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Developing TPACK in Music Educators

Setting and Context

The Developing TPACK in Music Educators project will take place with elementary music teachers in Fulton County, Georgia. The Fine Arts Department in Fulton County Schools includes approximately 75 General Music teachers at 58 elementary schools: 75% White and 25% African American; 90% female and 10% male. In my capacity as a member of the Fine Arts Support Team in the county's department, I have gained permission from the district's fine arts coordinator, as well as enthusiasm from several of the district's elementary music teachers, to proceed with this plan. Since the county covers a 534 square miles, it would be extremely difficult for teachers to congregate in a central location on a regular basis. Therefore, I believe that the best course of action for implementing technology-related professional development to these educators is to use technology itself. I will design and implement an online series of professional development offerings for the district's elementary music teachers, including a platform for these teachers to collaborate and share best practices beyond my own knowledge and experience. These trainings will range from basic technical skills to more advanced applications of technology in the classroom. Every music teacher in the district has a county-issued Dell laptop computer, and there is Internet access at every school in the district. Additionally, each music teacher in the district will be issued an iPad in the beginning of this school year. Beyond this, teachers have a variety of resources that are inconsistent across the district. As such, the trainings in this project will make use of the technology tools that are available to all teachers.

Capstone Problem and Rationale

Teachers today are continually tasked with relating students' learning to real-life experiences, while at the same time are not being provided with access to quality professional development for an area that is central to modern students' everyday lives: technology. Many of the music educators in Fulton County have long noted that technology-related professional development in schools often is unrelated to and/or unsuited for their content-specific needs. Greher (2011) echoes this sentiment, explaining that music teachers in general see professional development for technology as "often hit-or-miss, one-shot sessions that may center on the latest trend or idea in school reform, with little regard for what the individual music teacher most needs" (p. 133). Keengwe and Onchwari (2009) also insist, "the most effective way to benefit from technology is to integrate it into the curriculum as opposed to integrating curriculum into technology" (p. 210).

Therefore, I have identified a need for a TPACK approach to professional development for these music educators. TPACK, or Technological Pedagogical and Content Knowledge, is a major theoretical framework that advocates for content-specific technology training. The framework is meant to emphasize the importance of each of these three knowledge domains in teaching as well as the interconnectedness between them. Harris, Mishra, and Koehler (2009) explain, "teachers must understand which technologies are best suited for addressing which types of subject-matter, and how content dictates or shapes specific educational technological uses, and vice versa" (p. 400). Harris et al. (2009) also explain that while TPACK itself is not a professional development model, it may be helpful for those who plan professional development

activities (pp. 402-403). In one study, Doering, Veletsianos, Scharber, and Miller (2009) sought to determine the effectiveness of professional development designed with an explicit TPACK focus (p. 326). Through interviews with the study's participants, these authors found "themes of empowerment through the development of the knowledge domains" (p. 330). "All of the [participants] felt that the TPACK approach to professional development and learning environment was 'vital' as it 'empowered' them and didn't make them feel dependent on someone else, thus increasing confidence" (p. 332). More generally, Reese and Rimington (2000) insist that content-specific technology training is "critical if technology education is to move beyond simple technical training in software and hardware to educating teachers in specific, detailed strategies for integrating technology into the curricula" (p. 27).

Research shows that, in addition to content-relevance, collaboration among teachers is also helpful in ensuring effective professional development for technology integration. This holds true with the notion that the preferred learning styles of adults must be considered when planning any training for teachers: "Adult learners do not respond favorably to traditional, behavioral pedagogy and methods of instruction; they respond more favorable [sic] to social constructivist pedagogy and methods" (Potter & Rockinson-Szapkiw, 2012, p. 23). Indeed, the nature of technology itself allows for this type of collaboration. Bauer, Reese, and McAllister (2003) suggest online communication can be especially helpful for music teachers who are often alone in their buildings: "Perhaps the growth of online professional forums and Web sites devoted to technology for music teachers will partially address this need" (p. 295).

Objectives/Deliverables

The objectives for the Developing TPACK in Music Educators project are as follows:

- Assess teachers' readiness levels for technology integration, including technical skills, current uses of technology, and philosophies for technology integration using a teacher survey.
- Develop a series of ten (10) music-specific technology integration trainings with an increasing level of difficulty in technical skills. Teachers will begin their training at a level appropriate to their own technical skills and needs.
- Develop a Weebly website as a platform for these training materials, including a discussion forum, blog, and surveys to monitor teacher development.
- Create a Wikispaces site for teachers to collaborate and share best practices for integrating technology in elementary music classes.
- Provide technological support when necessary to teachers.

The following deliverables will be created throughout the Developing TPACK in Music Educators project:

- Professional development training sessions in an online format
- Weebly website to house training materials, discussion forums, blog, and surveys.
- Wikispaces site for collaboration among district music teachers.

PSC Standards

This project will cover the following standards for Instructional Technology Coaching:

- Teaching, Learning, & Assessment**:** Candidates demonstrate the knowledge, skills, and dispositions to effectively integrate technology into their own teaching

practice and to collaboratively plan with and assist other educators in utilizing technology to improve teaching, learning, and assessment.

- Content Standards & Student Technology Standards: Candidates model and facilitate the design and implementation of technology-enhanced learning experiences aligned with student content standards and student technology standards. (PSC 2.1/ISTE 2a)
- Research-Based Learner-Centered Strategies: Candidates model and facilitate the use of research-based, learner-centered strategies addressing the diversity of all students. (PSC 2.2/ISTE 2b)
- Authentic Learning: Candidates model and facilitate the use of digital tools and resources to engage students in authentic learning experiences. (PSC 2.3/ISTE 2c)
- Higher Order Thinking Skills: Candidates model and facilitate the effective use of digital tools and resources to support and enhance higher order thinking skills (e.g., analyze, evaluate, and create); processes (e.g., problem-solving, decision-making); and mental habits of mind (e.g., critical thinking, creative thinking, metacognition, self-regulation, and reflection). (PSC 2.4/ISTE 2d)
- Differentiation: Candidates model and facilitate the design and implementation of technology-enhanced learning experiences making appropriate use of differentiation, including adjusting content, process, product, and learning environment based upon an analysis of learner

characteristics, including readiness levels, interests, and personal goals. (PSC 2.5/ISTE 2e)

- Instructional Design: Candidates model and facilitate the effective use of research-based best practices in instructional design when designing and developing digital tools, resources, and technology-enhanced learning experiences. (PSC 2.6/ISTE 2f)
- Assessment: Candidates model and facilitate the effective use of diagnostic, formative, and summative assessments to measure student learning and technology literacy, including the use of digital assessment tools and resources. (PSC 2.7/ISTE 2g)
- Data Analysis: Candidates model and facilitate the effective use of digital tools and resources to systematically collect and analyze student achievement data, interpret results, communicate findings, and implement appropriate interventions to improve instructional practice and maximize student learning. (PSC 2.8/ISTE 2h)

- Digital Learning Environments: Candidates demonstrate the knowledge, skills, and dispositions to create, support, and manage effective digital learning environments.
  - Classroom Management & Collaborative Learning: Candidates model and facilitate effective classroom management and collaborative learning strategies to maximize teacher and student use of digital tools and resources. (PSC 3.1/ISTE 3a)

- Managing Digital Tools and Resources: Candidates effectively manage digital tools and resources within the context of student learning experiences. (PSC 3.2/ISTE 3b)
- Online & Blended Learning: Candidates develop, model, and facilitate the use of online and blended learning, digital content, and learning networks to support and extend student learning and expand opportunities and choices for professional learning for teachers and administrators. (PSC 3.3/ISTE 3c)
- Adaptive and Assistive Technology: Candidates facilitate the use of adaptive and assistive technologies to support individual student learning needs. (PSC 3.4/ISTE 3d)
- Basic Troubleshooting: Candidates troubleshoot basic software and hardware problems common in digital learning environments. (PSC 3.5/ISTE 3e)
- Selecting and Evaluating Digital Tools & Resources: Candidates collaborate with teachers and administrators to select and evaluate digital tools and resources for accuracy, suitability, and compatibility with the school technology infrastructure. (PSC 3.6/ISTE 3f)
- Communication & Collaboration: Candidates utilize digital communication and collaboration tools to communicate locally and globally with students, parents, peers, and the larger community. (PSC 3.7/ISTE 3g)

- Digital Citizenship & Responsibility: Candidates demonstrate the knowledge, skills, and dispositions to model and promote digital citizenship and responsibility.
    - Digital Equity: Candidates model and promote strategies for achieving equitable access to digital tools and resources and technology-related best practices for all students and teachers. (PSC 4.1/ISTE 5a)
    - Safe, Healthy, Legal & Ethical Use: Candidates model and facilitate the safe, healthy, legal, and ethical uses of digital information and technologies. (PSC 4.2/ISTE 5b)
- Professional Learning & Program Evaluation: Candidates demonstrate the knowledge, skills, and dispositions to conduct needs assessments, develop technology-based professional learning programs, and design and implement regular and rigorous program evaluations to assess effectiveness and impact on student learning.
    - Needs Assessment: Candidates conduct needs assessments to determine school-wide, faculty, grade-level, and subject area strengths and weaknesses to inform the content and delivery of technology-based professional learning programs. (PSC 5.1/ISTE 4a)
    - Professional Learning: Candidates develop and implement technology-based professional learning that aligns to state and national professional learning standards, integrates technology to support face-to-face and online components, models principles of adult learning, and promotes best practices in teaching, learning, and assessment. (PSC 5.2/ISTE 4b)

    - Program Evaluation: Candidates design and implement program evaluations to determine the overall effectiveness of professional learning on deepening teacher content knowledge, improving teacher pedagogical skills and/or increasing student learning. (PSC 5.3/ISTE 4c)

- Candidate Professional Growth & Development: Candidates demonstrate the knowledge, skills, and dispositions to engage in continuous learning, reflect on professional practice, and engage in appropriate field experiences.
    - Continuous Learning: Candidates demonstrate continual growth in knowledge and skills of current and emerging technologies and apply them to improve personal productivity and professional practice. (PSC 6.1/ISTE 6a, 6b)
    - Reflection: Candidates regularly evaluate and reflect on their professional practice and dispositions to improve and strengthen their ability to effectively model and facilitate technology-enhanced learning experiences. (PSC 6.2/ISTE 6c)
    - Field Experiences: Candidates engage in appropriate field experiences to synthesize and apply the content and professional knowledge, skills, and dispositions identified in these standards. (PSC 6.3)

Project Description

Part A: Narrative

In order to ensure that the Developing TPACK in Music Educators project is able to benefit as many teachers as possible, the first step in the project will be to have

teachers take a pre-assessment to determine their current knowledge and use of technology in the classroom. This will help to make certain that teachers begin training at a level that is neither too advanced nor too rudimentary for their individual needs.

Teachers will then be placed at a particular level and will begin with trainings that are suited to their needs. For example, teachers with little to no technical skills will begin with basic introduction to these skills and advance from there. Likewise, teachers with intermediate or advanced technical skills will skip these introductory trainings and instead begin with learning more advanced uses of technology in the classroom, for example, using technology in regards to LoTI and Bloom's Taxonomy.

Before implementing this project, I will develop all the training materials up front. This way, teachers can begin at the same time rather than waiting on the more advanced material to be created. Each training session will include a variety of materials, including instructional videos, Power Point presentations, links to helpful websites, and handouts. I will create a Weebly website as a platform to house all of this information. The website will also include a discussion forum for teacher reflection. Additionally, I will create and frequently post to a blog to keep teachers up-to-date on new information that may come after the development of these training sessions. Each of the trainings will be directly related to General Music performance standards as well as NETS-T standards. I will also create a Wikispaces page for these teachers to collaborate on best practices, upload sample lesson plans, discuss new and useful technology tools, and so on.

In order for teachers to earn one Professional Learning Unit (PLU) credit, they must complete a total of ten hours of training. This can be accomplished in varying ways. First, teachers can complete all ten training sessions. For those teachers who do not need

to begin with the basic introduction to technical skills, they can instead complete a combination of training sessions and periphery work, such as documented implementation in their own classrooms and participation in the discussion forums.

B: Timeline

July 2014	• Develop teacher survey.
August-October 2014	• Distribute teacher survey. • Develop all training materials. • Develop Weebly website and Wikispaces site.
October 2014	• Administer teacher pre-assessment. • Place teachers in appropriate levels to begin.
October-December 2014	• Implement training sessions. • Update Weebly blog regularly. • Facilitate conversation in the discussion forum and Wikispaces page.
December 2014	• Implement post-training survey to determine the effectiveness of the project and identify needs for further professional learning.

C. Resources

The following resources will be necessary to both develop and implement the project:

- Computer (district-issued)
- iPad (district-issued)
- Internet Access (provided by district)

- Accounts created for each Web tool used in the project (all free):
    - Weebly, Wikispaces, Quaver Music, Noteflight, Audioboo, Thinglink, Twitter, Google, Edmodo, Jing, and others.

Evaluation Plan

In order to measure the extent to which the objectives for the Developing TPACK in Music Educators project were successful, teachers will complete the teacher survey at the beginning and again at the end of their training experience. Using the same survey will serve to measure the amount of growth per teacher from the beginning to the end of training. Teachers will also have an opportunity to reflect on what they learned throughout the process in open-ended response questions on the blog or the Wikispaces site about what was most effective, what trainings are still needed, and what can be done to improve the existing training materials or process. Additionally, teachers will be asked how the TPACK approach to professional learning compares to previous approaches to professional learning for technology integration they have previously experienced.

References

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Appendix: Teacher Survey Questions

The survey can also be found at:
https://docs.google.com/forms/d/1zlD9DBWLFGQAuxbPye2EudX6hwy3g-j6yvQ-aNbdF9w/formResponse

Music Teacher Technology Survey

What is your name?

What is your home school?

To what extent do you know how to download files from a legitimate source?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to import music from a CD into iTunes?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to create and edit playlists for particular lessons or grade levels on iTunes?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to upload only selected songs and/or playlists on an iPod?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to burn a new CD from a playlist on iTunes?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to search for and download an app on an iPad?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to create digital audio recordings of your students?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to upload audio, video, and/or pictures from your iPod/iPad/other device onto your computer?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent are you able to connect your computer to an LCD projector or interactive white board?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to create bookmarks and bookmark folders in an Internet browser (Internet Explorer, Firefox, Chrome, etc.)?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to create and operate a class website?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to create and operate a class blog?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to backup files onto a secondary source?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to upload and access files on the Cloud?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

To what extent do you know how to troubleshoot basic technical issues (frozen screen, printer jam, etc.)?

- I don't know how to do this
- I sometimes need help to do this
- I am comfortable doing this without help

What are some other technology skills you would like help with?

How often do YOU use technology for lower-cognitive tasks in lessons?

- Never
- Rarely (1-4 times per year)
- Occasionally (1-2 times per month)
- Regularly (3-4 times per month)
- Continuously (nearly every day)

How often do YOU use technology for higher-cognitive tasks in lessons?

- Never
- Rarely (1-4 times per year)
- Occasionally (1-2 times per month)
- Regularly (3-4 times per month)
- Continuously (nearly every day)

How often do YOUR STUDENTS use technology for lower-cognitive tasks in lessons?

- Never
- Rarely (1-4 times per year)
- Occasionally (1-2 times per month)
- Regularly (3-4 times per month)
- Continuously (nearly every day)

How often do YOUR STUDENTS use technology for higher-cognitive tasks in lessons?

- Never
- Rarely (1-4 times per year)
- Occasionally (1-2 times per month)
- Regularly (3-4 times per month)
- Continuously (nearly every day)

How often do YOUR STUDENTS use technology to communicate with others outside the building?

- Never
- Rarely (1-4 times per year)
- Occasionally (1-2 times per month)
- Regularly (3-4 times per month)
- Continuously (nearly every day)

Do you believe it is important to use technology in music class? Why or why not?

Do you believe it is important for STUDENTS to use technology in music class? Why or why not?

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