Pro Development in Music Technology: Issues & Solutions
By Dr. Jay Dorfman, Assistant Professor, Music Education, Boston University; President, Technology Institute for Music Educators (TI:ME)

There is no doubt about it: integrating technology into music teaching, regardless of the kind of music teaching we are doing, is difficult and tricky. For most music teachers, our educational backgrounds consist of training in music performance, music pedagogy, music theory, aural skills, conducting, music history, and liberal arts.

Perhaps if teachers are relatively new to the field, they will have had some experiences with technology; however, even in those circumstances in which technology coursework is available or required as part of a pre-service education, there is little focus on teaching with technology. Pre-service courses are frequently designed with an emphasis on learning to use technology—which buttons to push and knobs to turn—and rarely approach the idea of designing experiences for students in which they are directly engaged with technology. The cold truth is that when music teachers enter the classroom, we are rarely prepared to use technology for music teaching in the same deep and meaningful ways that we teach music in band, choir, orchestra, or general music classes.

TPACK: A Model for Understanding Integration

Over the last several years, an interesting theoretical model has gained popularity, in large part because it acknowledges the inherent difficulties teachers face when trying to integrate technology in their classrooms. This model, known as TPACK (Technological, Pedagogical, and Content Knowledge), displayed in Figure 1, asserts that technology knowledge, pedagogical knowledge, and content knowledge—for music, or for any subject—represent distinct ways of thinking and acting in the classroom. The intersections of these three types of knowledge result in even more complex ways of thinking and behaving. The most sophisticated of these intersections is TPACK, which can most concisely be defined in our discipline as an understanding of the influences of technology on the ways we can teach and students can learn musical content best.

The TPACK model has emerged as both a way of understanding the layer of complexity that results from adding technology to the mix of music teaching and learning and as a way of assessing teachers' readiness to use technology as the basis for the teaching (Koehler & Mishra, 2008; Mishra & Koehler, 2006). Although the model was not originally intended to address any particular subject, recent efforts (Bauer, Harris, & Hofer, 2012) have begun to develop "activity types" that appeal to the TPACK model within several disciplines. There are also several available examples of tools and surveys that can be used to measure teachers' TPACK, which can provide a reasonable assessment of preparation for integrating technology.

Problems with Current Professional Development

Music teachers should be pleased that there is a model that exists that acknowledges the complexity of technology integration because doing so is difficult. Integration requires us to know the software and hardware we plan to use, to design experiences differently, to teach differently, and to assess our students' work differently. Essentially, everything we have learned to do has to change!

Professional development in music technology integration presents additional problems. First, we must decide what professional development to seek. Professional development in technology may not be as immediately beneficial as would a workshop, for example, in band intonation or Orff methodology. Second, if we decide to seek professional development in technology, the levels of experience that other members of workshops or classes bring can vary tremendously; this creates the potential for us to feel left behind or far more advanced than our peers. Finally, profes-

Figure 1. TPACK model, Reproduced by permission of the publisher, © 2012 by tpack.org
sional development in music technology integration can fall vic-
tim to the same problem as coursework in this area—it can stick
strictly to learning to use the technology, rather than forging into
ideas about pedagogy that is based on technology as the major
means for introducing, providing practice, and assessing musical
skills, concepts, and knowledge. Professional development that
addresses these aspects of pedagogy could be truly beneficial, yet
few experiences reach this level of intellectual sophistication.

Solutions

Given the complexities associated with technology-based music
instruction, it is supremely important that music teachers seek
quality professional development opportunities. Professional
development in technology integration should be relevant to many
teaching situations, it should be robust enough to account for vari-
ous backgrounds, and it should combine procedural knowledge
(how to use the technology) with pedagogical knowledge (how to
use the technology for teaching).

A great way to get going with professional development in tech-
nology is to attend a conference. The recent TI:ME (Technology
Institute for Music Educators) National Conference, held in con-
junction with the Texas Music Educators Association conference,
included about 90 sessions on technology tools and integration
strategies. Descriptions of conference sessions are almost always
available in advance, which allows attendees to assess the level of
sophistication in light of the experience necessary to benefit from
each session. TI:ME organizes a national conference and a region-
al conference each year and also holds many fantastic sessions at
the annual MMMEA conference. The sessions at these conferences
range from fundamental topics, such as setting up a live sound
system, to intermediate uses of technology in the classroom, to
advanced topics, such as app development. Essentially, there is
something for everyone, and I encourage you to attend a TI:ME
conference soon.

If you are unable to attend a conference, you might seek online
training. Websites such as Lynda.com and MacProVideo.com,
both of which operate on subscription service models, offer hun-
dreds of hours of training in relevant software. These types of
online training generally do not focus on pedagogy; rather, they
are geared toward learning the techniques of using software and
hardware.

If you are interested in spending concentrated time learning soft-
ware and hardware and learning practical techniques for integrat-
ing technology into your music teaching, I strongly urge you to
take a TI:ME workshop course. These courses are typically offered
at universities during the summer (though some take place dur-
ing the school year or online) and are taught by TI:ME-approved
instructors who know the technology and have years of experi-
ence integrating it into classrooms. These workshops are fun and
engaging, and students report learning tremendous amounts of
procedural and pedagogical information from just one week of in-
tensive experience. Course topics, dates, and locations are listed
on ti-me.org now.

A final solution is perhaps the simplest, yet most often over-
looked. There are many teachers who do wonderful things with
technology in their music classrooms every day. Seeking them
out and sitting in on one of their classes—either in person or
perhaps over a video connection—can be of incredible benefit.
These master teachers think carefully about planning technolo-
gy-based music lessons and have adapted their teaching prac-
tices to make the most effective uses of technology for conveying
music education content. In the research for my forthcoming
book, Theory and Practice of Technology-Based Music Instruc-
tion (Dorfman, In press, 2013), I was fortunate to be able to wit-
ness some of these amazing professionals in action and learned
so much by watching them teach. I encourage you to seek out a
teacher who is making regular and thoughtful use of technology
in the classroom and learn by observing that teacher in action.

In Closing

Music teaching in traditional settings is very difficult, and music
teachers develop amazing expertise in all of the expected com-
ponents of their craft. The musicianship we develop translates
into amazing musical capacities in our students, which results in
outcomes such as great performances and lifelong involvement
in music. Staying on the cutting edge of music teaching dictates
that we couple what we know about great music teaching with
new ways of encouraging our students’ creativity, and technol-
gy is among the best ways to do this. Professional development
in technology integration is still taking shape, and opportunities
to advance your knowledge in this area are not without prob-
lems. Seeking quality professional development in the venues I
have mentioned and others will surely help you to achieve the
kind of meaningful and seamless integration of technology into
your teaching that will benefit you and your students.

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