Music technology is pervasive. Music is on iPods, cell phones, television, radio and the Internet. When placed on hold, or while shopping at the department store, music is in the background. Thousands of kids play Guitar Hero, create music loops on Garage Band and surf YouTube videos. Many adults now listen to automated music recommendation services such as Pandora or share favorite music video clips with friends on Facebook. Technology has merged with the music distribution business and a record number of people have become daily music consumers. Citizens of the industrialized world listen to music for more than one quarter of their waking life. "It is unlikely that any other sign system—the spoken or written word, pictures, dancing, etc.—can on its own rival music share of our average daily dose of symbolic perception."

The Participatory Oral Tradition In Music

Music has been a part of every culture since the beginning of human civilization. Indeed, for much of human history, music making has been a central aspect of daily life across cultures, regardless of age, status or ability. The use of synchronized movements to music helped in accomplishing large human work projects throughout history, such as singing work songs while building a railroad or sea chanteyes while working a boat. In addition, music has always strengthened the sense of community while preserving the transmission of cultural identity. Moving to the sound of music is a human instinct. Observing young children move automatically to music is evidence of the natural connection between rhythm and bodily movement.

Pre-modern societies encouraged active and broad music participation in communal settings without the benefit of music notation. We refer to this as oral tradition learning. The oral tradition valued the empathetic and subjective in the transmission of music, valuing emotion and personal interpretation of the music. Oral music cultures were bound to particulars of the moment in time and space. Further, the oral tradition emphasized communal music, shared by everyone and owned by no one. Communities of music practice—such as dance, drumming, domestic tasks and ritualistic ceremonies—were not considered as stand-alone "art forms," but as integral to the lived experience of everyday life. (See Example 1: "Oral Tradition")

The Emergence Of Music Literacy: Music Notation

Music notation can be traced to Babylonian times; however, sophisticated written notation for music is a relatively recent innovation. Indeed, it was not until the mid-14th century that a need to create exact written notation emerged. The Roman Catholic Church developed a refined notational system, which accurately recorded both pitch and duration and was then able to musically propagate its mission to far-away places. In effect, music notation then became a powerful new "technology."

Music notation was objective and disengaged—it was a factual, unemotional document. Yet, written musical works were able to transcend time and space, a miraculous feat that allowed any literate musician, anywhere in the world, many years later to be able to play a particular piece of music the exact way it was intended. In short, notation preserved music as was originally written. It was an authoritative document, immutable to interpretation, true to the composer’s original intent. Music notation functioned as a complete, finished work based on abstract and analytical symbols (see Example 1: "Written Notation").

As notation became more widespread, however, it created a need for fluent music "literacy" and this produced a divide between the literate and the non-literate musician. People who could read music and perform that music were considered "literate" musicians, and those who could not could only be passive listeners of written music or were considered merely as "folk" musicians.

What Is Music "Literacy?"

Music literacy, at its most basic level, is considered the ability to read and write music notation. The nine national standards include eight more standards not necessarily related to music notation. Students who lack the ability to read and perform notated music are unfortunately prevented from being able to participate in most traditional school ensembles. Indeed, the emphasis on music reading in schools has created a great divide between young people who read music and those who do not. While active participation in most school ensembles requires music literacy, it is a sad fact that the majority of students receive little in the way of quality music performance experience through the duration on their K-12 education. However, many students are still managing to compose, arrange, improvise and participate in music making through new Web 2.0 technologies outside of traditional music classes and without any formal knowledge of music notation.
Bennett Reimer in his book A Philosophy of Music Education states, “When literacy is equated with...reading and writing in the literal sense—the irrelevance of such literacy will ensure that...it will be considered esoteric.” Is sticking to a strict definition of music literacy a loss missing much of the subjective, creative, participatory nature of music learning—a thing the oral tradition encouraged and nurtured? The new “read/write” nature of the Web 2.0 may be shifting the very idea of music “literacy” toward a more accessible and participatory type of music learning.

Web 2.0: A Return Toward A Participatory Music Tradition?

Music notations power began waning with the advent of 20th century sound recording and reproduction. Music listeners now had access to an entire world of social and cultural musical expressions and meanings beyond their own communities. And now, in the 21st century, computer technology has burgeoned into a variety of music-related contexts, such as documenting (notation), recording and performing. The capability of Web 2.0 is interactive and cannot only be read (as in notation) but can be changed by the user. This read/write technology has excellent capacity for facilitating music participation in a new global, social and multi-cultural world.

Web 2.0 has the potential for tapping into elements of both oral tradition and music notation. For example, idiosyncratic and personal expressions of musical performances can be permanently recorded and digitally replicated. In addition, Web 2.0 technologies connect people from across the globe—something that was nearly impossible in pre-modern times. Musicians can collaborate, share and receive feedback about their performances in real time. Similar to music notation, Web 2.0 supports stand-alone materials like blogs, websites and archives of live events, yet these can continually change through user input (see Example 1: “Web 2.0”).

Music Education And Web 2.0

Web 2.0 offers opportunities for active participation by people who do not read music or have vocal or instrumental skills. (See Example 2: Web 2.0 Technologies for Music Education.) Music educators are now faced with two very different worlds: the musically literate performing ensemble and the new music making capabilities of the Web 2.0 world. Unfortunately for the average music educator, just the sheer amount of constantly evolving technologies involving blogs, Twitter, wikis, YouTube, social networking, online gaming and virtual worlds can be overwhelming. However, each type of media has potential to be developed into a practical music education tool, with assessable learning outcomes. Tools such as social networking, blogging, collaboration, content communities, music games and virtual worlds contain many intriguing possibilities for music education.

Social Networking

Can Facebook be an aid to music education? Absolutely. Facebook is one of the most familiar and highly developed Web 2.0 social networking applications, and there are many features that can be used in the service of music education. Facebook has invitations and reminders for music events, music applications, music quizzes, video and mp3 posting. MySpace and Reverbnation are more specialized sites for promoting music, networking with other musicians and building a fan base, yet with many of the same features as Facebook, such as status updates, playlists for listening, the ability to sell music, promote concerts and track your listeners. There are numerous networking sites like SoundTrack which cater to music listeners and feature a “feed” of what your friends are listening to at the moment, a “trending” feature which shows album art of what your friends most “like” and a sharing tool where you can search for a song, post it or send it to friends. Music educators could take advantage of these networking sites by creating specific pages for classes where only our students are friends. Videos and audio recordings of recent solo or ensemble performances could be posted for commentary and critique; students could be asked to find and post video and audio clips of professional performances related to assigned topics or to create their own personal musician pages with original mp3 tracks, bios, pictures and video.

Content Communities

Content communities are specialized sites that can aggregate information of interest all in one place. YouTube is the best-known example of a content community for video and iTunes is best known for audio. Nettvibes is a free site that can aggregate a personalized “dashboard” of your favorite content communities—newspapers, blogs, weather, e-mail, search, videos, photos, social networks, podcasts, widgets, games and applications, all on one single page. Social bookmarking sites, such as Delicious, are also a type of content community, where users can share links to their favorite websites by category or tags and can be voted in favor of or against by other users. Tuneticker is a music bookmarking service, which “ticks” the tracks you and your friends recommend. Music listening sites such as Deezer, Mix3, Hike and Placebo are sites where you can make your own radio station and interact and comment on friend’s stations. Specific content communities for music education are being developed such as musictech.net, musicpln.org, musicednews.com and musicstechie where you can share your own content libraries and interact with large groups of music educators. These sites can become Personal Learning Networks (PLN) for both students and the professional development of music teachers.

Blogs And Microblogs

Blogs are an interactive component of the Web 2.0 environment, where visitors can leave comments and message each other via widgets on the blog. Music-specific blogs, or mp3 blogs, are where the author can make music files available for download and commentary. Blog sites like Livejournal and Edublogs.org will host your blog free of charge and are places where you can share your written journals, videos, mp3 files, create class discussions and post assignments and provide important information in a newsletter type format for students, parents and other educators. Twitter (considered a “micro-blog”) is also a free service that allows users to post status updates via SMS (short message service), e-mail or web browser as long as the message is fewer than 140 characters. Twitter, like Facebook, is “open platform,” which allows third-party developers to easily integrate it into websites. There are also music specific micro-blogging sites like Blip.fm, which allow users to post tracks of music as “blips.” Music educators can use micro-blogging to keep students and parents immediately informed on important issues and activities. For instance, the instructor can “tweet” or post, up-to-the-minute news about ratings at a festival or happenings on a music field trip for parents not able to attend these events.

Collaborative Projects

Wikis are the most utilized Web 2.0 collaborative sites. Wikipedia: Music, WikiMusicGuide and Wikipedia: Music Education are user-friendly—that is, they make it easy to edit and add information. Wikis can provide wonderful opportunities for assimilating shared group knowledge. YouTube is not only a content community but can be a place for collaboration as well. In the YouTube Symphony Orchestra, musicians auditioned by submitting video clips of themselves playing a specific piece of music, which were reviewed first by a panel of judges and then by the general public.
public." YouTube posted a mashup video, or compilation of all the selected finalists. These finalists were also invited to play the piece together, in person, at Carnegie Hall. To emphasize the scope of active participation in this process, 15 million people watched almost 3,000 unique video audition submissions, resulting in the selection of 90 winning musicians—mostly amateurs—who all played at a live concert. In addition to YouTube, Web 2.0 sites such as the Intonation-Network allows musicians to promote their work, upcoming performances, hold and take auditions online, search for local talent and video chat with teachers/musicians from around the world. In addition to offering this service for free, users can also integrate their Facebook and YouTube accounts with the Intonation-Network so they don’t have to create a new profile or re-enter information. Music educators could ask students to post recordings periodically, allowing for feedback over distance and creating a virtual portfolio of the students’ growth over time. Collaboration sites allow music educators to participate and collaborate with musicians and teachers from all over the world. In addition, collaboration sites can teach students how to work with other musicians they might not meet in their local communities and receive valuable mentoring.

Music Games And Virtual Worlds

Music games such as Guitar Hero are highly entertaining but can have limited educational value because players take on a musician’s role but are not actually creating live music. Guitar Hero advisor, Tod Machover, even stated, "Music is even more powerful if you don’t just listen to it, but you make it yourself." However, it would not be difficult to take the game to the next level, allowing players to plug in an electric guitar and play along with visual and aural cues.

Music game creators have lately focused on more active music technologies such as Rock Band, a type of karaoke that provides visual feedback of pitch performance on a moving "staff" along with visual prompts for the correct notes to hit, how long to hold each note and the lyrics themselves. The vocalist is awarded points for hitting correct notes for the correct duration. Also gesture, in music, is beginning to play an important role with music technologies like the Microsoft Kinect, which uses a peripheral camera to capture gestures and spoken commands instead of a controller. In an example of a music application for this technology, one could potentially learn to conduct an orchestra at home in front of a screen, with instant feedback about techniques for tempo, dynamics, cueing and other musical elements. Online music games such as DJ SIM, allow players to engage in DJ jams by waving hands while facing the camera, which activates the turntable in a dance club. Music videos of performances can be edited with special effects and graphics and then posted online for ratings and commentary. In Def Jam Rapstar, players can challenge a rival for a rap "battle" which is then judged in real time by other users. Virtual worlds like Second Life and Rocktropolis (a virtual rock music world) feature live music events produced by participants, which take place in designated areas of those worlds. The ability to interact with music in a virtual world environment and be an avatar, which can do things perhaps not possible in the real world, can be very exciting and empowering and could be enhanced for music education in innovative ways that have not as yet been fully explored.

Music Literacy And Web 2.0 Media

What it means to become "literate" is becoming increasingly complex and elusive in the age of the Internet. Music notation is a flat, two-dimensional medium. While remaining purely visual, technology-augmented notation can add variations in color, brightness, size, shape, spacing, alignment, slope, speed and movement. A multimodal type of musical language, through Web 2.0 and other technologies, would provide a learner with multiple pathways to interact with the notation. For example, a learner could tap a musical note on a mobile device touch-screen to see its name and hear it played at the same time. Any combination of multimodal and augmented notation could possibly make some music concepts easier to understand; maintain learners' attention, interest and motivation; and increase retention of learning materials. By utilizing the rich multimedia Web 2.0 environment, music education might move toward a new system of music literacy that is multimodal, highly participatory and could possibly shift literacy away from "curriculum" and toward "shaping the environment for learning." Music education is changing rapidly with the Web 2.0 and mobile technologies, evidenced by how today a novice guitarist can use a smartphone application to identify a song he or she likes, then follow links to find tablature and sheet music written by others, download or purchase audio recordings, and even watch video clips showing fretwork, strum work, finger picking and the like. In addition, users may add to that knowledge base—for example, they can make a comment via text, audio or video, submit corrections or other interpretations, ask questions and link to other music or musicians-in effect, creating a virtual learning community.

The growing practice of an online oral tradition has not supplanted the need for experts to teach music, but has increased the capacity for motivated individuals to use multiple sources—global expertise—to teach themselves general music concepts or specific pieces of music. Innovative ways of using technology in personally meaningful and participatory ways are creating alternatives to conventional learning. These user-driven innovations are bringing back music-making to all people in the global village. Creative collaborations between music educators and instructional technologists are spawing a new vision of participatory musical literacy via Web 2.0 and beyond.

Notes

4. Oral tradition is defined as " Oral tradition, oral culture and oral lore is cultural material and traditions transmitted orally from one generation to another. "; see http://en.wikipedia.org/ wiki/Oral_tradition.
5. C. F. Abdy Williams, The Story of Notation (New York: Charles Scribner’s Sons, 1903).
6. Technology is defined as " The branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment. " (Internet, 2011); see http://dictionary.reference.com/ browse/ technology.
7. Folk music is defined as "Any style of music which represents a community and can be sung/played by people who may or may not actually be trained musicians, using the instruments available to them."- see http://folkmusic.about.com/ od/glossary/g/FolkMusic.htm.


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