



MAKING SOUND DECISIONS FOR MUSIC TECH

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Lost in the sea of music technology options? Confused by the alphabet soup of technology acronyms? Tired of wasting time and money researching, then trying to implement “solutions?”

Many educators and administrators feel intimidated and overwhelmed by the requirement to integrate technology across the curriculum, and by the abundance of technology options. Asking the right questions now can help save precious dollars and prevent headaches later. This discussion will provide a framework for making wise decisions for today and for the future, and will include three lenses through which to view technology integration: **SAMR**, **Triple E**, and **TPACK**.

To develop a meaningful music technology integration plan, we need to clarify our goals. Why are we planning to use technology? Are we just fulfilling a mandate, trying to seem cool to the students, or simply attempting to keep up with the rapidly-changing times? Implementing technology in a catch-as-catch-can manner may lead to wasted time and money.

One way to think through the all of issues is the **5 W's**: **Who**, **What**, **When**, **Where**, **Why**. Answers to the 5 W's will provide a clearer path to the all-important **How**. Though the 5 W's are presented sequentially, we may need to revisit them throughout the decision process.

Who?

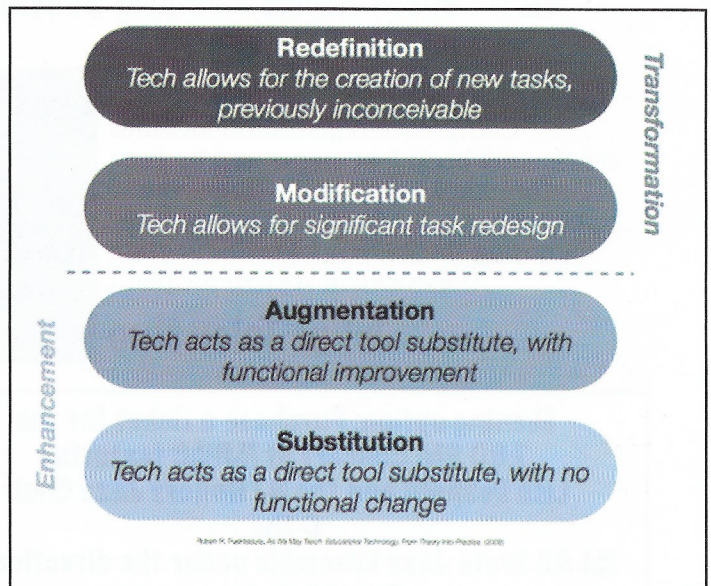
- Who are your students? Consider their age and experience level. Do any students need assistive or adaptive technologies? Are most students adept at using technology? Do all students have their own devices or school-issued devices? Do they have access to technology outside of school?
- Who are the stakeholders? What are their expectations of the school and community? Is an instructional technology plan in place already? Do you need to

advocate for buy-in from school officials and parents? Too many people in the education community still fail to see the transformative power of technology for arts education.

- Who are you as the teacher? What is your comfort level with technology? If you have not done so, compare your current practices with technology for school music to the **SAMR** model. The more comfortable you become with technology, the greater power you can give it to increase instructional efficiency and deepen student learning.

Developed by Ruben R. Puentedura, the **SAMR** model provides a structure for considering whether technology integration provides:

- **Substitution** for a prior method or technique
- **Augmentation** of a prior strategy
- **Modification** of a prior method, with significant redesign
- **Redefinition**, in which the new activity would be inconceivable without the technology.



Source for image

Puentedura, R. (2014, November 12). *SAMR: First Steps* [Presentation slides]. Retrieved from http://www.hippasus.com/rrpweblog/archives/2014/11/13/SAMR_FirstSteps.pdf

SAMR for musical ensembles:

- S: Students maintain digital music practice journals instead of paper practice journals
- A: Digital practice journals with embedded or attached audio recordings from each practice session (may be hosted on any platform, including *Google Classroom* or *MusicFirst*)
- M: Students monitor and critique one another via online/shared digital practice journals containing audio recordings
- R: Students engage in real-time practice sessions via video conference, collaborating and coaching one another from separate locations.

What?

- What are you trying to teach? Music performance? Music Theory? Composition? Music listening and critique? Technology skills?
- What resources do you already have? What computers, tablets, Chromebooks, microphones, recording devices, document cameras, and other gear is already available?
- What devices can your students use? Does your school provide every student a device like an iPad tablet or Chromebook? Are there carts of devices you can borrow or a technology lab you can use? Does your school have a BYOD policy? If so, many students have smartphones, and love to use them every chance they get.
- Don't write off "old" gear including keyboards, microphones, and DI boxes. If it's got a USB connection, it will probably work. Piano keyboards with MIDI connections can still be used with a MIDI-USB converter (retail about \$30 each, but available for much less).

Where?

- Will students be able to use technology in your regular classroom, or is another space like a lab needed? How robust and reliable is the WiFi in your classroom?
*FYI: WiFi hubs run at the speed of the SLOWEST device attached. If one person is using an iPhone 4, everyone on the network will have slower response times.
- Do you expect students to use technology for music class at home? Do they have access to devices and Internet/WiFi outside of school? If not, find out whether your school can loan devices to students overnight, or if students can get free access at a public library or community center. The "digital divide" between the "haves" and "have-nots" is a legitimate concern, and we need to ensure that no student is put at an educational disadvantage for economic reasons.

When?

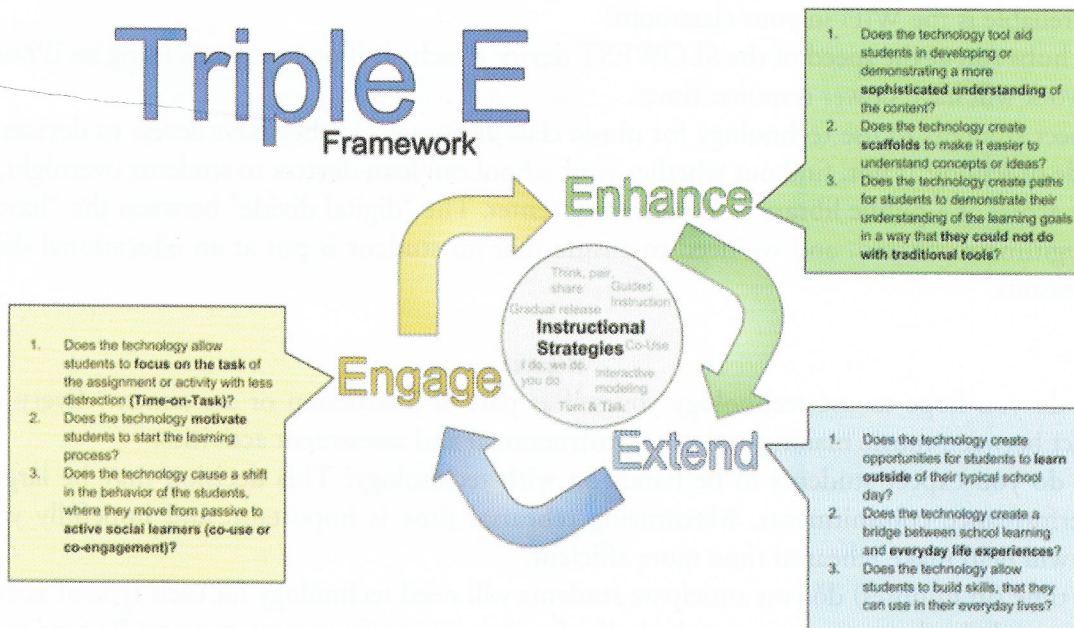
- How often do you hope to use technology yourself as part of instruction or assessment? Every teacher does a balancing act between music making and other instructional and assessment activities.
- How often do you expect students to be hands-on with technology? This decision may be largely dependent on your performance commitments. Maximizing rehearsal time is important, and hopefully your choices of technology will help make rehearsal time more efficient.
- How much time (in minutes) do you anticipate students will need technology for each type of activity? Will they use tech frequently in short spurts, or for the bulk of a class session from time to time? Be sure to plan for some extra time (about 20%) when you first introduce a technology-based music activity. There are always a couple of glitches to resolve, and students will need time to walk through initial access or login steps.

Why?

- Are you just trying to meet some state or local mandate?
- Are you trying to stay current and relevant, without looking like a dinosaur?
- Are you looking for a way to connect with kids whose brains are wired differently?
- Are you meeting the needs of ever-more diverse student populations?
- Have you considered The Triple E Framework? Developed by Professor Liz Kolb at the University of Michigan, Triple E (Extend, Enhance, Engage) illustrates a virtuous cycle in which we can use technology in a student-centered way.

Triple E Framework

Extend Learning	<p>Does the technology create opportunities for students to learn outside of their typical school day?</p> <p>Does the technology create a bridge between school learning and everyday life experiences?</p> <p>Does the technology allow students to build skills, that they can use in their everyday lives?</p>	Instructional Strategies	
Enhance Learning	<p>Does the technology tool aid students in developing or demonstrating a more sophisticated understanding of the content?</p> <p>Does the technology create scaffolds to make it easier to understand concepts or ideas?</p> <p>Does the technology create paths for students to demonstrate their understanding of the learning goals in a way that they could not do with traditional tools?</p>		
Engage Learning	<p>Does the technology allow students to focus on the task of the assignment or activity with less distraction?</p> <p>Does the technology motivate students to start the learning process?</p> <p>Does the technology cause a shift in the behavior of the students, where they move from passive to active social learners (co-use or co-engagement)?</p>		
			Turn & Talk
			Co-Use
			Gradual Release
			Interactive Modeling
			I do, We do, You do
			Predicting
		Questioning	
		Share-aloud	
		Think, Pair and Share	
		Guided Practice	
		Software Tour	
		Switcheroo	
		Visible Thinking Routines	
		Monitoring	



<https://www.tripleeframework.com/framework-models.html>

Triple E in General Music

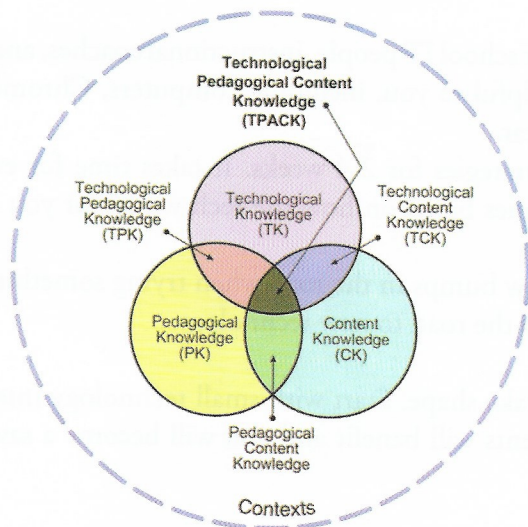
Enhance: General music students use online lessons in *Focus on Sound* via the *MusicFirst Classroom* to supplement traditional in-class instruction about instruments of the orchestra. Photos, audio, and video provide a rich experience. Students can proceed at different speeds, and take short quizzes to demonstrate mastery. Students share about their favorite instruments in class and in an online discussion forum.

Extend: Focus on Sound is available 24-7 to students with an Internet connection, extending learning beyond school hours. The teacher has developed targeted world instrument explorations assigned to students based on interests and preferences shared about the instruments of the orchestra. This differentiation of subject matter also includes differentiation of complexity to meet individual learning needs.

Engage: The Focus on Sound platform provides a rich learning environment while preventing distraction from hyperlinks or necessary outside searches. The follow-up project on world instruments can be conducted inside Focus on Sound, or via Webquest, to provide structure and safety for students.

Once you have a clear vision of the kinds of ways in which you *can* and *want* to use technology with your music students, it might be helpful to check whether it's going to be pedagogically effective and efficient. Just because we *can* do something doesn't mean we *should*.

A helpful strategy for checking whether you *should* use a particular technology is the **TPACK** model. The model helps find the sweet spot--the intersection of Technology, Pedagogy, and Content Knowledge--and was developed by Matthew J. Koehler & Punya Mishra at Michigan State University.



<http://www.citejournal.org/volume-9/issue-1-09/general/what-is-technological-pedagogical-content-knowledge>

Using **TPACK**, we can check whether the music technology we *think* we want to use will be a solid choice for instructional purposes.

TPACK for Music Technology Decisions

Mrs. Williams is starting a high school music technology program. Her counterpart in the middle school, Mr. Lee, uses *GarageBand* for a 6-week music cycle course for 7th graders. The goal is to start with one half-year elective open to grades 9-12, then add a second level course for the next school year.

Mrs. Williams is looking at investing in *Logic* or *ProTools* for her HS Music Tech 1 class, to be offered as a half-year elective. The price for either one of these software titles is pretty steep, and the software must be installed on each computer in the shared Arts Department computer lab.

Through the **TPACK** lens, she will need to will ask herself these questions:

Technology: What tech skills is she trying to teach? Basic recording and editing? Effects like EQ & reverb? Or does she need a highly sophisticated **DAW** with integrated music notation, like *Logic* or *Pro Tools*?

Pedagogy: Will every student be entering the class with background knowledge in music composition and know how to use a **DAW**? How much time does she want to devote to teaching the software vs. teaching music composition?

Content Knowledge: Musically, is she teaching songwriting and composition, or is the focus more on audio engineering?

A glance at the “Triple E” model (Extend, Enhance, Engage) might also lead Mrs. Williams to consider whether she wants students to have access to the software outside of school hours (**When & Where**).

Given that her target students (**Who**) will have limited background experience, and that she wants to spend more time teaching music composition than software (**What and Why**), Mrs. Williams may decide that *GarageBand* plus a cloud-based **DAW** like *Soundtrap* or *Soundation4Education* would be better for meeting the needs of the students in HS Music Tech 1. Based on how things go during the first year of HS Music Tech 1, Mrs. Williams will be prepared to make a wise, cost-appropriate decisions when she launches HS Music Tech 2.

The wider instructional technology community beyond music education views technology integration in terms of **SAMR**, **Triple E** and **TPACK**. As music educators, we need to speak their language, and to speak to the specific needs of students in our discipline. Keep in mind these guiding principles for music tech integration rationale:

- Be clear and able to articulate how the use of technology will improve/enhance learning outcomes or streamline important tasks like assessment and record keeping.
- Include technology in your view of how students engage in music learning, practice, creative activities, collaboration, communication, and assessment. Don't feel pressured to use technology in all of these areas, but be sure to include this information in lesson plans and evaluation documents whenever possible.
- Enlist students as ambassadors for the positive impact technology has on their learning. Whenever possible, have students advocate to administrators and parents.

Keep yourself from getting stressed out with these strategies:

- Start with what you/your students already have. Check with your school IT people, instructional coaches, and media specialists. They may have gear gathering dust that will be helpful to you, including computers, Chromebooks, document cameras, USB microphones, and other recording gear.
- Start small. Commit to one or two technology integration strategies for 2-4 weeks. It takes time for everyone to adapt and adopt, including students. Add or change strategies based on how the tech works for you and for students.
- Hang tough. Glitches happen, and there are almost always a few bumps in the road when trying something new.
- Ask for help. Colleagues and capable students can help smooth the road to new technology.

With a clear vision, a music technology integration plan will take shape. Start with small technology integration steps aligned with a plan for future growth and innovation. Students will benefit and you will become a savvy 21st century music educator.

