

Teaching Audio Recording in College: Innovation in Teaching Music

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In November 1878, Thomas Edison invented a machine that could record sound. He hoped to use it to relay telegraph messages and to automate speech for transmission by the telephone (which had been invented just 18 months earlier). His invention was called the phonograph, and involved a tinfoil-wrapped cylinder upon which sound vibrations could be engraved then played back (see Figure 1). By the mid-1880s, Bell, Tainter, Berliner, and others were employing dozens of scientists in extensive labs to work out variations on Edison's designs. By the early 1900s, recordings of world-renowned musicians were being produced in studios the size of warehouses and painstakingly reproduced for distribution. By 1910, recording music had become a serious and lucrative business for those who could muster the capital necessary to become involved. For the next 90 years, the recording, editing and distribution of music remained the exclusive business of professionals who had access to expensive recording equipment and expansive studios.

In the late-1980s, some recording studios began to experiment with digital audio processing. The various characteristics of sound vibrations were converted to binary words by the computer. As greater bit depths became available in the 1990s, audio could be better represented digitally, but computers with the highest available processing power and the largest caches of memory and ram were necessary to take advantage of this technology. As in the earlier days of the recording industry, only large, well funded studios could afford the technology to take advantage of these new advances (see Figure 2).

In the past five to seven years, personal computers have become far more powerful and less expensive. The large memory and fast processing speeds required to deal effectively with digital audio are now available on nearly all consumer computers. Additionally, sound cards and other audio interfaces have become increasingly less expensive and easy to use. Several software titles for dealing with digital audio are also now available for free or at little cost for those individuals wishing to experiment with recording their own music. *Garage Band*, for example comes loaded standard on every Macintosh computer, and *Audacity* can be downloaded for free by PC users. Even Digidesign, whose hardware and software are used in nearly every professional recording studio in the world, has developed two affordable versions of their powerful *Pro Tools* software. As a result of these recent developments, anyone interested in creating professional-level recordings can do so.

The recent developments in audio recording present new opportunities for music instruction at the college level. Students are entering our colleges having experimented with audio recording technology. For some of these students, the computer has been the gateway through which they have been introduced to music. They may even consider themselves musicians, but may not have ever participated in a school band, orchestra, or choir, or have taken music lessons. Col-

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leges that offer courses in audio recording provide a place for these students to gain a better understanding of the tools they have been using. Also, through these courses, students with less formal music training can come to realize what gaps exist in their musical background and they can be encouraged to become involved in more traditional music courses and formal study.

The recent trends have provided opportunities for software companies as well. Many companies who catered to professional clients exclusively are beginning to develop less expensive as well as educational offerings in their product lines. One software company whose recent activities illustrate this change in focus is Avid Technologies. Avid first became a presence in the mid-1980s with their professional video editing software. This was used almost exclusively by the film and television industries. In 1984 Avid acquired Digidesign. Like the Avid offerings, Digidesign's audio editing software catered to the largest and wealthiest studios and clients. However, recently they have developed the "LE" and "m-Powered" versions of their Pro Tools software (see Figure 2). Whereas a full Digidesign console can cost tens of thousands of dollars (see Figure 3), an LE system can cost as little as \$500. This price point certainly puts the software within the reach of individuals and schools. Another indication of Digidesign's interest in the education market is their 2006 acquisition of Sibelius Inc. Sibelius, whose title product is music notation software, also specializes in educational music software for children and teens. The Sibelius educational offerings and network are so well developed, that within the Avid organization, the Sibelius educational marketing will soon be responsible for educational development sales for all Avid products. This shift towards the educational market underscores the potentially fertile ground that these companies see in the education sector.



Figure 1. Thomas Edison with his Phonograph, April 18, 1878.



Figure 2. Pro Tools M-Powered box and screen shots.



Figure 3. A digital recording station.