
Mark Onderwater
Third-Year Student (Bachelor of Arts and Science, Physics and Music)
College of Arts, University of Guelph, CANADA

Before the phonograph, when the final note of a piece of music finished, it would only exist in our memories. In Capturing Sound: How Technology Has Changed Music by Mark Katz, the author explores how music progressed from a rare indulgence to what is now a readily available commodity for solitary consumption or presentation to either the engaged or passive audience. Starting with Edison’s phonograph, Capturing Sound provides a chronological analysis of technology’s relationship with music. Katz proceeds to such topics as how early recording had a lasting influence on modern violin performance; the DJ’s re-contextualization of the phonograph as a musical instrument; and how digitization of music accelerated the development of new musical genres while also causing the perceived downfall of the music industry.

Music did not develop as an art independent of technology, nor did technology develop without music’s influence. As applied science became more involved with music, technology and artists changed together. Some musicians and composers conformed to imposed limitations while others embraced the newfound abilities of technology. By drawing upon several pertinent historic technological advancements, Katz considers how artists and audiences contemporaneous to these events responded to them. Within these specific case studies the reader is exposed to the fine details of technological influences on
music. The scope is then widened to provide a sense of how technology’s influence spread to other areas within musical production and reception. Within *Capturing Sound’s* 221 pages, Katz reveals what preserving sound has done to music and how music functions in our lives.

In the opening chapter, “Causes”, Katz begins his analysis of technology and music with a review of how musical performance, composition and recording interacted. This chapter also looks at how society regarded and consumed music. The opening paragraph paints a picture of a hypothetical family amazed by the power of the phonograph. The intimate audience claps for the recording as its performance comes to an end. A child then runs to the machine to look for the musicians inside. This moment in an early 1900’s household helps us realize the profound and sudden changes music experienced upon the introduction of the phonograph and provides the reader with a vivid image of the society’s relationship with recorded music at this time. Katz begins to dissect how music’s role in society and culture shifted from being an art that was definitively tied to a specific culture to something now better described as part of a global melting pot. Music was once something only heard at weddings, funerals, religious rituals, and other significant events. Prior to recorded music enabling solitary listening, music was typically only performed and consumed amongst groups. This gave music a strong connection to culture and often a music would be unique to its culture. With Edison’s phonograph however, it wasn’t long before America could listen to world music; shortly thereafter, every technologically literate culture could listen to any other culture’s music.

As the phonograph became a focal point for music and society, composers started to allow the limitations of the phonograph to influence their art. Katz begins to call these artifacts of music recording “phonograph effects”—a term used throughout the book to describe lasting changes to music induced by technology. One of these early phonograph effects was a composer planning her or his music to last three minutes because of the length available per side of the phonograph disc. In the era of the phonograph, producers were pressured to record albums onto an even number of sides of a record disc, because purchasing

---

1 Greg Milner, *Perfecting Sound Forever: An Aural History of Recorded Music*. (Faber and Faber, Inc., 2009) This book provides an excellent review of early and modern recording technology, supporting many claims within the early chapters of *Capturing Sound*.

a record with a blank side tended to make consumers feel exploited. This phonograph effect can be heard in recent pop music and even composers such as Stravinsky took these elements into consideration while crafting their art.³

Phonograph effects do not just apply to recording artists. Katz also looks into how performers and listeners were changed by recorded music. As recordings became the primary means of consuming music, the loss of the visual connection between audience and performer became a phonograph effect. Katz explains that musical elements such as long pauses are often awkward when heard by means of recorded music. Conversely, a live musician may pause while the audience can visually see the preparation for the next note. This visual activity can alleviate the perceived awkward tension for an audience that would be difficult to convey while listening to a recording. Daniel J. Levitin, a researcher at McGill University, offers supportive findings in the field of neuroscience, examining the differences between experiences of a) listening to music, b) viewing and listening or c) just viewing a musician without sound.⁴ Levitin’s work shows significant differences in brain activity while supplementing the musical experience with a corresponding visual stimulus. Not only has Katz exposed compositional trends in the absence of the live concert, but also modern neuroscience shows that people experience recorded and live music differently at the neurochemical level.

Additionally, repeatability of recorded music is influential to listeners. Before the recording, audiences were exclusively exposed to live performances, which were inherently unique and open to some artistic interpretation. Often, a music collection will contain one recorded performance of any given composition; this recorded performance and all of its captured nuances become the “right” performance after many listening iterations. Katz gives personal examples of recordings in which he has become accustomed to hearing slight mistakes. He continues to explain that some audiences have come to expect a piece of music to be performed in a particular way as heard on the commercially distributed album, with the artistic interpretation standard set by the recording.

The chapter “Causes” sets the scene for the more in-depth case studies to come in the following chapters. The chapter “Making America Musical” explores changes to society’s regard for music with the rise of the phonograph in America. Katz looks at music within the upper-middle-class household and its paradigm

³ Mark Katz, Capturing Sound, 40

shift concerning gender. A performance on the family piano was once the main method of consuming music and cultural norms dictated that women take on the task of learning the instrument. In America, by 1914, phonograph production figures were higher than those of pianos. With the rise of the more mechanized nature of music within the household, music became socially coded as masculine during the early 20th century.

Continuing the discussion of the phonograph’s influence on early twentieth-century American culture, in “Making America More Musical: The Phonograph and ‘Good Music,’” Katz explores the profound impact the phonograph had on the country’s education system. The initial stages of accessibility to world music made studying music in academia possible. Furthermore, Katz argues that accessibility to western art music, or “good” music, catalyzed the progress of America’s young musical culture.

The chapter “Capturing Jazz” develops the theme of phonograph effects and their manifestation in early jazz music. Katz examines the link between altering compositions to conform to the imposed limitations of recording technology and substituting traditional jazz instrumentation for instruments better suited to recording methods. He also convincingly argues that the highly improvised nature of jazz performance was compromised as performers carefully planned their solos to ensure their song would not exceed the possible recording time of the phonograph.

The fourth chapter is where Katz delves into his personal experiences to strengthen the thesis of Capturing Sound. As a violinist himself, Katz looks at the evolution of vibrato in violin performance. In this chapter, titled “Aesthetics of Exigency,” Katz explores the role of phonograph effects and their influence on violinists. In early recordings, violins struggled to be clearly captured by the phonograph amongst other instruments. Adding vibrato increases the perceived loudness of a violin and aided the presence of the instrument. Recording violinists employed this technique to avoid being lost in the mix. This frequent use of an embellishing technique continued beyond the recording studio. Katz argues that violin vibrato went from a rare embellishment to a quintessential expressive element of violin performance during the rise of the phonograph.

Katz flips the relationship between technology and music in the chapter “The Rise and Fall of Grammophonmusik.” This section explores early composition ideas and methods for using the phonograph itself as an instrument. Grammophonmusik could be considered the fundamental manifestation of phonograph effects. As Katz revisits his own research, we see the techniques of

5 Thompson, “Machines, Music, and the Quest for Fidelity”: 131-171.
early twentieth-century Grammophonmusik composers evolve into late-
twentieth-century scratch DJing.

Compositional techniques that use the modern record player and mixer
are the focus of the chapter: “The Turntable as a Weapon: Understanding the
Hip-Hop DJ Battle.”6 Thriving on technology, the culmination of this genre and
its culture serve as an excellent vista for looking into an art that embraces the
profound changes in music since the phonograph. Katz sheds light on how
scratch DJs or Turntablists control the mechanics of the turntable and use the
mixer to musically modulate the turntable’s output. The competitive DJ scene is a
focus of Katz’s own research, and by borrowing from his own experiences and
publications he explores the culture, musicianship, and even gender politics
within turntablisms’ elite. How these performers are adjudicated at the
international level reveals the nuances involved in preparing an award winning
routine, such as creatively blending records, percussively or melodically
scratching, and speaking through the records via found speech samples. Feliciam
Miyakawa’s article, “Turntablature: Notation, Legitimization, and the Art of the
Hop-Hop DJ,” supports Katz’s efforts to relieve the rebellious, artless stigma
Hip-Hop recieves by exploring several notation methods used by turntablists,
thereby furthering the credibility of these musicians and Katz’s own work.7
Dissappointingly, Katz does not mention the compositional effort of turntablists;
perhaps this facet of DJ music goes beyond the scope of Capturing Sound’s thesis.
In “The Turntable as a Weapon,” Katz does offer insight into the dedication
turntablists possess while also exposing this highly technical music as an art
form and one of the last avant-garde genres of the twentieth century.

Katz follows the progression from turntable-based hip-hop to sample-
based music in the chapter “Music In 1s and 0s: The Art and Politics of
Sampling.” Entering the world of digitized music, where samples can be so
readily accessible, Katz considers the ethical issues of using pre-existing audio as
a compositional medium. The scratch DJ is now only a small part of the
collection of genres that depend on sampling. Katz dissects Fat Boy Slims’ piece,
“Praise You” as a case study in the process of composing with samples. The
analysis of Fat Boy Slims’ methods and experiences explores the manipulation
processes used to assemble “Praise You” from various other songs as well as the

6 Kjetil Falkenberg Hansen, “The Acoustics and Performance of DJ Scratching.” (PhD
diss., KTH Royal Institute of Technology, 2010): 1-74. Hansen’s research is a rare example of an
academic paper thoroughly covering the techniques and equipment used by turntablists.

7 Feliciam Miyakawa, “Turntablature: Notation, Legitimization, and the Art of the Hop-

Critical Voices: The University of Guelph Book Review Project is part of the curriculum at the School
of Fine Art and Music, University of Guelph, Ontario, Canada.
specific legalities tied to the composition.\textsuperscript{8} Seemingly, the digitization of music was the biggest change the music business saw since the phonograph. In his 2003 publication, “Using Contemporary Technology in Live Performance: The Dilemma of the Performer,” Andrew Schloss discusses the negative changes to the musical concert that sample-driven genres have stimulated. Schloss argues that the disconnect between musical gesture and musical outcome has made live performance a less engaging and valued experience—an aspect of sample based music Katz does not discuss.\textsuperscript{9}

In the final chapter of \textit{Capturing Sound}, “Listening in Cyberspace,” the influence of digital music distribution and consumption is more thoroughly explored. Katz puts forth several arguments in favour of the benefits of digital music distribution. He highlights what new possibilities came out of digital music and the internet, such as near instant access to world music; increased efficiency of music research; and international musical collaboration. Of course, these luxuries came with the accessibility of bypassing music purchases and the large-scale desensitization to digital music piracy. Elsewhere, the morality of illegal downloading in youth is thoroughly examined in the 2011 sociological study, “Understanding Music Consumption Through a Tribal Lens.”\textsuperscript{10} This study exposes digital uses’s opinions on such themes as identity and ownership, technology and experiential consumption, and antipathy towards the record industry. Katz does not discuss morality and downloading, however, his writing offers great insight into the advancements that led to this great shift in social opinions on the value of music.

Katz concludes his book with five closing thoughts. The major themes of \textit{Capturing Sound} reemerge in the sections: “Live and Recorded Music Differ in Fundamental Ways,” “Recording Does Not Simply Record,” “The Amateur Is Alive and Well in the Age of Mechanical Music,” “Fidelity Isn’t what It Used to Be,” and “Users Determine the Impact and Value of Recording.” In his decision to focus \textit{Capturing Sound} so tightly on key examples such as violin vibrato, the scratch DJ, and the song “Praise You,” Katz gives the reader extremely detailed

\textsuperscript{8}Joseph Schloss, \textit{Making Beats: The Art of Sample-Based Hip-Hop.} (Wesleyan University Press, 2004)


research. The concluding sections tie the larger themes together to give the reader insight into the overarching picture of how technology profoundly changed music.

With its substantial bibliography and notes sections spanning 81 pages, Capturing Sound is clearly a well-researched book written at a high scholarly level. Furthermore, available at www.ucpresss.edu/go/capturingsound, there are internet-based resources and supplementary materials specifically set up for this book. Capturing Sound is an essential source for anyone wishing to gain insight into technology’s role in music throughout the 20th century and beyond. Finally, and perhaps most importantly, not only is Capturing Sound an educational read, it is also an enjoyably written book. Often, Katz will present two sides of an argument—the pros and cons—leaving the reader advocating for a certain technology only to find pages later that the negative effects of these technologies provide a persuasive argument to their opposition. Entering each chapter, a reader with a neutral point of view will be exposed to both sides of the issues. A reader with existing biases may find support for their ideas, but will also be exposed to compelling alternatives, leaving even the informed and stubborn departing Capturing Sound more open-minded and critically informed concerning the myriad intersections between technology and the soundscapes of the twentieth century.
Bibliography


