

The Sense of Technological Determinism¹

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Before I begin, I would like to extend my thanks to Alex for organizing this panel, and to Clint and Evan for the pleasure of sharing ideas with them, as well as to all of you in the audience.

I have a memory from *Cracked* magazine in the late 1970s. The back cover presented an advertising parody, with a headline that read, "four out of five dentists recommend sugarless gum for their patients who chew gum. I'm the one who didn't."² A black and white photograph depicted a dentist, brown bag over his head, dumping a bag of sugar into his patient's mouth via a funnel.

Belief in technological determinism can seem akin to this ad. When defined as technology driving change with an inevitable trajectory unalterable by human effort,³ believing that technological determinism describes how our world works is akin to the dentist who pours sugar into his patient's mouth. It is absurd.

¹ This paper was presented at the Association for Technology for Music Instruction conference in San Diego on November 16, 2012 at the session, "Is it the technology? Challenging technological determinism in music education." The session was organized by Alex Ruthmann, and my co-presenters were Clint Randles and Evan Tobias. As I was scheduled to speak last, this paper presumes that basic ideas about technological determinism would be established. For those who are reading this paper and want a solid introduction to the topic, I'd recommend the edited volume *Does Technology Drive History?* (Smith & Marx, 1994).

² I use quote marks, but I'm constructing this from memory, so I'm likely a bit off. But I maintain that the photo looked as I describe it. And memory of 1970s hair on the dentist's arms lead to the gendered pronoun.

³ It is important to note that many differentiate between "hard" and "soft" determinism. Soft determinism is much more reasonable, having more to do with the ways that technology exerts pressures on change. A classic exploration comes from Williams (1973), who in discussing Marx writes, "We have to revalue 'determination' towards the setting of limits and the exertion of pressure, and away from a predicted, prefigured and controlled content" (p. 6).

In today's talk, I would like to offer an alternate view, a brief attempt to present four ways that technological determinism makes sense. My current view is that technological determinism, rather than an ideology simply to be rejected, is closer to a problem like racism, one baked into our culture in a way that produces what Eduardo Bonilla Silva (2009) refers to as "racism without racists." We have determinism without determinists. Of course, the problem of technological determinism is not in any way as devastating as racism in America, but they similarly present as ubiquitous ideologies publicly claimed by few, but which nevertheless run rampant within our society. Both are supported in subtle and persistent ways that require explication and critique to lead to confrontation and change.

A first way that deterministic arguments make sense is that they are familiar. Deterministic accounts have been and continue to be prevalent. As far back as one hundred years ago, John Philip Sousa (1906) worried that machine music would end music education, sales of instruments, and leave those who made music simply imitators of phonographs.⁴ In the 1960s, Glenn Gould (1966/1984) wrote, "We must be prepared to accept the fact that, for better or worse, recording will forever alter our notions about what is appropriate to the performance of music" (p. 337), and famously predicted technology would cause the concert to become "dormant in the 21st century" (p. 332). Today, most of us are familiar the belief that Napster changed music in profound ways, or have heard that John Bon Jovi held Steve Jobs, through

⁴ Take, for instance, this poetic quote:

When a mother can turn on the phonograph with the same ease that she applies to the electric light, will she croon her baby to slumber with sweet lullabies, or will the infant be put to sleep by machinery? (Sousa 1906, p. 281)

Jobs' technological innovations, personally responsible for killing the music business (Staskiewicz, 2011). We have heard that Google is "making us stupid" (Carr, 2008). And Victoria Armstrong's (2011) work on the gendered nature of technology in music education presents examples and a critique of deterministic hope, namely, that computers will automatically make creativity and composition flourish in the classroom. These accounts are all too familiar.⁵

A second way that technological determinism makes sense is our individualistic vantage point within society. It is rational to believe that I, personally, haven't done much to change the Internet, or contributed to the design of the iPod. But I certainly do believe that I am a member of a society that has profoundly contributed to the shaping of these technologies. It is only when we see ourselves as part of a movement, such as the civil rights movement or today's efforts on behalf of the LGBT community, that we clearly see ourselves as constituting a social force for change. The individualistic paradigm so commonly found in Western societies, as compared with collectivist notions popular elsewhere, likely makes us much more vulnerable to deterministic arguments.

A third way in which determinism makes sense is that it legitimately helps us begin looking for causes. At first glance, it does seem that the iPod and MP3 have had effects on music. It is hard to disagree with the notion that the Internet and computer music software are changing music, musician, and audiences in fundamental ways. These arguments also help to motivate us to explore how

⁵ I've also presented a critique of John Kratus's recent work (Thibeault, 2011) as having an implicitly deterministic structure, a piece where I also presented a richer version of the pragmatic conception of technology that is only implicit in this paper.

technology is part of change. Deterministic beliefs are a sensible place to begin, as long as we move beyond them, and we should be thankful for Marshall McLuhan's expansive vision (1964/2003), Jacques Ellul's (1964) dystopian vision, and the philosophical critique of technology in contemporary life by Albert Borgmann (1984).

A fourth and last source of the sense of technological determinism is its promotion by technological industries. Merritt Roe Smith (1994), writes that:

Advertising agencies, in short, not only sold the products of industrial capitalism but also promoted ways of thinking about industrial technology...

Such technocratic pitches constituted a form of technological determinism that embedded itself deeply in popular culture. (p. 13)

In other words, Apple sells not only iPods, but an ideology of technological determinism wherein so many of the great improvements of modern life originate in the creative mind of Jonathan Ive and Phil Schiller.⁶ A web of legal and intellectual property concerns also depend upon a deterministic account of technological change, and dissuade us from discussing, for instance, the environmental degradation and obscene waste that often accompanies technological innovation.⁷

I have shared four ways that technological determinism makes sense: namely, that these arguments are familiar, that they resonate with our

⁶ Sterne (2003) refers to this as the "male birth model" of technological innovation (p. 181).

⁷ For example, Sue Halpern closes her review of Walter Isaacson's biography of Steve Jobs (2012) thusly:

Next year will bring the iPhone 5, and a new MacBook, and more iPods and iMacs. What this means is that somewhere in the third world, poor people are picking through heaps of electronic waste in an effort to recover bits of gold and other metals and maybe make a dollar or two. Piled high and toxic, it is leaking poisons and carcinogens like lead, cadmium, and mercury that leach into their skin, the ground, the air, the water. Such may be the longest-lasting legacy of Steve Jobs's art.

individualistic vantage point, that they are a logical place to begin inquiry, and that they are advanced by commercial interests. But to claim that technological determinism makes sense is not to accept it as sensible, and the charge of today's panel is to challenge technological determinism. Perhaps the most potent critique of technological determinism comes from Jonathan Sterne (2003), who writes that these arguments "... spring from an impoverished notion of causality" (page 8). In their place, he suggests:

To study technologies in any meaningful sense requires a rich sense of their connection with human practice, habitat, and habit. It requires attention to the fields of combined cultural, social, and physical activity — what other authors have called networks or assemblages — from which technologies emerge and of which they are a part. (page 8)

Following Sterne's words, talk of the MP3 becomes meaningful when we embed that technology within an understanding of the medium that includes the interactions between "institutions, technologies, people, and practices" (2003, p. 182), something Sterne provides in his exemplary book on format theory and the MP3 (2012a). Thankfully, we increasingly have enriched accounts of technology and change, frequently from the field of sound studies (Pinch & Bijsterveld, 2012; Jonathan Sterne, 2012b). We have Karin Bijsterveld's (2008) wrestling with the "general public's acceptance of technological determinism" (p. 20) in the context of the public problem of mechanical noise. Rather than fear machine music as Sousa did, we have Mark Katz's (2012) account of amateur music making enmeshed with machine music, a celebration of play-along recordings, karaoke, and musical video

games. And Emily Thompson (2002) locates a sense of technological progress in the very concert halls in which we perform, spaces that reflect the evolving understanding of acoustics, building materials, and aesthetic ideas. In these examples, we begin to grasp an enriched notion of the networks or assemblages leading to deeper understanding, better questions, and a richer sense of how we might better our efforts in music education. Thank you all for your attention, and I look forward to our discussion.

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