

## Hip-Hop, Technology, and the Circulation of Cultural Knowledge across the Pacific

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“In hip-hop, you must master the technology. If you don’t, you’re dependent – either you’re a slave to the technology itself, or to the niggas you need to run it for you.” RZA, *Wu-Tang Manual*<sup>1</sup>

The RZA’s insightful quote sets the stage for this research project attempting to understand how technology and hip-hop have been co-produced. For example, the phonograph was never intended to be a musical instrument. But through the emergence of hip-hop as an art form this technology – designed and long used solely for the reproduction of pre-recorded music/sound – became the constitutive element of hip-hop expression. This transformation, which began in New York City’s African American community in the late 1970s, is unique in that a marginalized community reappropriated and re-defined an existing and hugely popular technology according to its own distinctive cultural aesthetics. This black vernacular technological creativity would drive the early evolution of the machines used to make the music.<sup>2</sup> As hip-hop blossomed into a global art form, these creative interventions produced a musical genre with loyal devotees, technologies that mediated multiple cultural relationships, and transnational flows that contributed to the global dissemination of black culturally informed hip-hop aesthetics. The art form hip-hop represented by lyric, rhymes, and performances cannot be un-

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1 The Rza, *The Wu-Tang Manual* (Riverhead Books, New York: 2005): 193.

2 Rayvon Fouché, “Say It Loud, I’m Black and I’m Proud: African Americans, American Artifactual Culture, and Black Vernacular Technological Creativity,” *American Quarterly* 58 (3) (2006): 639–61.

derstood outside of technological artifacts of hip-hop represented by mixers, samplers, and turntables. Arguably, the art form has changed the technology as the technology has changed the art form.

The origins and development of hip-hop is a familiar story, however the terrain of how technology has influenced and shaped hip-hop has not been so deep investigated. The technology itself is interesting, but the most intriguing wrinkles in this line of investigation circulate around race and nation. For as the technological artifacts of hip-hop were re-conceptualized by African American people at hip-hop's origins, they were and are still designed primarily in Japan. If technology is viewed as a product of human creativity that references the inventor's/designer's/engineer's cultural surroundings, then how do we understand the relationships between black American hip-hop aesthetics and a Japanese engineering/design aesthetics? Hip-hop is deeply rooted within a black American cultural aesthetic, but do the technologies of hip-hop have a similar rooting within a Japanese technological, engineering, or cultural aesthetic? If so what does this conclusion mean for our understanding of hip-hop origins as solely African American?

It is often argued that technology and the science behind the material artifacts are just that, science and technology. The idea being that science and technology are value neutral and do not carry any embedded societal and cultural assumptions. Situating our research within the intellectual domain of Science and Technology Studies, we contend that object are embedded with social and cultural beliefs that can translate and extend cultural knowledge.<sup>3</sup> Yet exploring these claims within the domain of hip-hop is not straight forward. Our point of entry is the equipment, or what we prefer to call the technological artifacts of hip-hop. We are interested in what these claims mean when the technology moves back and forth across the Pacific and in and out of the multiply inflected cultural spaces of the United States, Japan, and beyond. We are interested in how technology and culture and co-produced through these types exchanges that merge material objects and identity.

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3 Langdon Winner, "Do Artifact Have Politics," *Daedalus* 109 (1) (1980): 121-36.

It is evident that within a global economy our study of a bi-directional exchange greatly simplifies the complexity of the transnational flows of technology. However, this micro study is a way to begin opening up larger questions that move beyond technological exchanges across the pacific to larger examinations of the cultural and political implications of technological change, evolution, and distribution. More important, this study leads to questions that consider what is culturally at stake when technologies not only shift across geographical borders, but change form, as in the shift from analog to digital. These issues play out for DJs and turntablists because over the last decade the art form has been moving in a digital direction with the creation of digital turntables, media, and controllers. We are interested in how DJs and turntablists (or users in general) and engineers (producers) separately and interactively deal with the technological change and try to mediate the impact of the technologically precipitated identity crises.

For this research notes paper, we would like to present some of our early work on a small section of the larger project that aims to understand the place and role of technology in the global mainstreaming of underground social movements associated with hip-hop. Much scholarly writing and popular reporting has chronicled the evolution of this movement.<sup>4</sup> However, the cen-

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4 In the disciplines of American Studies, African American Studies, and Sociology work on hip-hop and race is flourishing. See Jeff Chang, *Can't Stop Won't Stop: A History of the Hip Hop Generation* (New York: St. Martin's Press, 2005); Murray Forman, *The 'Hood' Comes First: Race, Space, and Place in Rap and Hip Hop* (Middletown, CT: Wesleyan University Press, 2002); Murray Forman and Mark Anthony Neal, *That's the Joint! The Hip-Hop Studies Reader* (New York: Routledge, 2004); Nelson George, *Hip Hop America* (New York: Viking, 1998); Jim Haskins, *The Story of Hip Hop* (London: Penguin, 2000); Bakari Kitwana, *The Hip Hop Generation: Young Blacks and the Crisis in African American Culture* (New York: Basic Civitas Books, 2003); Ian Maxwell, *Phat Beats, Dope Rhymes: Hip Hop Down Under Comin' Upper* (Middletown, CT: Wesleyan University Press, 2003); Tony Mitchell, *Global Noise: Rap and Hip Hop Outside the USA* (Middletown, CT: Wesleyan University Press, 2001); Patrick Neate, *Where You're At: Notes from the Frontline of a Hip Hop Planet* (New York: Riverhead Books, 2004); Russell A. Potter, *Spectacular Vernaculars: Hip Hop and the Politics of Postmodernism* (Albany: State University of New York Press, 1995); Gwendolyn D. Pough, *Check It While I Wreck It: Black Womanhood, Hip Hop Culture, and the Public Sphere* (Boston: Northeastern University Press, 2004).

tral place of technology in the distribution and sustenance of the movements has not received focused study. Therefore, this paper will use hip-hop to explore one of the transnational exchanges and flows supported by technological artifacts. Hip-hop is now a global movement, but this paper will not investigate the international circulation of technology and aesthetics of hip-hop. It will concentrate on the relationships between Japan and the United States. Or more specific, what can we learn about Japanese engineering culture and hip-hop by following the technology.

### Hip-Hop and Technology

The dominant technological artifact of hip-hop are two turntables, a mixer, and vinyl records. Turntables are connected to a mixer, a piece of electronic equipment that regulates the signal being sent from the two machines to the speakers. DJs manipulate the mixer through a variety of sliders and knobs, most crucially the crossfader, which determines whether the sound is coming from one turntable, the other, or some degree of both.<sup>5</sup> DJing arose when turntables were the standard playback equipment, and turntablists remain, for the most part, resolutely analog in a digital age. DJs value the immediacy of the physical contact between hand and disc that turntables allow; they enjoy searching for rare or unusual records that exist only on vinyl. Since the late 1990s, however, technological developments have challenged the primacy of the older equipment, creating a crisis of identity among turntablists. The crisis is most simply defined as analog versus digital. Perceived analog technology like traditional turntables and vinyl are seen to represent the origins of hip-hop music. Whereas, digital technology like CD turntables and digital media (CDs, MP3s, et cetera) are seen to move the art form away from its roots. This is not only a technological tension, but a generational one as well. Older DJs see digital technology at best watering down, and at worst destroying the craft of search for and manipulating beats/-rhythms/sounds encoded within analog vinyl. Digital is seen inauthentic.

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5 For the development of crossfaders see Rick Jeffs, "Evolution of the DJ Crossfader," *Rane Note 146* ([www.rane.com/note146.html](http://www.rane.com/note146.html)).

Younger DJs that have been raised in a digitally mediated world are not so tied to the analog. The crisis center around what technology realm authentically represents hip-hop in its multiple forms.

The study of DJing reveals that African Americans have, in very sophisticated ways, made technological choices that run counter to the perception that new technology is better than old. For example, Eric Sadler, one of the producers of Public Enemy's incendiary hip-hop album "Fear of a Black Planet" (1990), explained why he preferred to work in a less than pristine studio: "One of the reasons I'm here in this studio is *because* the board is bullshit. It's old, it's disgusting, a lot of stuff doesn't work, there are fuses out."<sup>6</sup> Even though he had access to a much newer studio, he specifically wanted to use this seemingly inferior equipment because it allowed him to create a rich, rough, bass-heavy sound that emulated the "old sound" of records from the 1960s and 1970s that he so valued. It gave him the sound of the "street." What he called the "sweet and crispy clear" sound produced by the newer equipment simply did not fit his sonic and cultural priorities.

Hip-hop musicians have not only rejected the notion that newer is necessarily better, but have creatively redefined the technologies they use. A prime example is the turntablist technique of scratching. When scratching, the DJ pushes and pulls the record underneath the stylus to produce a raspy, rhythmic "scratching" effect that completely transforms the sound of the recorded music. This maneuver, which is fundamental to the sound of turntablism, essentially violates its own medium, radically subverting the principal meaning and function of the phonograph and LP: to reproduce pre-recorded music.

In recent years, companies such as Pioneer, Gemini, Numark, and Vestax have developed CD players, or digital turntables, that can simulate digitally nearly everything that can be done on a turntable, even scratching. With digital turntables it is a much simpler matter to find, repeat, and manipulate par-

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6 Tricia Rose, *Black Noise: Rap Music and Black Culture in Contemporary America* (Hanover, NH: University Press of New England, 1994), 77. Emphasis added.

ticular recorded passages. Moreover, with inexpensive CD burners, DJs can easily compile their own individualized CDs from other existing CDs or digital audio files, as well as make their own using a wide variety of digital music composition software currently available. These technologies have the potential to change the face of turntablism, but in the world of music, the boundaries between old technologies and new are not easily moved.<sup>7</sup>

Hip-hop aficionados have mixed opinions about the incursion of digital technology into their world. While some embrace the new possibilities, many feel that the art is diminished when the craft is made easier. Others lament the loss of a strong sense of authenticity surrounding turntables and pre-recorded discs. This sense of authenticity may be hard for outsiders to understand, since LPs and CDs are equally mediated forms of music when compared to live performance. Yet LPs and turntables – not CDs and compact disc players – were largely responsible for the birth of hip-hop, and many contemporary DJs value and celebrate this link to the “old school.” This technological resistance demonstrates the crucial role that cultural and aesthetic values play in determining the equipment turntablists use and shaping the ways in which they use them.

With the global expansion of hip-hop, vinyl DJing has not disappeared. In most major metropolitan locations it is thriving. New technologies are emerging that combine analog and digital. Recently Vestax introduced the VRX-2000, a turntable-sized device that allows the pressing, or more precisely the cutting, of individualized vinyl records from any analog or digital input device. This technology allows a DJ to transfer digitally encoded music, for example, from CDs or MP3s onto vinyl records quickly and fairly cheaply. Another hybrid approach is seen with Stanton’s Final Scratch or Rane/Serato Scratch Live. The traditional two turntables, mixer, and vinyl records are still used, but a software program operated on a computer is added. The specially designed time-coded discs that come with the system con-

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7 Trevor Pinch and Karin Bijsterveld, “‘Should One Applaud?’ Breaches and Boundaries in the Reception of New Technology in Music,” *Technology and Culture*, 44 (2003): 536–59.

tain no music themselves, but can play any sound digitally stored on the connected laptop. Thus DJs can play thousands of records worth of music on turntables without carrying thousands of records.<sup>8</sup> Hardware like vinyl recorders and software like Final Scratch and Scratch Live are representatives of a new generation of technologies that allows “boundary shifting” DJs to negotiate and redefine the space between analog and digital realms.<sup>9</sup>

### Sound Studies and Hip-Hop

This project traverses multiple disciplinary spaces, but is informed most directly by Science & Technology Studies (S & TS) and American Studies. This research on hip-hop aims to forge new ground within the emerging subfield of Sound Studies by examining the relationships between music and technology.<sup>10</sup> Although the range of issues, musical styles, and technologies addressed by Sound Studies scholars is impressive, as of yet there has been little work on race or hip-hop. Both are ripe for investigation given the intense scholarly interest in race generally, and the fact that that hip-hop –

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- 8 For a review of Final Scratch, see Jason Blum, “Stanton Final Scratch: Digital Vinyl for PC,” *Remix* 4 (December 2002): 72–74.
- 9 Trevor Pinch and Frank Trocco, *Analog Days: The Invention and Impact of the Moog Synthesizer* (Cambridge and London: Harvard University Press, 2002): 313–14.
- 10 For an overview of Sound Studies see the introductory article in the special issue of *Social Studies of Science* devoted to the subject: Trevor Pinch and Karin Bijsterveld, “Sound Studies: New Technologies and Music,” *Social Studies of Science* 34 (October 2004): 635–48. Other important recent writings in Sound Studies include Hans-Joachim Braun, ed. *Music and Technology in the Twentieth Century* (Baltimore and London: Johns Hopkins University Press, 2002); Susan Douglas, *Listening In: Radio and the American Imagination* (New York: Times Books, 1999); Mark Katz, *Capturing Sound: How Technology has Changed Music* (Berkeley: University of California Press, 2004); René T.A. Lysloff, and Leslie Gay, eds., *Technoculture and Music* (Middletown, CT: Wesleyan University Press, 2003); Peter Manuel, *Cassette Culture: Popular Music and Technology in North India* (Chicago: University of Chicago Press, 1993); Paul D. Miller, *Rhythm Science* (Cambridge: MIT Press, 2004); Joseph Schloss, *Making Beats: The Art of Sample-Based Hip-Hop* (Middletown, CT: Wesleyan University Press, 2004); Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003); Timothy D. Taylor, *Strange Sounds: Music, Technology, and Culture* (New York: Routledge, 2001); Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology* (Hanover, NH: Wesleyan University Press, 1997).

one of the most popular and influential musical styles in the world today – is inextricably tied to the technologies of sound recording. Our study aims to fulfill the promise of Sound Studies by focusing “on the materiality of sound, its embeddedness not only in history, society, and culture, but also in science and technology and its machines and ways of knowing and interacting.”<sup>11</sup> By examining music, musical performance, technological design and use, as well as the cultural arenas in which these individuals, artifacts, and belief systems interact, this project will allow us to link together the equally interesting, but still underdeveloped work on race and technology.<sup>12</sup> In a most basic sense, we will, as Trevor Pinch and Karin Bijsterveld suggest, “‘follow the instruments’ in the same way that in the early days of S & TS we learned to ‘follow the actors.’”<sup>13</sup> For our research, this means following the technology.

By producing a study that links racial identity and global hip-hop culture with transnational DJ communities and their technological tools of choice – turntables, mixers, and music – our research will bring S & TS grounded research to the broader worlds of American Studies, Ethnic Studies, and Musicology. By examining how various global communities reconceptualize the turntable as a musical instrument, we reinforce the idea that “studying the evolution of musical instruments can tell us much about music as a form of culture.”<sup>14</sup> Since hip-hop and technology are experienced and understood differently around the world it is inevitable that local styles of music and access to technology shape these relationships. By layering ra-

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11 Pinch and Bijsterveld, “Sound Studies: New Technologies and Music,” 636.

12 Important writings in this area include Tricia Rose, “Soul Sonic Forces: Technology Orality and Black Cultural Practices,” in *Black Noise: Rap Music and Black Culture in Contemporary America* (Hanover, NH: Wesleyan University Press, 1994): 62–96; Alondra Nelson, et. al., *Technicolor: Race, Technology, and Everyday Life* (New York: New York University Press, 2001); Anthony Walton, “Technology Versus African-Americans,” *Atlantic Monthly* (January 1999), 14–18; Derrick Bell, “The Space Traders,” in *Faces at the Bottom of the Well: The Permanence of Racism* (Boston: Beacon Press, 1992), 158–94; Derrick Bell, “Redemption Deferred: Back to the Space Traders,” in *Gospel Choir: Psalms of Survival in an Alien Land Called Home* (New York: Basic Books, 1996), 17–28; Richard Dyer, “Color White, Not Colored,” in *White* (New York: Routledge, 1997), 41–81.

13 Pinch and Bijsterveld, “Sound Studies: New Technologies and Music,” 639.

14 Ibid.



cial analysis onto existing theoretical tools, this research will contribute to burgeoning new multicultural, multiracial, and multiethnic approaches to technology. As Stuart Hall has argued in his writing about the black Diaspora, “one cannot explain race and racism in abstraction from other social realities.”<sup>15</sup> Similarly, we contend that to understand how technologies influence and shape the cultural and artistic expressions that circulate around hip-hop, one cannot examine technology in abstraction from global, racial, ethnic, social, and transnational realities. To understand this relationship by following the technology, it is necessary to explore the ways people appropriate and incorporate technology. In a most basic sense, how people use technology.

### Technological “Users”

Within S & TS, there have been several movements in the study of technology. Initially scholars questioned the ways technology has been viewed as an external factor devoid of social and cultural influence to address how we adapt to technology. This work led to scholarship that contested determinist conceptualizations of technological development and change by theorizing ways to understand the role of society in the shaping of our technological past, present, and future. Future trajectories engaged what was intellectually and politically at stake for human kind in an ever expanding technologically mediated world. More recent work – and the work most relevant to this project – considers how technological relations shape individual and collective cultural identities along the lines of race, gender, and nation. Within this body of work there has been an emphasis on users, or more specifically “how technologies are used in practice.”<sup>16</sup> Our work on hip-hop will contribute to the study of technological use and users.

The early work on users either focused on how users “shaped” technology

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15 Stuart Hall, “Race, Articulation and Societies Structured in Dominance,” in *Sociological Theories: Race and Colonialism* (Paris: UNESCO, 1980), 305–45.

16 Oudshorn and Pinch, *How User Matter: The Co-Construction of Users and Technology* (Cambridge, MA: The MIT Press, 2003): 2.

or how technology “configured” users.<sup>17</sup> This social shaping of technology approach was critiqued for its Western, male-centered, social determinism.<sup>18</sup> Similarly configuring perspectives were taken to task for overemphasizing the importance of the designer in the processes of configuration, and not acknowledging that many forces like corporations and markets configure the designer.<sup>19</sup> Other theorizations, like Madeline Akrich’s use of “scripts” to describe how technologies are embedded with socially and culturally informed instructions that enable and constrain the interactions between people and things, pushed scholars to consider the relationships between human and non-human objects.<sup>20</sup> The outcome of this work has been studies concerned with the ways users and technology are co-constructed. As enlightening as this work has been, the limitation is that these approaches do not address how one’s understanding of their own cultural identity shapes interactions with technology. Scholarship on gender has opened up some of these issues, but the writing about gender is mostly centered on class or race in a specific geographical location or technological space.<sup>21</sup> For the most part this body of scholarship rarely follows technology across geographical, ethnic, or racial borders that shape one’s identity.

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17 Wiebe E. Bijker, and Trevor Pinch, “The Social Construction of Facts and Artefacts: or How the Sociology of Science and the Sociology of Technology Might Benefit From Each Other,” *Social Studies of Science*, 14 (1984) 399–441; Steve Woolgar, “Configuring the User” in John Law, ed., *A Sociology of Monsters : Essays on Power, Technology, and Domination* (London: Routledge, 1991).

18 Langdon Winner, “Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology,” *Science, Technology, & Human Values*, 18 (3) (1993): 362–78.

19 Hugh Mackay, Chris Carne, Paul Beynon-Davies, and Doug Tudhope, “Reconfiguring the User: Using Rapid Application Development,” *Social Studies of Science* 30 (5) (2000): 737–59.

20 Madeline Akrich, “The De-scription of Technical Objects,” in Bijker and Law *Shaping Technology/Building Society* (The MIT Press, 1994): 205–24.

21 Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household technology From the Open Hearth to the Microwave* (New York: Basic Books, 1983); Venus Green, *Race on the Line: Gender, Labor, and Technology in the Bell System, 1880-1980* (Durham, NC: Duke University Press, 2001); Nina Lerman, Ruth Oldenziel, and Arwen P. Mohun, *Gender and Technology: A Reader* (Baltimore, MD: Johns Hopkins University Press, 2003).

As the world becomes more interconnected, it is imperative that technological relationships be explored in a global context. Since most of S & TS has been Western-based, it has not developed comparative approaches that explore technologies and users in different national and racial/ethnic bound cultural contexts. Scholars have developed concepts like “trading zone” and “boundary object” to understand how scientific and technical communities share knowledge across borders.<sup>22</sup> Scholarship in media studies addressing technology and consumption and the ways that it shapes social identities may be fruitful in thinking about technology and cultural identity.<sup>23</sup> For instance, Roger Silverstone’s concept of domestication – or the ways technologies are integrated into our everyday lives – can possibly be extended to discuss how nation, race, or culture can be brought to bear upon technology as it moves around the globe.<sup>24</sup> In a comparative context, it is easy to see why a technology widely embraced in Japan like a rice cooker is not broadly translatable to the United States. For the most part, the American palate does not have a culinary and cultural need to integrate a technology that supports daily consumption of rice. Thus, the thoughtful use of Silverstone’s concept of domestication has the potential to unpack how technological use is shaped by a national, racial, or cultural identification.

One of the major difficulties in beginning this research is the shortage of comparative S & TS scholarship. There has been a great deal of STS that has looked at technology in a comparative context, but it has been deeply geo-

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22 Peter Galison, *Image and Logic* (Chicago, University of Chicago Press, 1997); S. Leigh Star, “The Structure of Ill-Structured Solutions: Boundary Objects and Heterogeneous Distributed Problem Solving,” in L. Gasser and M. Huhns, eds., *Distributed Artificial Intelligence*, Vol. II (London, Pitman, 1989); Greg Wilson and Carl G. Herndl, “Boundary Objects as Rhetorical Exigence: Knowledge Mapping and Interdisciplinary Cooperation at the Los Alamos National Laboratory,” *Journal of Business and Technical Communication*, 21 (2) (2007):129–54; Davis Baird and Mark S. Cohen, “Why Trade?” *Perspectives on Science* 7 (2) (1999): 231–54.

23 Arjun Appadurai, *Social Life of Things: Commodities in Cultural Perspective* (Cambridge: Cambridge University Press, 1986); Wim M.J. van Binsbergen & Peter L. Geschiere, *Commodification: Things, Agency, and Identities* (Münster: Lit, 2005).

24 Roger Silverstone and Eric Hirsh, *Consuming Technologies: Media and Information in Domestic Space* (London: Routledge, 1992).

graphically bound. Traditionally scholars have discussed, examined, and analyzed technology and technological experiences bound by national borders or in more broad terms of the Europe, the West, or non-West.<sup>25</sup> But if we are to take “following the technology” seriously in an ever expanding global world, our research has to cross culturally rooted geographical borders to fully understand how technology “lives” within different cultural environments. One of the goals of the research is to begin investigating how to develop comparative and cross-cultural S & TS. We have chosen Japan and the United States as two distinct cultural, national, and geographic locations to begin this intellectual work. We are also interested in the interplay of hip-hop as a mainstream underground movements that has been energized by technological and cultural exchanges across the Pacific.

### Hip-Hop and Japan

Ian Condry in *Hip-Hop Japan* writes that it is important “to shift attention away from questions of how American understandings of race are interpreted in Japan to focus instead on how Japanese conceptualized and embody ideas of hip-hop and race.” In a similar way our project is to investigate how technology contributes to the transnational flow of cultural knowledge about African American experience and how it relates to the processes of engineering and designing material artifacts. For our preliminary research we were interested in how those designing and engineering the artifacts of hip-hop saw themselves participating and contributing to the exchanges of cultural knowledge of hip-hop. The general question is to understand how technological objects designed and created in Japan that were reconceptualized by African Americans in New York City can spread black cultural aesthetics and knowledge about hip-hop. If according to Madeline Akrich artifacts are “scripted” with a dominant understanding of how to use them, what does it mean when black DJs transgress the dominant meaning inscribed in these artifacts? Or more importantly, how do these objects get rescripted to be read

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25 Ruth Schwartz Cowan, *A Social History of American Technology* (Oxford: Oxford University Press, 1997).

and associated with black American culture? These issues formed the basis of questions that we asked individuals at the Rane Corporation and Vestax Corporation, two of the leading producers of the mixers. Thus to begin asking questions about the global flow of cultural aesthetics mediated through technologies, it was important to start with those that conceive, build, and design the technology. Rane is situated in an extended suburb of Seattle in Washington State, whereas Vestax was located not too far from Shibuya, the pop cultural center of Tokyo. Each company presented a window into the design and production of the artifacts of hip-hop. Yet, our questions that centered on unpacking the place of race and culture in the production of technology did not resonate with the engineers in Japan or the United States.

During the interview with Vestax the following question was posed to a Vestax engineer:

**RF:** Hip-hop is a music genre, or maybe more than just music but culture that has its origin in the U.S. It came to Japan from there, and your company is making products for that music genre. Your company is making products that play a central role in a culture that originally came from the U.S., and is symbolic of African American culture, but your products are made in Japan. What role do you see cultural identity playing in your design or engineering work?

Our question did not elicit a response about technology and identity. On identity in particular, our intention was to ask about the role of racial and cultural identity. The Vestax engineer, on the other hand, redefined the question to articulate his affiliation with a particular engineering culture, from which his sense of identity derived.

**Vestax:** Well, we are Japan-based company, and we do have Japanese employees, but we are not trying to make “Made in Japan” products. We want our name to be a worldwide brand. So we have our people in the U.S., in the U.K., and distributors all around the world. We hold one international products meeting every year, we discuss new product development and make what we decide to make in that meeting. Our products

are not only used by hip-hop people, but also by house and techno people, so we have antennae reaching out to those people as well. But, for some reason, the hip-hop people are the ones who seem to be especially enthusiastic about our products. It may be partly because hip-hop DJs treat turntables more like musical instruments. They change a lot of things, and they complain a lot, too, this does not work, and so forth. House and techno people do not seem to complain as much. They are more concerned about choice of songs and mixing, but hip-hop DJs have, well, interesting personalities, stronger passion, and characters, and they tend to speak out to us this is bad and that does not work, so we will know what was not good in our products. The (hip-hop) music itself changes very quickly, and so instruments, too, need to change quickly to catch up with that change. . . So hip-hop people are the most enthusiastic group of people, and as we had that kind of people around us, it naturally became like this. We did not first intend to make things for hip-hop, but since they voiced a lot of opinions to us, it naturally became like this, and as a result we have more products for hip-hop DJs.

Also, hip-hop people are not divided into small groups, but seem to me more united and going to one direction as a group. So no matter which country they are in, well, hip-hop in each country, say, hip-hop in France, may be different, but they are well united, and because of that we can get a lot of suggestions. I think it is a natural outcome (that we work with hip-hop community). And since they expect from us a lot, too, so we have to respond to them well.

While this interview did not enable us to more fully understand the ways that those who design and build technology see their work contributing to the exchange of cultural knowledge associated with hip-hop, it taught us two things. First, although not as a result of conscious efforts by the engineers, knowledge and aesthetics of hip-hop communities do get built into turntables and mixers through DJs' involvement in the designing process. The reappropriated or rescripted ways of using the technology according to African American aesthetics attain a tangible form through this, which in turn are transmitted by those artifacts. Second, it tells us that these

technological artifacts serve as a vehicle of yet another kind of culture and associated identities. That is, they carry a particular, small-scale and responsive, engineering culture. In the above excerpt, the Vestax engineer emphasizes that their product is not “Made in Japan.” He goes on to explain, then, how their design process works well to respond to the changing needs of hip-hop communities from around the world. What is more, the Vestax engineer sees this culture as a marginalized, or even a subversive one, defined in relation to the engineering culture perceived as mainstream. His resistance to label their products “Made in Japan” illustrates this point. It also emerged recurrently throughout the interview.

**Vestax:** Our company is a “maker,” but we do not have factories. A maker without factories, which is rare in Japan, though there are some companies like that in the U.S.. Most of people we talk to in Japan don’t get the idea. We are doing our business in that style for about 30 years. But if we had factories, we would have to produce something we do not really want to make in order to keep the factories running, which we consider as a restriction. [W]hen our engineers design products, good (interesting) products usually come out when they think they are designing something interesting. So the process is different from engineers making products as mundane job of doing whatever is told by their bosses, but rather those who are interested in a particular project come together and work on it, then some DJs come around and we discuss these and those things, and that produces something good (interesting). We do sometimes come up with products that never sell well, or are simply not marketable at all, but everyone here enjoys the process.

**RF:** What I am interested in is that they seem to, with Controller One and other devices, be really pushing engineering boundaries in ways other companies aren’t, so I’m curious if that is a part of their engineering culture. . .

**Vestax:** We do not do basic research or basic development. None of our workers is “engineer” per se, so when it comes to developing a product we look for engineers to collaborate with, and someone would say “hey, that

is interesting and I want to work on it.” We cannot tell at the beginning if that person has required skills and knowledge, but usually, things work out, and working with someone who thinks the idea’s interesting is important. As we work on things we first thought impossible would often become possible, and to think outside of the box, you do not have to engineer things following the same pattern over and over again. Rather, when you do things differently, often engineers come up with something very interesting. It all comes from working with people who are interested in it, who likes doing it and have fun doing it.

As these excerpts show, the culture positioned as mainstream here is that of large-scale, mass-production companies in Japan. “Japanese engineering culture” as it is known globally is a culture (over-)generalized from that of large-scale production companies that have stronger global presences. This culture is also commonly treated as monolithic and homogenous, and so are “Made in Japan” products. This would lead those Japanese engineers who are not affiliated with large-scale firms, such as the Vestax engineer we interviewed, to feel that they are underrepresented or marginalized. For those engineers, it is thus important to articulate their affiliation with a smaller-scale engineering culture, and differentiate themselves from the mainstream. This might explain why our question on technology and identity elicited an answer about engineering culture, rather than one about racial or cultural identities.

To weave our preliminary analysis into a coherent story, we revisit Ian Condry. Condry argues that hip-hop in Japan moves away from the context of African American racial politics. It is appropriated by Japanese DJs and audiences to express contradictions in Japanese social structure, such as the examination-oriented education system and life as a “salary-man,” and resistance against them. Our preliminary analysis of the interview material converges with Condry’s observation in an interesting way. That is, while working on technology so strongly tied with the performance of hip-hop music, the engineers involved in design and production of turntables and mixers build into these artifacts another cultural knowledge and aesthetics that they see as important. In other words, these artifacts become a venue for the



engineers to articulate their own concerns, which are situated in the culture they are immersed in.

That is not to say, however, that the engineers' concerns replace African American cultural knowledge. Another important point to note about hip-hop in Japan is that hip-hop DJs there still play on the same turntables and mixers as their counterparts in the U.S. (and perhaps so do the ones in Jamaica, France, England and elsewhere). As technological artifacts, turntables and mixers transmit cultural knowledge and aesthetics of hip-hop in different ways from musical contents of hip-hop (or the ways in which they are represented in movies and books). While the latter is often reinterpreted, reworked or simply overlooked in different cultural contexts (as Condry illustrates), turntables and mixers, which embody rescripted ways of playing with them according to African American cultural aesthetics, do not seem to dissipate as easily.

Moreover, the production and circulation of technological artifacts are embedded in a particular dynamic, different from the ones in which the movements of human bodies (travel, migration) and media products (films, books, music) are situated. This makes turntables and mixers capable of transmitting cultural knowledge and aesthetics that are often excluded from the conventional media. Since the culture of Japanese engineering is commonly equated with the culture of large-scale, mass-production companies, knowledge and aesthetics associated with small-scale engineering tend to be left out from the heroic saga of globally expanding Japanese companies produced in Japan; neither would narratives produced outside of Japan recognize the distinctiveness of this culture, because, from their perspective, it appears as an instance of the homogenous Japanese engineering culture. Technological artifacts, on the other hand, can serve as a vehicle for such cultural knowledge and aesthetics, primarily because they circulate as material objects.

In short, our preliminary analysis suggests that technological artifacts serve as a vehicle of multiple cultural identities. Turntables in our analysis simultaneously transmit cultural knowledge of hip-hop (primarily in the direction of U.S. to Japan) and aesthetics of small-scale, responsive engineering

culture (primary in the direction of Japan to U.S.). Technological artifacts thus contribute to cross-pacific transmission of cultural knowledge and aesthetics, and because they circulate as technological artifacts, they do so in different ways from how these are transmitted through movement of human bodies and through media products, which are commonly treated as more conventional venue of cultural exchange. This initial finding also suggests several concrete directions for further development of the empirical component of our project. A follow up study is necessary to see if the point about engineers and their cultural identity applies to those working in the U.S. based companies, such as Rane. Additionally, in order to answer our original question about technology and identity, a new set of questions that can gauge the engineers' understanding of racial and cultural identity needs to be developed.

### Conclusion

From our preliminary analysis of the interview material, we learned that technological objects contribute to cross-pacific transmission of cultural knowledge and aesthetics as *technological artifacts*. In conventional social science, technological objects are often seen as mere products of human ideas and human interactions. This approach treats objects themselves as devoid of any meanings, other than those attached by people around them through interpretation and use. Our initial finding suggests, however, that technological objects are capable of carrying meanings by themselves. Somewhat like text, once they start to exist in the world in tangible material form, technological objects circulate independent of the intentions of the author(s) that are behind them. While they may not be completely detached from the context in which they are produced and being used, which would assert that through certain interpretation and use, their material form, again, like written text, does carry tangible messages with them. In this way, objects can serve as vehicles of cultural exchange. We use the term technological artifacts to differentiate our approach from conventional approaches. Technological artifacts are also different from other, more frequently studied carriers of cultural knowledge, such as movements of human bodies (travel, migration) and media products (films, books, music). Each is produced under a distinct political-economic relationship, and each circulates under a different dynamic.

Travelers, media products and technological artifacts, for instance, are transported through different channels, and their movement is governed by different laws and regulations. While travelers and media products from certain places of the world or with certain politics have to go through onerous processes to enter into a particular country (or their entry is simply denied), technological artifacts from the same parts of the world may cross national boundaries with relative ease, (and vice versa). Therefore, the role technological artifacts play in cultural transmission differs from the roles played by other carriers in significant ways.

Our research begins conceptualizing and theorizing how non-scientific and non-technical communities exchange technology and knowledge defined by racial, ethnic, and national character. More important we want to explore the ways that technology facilitate and mediate these relationships. From our brief trip to Japan we have drawn three conclusions. (1) Questions relating to technology and global cultural exchange have to transcend the tendency of scholars to bind these interactions within national borders, (2) The ways that cultural identity get scripted into objects reflect the cultural and technological traditions of a community, and (3) the perceived value neutrality of technology overshadows how social and cultural knowledge are embedded artifacts.

