Technology in the Music Classroom

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Technology has a role in nearly everything we do whether it is used in homes, businesses, and schools. People of all ages carry it when they are using cell phones, and iPods. Additionally, we use technology to do research, cook, watch videos, and play games; therefore, the internet has become a prominent source of communication and knowledge as computers have become more affordable for the average family. So what is technology? Webster (2002) defines music technology as "inventions that help humans produce, enhance and better understand the art of sound organized to express feeling (as cited in Karlsson, Liljestrom, & Juslin, 2009, p. 176). Advances in technology occur every day, making today's technology obsolete as tomorrow's take hold. As technology embraces our everyday lives, the necessity for it to be incorporated in the classroom becomes vital. Most of today's youth have never experienced life without technology. Teachers of all areas, from the general education class to the arts can benefit from incorporating the various technology options into their classes. Like the other subjects, technology advances are also being made in the music classroom. However, many teachers are reluctant to embrace these changes and advantages. In this paper, I will address some of the reasons teachers are hesitant of using technology in their music classes and will provide arguments for why technology can be a key instrument in the everyday music classroom.

Today's youth have embraced technology on every level possible. Most of them were born into homes where computers, televisions, and cell phones were the norm. Since they were born, the digital revolution has been in full force and the computer language has been a standard in their lives. In "Reconstructing Music Education through ICT", digital natives are "native speakers of the digital language of computers, video games, and the Internet, while digital immigrants have been fascinated by and adopted many or most aspects of the new technology but always retain to some degree, their 'accent', that is, their foot in the past" (Prensky, 2001, as

cited in Savage, 2007, 65). In other words, Digital immigrants can remember a time when cell phones and computers were non-existent or only for the rich, whereas digital natives know nothing else. Catherine Applefeld Olson (2010) provides some statistics involving youth and technology in her article:

> According to a Washington, DC-based Pew Research, 71% of children ages 12-17
> owned cell phones in 2008, compared to 63% in 2006 and 45% in 2004. By
> comparison, 77% of adults owned a cell phone at the same time. Additionally,
> Pew reports that 74% of children ages 12-17 in 2008 owned an MP3 player; 60%
> owned or had access to a desktop or laptop computer. (p. 30)

With information like this, it is obvious that technology is a major part of society. However, with the learning of any new language, there are many challenges and fears; technology is changing at a faster pace than learning a new language, which brings another level of fear and hesitancy to incorporation of technology in music. Olson (2010) has a nice bit of advice for these fears: "Technology keeps evolving, and the real key is to be adaptable enough to have a sense of how to integrate the new innovations that inevitably will be coming down the line" (p. 34). After all, "these kids are growing up with iPods, they know how to run a computer, and they aren't afraid of any of it" (Olson, 2010, p. 32). If you are having issues with the classroom computer, Hal Peterson (2006) states, "have your students assist you. You should have no trouble finding students that will want to help you with this" (p. 36). After all, it is their language; allow them to do the translating. Everyone learns this way and the teacher does not have to waste time figuring out something that students already know.

History shows us how much technology has affected music education. David Beckstead (2001) describes this history in his article "Will Technology Transform Music Education."

Songbooks were used in schools primarily for religious purposes and the number of copies were few. Composing was also a challenge as there were no software notation programs, and composers instead had to write on parchment with ink. As the twentieth century approached, music education began to improve, and while methodologies like the Orff method began a change in the field, music was still limited to singing and instruments. "Composition, then was still considered far beyond the capabilities of public school children because it was assumed that the composer needed great facility in one or more instruments and mastery of Western notation" (p.45). However, as the twentieth century became the twenty-first and notation software and computers became standard in the classroom, teachers started to find the benefits to incorporating composition. Savage (2007) states, "Evidence of the rapid arrival and dissemination of digital technologies is perhaps most visible when one looks at how new technologies have revolutionized the ways in which people perform, compose, share and purchase music" (p. 65). However, with these revolutions, many musicians feel technology has taken away from the musical experience and expression because the computer does not reflect human emotion.

Finale and Sibelius are two programs that have opened the composition door wide open, and there is a wide selection that ranges from novice to professional. According Thomas E. Rudolph (2004), Finale Notepad is a great program to use in classrooms and "since it is free it can be put on every computer in the school" (p. 165). These programs allow students to write songs and hear what they have played on any computer with sound capabilities. If the school is fortunate enough to be able to afford the full versions and also able to set up lab stations with MIDI (Music Instrument Digital Interface) Keyboard, student will be able to play a melody on the keyboard and hear what it sounds like as the computer notates it. Unfortunately, many music

classrooms do not have this as an option. Sibelius is also a very easy program to use; however, it can be relatively costly. "However, it is very easy to use and students can quickly learn it…the advantage of using Sibelius is that there are no tools and everything on the screen can be moved just by clicking on it and dragging it with the mouse. Note entry is also quite simple" (Rudolph, 2004, 167).

The audio advantages to these programs also benefit the classroom. Programs like Cubase allow students to take a song that they might listen to on their iPod and adjust the sounds according to how they want. "Cubase SE is a hybrid program that offers all of the key functions for recording and editing" (Lipscomb et al., 2006, p. 69). These programs can be very useful in a music appreciation classroom as Bill Crow describes:

> The technology's ability to manipulate audio has meant that many people, who up
>
> until now did not perceive themselves as musicians, can handle, create and
>
> communicate music using their computers. They employ inexpensive music
>
> software and hardware, which does not require 'traditional' musical skills or
>
> conceptual understanding…[and] offers a range of musical choices" (2006, p.
>
> 123)

Earlier the MIDI keyboard was addressed, but not explained. MIDI or Music Instrument Digital Interface "is a digital computer language that is used to transmit information between electronic instruments and computers" (Rudolph, 2004, p. 55). Electronic instruments are MIDI compatible which allows them to be connected to a computer. Any standard music software recognizes MIDI allowing more diverse options in the music notation and student composition. Even the composer Edgard Varèse was quoted in a book to say, "I have been waiting a long time for electronics to free music from the tempered scale and limitations of musical instruments.

Electronic instruments are the portentous first step toward the liberation of music" (Machlis,

1970, as cited in Beckstead, 2001, p. 45). The standard MIDI equipment is the MIDI keyboard.

MIDI keyboards are great as they are set up just like a piano and allow for a range of sounds. In

addition to the piano, most MIDI keyboards have a variety of sounds and instruments to choose

from so the user can experiment and create something completely original. In addition to the

keyboard, "MIDI devices [are] designed for percussionists, violinists, guitarists, wind players,

and vocalists" (Rudolph, 2004, p. 91). With this instrumentation, electronic ensembles can be

formed adding a new and exciting idea to music class. Rudolph (2004) sums it up best when

enrollment in music classrooms suffer each year as instruments are costly and students would

rather play on the computer than practice tediously on instruments:

> As the price of MIDI wind instruments becomes more affordable for parents of
>
> school children, these instruments may have an increased mass appeal. Wouldn't
>
> it be terrific if the instrumental drop-out rate would decrease to less than 10%
>
> using electronic instruments? Possibly, students would find practicing more
>
> enjoyable if the instruments did not require hours of practice just to make a
>
> pleasing sound. Students could concentrate on fingering and note reading from the
>
> outset and achieve success much more rapidly (p. 112).

However, even with all the benefits electronic instruments bring, there are many criticisms.

Beckstead (2001) states, "A typical criticism in that MIDI produced music is 'mechanized,

quantified and predigested and could never replace real musicians" (Lehman, as cited in

Beckstead, 2001, p 48). This is a common argument among musicians, and rightfully so. In many

ways, the electronic instruments contain limitations from lacking musicality to not producing the

truly rich sounds acoustic instruments have. Samuel Airy and Judy M. Parr (2001) offer other

arguments against the implantation of electronic music technology in the classroom. "Some

teachers may perceive the use of MIDI as undermining their musical stature. Others express

concerns about MIDI's complexity" (Ellis, 1990, as cited from Airy & Parr, 2001).

"Technophobia may explain an inability to engage with MIDI technology" (Kassner, 1998;

Webster & Williams, 1996, as cited from Airy & Parr, 2001). All of these are vital arguments for

teachers; however, if students can find an appreciation for music in electronics, then at least they

are learning and enjoying music.

SMART Boards have also entered the education scene with an explosion of possibilities.

While they are expensive, many schools are slowly adding them to every classroom, even the

music room. SMART Boards are basically "computer-controlled touch sensitive screen[s].

Students and teachers can touch the SmartBoard to manipulate the program or image being

displayed" (Rudolph, 2004, p. 371). This is particularly beneficial in an elementary classroom

where children need the kinesthetic option as much as aural and oral. SMART Boards allow

students to get physically involved in the lesson and "can help enhance student interest" through

touch and even writing and erasing. (Rudolph, 2004, pp. 137-138). With the SMART Board, any

software that the computer runs can be run through the SMART Board including notation

software. Other software is available for music educators to purchase and use in their lessons as

well. Their website contains already written lesson plans created to assist the new educator in

learning about some of the options SMART Board has. Amy M. Burns uses a SMART Board

and a software product called Harmonic Vision's Music Ace Maestro (MAM). This program

introduces students to the music staff and walks them through the notes and clefts in an

interactive and fun manner by going to the board and answering questions. (Burns, 2006, p. 7).

With all the new products on the music education market, many teachers are still not
ready to incorporate it into their curriculums. Arguments range from:

- Lack of evidence of skills development in composing (Odam, 2002, as cited in Crow 2006, p. 122).

- Little evidence of progression in composing (Odam, 2002, as cited in Crow 2006, p. 122).

- Students in grades K-3 are too young to use technology (Burns, 2006, p. 6).

- There are too many software titles out there and not have the time to explore them all (Burns, 2006, p. 6).

- Electronic Keyboards…for many teachers, the perception still remains that it is a sort of inferior piano (Crow, 2006, p. 126).

- Practical and technical difficulties of sourcing, implementing and maintaining music technology within a busy classroom environment (Savage, 2007, p. 70).

- A noticeable loss of conventional musical skills in some cases (Savage, 2007, p. 70).

- And some feel that they are more of a computer repair technician than a teacher.

  But with these arguments, come plenty of rebuttals including:

- Changing the music curriculum to make it more stimulating and relevant (Savage, 2007, p. 69).

- Pupils exhibiting an increase in pride, enthusiasm and motivation about their own work and taking great responsibility for their own learning process (Savage, 2007, p. 69).

- New approaches to composition, with technology facilitating pupils who lack traditional instrumental skills (Savage, 2007, p. 69).

- The ease with which pupils approach pieces of technology compared with the learning of traditional instruments (Savage, 2007, p. 69).

- Music technology could be an excellent tool to achieve the nine National Standards for Music Education (Burns, 2006, 6).

And the list goes on. The opportunities that technology in the music classroom creates are endless. M. Espeland states:

> As a profession of music educators we cannot avoid technology; it is an extremely powerful vehicle for reaching our goals as professionals and the students as learners. The debate; therefore, should not be about using it or not, but about the *ways* we use it in order to achieve *what* goals (Espeland, 2010, p. 132).

Burns also argues:

> Technology is used every day in our way of life and to adopt music technology into the elementary music classroom means that you are teaching the students on another level. Music technology can be a wonderful enhancement tool in the elementary music classroom when it is used to assist the teacher in differentiating instruction and reinforcing musical skills and concepts (2006, p. 9).

In conclusion, music technology is an opportunity to be grasped by music educators and not feared. Technology is the direction our society is moving. We are not going to go backwards, so we must embrace it and move forward with it. But as we move forward, we should not lose site of the foundations of what is music. The fundamentals are still equally important, from teaching children how to read music, to composition and learning to play instruments. Consequently, if teachers use technology as an enhancement and not as a sole music entity, the concepts technology brings to the table could potentially take music to new possibilities.

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