Music Technology in the Band Classroom
Jared Cooey

Introduction

The invention of the wind band, which includes brass, woodwind, and percussion instruments, took place in the late 19th century. Not long after that, schools began to have their own wind bands made up of students led by a band director. The band would practice under the guidance of the band director during the school day and then would perform for an audience from time to time. In general, students would sit by like instruments in rows with the director standing in front of them, teaching them the music from the paper that was placed in front of them.

As the use of technology in the academic classroom has grown, especially over the last 10-15 years, the average school band rehearsal still looks very much like it did in the early 20th century. Students in rows by like instruments with the director standing in front of them, teaching them the music from the paper that has been placed in front of them. Although the field of music technology has certainly grown over the last decade, the use of technology in the band classroom seems to be fairly stagnant. In my opinion, the main reason for this has been a fear on the director's part of taking time away from the usual rehearsal techniques to have the students use technology.

I believe that for the use of technology in the band classroom to become the norm, there needs to be proof that using technology in the band classroom benefits the students' performance. I think that school band directors in general would be willing to make more time for the use of technology and would be willing to forgo the usual rehearsal techniques if there were evidence that it would not inhibit their students' performance. The pressure of the performance is always looming for the band director so without proof that the use of technology can benefit the students' performance as much as normal rehearsal techniques, most directors will not be willing to use it.

Personal Interest

As I am about to enter my twentieth year as a school band director, this topic is of particular interest to me. I have been very successful in helping students grow musically over the years, leading very good student performance. The use of technology within my classroom, though, has been pretty minimal. Over the last two decades, I have made regular use of paper print outs, the dry erase board, and class discussion. In more recent years, I have used a smart board computer for a few things, but I would not say that it has become an integral part of the band rehearsal.

I have become intrigued at the possibility of using more technology within my band rehearsals. This is one of the reasons I chose to pursue a master's degree in Instructional Technology. I am curious to learn about as many forms of technology that will benefit my students' learning and increase their performance. I do have the

same fear that I described in the introductory paragraphs where I fear taking time away from my tried-and-true rehearsal techniques for the students to use more technology.

Step #1: Framing Questions

1. Is there evidence that suggests that greater technology use in the elementary/middle/high school band class increases student performance?
2. Is there evidence that suggests that greater technology use in the elementary/middle/high school band class decreases student performance?

Step #2: Consulting with Experts

Name of expert	Contact information	Description of expertise	Contact log	Questions posed & outcome of interview
Dr. Kate Ferguson	fergusonkate @me.com 330-573-7250	Dr. Kate Ferguson is Director of Bands at the Akron School for the Arts, housed at Firestone High School. As a music teacher in the Akron Public Schools, her teaching responsibilities include wind ensemble, concert band, jazz band, marching band, and middle school band concert bands.	June 25. Emailed Dr. Ferguson June 25. Spoke to Dr. Ferguson on the phone.	**I asked Dr. Ferguson to provide feedback about my guiding questions**. Her response was that the questions are both contradictory. Also, she suggested that I should say, "what is the evidence that suggests" etc … Finally, she said that I may need to quantify the word performance. **I asked Dr. Ferguson to suggest search engines and key word**. Dr. Ferguson suggested the following seach engines: Dissertation Abstracts International Jstor Sage Publications Nafme website articles Journal of Research in Music Education Update: Applications of Research in Music Education Contribution to Music Education

| Dr. I-Chun Tsai | tsai1@uakron.edu 330-342-3704 | Dr. I-Chun Tsai is an Associate Professor in the Instructional Technology of the LeBron James Family Foundation at the University of Akron, Ohio. Dr. Tsai received her Ph.D. in the School of Information Science and Learning Technologies. | June 23. Emailed Dr. Tsai. June 23. Dr. Tsai returned my email. June 25. Emailed Dr. Tsai. June 25. Dr. Tsai returned my email. | **I asked Dr. Tsai to provide feedback about my guiding questions**. Her response was: You may want to change the questions to be: "How does technology use impact students' performance in school band class?" In this question, it is not just Yes or No answers. It is asking for evidences of how it is. If it is yes/No, how does the technology impact student learning?

Then, in the topic, you can include it as "Impact of technology usage to K-12 students' performance in school band class"

I asked Dr. Tsai to suggest search engines and key word. Dr. Tsai's response was: I will suggest you use the search engines and data base, such as Google Scholar, Eric database, and PsyINFO database, to search for reliable references. |
| Dr. Jay Dorfman | jdorfma2@kent.edu 330-672-3871 | Dr. Jay Dorfman is Associate Professor and Coordinator of Music Education in the Hugh A. Glauser School of Music at Kent State University. Dr. Dorfman's research interests include music education technology, music teacher education, and curriculum development in music. | June 26. Emailed Dr. Dorfman. June 26. Dr. Dorfman returned my email. | **I asked Dr. Dorfman to provide feedback about my guiding questions**. His response was: Rather than phrasing your questions in a way that assumes some benefit from using technology in the band room, I would encourage you to search for relationships. Those relationships might be positive or negative. So, might edited version would be something like, "Is there evidence in the literature that suggests a relationship between technology use...". Also, I would encourage you to think about what increased student performance actually means. Better playing? Better focus of attention? Time on task? Some other variable? |

				I asked Dr. Dorfman to suggest search engines and key word. His response was: I would focus on the major music education research journals. There really isn't a search engine that indexes all of them (except perhaps Google Scholar).

Step 3: Select Scholarly Bibliographical Indexes and/or Search Engines

Name of Bibliographic Index or Scholarly Search Engine	Why this search engine or index is appropriate for your study	Search terms and search strategy
Jstor	Jstor has full runs of more than 2,600 top scholarly journals in the humanities, social sciences, and sciences.	music technology, band
ERIC	The Education Resources Information Center (ERIC) is an online digital library of education research and information.	music technology, band
Journal of Research in Music Education	The Journal of Research in Music Education publishes reports of original research related to music teaching and learning. The journal covers topics such as music pedagogy, history, and philosophy, and addresses vocal, instrumental, and general music at all levels, from early childhood through to adult.	music technology, band
Google Scholar	Google Scholar is a freely accessible web search engine that indexes the full text or metadata of scholarly literature across an array of publishing formats and disciplines.	music technology, band

UPDATE: Applications of Research in Music Education	UPDATE: Applications of Research in Music Education offers a wealth of practical applications for research findings in general music, choral, instrumental, and special topics in music education.	music technology, band

Reading List

Barnicle, S. (1997). Music Technology. *Music Educators Journal,* 84, (3), 9.
https://www.jstor.org/stable/3399047?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dmusic%2Btechnology&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&refreqid=search%3A183bfc0a84374aae8dcfc0c88566fd27&seq=1#page_scan_tab_contents

Bauer, W., Reese, S., McAllister, P. (2003). Transforming Music Teaching via Technology: The Role of Professional Development. *Journal of Research in Music Education,* 51 (4), 289-301.
https://journals.sagepub.com/action/doSearch?AllField=music+education+technology&SeriesKey=jrma

Burnard, P. (2007). Reframing Creativity and Technology: Promoting Pedagogic Change in Music Education. *Journal of Music, Technology & Education,* 1 (1), 37-55.
https://www.ingentaconnect.com/content/intellect/jmte/2007/00000001/00000001/art00004

Cain, T. (2004). Theory, Technology and the Music Curriculum. *British Journal of Music Education,* 21 (2), 215-221.
https://www.cambridge.org/core/journals/british-journal-of-music-education/article/theory-technology-and-the-music-curriculum/31E85EAF5E336FB57EBD648592015710

Comber, C., Hargreaves, D., Colley, A. (2008). Girls, Boys and Technology in Music Education. *British Journal of Music Education,* 10 (2), 123-134.
https://www.cambridge.org/core/journals/british-journal-of-music-education/article/girls-boys-and-technology-in-music-education/F729187120EE0BB51501E5EE6E6EA079

Crow, B. (2006). Musical Creativity and the New Technology. *Music Education Research,* 8 (1), 121-130.
https://www.tandfonline.com/doi/abs/10.1080/14613800600581659

Dammers, R. (2009). Utilizing Internet-Based Videoconferencing for Instrumental Music Lessons. *Update: Applications of Research in Music Education,* 28 (1), 17-24. https://journals.sagepub.com/doi/pdf/10.1177/8755123309344159

Dorfman, J. (2016). Music Teachers' Experiences in One-to-One Computing Environments. *Journal of Research in Music Education*, 64 (2), 159-178. https://journals.sagepub.com/doi/full/10.1177/0022429416649947

Forest, J. (1995). Music Technology Helps Students Succeed. *Music Educators Journal,* 81 (5), 35-38, 48. https://www.jstor.org/stable/3398854?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dmusic%2Btechnology&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&seq=1#page_scan_tab_contents

Hanson, J. (2018). Assessing the Educational Value of YouTube Videos for Beginning Instrumental Music. *Contributions to Music Education,* 43 (1-2), 137-158. https://www.omea-ohio.org/cme.a5w

Lane, W. (1974). The Application of Information Science Technology to Music Education Materials. *Journal of Research in Music Education*, 22 (4). 251-257. https://journals.sagepub.com/doi/pdf/10.2307/3344762

Mozée, B. (2005). Music Technology Labs. *The Phi Delta Kappan,* 86 (5), 1. https://www.jstor.org/stable/20441801?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dmusic%2Btechnology&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&seq=1#page_scan_tab_contents

Nielsen, L. (2013). Developing Musical Creativity: Student and Teacher Perceptions of a High School Music Technology Curriculum. *Update: Applications of Research in Music Education,* 31 (2), 54-62. https://journals.sagepub.com/doi/full/10.1177/8755123312473610

Reese, S. (1994). Music Technology: Tools for Extending and Sharing Minds. *American Music Teacher,* 43 (6). 12-15, 90. https://www.jstor.org/stable/26407311?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dmusic%2Btechnology&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&seq=1#page_scan_tab_contents

Reese, S., Davis, A. (1998). The Systems Approach to Music Technology. *Music Educators Journal,* 85 (1), 24-28. https://www.jstor.org/stable/3399155?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dmusic%2Btechnology&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&seq=1#page_scan_tab_contents

Reese, S., Rimington, J. (2000). Music Technology in Illinois Public Schools. *Update: Applications of Research in Music Education,* 18 (2), 27-32. https://journals.sagepub.com/doi/pdf/10.1177/875512330001800206

Riley, H., MacLeod, R., Libera, M. (2014). Low Latency Audio Video: Potentials for Collaborative Music Making Through Distance Learning. *Update: Applications of Research in Music Education,* 34 (3), 15-23. https://journals.sagepub.com/doi/full/10.1177/8755123314554403

Stearns, J. (1993). Technology for Teaching: Music Technology Systems: How You Play the Game. *Music Educators Journal,* 79 (8), 12-14. https://www.jstor.org/stable/3398590?Search=yes&resultItemClick=true&searchText=music&searchText=technology&searchUri=%2Faction%2FdoBasicSearch%3FsearchType%3DfacetSearch%26amp%3Bsd%3D%26amp%3Bed%3D%26amp%3BQuery%3Dmusic%2Btechnology%26amp%3Bpagemark%3DcGFnZU1hcms9Mg%253D%253D&ab_segments=0%2Fl2b_100k_with_tbsub%2Ftest&seq=1#page_scan_tab_contents

Webster, P. (1998). Young Children and Music Technology. *Research Studies in Music Education,* 11 (1), 61-76. https://journals.sagepub.com/doi/abs/10.1177/1321103X9801100107

Webster, P. (2012). Key Research in Music Technology and Music Teaching and Learning. *Journal of Music, Technology & Education,* 4 (2-3), 115-130. https://www.ingentaconnect.com/content/intellect/jmte/2012/00000004/F0020002/art00002