STRATEGIES FOR SUPPORTING MUSIC LEARNING THROUGH ONLINE COLLABORATIVE TECHNOLOGIES

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Introduction

Recent advances in online technologies coupled with increasing access to the Internet in American schools and at home have contributed toward a paradigm shift in the ways students use the Internet in their daily lives (Prensky, 2001). The shift toward a second generation Internet, often referred to as the *Web 2.0*, is defined and encompassed by number of new technologies designed to enhance social collaboration such as blogs, wikis, and streaming on-demand multimedia content (O'Reilly, 2005). Along with new tools have come more efficient, flexible, and easy to use Internet interfaces for creating media-rich online content. Participation in social networking sites such as Facebook.com and MySpace.com have spread rapidly among students here in the United States, especially among those in secondary and tertiary schools. A by-product of these recent developments is in essence a new vision of the Internet as not just a repository of information and conduit for communication, but instead as a highly interactive and highly personalizable collaborative platform for socializing, communicating, and learning.

What follows is a description and discussion of several online collaboration technologies including blogs, wikis, podcasts, and other online multimedia technologies, including recent projects by music educators and researchers that take advantage of the collaborative potential of the Internet. Though many of these tools were not specifically designed for music education, they can be easily adapted for use in and in support of a broad range of music education classes in secondary schools.

This chapter concludes with a summary of strategies music educators might use to extend the both physical and temporal bounds of their classroom by creating online music learning environments for students to engage collaboratively with music and with each other both inside and outside of class time.

Online collaborative tools

The use of online collaborative technologies is not new in education (Jonassen, et al, 2003; Sandholz, Ringstaff, and Dwyer, 1996) or in music (Theberge, 1993). However, recent developments afford new possibilities in the secondary music classroom. The defining aspect of these technologies is that they in some way enable collaboration or interactivity between the creator and the user. Whether or not these technologies are used by the teacher to support in-class activities, or used by students to share and discuss their work outside of class, these technologies have the potential to mediate music learning in meaningful ways. These technologies are often embedded in the social networking websites that many students visit and participate in everyday. Most of these sites include a combination of blogs and streaming media galleries. Because students are already

familiar with many of these technologies from outside the formal school setting, students may be well equipped to take advantage of these tools in their collaborative music learning experiences. Three major online collaborative tools – blogs, podcasts, and wikis – will be described and discussed in this section, as well as a discussion of how these tools have been utilized in a variety of music education projects to date.

Blogs

An easy way to understand a Blog is to think of it as an online journal. Just like a paper-based journal, an author makes regular entries called "posts" usually on topics of personal interest. As authors upload and post their thoughts onto their blog, their entries appear on the blog in a serialised manner with the most recent posts often appearing at the top of the page. While a blog is an Internet webpage, what differentiates from a traditional webpage is that a blog consists of dynamic content that is updated frequently, and the manner of posting content does not require programming. Instead, personalizable templates offered through blog hosting sites like Wordpress.com, Livejournal.com, Xanga.com, and Blogger.com are utilized. Most all blog sites have web-based interfaces for creating and managing blogs so that users do not need additional software or need to know HTML or other web coding languages.

Most blog sites allow you to compose a post using a WYSIWYG (what you see is what you get) interface similar to what you would find when writing an email. These interfaces provide the ability to easily add images, embed streaming music or video files, add hyperlinks to other websites, and have tools to customize the formatting and appearance of the text. Once a post is published on the blog, the author often has access to additional controls for managing reader comments, selecting and making adjustments to the overall appearance of the blog, and for making edits to prior posts.

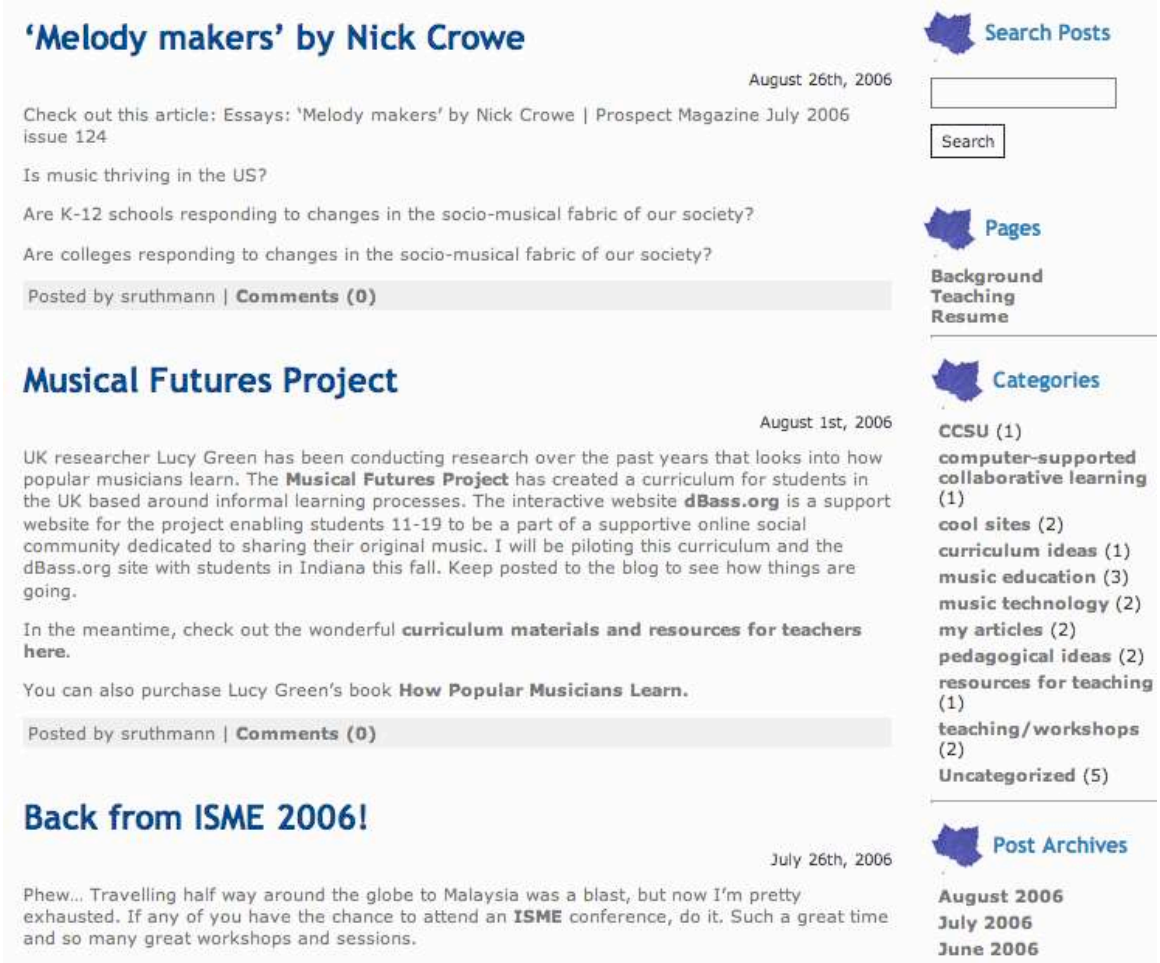


Figure 2. Example blog posting with sidebar

Figure 2 shows example posts and the sidebar from my blog at AlexRuthmann.com. Readers can search my blog for posts on specific topics, view blog posts sorted by categories, peruse archived postings, and access links to other sites on the Internet. Sidebars make it easy to navigate large blogs with many posts.

Another difference between a blog and a regular webpage is the ability for readers to easily add comments to blog posts. At the bottom of each post is a *Comments* link. Readers who would like to provide feedback to a particular post can simply click on that link to add their feedback, which is normally open for all readers to see. From this perspective, a blog becomes an interactive tool enabling readers and the author to easily engage in an online conversation through the "comments" feature.

Podcasts

A podcast is essentially an Internet-based radio station with online episodes that can be downloaded and listened to on demand. To create a podcast, one either records or uploads an audio file (e.g., a composition, a radio show, or a recording of a rehearsal) to an Internet server and attaches that file to a blog post. Using a feed aggregator, such as FeedBurner.com, the blog with attached audio files is transformed into a podcast which can be subscribed to by any podcast player (e.g., Apple's iTunes) or listened to via an embedded player within the blog.

A listener does not need an iPod or other portable music player to experience a podcast, however. All one needs is access to the Internet and the ability to play music online. One of the most popular sources for listening to podcasts is through Apple's free iTunes software[1]. In this software, listeners can browse podcasts and download "episodes" that are of interest.



Figure 3. Example podcast window from Apple's iTunes software.

Figure 3 provides a sample view of the podcast view in iTunes. The podcasts shown above were created by students in my secondary general music classes. Similar to a blog, the most recent episodes appear at the top of the podcast window. Listeners can read a description of the content of the show and then either download the episode to their computer or listen to the show through iTunes.

Another popular site for creating podcasts is Odeo.com. This free podcast hosting site allows users to record or upload a podcast for free and bypasses the need to set up a

[1] http://www.itunes.com/

separate blog to post your audio files. Odeo serves as the blog and file server for your podcast.

Wikis

A wiki is a website that allows users to easily view, add, and modify content on the website. It differs from blog and traditional website technology by being designed for large numbers of people to collaboratively create, edit, and publish a webpage or website. The most well-known use of wiki technology is Wikipedia[2]. Wikipedia is an online, publicly editable encyclopedia. The concept of a collaborate website that was co-created by me and my students and was easy to add to and modify is what initially intrigued me by this technology.

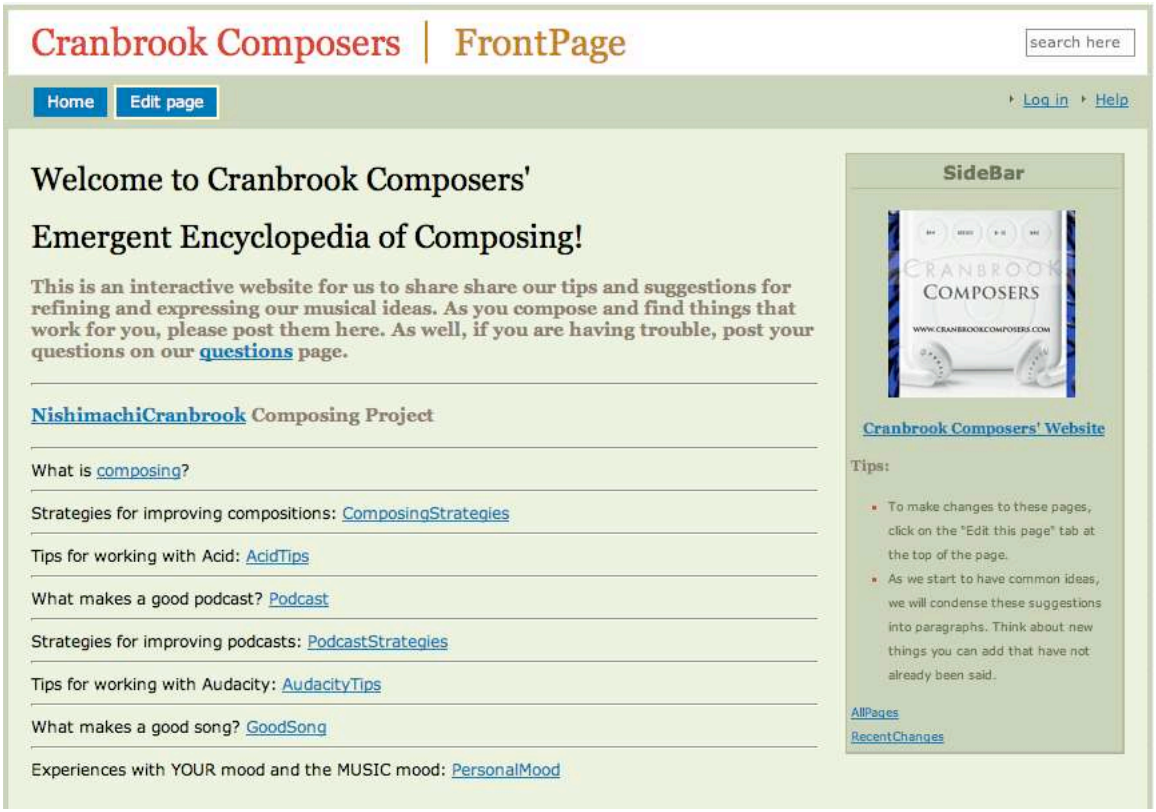


Figure 4. Example music education wiki.

There are many free wiki websites available for music educators[3]. In my own classes, I used PBWiki because of its easy of use and simple design. Figure 4 is a snapshot of one of the wikis created in my secondary general music classes. At the top of the picture is an "Edit Page" button. Clicking this button and signing in with the class password enables any viewer to have editing access to the content of the website. Most wikis come with a history feature that allows the Wiki owner/moderator to view and approve any and all

[2] http://www.wikipedia.com/
[3] Some popular wiki sites include PBWiki.com, JotSpot.com, and TiddlyWiki.com.

changes. As a teacher, you can choose to have all student modifications approved by you before being put up on the website, or you can cede responsibility to your students. The example wiki above is from the Emergent Encyclopedia of Composing[4] that was created by my students to support their creative projects in class. This will be discussed in more detail later in this chapter.

Recent projects using the Internet for musical collaboration

Music educators and researchers have been using the Internet to support collaborative composing experiences since the mid-1990s. Projects such as Netcomm and MICNet (Reese & Hickey, 1999) and the Vermont MIDI Project (Cosenza and McLeod, 1998) were pioneering in using the Internet to facilitate musical collaboration[5]. In each of these projects, student composers with paired with mentors which included professional composers, teachers, or collegiate music education students. In each of these projects, student MIDI or notation files were uploaded to a specially design website. In turn, mentors could view the site, read student comment, download the students computer files and offer comments and critique. The mentors would then post their comments for students to read. These early collaborative projects, however, required specially designed websites for their functionality. With recent developments in wiki, blog, and podcasting technologies, any teacher or student with a basic fluency with the Internet can create similar environments to support online musical collaboration.

In 2004 UNESCO launched the *Sounds of Our Water*[6] project as part of their Young Digital Creators project. The aim of this project was to provide an online platform for students to collaboratively compose music and sound compositions using recordings of water sounds from around the world. This site was the first project to use an online sample gallery consisting of recordings of water sounds made and submitted by student musicians and sound artists in the projects. Students were directed to record water-related sounds in their local area and upload them to the sample gallery. Then, students from around the world downloaded and integrated water sounds from the project into their own compositions. These compositions were in turn uploaded to the website for comment and feedback from members of the project.

Two recent projects (Bizub & Ruthmann, 2006; Seddon, 2006) utilized online collaborative technologies to facilitate cross-cultural composing projects among students in different countries. Seddon (2006) using email and the Norwegian-designed *Musit Interactive*[7] Internet-based composing platform explored the relationship between formal instrument tuition and collaborative composition among students in Norway and the UK. Bizub and Ruthmann (2006) conducted an exploratory study investigating the challenges and successes throughout an Internet-based collaborative composing project among students in Japan and the United States. The collaborative tools utilized in that study were

[4] http://cranbrookcomposers.pbwiki.com/
[5] For a thorough discussion of these projects in the context of their contributions to online musical collaboration, see Seddon (2006).
[6] http://unesco.uiah.fi/water/
[7] This technology was recently integrated into Music Delta – http://www.musicdelta.com/

embedded in a central website with links to free blogging, podcast and wiki tools.[8] Where the collaboration was primarily through email in the Seddon (2006) study, students in the Bizub and Ruthmann (2006) project used wikis along with email to collaborate with each other. While the wiki provided a space for students to collaboratively discuss and outline their compositions, students chose to communicate through a combination of wiki and email. Both the researchers and the students reported that the researcher-designed website which consisted of an amalgamation of third-party, free collaborative tools, was at times difficult to navigate and was not as easy to use as more familiar technologies, such as email.

Collaborative music websites are not unique to music education. Musicians and music companies have recently developed collaborative websites that also take advantage of similar technologies. DigitalMusician.net, AcidPlanet.com, and MySpace Music (a part of MySpace.com) are among a list of many new sites where students and amateur musicians can gather online to socialize, collaborate, create, and promote their music. AcidPlanet features free music sample collections from contemporary musical artists which can be downloaded by students to be remixed and uploaded to the site in monthly remix contests. MySpace Music provides an outlet for musicians to easily create free webpages with embedded streaming music players to share their music. DigitalMusician.net enables musicians to perform and record together live over the Internet with embedded video conferencing features. Nearly all of these sites allow musicians to post their compositions. Both listeners and fans can add comments to particular songs and to communicate directly with the musicians.

Strategies

Online collaborative technologies afford multiple possibilities for enhancing the learning experience of our students. The research studies, collaborative projects, and online music environments discussed above provide a small overview of how collaborative online technologies have been used in the past, while providing insights into how these technologies might best be used by music educators. The strategies shared below are drawn from my own experiences experimenting with and researching students' experiences using these technologies in my own secondary (Ruthmann, in press) and university music classes. In my own trials and experiments using online collaborative technologies to support my students' learning, I have been influenced by other innovative early-adopters[9] of these technologies in music education.

Peer-feedback/Peer-teaching

In my own teaching, the greatest educational value provided by blogs was the expanded online possibilities for peer-feedback and peer-teaching. When I taught secondary general music in a computer lab, I could not physically be everywhere to help answer students' questions and provide feedback on their compositions. Instead of viewing this negatively,

[8] Blogger.com, PBWiki.com, iTunes.com

[9] Special thanks to Steve Bizub and Marj Haber whose discussions, conversations, and collaborations influenced many of the ideas shared in this chapter.

I had my students create their own blogs for class where they could upload compositions[10] in progress for other students to listen to and provide feedback. During class, many students provided peer-feedback in person to their classmates, but the students also posted their compositions and questions to their personal blog. This was done to help enable students to provide feedback beyond our scheduled class time and as a means to document and assess their own collaborative creative process. Because blog technology is relatively simple to setup and use, students were easily able to upload their compositions (mp3 files, computer files, and screenshots) and provide feedback to each other in the form of comments in class, outside of class, before and after school, and at home.

Blogs can also be useful in supporting peer-feedback and assessment in a large ensemble performance setting. Many music educators in the United States are posting recordings of large ensemble rehearsals to course blogs. After recording the final run-through of a performance in choir, band, or orchestra class, the teacher can upload that recording to a blog and ask students to listen to the recording at home after class. Teachers can also post questions for students to reply to by adding a comment to the posted rehearsal recording. Through this approach, students outside of class can provide feedback to the teacher to help plan the next day's rehearsal or as a means for self-assessing individual, section, or large ensemble performances. In this case, asking students to comment on rehearsal and performance recordings is one way to democratize the roles of teacher and student, providing opportunities to share responsibility for rehearsal planning and performance (Shively, 2002).

Blogs as course websites

Teachers can use blogs as an easy way to create a website for their classes. For each class that I teach, I create a blog that includes links to the course syllabus, calendar, and to websites, documents and other files that the students will need throughout the course. As the course progresses, assignments are posted on the blog, including questions for student reflection. In class or at home, students can post their own reflections to the course blog for other students to read. Having students add their reflective comments to a class blog can be an effective and efficient way to have students read and learn from each others' comments. For the teacher, an advantage to using blogs as opposed to standard website technologies is that little knowledge of website coding is needed to create a blog. All blog hosting sites provide a selection of professionally designed templates suitable for use in education[11].

Online media and music sample galleries

Online collaborative technologies can provide opportunities for students to engage in a "discourse in music" (Folkestad, 1996) through the use of online media and music sample

[10] Students would often upload an mp3 file of the composition along with a screenshot of their composition so that students could listen to the file and see the visual representation.
[11] A blogging service specifically designed for use by educators along with example blogs can be found at http://www.edublogs.org/.

galleries. Collaborative music websites such as dBass.org provide an online space for students to upload music samples they create to be shared with other students on the website. This group-constructed and shared sample library allows students from different geographic locations and cultures to interact directly through the sounds and music they create. As an example, a student in the United States could upload a field recording that in turn could by used by a student in Japan in a composition.

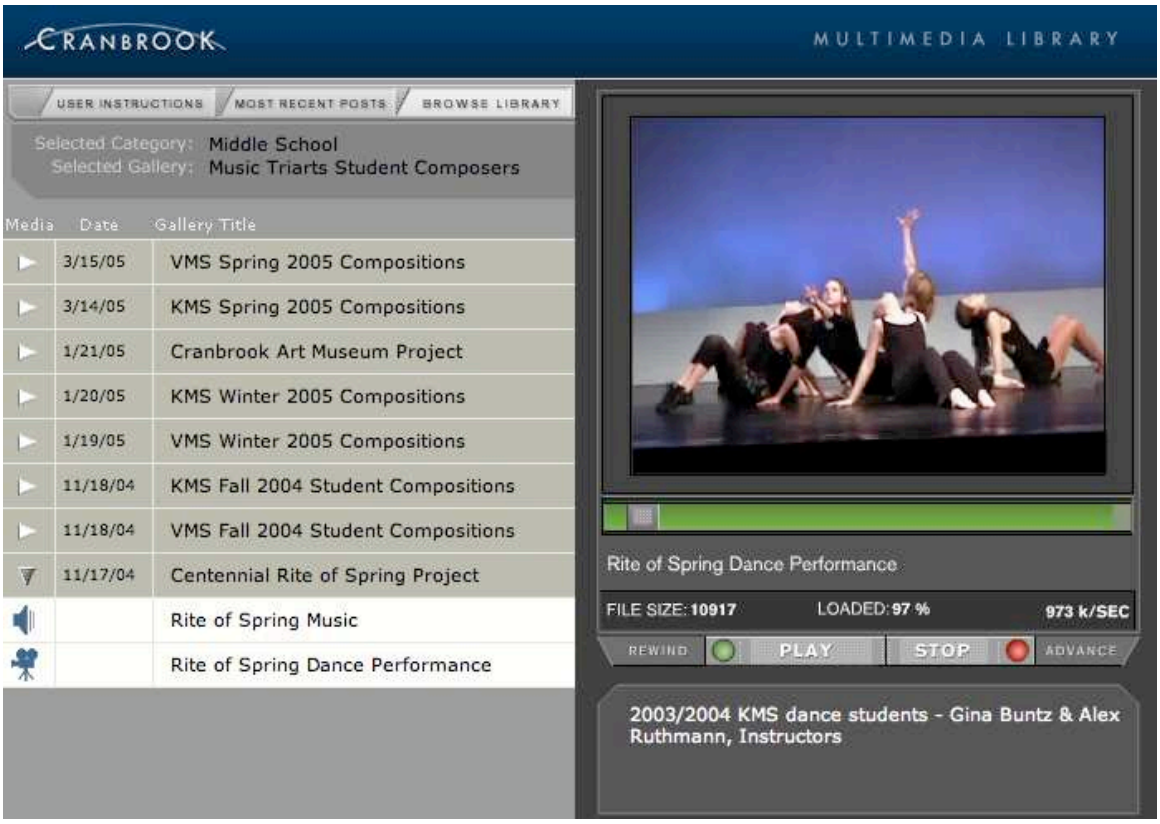


Figure 5. Example online media gallery.

These technologies are not limited to uploading and sharing short musical samples. Students' full compositions, images, and even videos can be embedded in and shared through online galleries. Figure 5 shows the online media gallery used in my secondary general music courses. At the beginning of each term in my composing-based courses, I asked students to listen to and critique the compositions from prior courses. The student composers in my courses often drew compositional ideas and techniques through listening to the music composed earlier by their peers and frequently revisited this online archive of compositions throughout the course of the term for creative ideas.

Free audio hosting/podcasting websites such as Odeo.com provide an easy way for teachers and students to create an online audio gallery similar to that shown above. Using Odeo, students and teachers can upload multiple audio files hat will be streamed on demand with the rest of the class. The website also allows students and teacher to add comments to the tracks. Though Odeo is limited to working with mp3 files, many free

software programs, including iTunes and Audacity[12], can convert between mp3 and other file formats.

New developments in Flash-based video streaming technology enable students that have access to digital camera or Internet webcam technologies to record themselves and easily share their videos online. Google Video[13] and You Tube[14] are two popular streaming video sites where students can view videos of historical music performances, of lessons, and virtually any other topic. These technologies enable teachers and students to upload up to 10 minutes or 100Mb of digital video for free to these servers. Both Google and YouTube have privacy filters that enable users to limit access to the video. Once videos are uploaded to these servers, the user can embed the Flash-based video on a website, in an email or on their personal blog. The main advantage to Flash-based video streaming/storage services is that storage for the video is free and easy to manage. However, Flash-based videos on these sites are often of low quality. As a result, teachers need to consider the trade-off between video quality and ease of use coupled with free hosting.

Wikis as spaces for group collaboration

The power of wikis to support music learning is rooted in the democratic and collaborative nature of the technology (Sandholz, Ringstaff, & Dwyer, 1996). Any user with a password can enter a wiki and add, edit, or remove content. Figure 4 shows the main entry page for the Emergent Encyclopedia of Composing[15] developed by my students over a period of two years. I was initially drawn to wiki technology as a way for my students to collaboratively build an emergent online database of compositional strategies. Over the course of my classes as students found compositional techniques that were particularly effective, students posted their strategies and techniques to the class wiki. As additional areas of interest arose, new sections were created to meet the needs and interests of the student composers. Students were also encouraged to post challenges they encountered in the " Questions" section of the wiki so that I as teacher or their peers could provide feedback and help in class or online. Because this wiki was used for many classes over multiple semesters, it became a valued tool by my students because the strategies and feedback on the site came from and reflected the lived compositional challenges of their peers.

As moderator of the wiki, I had the ability to review all student additions and changes to the wiki before they were posted. However, most of the time I did not need to take advantage of this feature. Opening the wiki to unmoderated comments may not be the best choice in all situations, though. Teachers should take into account the maturity of their students in particular when deciding to moderate comments.

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[12] Audacity is a free basic audio editing program available at http://audacity.sourceforge.net/

[13] http://video.google.com/

[14] http://www.youtube.com/

[15] http://cranbrookcomposers.pbwiki.com

Wikis could also serve as a useful tool to support beginning instrumental ensembles or those studying a common instrument. Teachers could set up a wiki for each instrument group in their classes and post musical exercises, warm-ups, fingering charts and tips for playing. One example could be to ask students to post on the wiki when they found successful practice strategies at home. These students could then share their successful strategies with their peers via the wiki. Alternatively, those students who faced a particular challenge could go to the class instrument wiki to find help…again from their peers. This emergent record of students' successes and challenges could serve as a useful tool for informal assessment for the teacher. Wiki posts could then be used to gain insight into students' habits of practice and to influence future lessons or rehearsals.

Summary

Newly emerging online music learning communities such as dBass.org, MusicDelta.com, and SoundJunction.org, which integrate many of the online collaborative tools discussed in this chapter, have the potential to address some of the barriers and challenges faced by early adopters using an amalgam of free, third-party tools currently available. These professionally designed online music learning communities will no doubt lead to new and exciting possibilities for online collaborative music learning in the near future. The potential is high for online collaboration technologies to enhance the music learning experiences of students in secondary schools. As social networking and online collaborative technologies continue to develop and become more pervasive in students general online experiences, music educators should take the time to evaluate the numerous and constantly changing technologies available for how they might enhance and extend learning both within and outside the physical and temporal bounds of their classrooms. The challenge for secondary music educators using these technologies will be how to best connect to and adapt the online tools and social environments prevalent in our students' lives to support learning and teaching in our music courses.

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URLs

Music Education Blogs

Music Education Blog Collective - http://collective.musiced.net/
Alex Ruthmann – http://www.alexruthmann.com/
Jon Savage – http://www.jsavage.org.uk/
Evan Tobias - http://etobiasblog.musiced.net/

Music Education Wikis

Cranbrook Composers' Wiki – http://cranbrookcomposers.pbwiki.com/
Nishimachi/Cranbrook Wiki -
http://cranbrookcomposers.pbwiki.com/NishimachiCranbrook

Social Music Learning Websites

UNESCO Sounds of our Water Project - http://unesco.uiah.fi/water/
Musical Futures Project – http://www.dbass.org
Acid Planet – http://www.acidplanet.com/
Music Delta – http://www.musicdelta.com/
Sound Junction – http://www.soundjunction.com/