Technology, Culture, and Crossover: An Exploration of Technology's Role in Diverse Musical Settings

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Technology frees music from cultural bounds. From the earliest days of the phonograph to the newest "Top 40" song downloads, technology has always been at the forefront of music production and enjoyment. But technological innovation in the realm of music has not been limited to merely one region of the globe. Early-1900s developments in theory about technology's role in the modern world emerged from a wide variety of countries, such as Italy, France, and Russia. With the invention of the tape recorder, music suddenly became portable, and the world started sharing. This ability to "share" was, of course, heavily dependent on the financial and raw resources of the country producing musical works. But a revolution as important as that which expanded the scope of musical travel cannot possibly be solely a "Western" phenomenon. Rather, electronically-produced music's growth and development has led to a rich new era of cross-cultural musical collaboration on a global scale and offers promising opportunities for a today's generation in the study and appreciation of music cultures.

Perhaps the first major stride in technology and music philosophy began with the Italian futurist movement in the early 1900s, when poet Filippo Marinetti first coined the written work, *Manifesto of Futurist Poetry*. Bililla Pratella extended Marinetti's ideas in another work *Manifesto of Futurist Musicians*, which called for "[t]he rejection of traditional musical principles and methods of teaching and the substitution of free expression" (Manning 5). Pratella followed this work not long after with *The Technical Manifesto of Futurist Music.* But while Marinetti and Pratella presented still-foggy theories about music and tradition, Luigi Russolo proposed a more concrete, and perhaps more radical, philosophy. He proposed in his

work, *The Art of Noises*, that a composer should only use sounds from "the environment", his immediate surroundings, in composition (6). To composers and musicians in Russolo's age, and to some even today, this proposal may have seemed absurd. How could music consist only of "noise"? But Russolo's theory is a critical reexamination of what music truly is and deserves a second consideration. By his classification, the rush of a river in sub-Saharan Africa and the chirping of a bird in a small New England town could both be considered appropriate bases for musical composition. With this theory, Russolo opened the door to what one might call an "organic" sound culture. Though he may not have realized it, he broadened the definition of music to include cultures who derive their musical traditions from "Earthy" sounds, and thus gave merit to musical works which before were simply deemed, unflatteringly, "noise".

Edgard Verese, a French composer, was among the first to move from pure theory about music production to a desire for "new mediums of expression" (Manning 8). Joseph Schillenger, a Russian composer, extended Verese's wishes to electronic music. In "Electricity, a Musical Liberator", Schillenger claimed that "[t]he growth of musical art in any age is determined by the technological progress which parallels it...music attains reality only through the process of sound." (8). Schillenger very clearly emphasized that the "process" by which music people produce music is the key to sharing it, and thus validated technology as the primary vehicle for the spread of music across the globe.

The tape recorder completely changed the way people share music. "Magnetic tape", as it was first called, made editing or changing musical compositions far easier than ever before (Mumma 292). Furthermore, it made music portable. Composers could record their compositions and send tapes off to friends or fellow composers in distant countries for evaluation and enjoyment. As with any new technology, some were reluctant to adapt and clung to physical

instruments and live performances. Others came in somewhere in between, using both recordings and live performances to enhance each other (292). But if the performance implications of technology such as the tape recorder were significant, the cultural implications were even more important. The availability of devices such as the tape recorder sparked the formation of "collaborative groups", as Gordan Mumma calls them – that is, groups of musicians from many different ethnic backgrounds and traditions that performed in a variety of regions (315). One notable example which Mumma highlights is at the Cross Talk Intermedia festival, "a remarkable Japanese [and American] collaboration" of the late 1960s which included "live-electronic and multimedia works" (318). Such prominent displays of electronic media on the world stage were not just a testament to technology's increasingly important role in music settings. They were strides in communication and cooperative efforts between entire countries and focused entirely on music, one of the few phenomena of human life that can unite even the most diverse backgrounds in celebration.

Tape recordings not only generated interest in inter-cultural collaborative groups, but also sparked a renewed sense of internal cultural unity. One notable example is the use of recordings in Africa in times of political turmoil. Lee Hirsch describes his experience listening to such recordings – "the sounds of liberation etched into scratchy vinyl" – with as much passion as the people who created them (Hirsch 216-217). Hirsch poses music as the "fuel" for freedom, "the glue that bound South Africa's oppressed populations together across class lines and differences" (218). But if music is the fuel behind a people's revolution, then technology is the engine which drives its inspiration into the hearts of oppressed. This is indeed a powerful, moving example of music technology's ability to mobilize nations and inspire change.

Another example of the influence of tape recording technology centers on Uttarakhand, a region in India known for its "rural festival dance- songs" (Fiol, 32). Stephan Foil, who spent time in Uttarakhand analyzing the use of technology in conjunction with these songs, makes a special point of how, contrary to what outsiders may believe, rural settings *do* make use of recordings. Indeed, he notes recordings have become a source for newer generations to learn about their past and continue the song and dance traditions of their villages (32). But this use of technology is actually quite paradoxical: the preservation of "traditional" pieces in recordings makes them both new and old at the same time (29). So what determines "old" and "new"? Technology certainly plays a role, not simply as a bridge between the past and present, but as a force which pushes communities to revisit their origins and re-experience their traditions in the here and now. Thus, recordings function almost as a living diary – a living, meaningful story of a community's history, reread countless times and added to each day.

Of course, tape recordings were not the end of technological progress in music, but merely the precursor to later developments such as computer-controlled synthesizers, CDs, and today's ever-popular mp3 players. Though each had the potential to impact music cultures in exciting, new ways, such technological innovation was not without its critics. Following his analysis of Uttarakhand, Foil presented his concern that "repeated use [of recordings] has contributed to gradual standardization" (Fiol 41). In other words, variation associated with musical improvisation and creativity in specific music cultures may be considered a dying art form. He also aptly notes that studio-produced music poses a significant dilemma: a tug-of-war between songs that appeal to common people and songs that appeal to the entire country (38). But this conflict of interest is not necessarily due to the use of technology itself, but rather to a gradual shift in tastes and interests in music. Music that topped the charts in 1970s America can

now often be found on "oldies" albums on lonely bookstore shelves around the country. CDs did not contribute to their decreased popularity – if anything, they preserved what was left of it. Moreover, CDs contributed to the rise of new music whose messages resound with the hopes and troubles of today's peoples. Technology is not an inhibitor, but rather a powerful medium for the natural evolution of musical popularity which exists in any music culture.

Simon Emmerson presented concerns similar to Foil's in his work *Music, Electronic Media, and Culture*. Among his major claims was that music production software can be detrimental to the rich histories that lie behind musical traditions – an electronic oversimplification of style, rhythm, timbre, and overall quality (*Music, Electronic Media, and Culture* 122). His criticism stems from his assertion that, in the course of musical technology's development, performance practice oral tradition yielded to a "dependence on notation" alone, which, he says, essentially "took over" (121). But Emmerson's concerns do not have roots in a Luddite fear of technological innovation. On the contrary, he asserts that "[t]raditions contain a varying balance of change and continuity; enough of one to changing circumstances, enough of the other to maintain a sense of identity and continuity." (116) What Emmerson proposes is

> ...a new working tradition – one mediated and aided by the new technology, thus enabling the critical development of new ideas and musical forms. But the record is not the aim, it is the trace of a process...that process itself becomes the object of communication to another ensemble in another place. In this respect technology ...has the power to free the 'score' from...absurd definitive limitations. (125)

Thus, Emmerson, like many others before him, brings the focus back to "the process" – he reaffirms that technology is meant to inspire quality learning and immersion in a music culture, not just facilitate a superficial sampling of it. Music technology should keep the focus on the experience. Many new technologies are doing exactly that.

The emergence of mobile devices, such as smart phones and tablet computers, in the past decade has completely changed the way the world thinks of technology. As others before them throughout history, people today praise the ease of communication and access to information that such devices provide. More importantly, however, people have become entranced by the ease with which they can tap, touch, and slide their way into new modes of learning. For example, some high schools now provide tablet computers preloaded with interactive textbooks for student use during the school day. For some, this reality becomes a lament over the death of the "traditional textbook". But digital books offer a multitude of opportunities not available in traditional textbooks, such as video clips of the sub-Saharan desert in a section on biomes, or a clickable model of the Bohr hydrogen atom. If technological interactivity can help students to retain material more effectively and make their learning experience more enjoyable, why then should the digital book be the scapegoat? After all, as Emmerson argued, technology should maintain focus on the *experience*.

To those that may argue that technology in the classroom has no applicability to the study culture or the preservation of musical traditions, consider the possibilities for students with no prior exposure to other music cultures. What would have been an impossible feat for music instructors decades ago is now a reality: Instructors can aid students in exploring the sounds, techniques, and beauties of a plethora of instruments, from the Arabic 'ud to the Indian sitar, by simply downloading a mobile application to a tablet device. Hundreds, if not thousands of such applications already exist, and allow users to pluck strings, explore timbre and melodic ranges, and even generate recordings. Of course, tablets must already be available. But compared to the cost of purchasing multiple, expensive instruments or finding a knowledgeable teacher of

these instruments, the investment in technology is a small price to pay and is certainly fulfilled by the breadth of knowledge of other cultures the students gain in the process.

Technology can never replace its cultural counterparts – instruments, songs, and celebrations that serve as symbols of cultural identity and expression. However, new technologies *can* make cultural ideals and practices *accessible* – not for the purposes of cultural appropriation, but rather to allow individuals to fully experience musical elements of cultures that lie beyond the exclusivity of their own traditions. With this experience, individuals may gain not only knowledge, but also appreciation for musics which, prior to the emergence of electronic recording technology, were unknown to the world around them. Simon Emmerson made a key point that one must come to appreciate a tradition not by analyzing it, rather than immersing oneself in it (Emmerson 119). This is the governing ideal under which all technology, when used to facilitate the spread of cultural practices, must abide if it is to maintain both the authenticity of the musical practices being presented and the respect of the culture that generously shares them.

Attachment: Case Study

Moving forward, technology offers a wealth of interactive opportunities in the study of music. The attached case study is provided as an example.

Case Study: Culture, Instrumental Adaptability, and the iPad

This case study is an exploration of the argument for technology's applicability to music cultures in the classroom setting.

Students in the Music Cultures class at the Ohio State University were given a brief demonstration of several iPad applications – including tabla drums, conga drums, a kalimba (thumb piano), an ud, and a set of various Indonesian instruments. Additionally, a western-style piano and an application that allowed users to generate sounds by creating a pattern of squares were also used. After the demonstration, students were free to explore the different applications and were given the option of filling out a brief questionnaire (the questions for which can be found at the end of this case study. In general, students were polled about their technology usage habits, their experience in playing an instrument, and their perception of the use of mobile applications for musical instruction.

Of the students who participated, all had significant musical experience: Instrumentalists included saxophone, tuba, and violin, players. Several singers also responded. Each respondent had either been playing or singing for 8 or more years. Only one owned a touchscreen device and used metronome and tuner applications.

Students were generally receptive to the applications, but upheld the real instruments which the applications modeled as preferred teaching tools. One respondent did argue that the use of mobile technologies would be useful in eliminating the costs of travel or instrument purchases for those wanting to learn more about the music of another culture. However, the majority of respondents indicated that, while the demonstrated applications would be useful in a classroom setting, authentic instruments are more desirable for real-world instruction. One student commented, "[The applications] seem useful for gaining a superficial understanding of

how an instrument works, but are not as useful as regular instruments." Another added, "I feel like traditional performances should strive to keep music in its original form, but the iPad could be useful to fill in parts that are unavailable otherwise." Clearly, student attitudes toward mobile technology in the classroom and in cultural settings are a collective, evolving phenomenon - one that would as a strong basis for future similar case studies.

Case Study Questionnaire

Note: All responses will remain anonymous. You may refuse to answer any question, and you may stop at any time.

1. Do you play an instrument? If so, what instrument? How long have you been playing?

2. Do you own an iPad? If so, do you use "musical" apps? Which ones?

3. How useful do you think these iPad applications might be to students who want to learn about different music cultures? Would they be as useful as regular musical instruments?

4. Do you think technology like the iPad has a role in cultural performances, rituals, or celebrations? Why or why not?

5. Did you enjoy this case study? Why or why not?

6. Which app was your favorite? Why?

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