

Technology and Its Use by Percussion Educators in the 21st Century

By Tracy Wiggins

With the development of new technology ranging from less expensive cameras and recording equipment to the prominence of social media such as Facebook, Twitter, and LinkedIn, percussion educators have access to an array of new tools to improve the learning of their students, improve outreach for their programs, and more.

Teaching at a small school in a rural area makes communicating the events of our institution a challenge. In the spring of 2011, we began streaming all of our percussion ensemble concerts live on Ustream.tv. Fortunately, our campus has an office on campus that is devoted to online work like this. James Lewis came from the office to set up an array of cameras and recording equipment to allow us to produce our first live webcast on March 3, 2011. The guest artist for this performance was Dr. Andy Harnsberger, and he was an enthusiastic participant!

Harnsberger's students were able to gather in the band room at Lee University in Tennessee to watch the live stream of his performance.

We followed up this event by live streaming the entire Day of Percussion at our school. All clinics and performances went out over the webcast, and people from around the country were able to tune in at their leisure. An additional benefit to Ustream.tv is that the webcasts are archived for later viewing by anyone with access to the site. (To see webcasts visit <http://www.ustream.tv/channel/uncp-percussion-group>).

Lewis described his array as "a typical video setup with two cameras, a video mixer, a microphone, and a digital mixer/audio interface. The two cameras were Panasonic AVCCAMs. Although the cameras are HD, we opted to use their analog outputs. The video mixer/switcher was the Datavideo SE-500. To convert the video to the digital domain for the Ustream webcast, we used a Canopus/Grassvalley ADVC110. For audio we used an Audio Technica condenser microphone along with a MOTU Ultralite Audio Interface. We used the digital mixer side of the MOTU to mix and monitor levels. This fall we moved to an HD setup consisting of four cameras, with an SE-2000 Video

switcher, MOTU V4HD Processor, and Datavideo Video HD Recorder."

I became increasingly interested in the capabilities of the technology as a teaching tool while listening to Dr. John W. Parks IV discuss his ability to record every note of every rehearsal for his students to review. This year I also followed Parks's advice and began recording all of our rehearsals and lessons. Our rehearsal hall is not a state-of-the-art studio like that at Florida State University, so I had to come up with other ways to record rehearsals. Using an iPod Touch and the iTalk application, I am able to get decent recordings of our rehearsals. Following each rehearsal, I can upload the recorded iTalk files to dropbox.com, a web-based file-sharing program. I created Dropbox folders for our percussion ensemble and our world percussion ensemble. Then, students access the Dropbox folders to access the audio files for review.

We record lessons using a USB microphone, a computer, and the free audio recording and editing program Audacity. Students can review what was said in the lesson, hear themselves play, and hear the teacher play. I have also found that I don't have to repeat the same instructions over and over as the students can review the recording for any information they may have forgotten. Following the lesson, I convert the audio file to mp3 format and

place it into the student's Dropbox folder (which, for privacy, is limited to individual access). Students who play audio files retrieved from dropbox.com via iTunes automatically generate an archive of all of their lesson recordings on their own computers.

I also use a Logitech camera to record video of the students performing in lessons. These videos are then reduced in size using the program iWisoft, which allows the video format to be changed. These videos can then be placed in the students' Dropbox.

We have also used Dropbox for students to turn in papers and programs for review and correction. In addition, this year our marching band has begun using Dropbox to distribute music to the band as a more secure method than having it posted on our website.



This year we will also be utilizing Skype to allow guest artists to interact with our students, an idea freely borrowed from Norman Weinberg. In this time of great budgetary concern this is a great way to get more guest artists working with students without having to account for extraordinary travel costs. For our Skype sessions we will be utilizing a large-screen monitor in our rehearsal hall, which will be connected to a laptop utilizing a VGA port. There will be two external cameras set up and connected in the rehearsal hall to be able to show the students to the guest artist and to record the session. Some schools' faculty members have successfully used Skype to maintain regular lesson and rehearsal schedules when they cannot be at school. Also, several programs have recently hosted composers' coaching sessions of new works using Skype.

Another useful rehearsal and teaching tool has been the development of Peterson Tuners' Body Beat Sync metronome. The Body Beat uses a pulse to vibrate the metronome so that the student can feel, rather than listen to, a pulse when practicing. The sync allows multiple metronomes to be controlled by one master unit. This metronome can also be programmed with multiple tempo and meter changes using programs like Sibelius or Finale through a USB port on the program. In this way click tracks for challenging works can be programmed for the students to feel the pulse in rehearsal or performance. This has even been used in marching rehearsals to replace the use of a metronome through a loudspeaker.

Several apps that are available for today's smart phones can be quite useful for percussion teachers. Several of these

applications are available for both IOS and Android devices. Following is a selected list of such apps.

Pocket Percussion Teacher: Designed by Robert Green, this application includes exercises and instructional videos to develop technique on snare drum, keyboards and marching percussion instruments. Further developments will include exercises for concert percussion, timpani, drumset, and more.

PolyRhythm: This application is designed to help students more accurately render various polyrhythms common in our music. The app allows the tempo to be changed from very slow to performance tempo. Rhythms range from 3:2 to 13:4.

DrumLibrary: This application includes rudiment and groove studies including such famous grooves as "50 Ways to Leave Your Lover."

Metronome Tempo Advance: This is one of the best metronomes available for IOS. It includes a wide range of sounds for the metronome, tempos ranging from 10 to 800 bpm, traditional tempo markings (in Italian), four different accent settings, a "vibrate the pulse" option on the iPhone, and the ability to store set lists and set songs to include tempo and meter changes.

Time Guru: This app for IOS and Android is a metronome that allows you to set a certain percentage of beats that will be silent during the click. This allows users to work on keeping time and checking how accurate they are when the click returns.

Songtronomie (IOS)/Metronome for Mac/Accelerating

Metronome for PC/Practise Metronome (Android): These are metronomes that allow the user to set a starting tempo and an ending tempo as well as the length of the phrase they would like to practice. The metronome will then gradually accelerate over a specified length of time to allow the performer to gradually build a phrase to performance tempo.

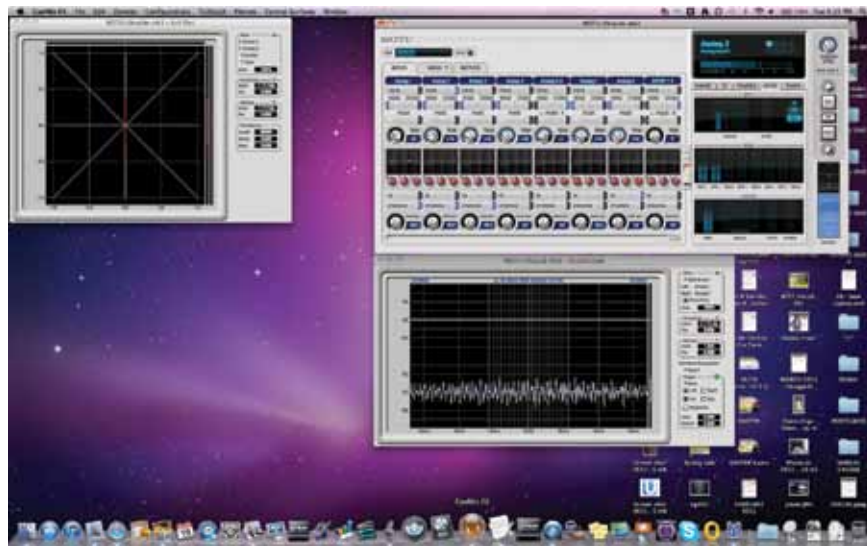
The Clave: This app does exactly what the name says: it plays various clave patterns in a wide range of tempos. It includes son, rumba, Afro, and bossa patterns in 2-3 and 3-2 arrangements.

Amazing Slow Downer (Audio Speed Changer Pro for Android users): This program can slow down (or speed up) recordings to enable practicing with a recording, alter a tempo for a piece with tape accompaniment, or for review of accuracy during practice. The program does not alter the key when changing the tempo, but it can be used to change a key if needed for performance purposes. A desktop version of this program is also available.

Smart Music: This program for desktop computers has been around for quite some time but has not been used as frequently for percussion as for other instruments due to a lack of percussion pieces being

included in the program.

The program allows performers to practice with recordings at various speeds, change keys as needed, and record themselves performing with the track. It is becoming more directly useable in our field due to some recent changes to the program. The band and orchestra libraries have been expanded so that percussionists may now practice and record sessions with some of our orchestral repertoire. In addition, mp3 files can now be imported into the program for practice



use. Smart Music also contains an extensive jazz library that can be tremendously useful for studying jazz keyboards as well as drumset.

Of course, we must train our students to utilize technology. Not every degree program is going to offer courses on music technology hardware, software, and implementation as a part of their curriculum. However, more are starting to incorporate these topics into their performance and education degrees. One way to work around this lack of formal course work is to incorporate technology into the regular studio program. Many studios incorporate projects such as research papers, concert reviews, and book reports into their curriculum. Additional examples of technology-based student projects may include website development, audio or video podcast productions covering either a historical or pedagogical topic in percussion, and recording/production projects involving microphone placement and software mastery.

To get other views on the use of technology I interviewed several educators who are at the forefront of using these new technologies. I posed the following questions to Norman Weinberg, John W. Parks, IV, Thomas Burrirt, and Dave Gerhart.

Tracy Wiggins: *Do you feel that the percussion world is at the forefront of using technology as a pedagogical tool in the music world? Why or why not?*

Norman Weinberg: Yes—in academia. I find that the percussion studios are the most forward thinking and current, somewhat



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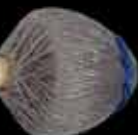
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due to the “newness” of our literature. While the oboe studio has contemporary works to choose from for performances, they are most likely focusing on the traditional literature of their past. Percussion is still a new genre, and we thrive on new literature. Besides, the percussion faculty are often the “coolest” ones in the school!

John W. Parks IV: I think we are, if not the leaders, right up there.

Percussionists have a natural knack for the skills required for audio and video technology—great ears, visual acuity, for example—not to mention that technology is still changing the way we perform and teach at a level unmatched by other instruments: instrument construction/innovation, interaction with computer-based soundtracks, Skype master classes, commissioning, streaming live performances and TV shows like Tom's (Burritt) PATV, real-time collaboration, Norm's Percussion History class, etc. Other instruments don't have the breadth or the necessary need to change—trumpet or violin, for example.

Thomas Burritt: I'm not sure about this one but I can share that most other societies—PAS equivalents—seem way behind in their website offerings.

Dave Gerhart: Yes and no. I think we are one of the top instrument families that are using technology, but I think it is pretty even between all of the rhythm section instruments. There are countless sites for guitars, bass, and piano. I think the wind instrument families are further behind us.

TW: *What types of technology do you use in your daily instruction with your students? Can you describe the setups you use?*

NW: We video every single studio class, and the students watch/listen to their performance during the next lesson and discuss it with their professor. We also video every percussion studio concert such as student recitals—B.M. to D.M.A.—and all our chamber ensemble concerts—percussion ensemble, World Music Gang, etc. We also have been webcasting every concert since fall 2009. We have a computer devoted to all of our video files, dating back about 15 years, that students can watch for inspiration and/or literature selection. We often use video/audio recording during lessons. Some of our students record the entire lesson from time to time.

JWP: Audio and video are our primary technological tools. The FSU percussion studio is wired as a professional recording environment, with my office next door as the control room. You can find details on our setup and gear at www.johnparkspercussion.com/audiovisual.html. All lessons, rehearsals, and master classes are recorded and saved on student flash drives for reference and comparison. We also have HD video capture in the studio, which aids tremendously for recording pre-screening DVDs, music festival/scholarship auditions, you name it. Our latest percussion ensemble disc was recorded, mixed, edited, and mastered all in the teaching space.

TB: I only use video and audio recording every once in a while. For audio I use Audacity so we can look at waveforms, and it allows us to listen at very slow speeds for analysis.

DG: iPad and iVideo via MacBook Pro. I am not sure how I lived without an iPad! It is one of the most helpful technologies that I have ever used. Here's what I use:

GoodReader: This application is an incredible PDF viewer and browser. I have uploaded all of my lesson handouts into this program, and when I introduce a new concept/worksheet to a student, we view it on the iPad. Once the lesson is complete, I can e-mail the worksheet from within this program. I also have scores and orchestral excerpts in GoodReader. It is also a great way to read music, or books, in the pit—no stand light required. This app in combination with IMSLP.org is incredible.

Tempo Advance: This metronome has replaced my Dr. Beat. It is customizable and can do subdivisions up to 20! You can also save Set Lists with all of your tempi. I use this when I am working on a new piece and I have also programmed in all of the tempi for



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the Mitchell Peters and Cirone books. With one click, I can pull up the tempo for any etude, and when the iPad is synced with my MacBook, these playlists are saved.

Penultimate: I use this to app to write down music examples and thoughts. I can send these sketches via e-mail to the students after each lesson.

Google Apps: I track all of my students in Google Docs. I share the document with my students so they know what and how they did in their lessons and what to prepare for their next lesson.

YouTube: Great resource to watch performance videos. As you will hear in the DrumChattr podcast #28 with Paul Lansky, students who are preparing multi-percussion solos can also look at setups and mallet choices and changes. This helps build our performance practice for the percussion literature.

iTunes: I keep all of my excerpts and major percussion rep available. I can't wait for iCloud to free more room on my iPad.

iReal b (aka, iRealBook): This is great for students who are studying jazz. I also use it for students who are learning their scales. I use my MacBook Pro to do video recordings of lesson performances. Once a student is ready to record, I use QuickTime Pro and we record the performance. I upload these files to the school's FTP server and the student can have a copy for future reference.

TW: *What benefits or drawbacks do you see to using technology like Skype and UStream?*

NW: During Spring 2010, I was awarded a grant to begin the "Distant Drumming" series at UA. Most Fridays from 11:00 to 11:50, we Skype in some of the most outstanding performers, educators, and industry leaders for lectures or master classes. I was awarded a second grant to continue the series during the spring of 2011. Our 2011 guests included Jim Atwood, Steven Schick, John Parks IV, Dame Evelyn Glennie, Kevin Bobo, Alan Abel, Anthony Cirone, and Peter Erskine.

Once we worked out all the "bugs," there were very few drawbacks. I'm working on an article for *Percussive Notes* about this very project. I wish that the audio quality was a little better, but it's way better than it was just a year ago, and the video streams are much more stable. This is only going to get better and better. It's still certainly "good enough" right now for the project to be super valuable to our students.

JWP: I don't think there are drawbacks, per se. I've found that it's hard to get accurate audio information to work through Skype and UStream—I'm just an audio snob—and sometimes, depending on computer and connection, there's some lagging in real-time broadcast. But I think it improves daily.

Ustream is what we use to webcast all our concerts. Downside: ads, or it's *very* expensive to offer the webcasting without ads through Ustream; it's either free or a hundred bucks a month! I haven't looked into other providers, but that is one of my summer projects; if you know of another service, let me know.

DG: I only see benefits! DrumChattr.com was built using Skype. Shane, Tom, and I have never been in the same room. In fact, I have still never met Shane. As percussion educators, I think we are just beginning to use Skype effectively. I think it could be a great resource for lessons, master classes, and rehearsals. The quality of Skype is finally good enough to allow for these uses.

I currently don't use Ustream, but I have watched many live concerts, and I think I am going to be broadcasting our percussion concerts via Ustream next year.

TW: *What effect do you believe social media such as Facebook and Twitter have had on how and what we teach?*

NW: Not too much effect on what I teach, but we use Facebook to advertise our concerts. My students scan YouTube for new literature to be considered for study or recitals.

JWP: Facebook is a great tool for keeping up with other programs, colleagues, and, in our case, prospective students. Once our target students are identified through auditions or visits, my students often "friend" them so that the prospects have access to the students for questions and to keep up with what's happening—concerts, master classes, awards, whatever. This is one of our "secret" recruiting methods, yet I think many programs don't take advantage of it.

TB: Facebook not so much. Twitter for interaction with those who are interested in your teaching/performing style. YouTube has been huge for me as a pedagogue. Finally, I am able to get my teaching ideas and style out to the entire world.

DG: I don't think it has an effect on how we teach, but I think it is an incredible resource to connect people and percussionists. If I have a question, I know my Facebook/Twitter followers will be more than willing to help out. It is also great to see photos of past concerts.

TW: *What technology do you think is being underutilized right now?*

NW: I think that the Distant Drumming series could be done *everywhere* and *anywhere*! I built the first online percussion course: Percussion History and Literature (see "Norm Weinberg: Setting the Standard for Online Percussion Course Instruction" by Kurt Gartner, *Percussive Notes*, Vol. 49, No. 3, May 2011). The class can be taken by anyone on the planet with an Internet connection through our Outreach College, or it can be licensed by any percussion professor and taught locally at any university—already done at North Texas, Central Florida, University of South Alabama, and Temple. In essence, it's the entire course in an online format. I'd *love* to see other classes made available, such as History of the Drumset, the Percussion Writing of Bartók and Stravinsky, Scoring for Percussion, etc. I'm actually working on a new course during my sabbatical. I hope it will be completed by fall 2012.

JWP: Basic audio recording. It is incredibly easy, and not very expensive, to get really great recordings these days; all you really need is a computer, software of choice, an interface, cans/monitors, and a good set of microphones. Or, for much *less*, you can easily use something like the Zoom Q3HD and free editing software for both audio and video. You don't have to have \$20,000 in hardware, cameras, and microphones anymore, although that's certainly nice, and so many of the plug-ins and tutorials are free on the Internet. Pretty amazing.

We talk all the time about "recording yourself," and yet probably 90 percent of students don't do it. Having the installation at FSU provides every student with the opportunity to be recorded daily, which is nice and incredibly helpful to me as a teacher, as well as to the students. I tend to teach even better when the "red light" is on.

TB: I would like to see more of my peers engage in social media. I don't see it as any different than connecting with people at PASIC. Except, of course, you don't have to travel, and the "convention" lasts all year long. More people could benefit from the connections made there.

DG: Besides a metronome, I would say the iPad for the numerous reasons above.

TW: *Do you (or your school) provide your students with instruction to incorporate this technology into their teaching and performance?*

NW: Yes. We have CrossTalk—the UA Electronic Percussion Group. Students in this group, who are selected by audition, get in-depth instruction in DrumKAT, MalletKAT, TrapKAT, ZenDrums, Reason, Live, mixers, amps, MIDI, looping, etc. A few years ago, we did a technology workshop every Friday afternoon. It was very successful, but we haven't done it in a few years. I've taught a couple of independent study courses on the topic.

JWP: Yes. I've taught a few independent studies on it, and I have several students who are training as assistant engineers on various projects. We're starting to record a lot of groups and people

outside of Tallahassee, and the FSU students are getting first-hand experience in seeing how things work from beginning to end.

TB: UT does virtually nothing for our students. I have taken our students through Gary Vaynerchuk's book *Crush It*. Also, I encourage them to blog and create a professional online presence.

DG: Not that I am aware. There is a general computer class, but I think it deals more with Finale and sequencing and some basic recording techniques. I am not 100 percent sure, but I think it is an online class for all freshmen.

TW: *What has been the biggest development in technology that has aided you in your teaching?*

NW: Hard to pick a single one. The ubiquitous use of computers and technology during the last ten years has made it "less odd" to use technology on a daily basis for just about anything. Ten years ago there was no YouTube, no 200 video cameras, no smart phones, no Skype. It's now "normal" to use technology in a variety of ways and even come up with new ways to "plug in" the technology. I'd also have to say the democratization of music composition. The number of good to great compositions that are being written and published or self-published today is a *huge* step forward for development.

JWP: In light of all of these things, what I enjoy the most recently is large file transfer. I use a variety of them, with my favorite being wetransfer.com. I can send audio, video—up to 2GB of files—free, which is nice when sending recordings to composers, or sharing them with colleagues for feedback, or, as has been the recent case for me, doing lots of video work for PAS. All 20 of the PASIC 2010 videos were rendered in my studio, then sent to Indianapolis via wetransfer.com, including the "I am PAS" movie and its 11 translations. And with other projects I'm doing—promotional

videos, commercials—being able to get soundtracks and hi-resolution images or HD video easily from sources all over the world, and quickly, is a terrific thing.

TB: I pretty much already answered this, but more generally the social web, and cheap to free website tools have allowed so many new performance and teaching opportunities for me. Aside from helping us to do what we have always done more effectively, it opens up new opportunities from an entrepreneur's perspective. Basically, the cost of entry is so little that individuals can actually create something related to their field. They are only limited by their imagination.

DG: The iPad and the Internet. There are so many resources available to the modern student that I didn't have when I was in college. I feel old now.

I would like to thank Dr. Weinberg, Dr. Parks, Dr. Burritt, and Dr. Gerhart for their contributions to this article.

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