Using Technology to Support Interdisciplinary Learning

by Jay Dorfman

Jay Dorfman offers an interesting use for technology—as a tool for implementing interdisciplinary lessons. He offers four possible ways to utilize technology to support interdisciplinary teaching and learning.

Of the nine National Standards for Music Education (Music Educators National Conference, 1994), two Standards make clear suggestions that music teachers have an obligation to teach our particular content in a manner that connects music to other arts and disciplines, and to draw associations between music, history, and broad-ranging cultures. While the term interdisciplinary is not used in the Standards, an intention of these standards is to encourage music teachers to think about, plan, and implement instruction that integrates interdisciplinary content and strategies.

A difficulty encountered by many teachers who wish to use interdisciplinary approaches is merely defining just what that means in the context of their own educational situation—and it is different for each of us. Interdisciplinary teaching can take several forms, which include:

A single teacher integrating elements of external subject areas with the content of their own area

A pair or a small group of teachers, such as a music teacher and a drama teacher, implementing instruction together in an environment that explores both of these closely related disciplines

A small group of teachers integrating seemingly disparate disciplines in support of each of their curricular areas

A large group of teachers working together to deliver a particular thematic unit, perhaps based on an historical time period or an artistic style

While each of these can clearly be considered interdisciplinary approaches, they are models that reflect various levels of control over each discipline’s accepted curriculum, levels of required cooperation between teachers, and levels of tolerance on the part of teachers and students for new and different ideas and educational approaches. While interdisciplinary approaches to music teaching can be challenging, the outcomes are rewarding. In order to facilitate positive experiences with interdisciplinary education, we should consider the many variants that can effect integration.

Technology is a tool that teachers can use to promote the comprehensive nature of a balanced music curriculum that enhances music learning by drawing connections to other disciplines and cultures.

The purpose of this article is to present some ideas about how technology can be used to support and enhance the strategies involved in interdisciplinary teaching. Four techniques will be discussed in this article: supporting asynchronous learning; display and delivery of multimedia content; research, and; creation of multimedia artifacts.

Supporting Asynchronous Learning

The most traditional models of teaching and learning involve a teacher and a group of students gathering in a closed environment in which students generally learn content and perform particular tasks at the same time. In this model, teachers call on techniques to help students who are learning faster or more slowly than others, but tailoring the pace of teaching is a difficult art that is mastered through a great deal of practice.

Using technology, we can provide learning environments outside of the traditional classroom that students can access and truly use them at their own pace. Webster (2000) offered a description of asynchronous education in which the students and teacher can experience learning at different times and in different locations. In this situation, remote learning is supported through the use of email, discussion forums, and multimedia artifacts posted online. A 2004 poll1 showed that nearly 75% of American homes had Internet access (a 12% increase over the prior year), so the concern over students’ ability to access on-line content is diminishing rapidly.

Asynchronous learning addresses the consistent cry of teachers that there is not enough time in the day to accomplish all of the educational goals they
set for their students. Asynchronous learning with technology enables students to experience rich content and to think critically and reflectively about it, but does not require time between the sounding of school bells. For example, listening activities that you might otherwise present in class can be presented as homework, and can be accompanied with visual guides. Students can engage in discussions using electronic message boards that are accessible from any computer with an Internet connection. Basal textbook series such as Making Music (March, Schmid & Stauffer, 2005) have begun to integrate multimedia listening components into their supplementary materials. Students find this type of rich content interesting and different, and may be motivated to use it outside of the classroom.

Display and Delivery of Multimedia Content

Using sophisticated digital media in the classroom helps to maintain student interest, and gives teachers the appearance of being interested and involved in the latest technological trends. You can use technology to help display and deliver multimedia content rather than using handouts or some other less efficient tool. In relation to interdisciplinary teaching, the multimedia content you use can include recordings of music related to the one your class is studying, works of art inspired by the music, or that inspired the composer, video of dances performed to the music, or images of cultural artifacts that enhance the meaning of the music. All of these serve the intention of interdisciplinary music teaching: to enhance the musical experience by drawing authentic connections between music with the outside world.

An example of the use of technology to display media can be drawn from the standard literature for wind band. The classic work Scenes from the Louvre by Norman Dello Joio is a five-movement piece about the development of the famed French museum during the Renaissance. The piece uses musical themes to reflect the works of art found in several sections of the Louvre. Using a projection system, students could see the types of images that Dello Joio was depicting in his music. Images of many of the works can be found at the official web site of the Louvre, www.louvre.fr/louvre4.htm. Displaying these images, and prompting your students to discuss the ways in which the composer reflected the images in his

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March/April 2007
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Music, would certainly enrich the experience of performing the piece.

There are some practical considerations involved with displaying media. In order to display or deliver multimedia content, the most important piece of equipment you will need is a computer. Make sure the computer is capable of playing sound—it should have the latest versions of sound playback software installed. Assuming you will be playing sound for a large group of students, you will also need quality speakers to deliver the sound. Headphones are appropriate for individual students.

Images and video will require a system for display of those types of content. Many classrooms have televisions available or installed in the room, and those are certainly adequate for displaying most images. Connecting a computer to a television often requires an inexpensive adapter. Perhaps a better solution, however, is to use a computer (LCD) projector. These devices allow for larger scene image projection at high quality, and are portable. Though they can cost several hundreds of dollars, computer projectors are versatile devices for which you are likely to find many uses. For all of these technical needs, do not hesitate to seek assistance from your school's technology or media specialist.

Research

As experienced educators, we can attest to the increase in effectiveness of learning that is designed to be active and engaging. Despite this, knowledge about the history and context in which musical works are created is frequently delivered to students through the teacher in lecture or conversational format. Students are indeed capable of discovering this information through independent or collaborative research, and technology can be extremely helpful in facilitating their research.

Older students are undoubtedly familiar with techniques for locating information on the internet. The best place to start a search for information on-line is at a search engine such as Google, Yahoo, or Ask.com. Also, there are many sites that function as electronic encyclopedias. One such site is Wikipedia, a repository of information that is editable by all users. Students who have experience searching the internet with these tools will find information quickly and efficiently. For younger students, it is recommended that teachers do some advance "detective work" to find several internet sites that contain the type of information students need.

There are several cautionary notes to be aware of when using the internet for research. First, many schools use security software to limit the websites that students can access from school computers. If this is the case in your school, conduct searches yourself first to be certain that students will be able to reach the information successfully. Second, the internet is a tool that is available to anyone with a computer and an electronic connection. Take precautions to make sure that the sites your students find contain accurate, appropriate information. Finally, teachers need to make it clear to students that information posted on an internet site represents someone else's work and may be copyrighted material. Students should be taught to give proper academic credit to these source materials.

Creation of Multimedia Artifacts

A benefit of interdisciplinary education is its ability to appeal to students who learn in different ways. For some students, viewing media, listening to music or other sound, and doing research, are not as effective as being involved in creation of an artifact or project that helps them to interpret, and therefore to better understand, a musical work. Again, technology can be utilized in the creation of such artifacts.

Though creative modifications can be made, there are quite simply two ways to create multimedia artifacts: 1) by starting with a musical work and adding visual elements that reflect its meaning, or 2) by starting with visual or other auditory material and combining it with music.

In the first scenario, students would be provided with (or would choose on their own) a digital recording of a piece of music. Using the internet, or by digitally scanning print materials, students can create a multimedia presentation that displays visual interpretation of the musical work. This can be accomplished using any sequencing program that offers a video playback function such as Garage Band, Acid, or many other high-end sequencers. For example, students may use a spiritual as the musical foundation, and couple it with images they find that in some way reflect the trials of slavery. Music that suggests a particular theme is often most applicable to this type of project, though pure, non-programmatic music may also produce interesting results.

For the second type of project, students would again be acting on their interpretive instincts, but would create music that expresses their interpretations of visual stimuli. An image of a fine painting will often inspire students to make music of amazing complexity and creativity. From the author's experience in doing this type of project with students, modern art seems to be particularly inspirational, but images from many historical periods may provide the necessary spark. Again, many pieces of software may be employed in the creation of these projects. A composition inspired by an image is an effective means by which to learn to use a sequencing program, but students can also write music using standard notation in a notation package.
A possible extension of this second type of project is to have students compose music as an alternative to tasks such as writing papers. Instead of writing a book report, perhaps students could compose a piece of music that reflects their feelings about material they have read. Technology allows students to accomplish these tasks because it removes the difficulty of using standard composition techniques, and offers immediate feedback. Once students learn how to use the software tools, they will be able to create expressive compositions with a minimal amount of "traditional" music training. Students in non-music and non-performance classes will be able to compose technologically, which is certainly favorable to not composing at all!

Conclusion

An integrated approach to music teaching involves appealing to disciplines outside of our own to enhance the musical experience. As discussed in the introduction, there are many models of interdisciplinary teaching and learning, each of which has its particular benefits and inherent difficulties. In order to increase the excitement that can be garnered by interdisciplinary education, for both you and your students, consider the use of technology. This article has "scatched the surface" of four ways in which technology can support interdisciplinary education—there are myriad others. Experiment, explore, and have fun with technology so that your students' musical experiences will be made deeper and more meaningful.

References


March-April 2007

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