how much students feel they know about each other because of the shared playlists, with students reporting strong feelings of connection with their course colleagues after the *soundtrack of your life* activity. Because this activity is focused on helping students get to know each other so they can better work together in an online course, this activity works well regardless of discipline area. As instructors we participate in this activity as well, sharing our own *soundtrack of your life* playlists. It helps students learn more about us, and provides a foundation for fruitful and productive student-instructor relationships.

[PLACE FIGURE 1 ABOUT HERE]

[PLACE FIGURE 2 ABOUT HERE]

What makes you rock? As an alternative to the *soundtrack of your life* activity—which entails sharing more than one song—we have students go to an Internet jukebox site like Songza (http://www.songza.com) or LastFM (http://www.lastfm.com) and find a song that motivates them in some important way. The song could be something that they like to listen to at the gym or something they like to relax to at the end of a long day or a song that has an important memory tied to it. In addition to sharing the song, students provide a brief explanation of why the song is important to them. This can be done at the beginning of a course as an icebreaker but we have had better success using it half way through the course to help students reconnect with each other. The stories students share about the music tend to be more personal once they have spent a few weeks in a course with each other. Again, because this activity is used to support student community building in an online course, it works well regardless of discipline area.

Activities for Supporting Learning and Assessment

We incorporate music throughout our online courses as a prelude to a learning activity, during previews and reviews of content, to illustrate or represent a new topic, to celebrate the completion of a unit or project, to set the tone at the start of a synchronous class session, as a transition between units or topics, and to reflect a unit or course theme. We have found that students are open to and enjoy any selection of music as long as it contributes to relaxation, alertness, and openness, and does not include offensive or explicit language. We have found online digital music libraries that allow free downloads

for noncommercial or educational use (such as http://music.download.com/ and http://creativecommons.org/audio) to be a great source of music for setting-the-stage purposes. Alternatively, to ensure a variety of music is shared throughout an online course, we ask students to contribute their suggestions; this also gives them ownership over the course's soundtrack, engaging them in course planning and facilitation. Then, as the course progresses, we build a digital playlist—using an internet jukebox tool such as Songza or Blip.fm—that includes all of the songs students have suggested. At the end of the course, we provide students with the URL for the playlist. This gives students a living artifact of our time together, and a contextual reminder of the learning activities completed, learning objectives achieved, and friendships developed.

      Concept-specific soundtrack. We involve students in a variety of soundtrack-creation activities in our online courses to fulfill both learning and assessment needs. For a *concept-specific soundtrack*, we present a course concept and then have students collect songs that offer insight and perspective on the concept. This activity works well as a unit or lesson starter because it immediately gets students involved with the concept in a fun and engaging way. And, the songs that they collect to represent the concept are often interesting grist for rich discussions about the concept (e.g., how the literature we are reading supports or contradicts the views expressed in the song, the possible circumstances that lead to the songwriter composing those lyrics, and how their own experiences are supported or contradicted by the song). For example, our students are in-service teachers, postsecondary educators, and corporate trainers and instructional designers. At the start of one of our courses—where we explore effective learning experiences in formal educational settings, and what makes those experiences effective—

we launch the assignment by having students collect songs about school and schooling (such as School's Out, We're Going to be Friends, Be True to Your School, Hot for Teacher, Rock and Roll High School, School Days, My Old School, Another Brick in the Wall Part 2, and so on). We compile all of these songs into one playlist using an online digital jukebox tool such as Songza.com or Blip.fm. Then, referencing the lyrical content of the collected songs, we discuss what the songs tell us about the experience of school—the good, the bad, and the ugly.

Presenting students with a predetermined set of songs (e.g., a playlist of five songs) and having them determine what the songs say about the concept is a variation to this soundtrack-creation activity. Using the course readings, lectures, and activities, as well as their own prior knowledge and experience, students can then engage in a discussion about the concept; they can describe what the songs accurately and inaccurately represent, what cultural-historical perspectives are reflected, what actions they would take to change the views expressed by the songwriters, and so on. Here are a few examples of ways to use a *concept-specific soundtrack* activity in other disciplines:

- Science - As a course starter, have students collect songs with lyrical content that mentions science or a specific scientific concept or topic. Songs collected might include: Biological by Air, Big Science by Laurie Anderson, She Blinded Me With Science by Thomas Dolby, Atomic by Blondie, Weird Science by Oingo Boingo, Chemical World by Blur, Genetic Engineering by OMD, Chain Reaction by Diana Ross, Sounds of Science by the Beastie Boys, E=MC2 by Big Audio Dynamite, and What We Need More of is Science by MC Hawking. Alternatively, provide students with a playlist that includes these songs as a

starting place, and encourage them to add to the playlist if they know of other songs that reference scientific concepts and topics. Referring to their collection, student can share what they see as the scientific conceptual themes expressed in the songs, and speculate as to the accuracy of the conceptual representations. Then, use the results of the discussion to point out to students that by the end of the course they will know exactly how the lyrics need to be changed to be accurate and complete from a scientific perspective.

- Astronomy - As a unit starter early in the course, have students listen to Eric Idle's "The Insignificance Song" and determine if the information shared in the lyrics is correct and complete. If students determine that the lyrics are incomplete in terms of explaining our galaxy, they can then work in pairs or small groups to add additional verses that provide the missing content.

- Political science - As a starter activity for a unit on the "Politics of War" for a course on 20th century politics, students can be asked to collect songs that represent both public support for and protest of wars during the 20th century. Referring to their collection, students can engage in a discussion about the perspectives reflected in the song lyrics, and how those perspectives tie to the historical, cultural, and political context of the time. For example, students might consider the nature of protest songs in the first half of the 20th century versus the second half, or the power of music during World War II to elicit support for the war effort versus the power of music during the Vietnam War to undermine support of the war effort.

Representational soundtrack. We use *representational soundtrack* activities for

both learning and assessment purposes in our online courses. A *representational*

soundtrack involves presenting students with a word (e.g., power), emotion/state-of-mind

(e.g., confidence), historical event (e.g., the Gettysburg Address), or a personal event

(e.g., when they felt like they had really succeeded at something) related to the topic or

concept we are studying, and then having them locate and share a song that represents

that word, emotion, or event. Students include an explanation of how and why the song

represents that word, emotion, or event for them, supported by the course readings and

their prior knowledge and experience; if we use this activity for assessment purposes, we

assess the quality of their explanation. Alternatively, students can engage in a 20-question

activity to discern why each student selected her or his song. We compile the songs into

one playlist using Songza or Blip.fm, and then often use the playlist to stimulate online

asynchronous and synchronous discussions; for example, we would take the playlist of

songs that represent "confidence" and discuss what insights the collection of songs

provide us about what builds people's confidence, and as educators what we can do to

enhance our students' confidence. The following are ideas for using a *representational*

soundtrack activity in other disciplines:

- English composition - Have students compile a playlist of songs that illustrate the

  effective use of metaphor, such as Stairway to Heaven (Led Zeppelin), Dust in the

  Wind (Kansas), Hazy Shade of Winter (Simon & Garfunkel), Bittersweet

  Symphony (The Verve), and Don't Let the Sun Go Down on Me (Elton John).

  Then ask students to support their choice of song for the metaphor playlist by

  explaining how and why the song's use of metaphor is effective. Similarly, one

could give students a set songs by the Beatles (such as The Long and Winding

Road, A Hard Day's Night, Yesterday, and Blackbird) and have students analyze

the effectiveness of literary elements such as symbolism, metaphor, and simile.

Another approach to a *representational soundtrack* activity is to have students

find a pop song, and rewrite it so that it no longer includes metaphors and

similes.

- Economics - Give students the word "economics" and have them compile a

  playlist of songs about economics with the goal of involving them in the

  deconstruction of the implicit economic theories behind the collective songs'

  lyrics. Songs in the playlist may include: Money (Pink Floyd), Money, Money,

  Money (Abba), Taxman (The Beatles), For the Love of Money (The O'Jays),

  Youngtown (Bruce Springsteen), and Union Sundown (Bob Dylan). *For more

  ideas on using music to teach economics, see the* "From Abba to Zeppelin: Using

  music to teach economics" *blog at* http://divisionoflabour.com/music/.

- Clinical Psychology - Have students compile a list of songs that represent "mental

  illness," with students sharing explanations for why they selected their songs.

  Then using the lyrical content of the songs, engage students in a discussion of

  what the songs tell them about someone's experience of mental illness. This

  discussion can then become the context from which the class begins to study

  mental illness, and the support and treatment of mental illness. Songs on this

  playlist may include: Lithium (Nirvana), I'm Only Happy When It Rains

  (Garbage), Manic Depression (Jimi Hendrix), Paint It Black (Rolling Stones), I

Wanna Be Sedated (The Ramones), No Rain (Blind Melon), and The Final Cut

(Pink Floyd).

A *representational soundtrack* activity can be used when launching a new topic to

discern what students understand about a topic, during a lesson or unit for formative

assessment purposes, or at the end of a lesson or unit for summative assessment purposes.

      Knowledge-comprehension recital. We primarily use the *knowledge-*

comprehension recital activity for summative assessment purposes. For this activity, we

have students (a) select a popular song and rewrite the lyrics or (b) write an original song

(everyone can write lyrics for a 12-bar blues, after all!) to reflect a topic or concept we

have been studying in the course. To perform their songs, we have used two strategies:

1. Students use an easily accessible Web 2.0 tool—such as VoiceThread

   (http://www.voicethread.com), Jing (http://www.jingproject.com) or open source

   tool like Audacity (http://audacity.sourceforge.net/)—to record their new song.

   Then, students post their songs for the class to enjoy and learn from.

2. Students perform their songs "live" using a synchronous conferencing tool such as

   Adobe Connect (if the institution has a license, as ours does) or freely-available

   Web 2.0 tool such as Skype (http://www.skype.com/).

For assessment purposes in either case, we care less about the quality of the performance

(for example, many students choose to sing or speak their lyrics over the original

soundtrack), focusing our assessment attention on the quality of their understanding of

the topic or concept based on their lyrics.

      A great example of a *knowledge-comprehension recital* activity is illustrated in

Figure 3. This Web page (http://www.cs.haverford.edu/songs/) shares song lyrics written

by Professor John Dougherty and his computer science students at Haverford College;

Professor Dougherty and his students take popular songs and compose new lyrics on a

computer science topic or concept. "Computational singing" is used by Professor

Dougherty to reinforce students' learning of fundamental computational concepts.

In spring of 2008, the Discovery Channel launched their "I love the [whole]

world" advertising campaign. The campaign features a revised version of the traditional

"I love the mountains" camping song with a distinctive chorus of "boom-de-ya-da, boom-

de-ya-da". After the campaign launched, several people started to create their own Boom-

De-Ya-Da songs with videos and posted them to YouTube (see

http://www.youtube.com/watch?v=at_f98qOGY0 for the original Discover Channel

advertisement with over 150 video responses from all over the world of other people's

Boom-De-Ya-Da songs). A more demanding activity because it requires a high level of

technology proficiency, the Boom-De-Ya-Da format is an appropriate alternative to the

knowledge-comprehension recital, encouraging students to not only share their songs

locally (with their online course colleagues) but globally via YouTube or other online

video sharing site (e.g, http://www.vimeo.com/).

[PLACE FIGURE 3 ABOUT HERE]

Music video. Related to the *knowledge-comprehension recital* activity described

above, we also have students create music videos to demonstrate their understanding of

course topics. There are several ways to have students create music videos, but here are

two strategies we have found consistently effective:

1. We provide all of the students with the same song, and ask them to present an interpretation of the song (on their own or in small groups) that reflects a specific course topic using 20-30 images of their choice; we encourage students to take their own digital photos, but allow them to use stock photos as long as they have acquired permission. For example, if we were teaching a mathematics course, we could ask students to creative a unique music video for Jonathan Coulton's song, Mandelbrot Set, using any visuals they believe will help students understand the concept specifically and/or fractals in general. Another example, for an English composition course, is to have students find examples of metaphor in the lyrics of a song, interpret the meaning of the metaphors they find, find or create images that depict the metaphors found in song lyrics, and then combine the images with the song to create a unique music video. We like this version of the *music video* activity because it allows students to see all of the different ways a song can be tied to a topic, illustrating the range of perspectives and applications of the topic to the world outside of the online course.

2. We ask students (on their own or in pairs or small groups) to create a unique music video to illustrate a particular course topic using any song and a set of 10-20 images. For example, if we were teaching a course on language, literacy, and culture, we could ask students to create a music video that illustrates the concept of diversity and social justice using images and music of their choosing (see Figure 4 for screen shots from a student-created music video on diversity and social justice). Or if we were teaching a course in sociology, we could ask students to create a music video that captured their views on how to represent

American society at the start of the 21st century using music and visuals of their

choosing (see Figure 5 for screen shots from a student-created music video on

American resilience and national pride at the start of the 21st century).

As with the *knowledge-comprehension recital*, our assessment focus is on students'

understanding of the topic. Therefore, we encourage students to use easy-to-use, readily

accessible tools to create their music videos, such as VoiceThread, Jing, and even

commercial tools like Microsoft PowerPoint. Their music videos can be shared locally

within the online course, or more globally using social sharing sites such as YouTube

(http://www.youtube.com), Vimeo (http://www.vimeo.com), SlideShare

(http://www.slideshare.net), and SlideBoom (http://www.slideboom.com).

[PLACE FIGURE 4 ABOUT HERE]

[PLACE FIGURE 5 ABOUT HERE]

Because music-driven instructional activities help us (a) humanize, personalize,

and energize online courses by enhancing social presence through student-to-student

interaction; (b) tap into students' interests, and elicit positive feelings and associations;

and (c) involve students in relevant and meaningful student-to-content interaction by

engaging them in active knowledge construction, we have found the music-driven

instructional activities described above to be very effective in helping us enhance

students' experience in our online courses. With each passing semester, we continue to

explore the use of music to support our learning objectives and instructional goals, and

continue to be amazed by the results of these activities. Music-driven instructional activities have been a fruitful—and fun!—addition to our online-course design and teaching toolbox.

It is important to note that students may not know or understand the legal ramifications of music sharing. Therefore, we discuss these issues with students when we embark on a music-driven instructional activity, and explain how they can go about gaining permission to use free, royalty-free, and purchased music for educational and noncommercial purposes.

Guidelines for Using Music-driven Instructional Activities

While we have found music-driven instructional activities to be an effective approach to enhancing our students' experience in online courses, it is important to selectively use these types of activities in relevant and authentic ways, and in the clear support of specific learning objectives and instructional goals. When designing any type of instruction, faculty and course designers need to take into consideration their audience—which is typically accomplished through a front-end analysis—as well as the learning objectives of the course. For instance, having students develop a music video, though engaging and fun, might not be the most effective instructional activity for certain audiences or certain learning objectives. Below are ten guidelines we recommend for designing music-driven instructional activities for online courses.

1. *Be selective*. As with any effective instructional strategy, it is easy to overly rely on it to meet instructional goals. However, even the most engaging and relevant activity can become tedious and boring for students if done too much. In our 15-

week online courses, we involve students in 1-3 music-driven instructional activities, depending on the learning objectives and the audience. We have found that using a variety of instructional activities, and sprinkling music-driven instructional activities here and there, is the best formula for maintaining an effective level of student engagement in our online courses.

2. *Provide a clear explanation about assessment*. Music-driven instructional activities are novel enough for most students that they may not have a clear understanding of what they are being asked to produce and share, even with the most detailed activity directions. Therefore, as is good practice with all learning activities, it is important to provide students with a clear explanation of how they will be assessed.

3. *Provide examples of the end result*. Related to providing a clear explanation about assessment, providing students with an example or a set of examples of the end result or product that they can review in advance of working on the activity can help make an abstract, unfamiliar activity crystal clear. Therefore, we suggest providing examples of the end result, so that students have a target to aim for.

4. *Model the sharing*. Music-driven instructional activities often involve personal sharing, where students expose something about themselves. Therefore, it is important to model the level and type of sharing involved by being a full and active participant in the activity. For every music-driven instructional activity in which we involve students, we share our own version of the end result. For example, for the *soundtrack of your life* activity, we share our own soundtracks. In this way, we model what we are looking for in terms of the product and

sharing, and show students that we are fully engaged in the process with them. Besides helping students more accurately understand the expectations, students also learn more about us, which can enhance social and teaching presence.

5. *Plan the instructional sequence*. Some of the music-driven instructional activities described above are used as unit starters, summaries, or culminating activities. In other words, they are not used as stand alone activities, but instead are part of an instructional sequence. Therefore, as is good practice regardless of the instructional activities involved, it is important to plan the instructional sequence so everyone knows how the music-driven instructional activity supports the other activities in the unit and learning-objective achievement overall.

6. *Invite the use of a variety of musical genres*. Not all students have the same taste in music. Since one of the reasons for using music-driven instructional activities is to involve online students in engaging, relevant activities, it is important to be clear that all musical genres are welcome. Therefore, when collecting examples or creating models to share with students, select examples and models to reinforce that there are a variety of musical genres to choose from, and all are welcome. Because some songs have lyrics that include inappropriate language or content given your audience, it is helpful to provide students with a set of guidelines for selecting songs to share, or engage them in a discussion in which they set the guidelines.

7. *Consider individual and pair/small group versions of the activities*. Music-driven instructional activities can be done by individual students or by students working in pairs or small groups. The biggest benefit of having individual students

complete a music-driven instructional activity is that each student has an opportunity to share her or his own work, demonstrate her or his own understanding, and explore her or his own creativity. Individual student contributions are very effective, for example, for soundtrack creation activities (such as the *soundtrack of your life*, *what makes you rock?*, *concept-specific soundtrack*, and *representational soundtrack* activities described above) and when individual assessment is appropriate. The biggest benefit of having students work in pairs or small groups to complete a music-driven instructional activity has to do with the negotiation involved in collaborating on a single product. For example, the *knowledge-comprehension recital* and *music video* activities are great candidates for student collaboration. The negotiation and collaboration involved in writing and performing a song or creating a music video could be instrumental in helping students further explore multiple perspectives and approaches, clarify understanding and dispel misconceptions, and build a product that goes beyond what students could have produced individually (Dunlap & Grabinger, 2003; Grabinger & Dunlap, 1995). Ultimately, the learning objectives of the course, the needs of the audience, and the time available for the activity (in online courses, asynchronous student collaboration can be time-consuming) must be considered when deciding whether or not to have students work as individuals or in pairs or small groups.

8. *Discuss ramifications of public sharing with students*. When involving students in the public sharing of their work (e.g., via YouTube, Songza, VoiceThread, SlideShare, or their own blog), it is important to make sure students are aware of

the possible positive and negative ramifications. If there is concern about public

access to what students are sharing, then consider having students share their

work within a learning- or course-management system, or restrict access to work

submitted on public sites.

9. *Introduce students to stable, easy-to-use tools*. In our courses, the focus of the

music-driven instructional activities is on the cognitive processing involved, not

on the tools. Although we want our students to learn to use Web 2.0 tools, we do

not want the tools—or, more specifically, learning how to use the tools—to get in

the way of the thinking, creating, and sharing related to the objectives of the

activity. Therefore, we introduce students to a variety of stable, easy-to-use tools

(with an emphasis on openly available Web 2.0 tools) that will help them achieve

the goals of the music-driven instructional activity, and then let them select which

tool is best for them. We then support students' use of the tools by providing job

aids and links to online tutorials.

10. *Scan the online horizon for other ideas.* More and more educators are exploring

the use of music in their online and on-campus courses. Using any search engine,

one can find several examples of how faculty in different disciplines are

incorporating music-driven instructional activities in their courses. So, as a

starting place, we recommended doing a simple search to see what others are

doing with music in the discipline, and then modifying and enhancing the

instructional activity based on the specific learning objectives and audience.

Following these guidelines, we encourage online instructors and course designers to

begin experimenting with music-driven instructional activities in their online courses.

However, formal and systematic research is needed to truly assess the value of
using music-driven instructional activities to enhance students' experience of online
courses. Therefore, we also encourage online instructors and course designers to engage
in the scholarship of teaching and learning, studying their unique application of music-
driven instructional activities to enhance students' experience in online courses within
their disciplines. In this way, those in the online-education trenches can help grow this
emerging area of inquiry, and provide needed insight that informs online-education
practices.

Conclusion

I think of all the education that I missed.

But then my homework was never quite like this.

~ Van Halen's Hot for Teacher

While working on this article, we have been inspired by listening again to
the *soundtrack of your life* playlists created by students in our online courses. The various
playlists bring back vivid memories of our time together and all that students
accomplished, and we feel that we know our students more fully because of the music-
driven instructional activities completed during the courses. According to end-of-
semester course evaluations, students consistently find these activities highly engaging
and a highlight of their online learning experience. Anytime-anywhere-anything digital
music resources available via the Internet have made it possible to effectively
integrate digital music to (a) humanize, personalize, and energize online courses by
enhancing social presence through student-to-student interaction; (b) tap into students'
interests, and elicit positive feelings and associations; and (c) involve students in relevant

and meaningful student-to-content interaction by engaging them in active knowledge construction.

Although some students may be turned off by music-driven instructional activities for a variety of reasons and we recommend conducting a thorough front-end analysis with learner assessment to determine appropriateness for specific audiences, we have found that because of music's universal appeal, most students see music-driven instructional activities as fun and interesting, enhancing their motivation to participate, contribute, and learn. Although maybe not quite "hot for teacher," music-driven instructional activities using online digital music resources enhance students' online course experience by engaging them in generative, multisensory student-content interactions that leverage their interest in music.

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