



## Why Neuromusic Will Never Be As Catchy As Katy Perry

BY KEVIN RANDALL Today

Neuroscientists have found how brainwaves can predict hit songs, but listen (below) to actual music made from neuro feedback, and you'll understand why experts think the pop charts will remain mindless for decades to come.



David Lewis-Hodgson, chairman and research director at UK-based [Mindlab International](#), is using his "mind and body" machine to make music for brains.

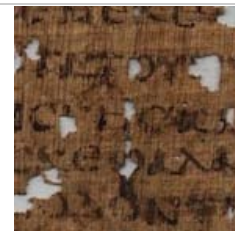
"What we do is wire up volunteers with equipment that records a variety of biometric and neurometric responses," he tells *Fast Company*--EEG machines, EDR (skin resistance) units, monitors for heart rate, respiration, skin temperature, and more. Then he and his team elicit known responses to stimuli--a nice smell or good taste, for example--and feed reaction signals into specialized equipment and software that converts all of the input into music and even indicates what instruments should be used when. "Depending on the activity being followed, for example meditative states, a taste or an aroma, the music varies."

Listen below to the music created from the brain feedback of people watching film images of the attacks of September 11, 2001. Springsteen's "The Rising," it ain't.

Lewis-Hodgson has studied and applied "the neurobiology of music"--he's also discovered how [Van Halen and Abba make you happy](#)--for more than a decade. Now Mindlab is trying to take what it's learned from pop hits and flip the script, using the information to grow the earworms of tomorrow. The company works with clients around the world to develop "sonic signatures" for brands in ads or retail environments that will be appealing and move consumers along in the purchase process.

Similarly, marketers of art have long searched for a magic formula to produce popular works. And [neuromarketing has deeply infiltrated film](#) in recent years (to say nothing of its [broader use in marketing](#)). But with the rapid growth of digital tunes and streaming

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services, could neuroscience ever become a significant part of the music industry? Could scientists in lab coats alongside corporate entertainment executives in suits become better tastemakers than all-knowing DJs and condescending record store clerks?

A three-year study of teenagers by Emory University neuroscientists recently got a lot of people thinking so. Songs that spiked activity in their brains' reward centers (linked to the enjoyment of music and production of dopamine) were modestly more likely to become big sellers than the songs the teen subjects *said* they liked, leading some to declare "[Brain Scans Predict Pop Hits](#)."

Lewis-Hodgson references a large body of scientific data, including Mindlab's own, in an effort to link "neurometric" sonic branding to desired client results. And given the growth of their brain-based musical branding, he sees the music industry's entry into "neurometrics" as inevitable. "It may be happening now in the U.S.--that industry is big and wants predictable return; of course no one would talk about it publicly."

At least one top10 hip-hop artist has hired neuromarketing firm [MindSign](#) to study "brain activation" elicited by different music video elements while listeners lay in an fMRI machine, MindSign cofounder Philip Carlsen tells *Fast Company*. And he thinks more front-end "predictive" neuro-based music will be their next step following on the success of their back-end fMRI brain testing of music videos.

But a leading U.S.-based sonic branding company president isn't so sure neuroresearch on music will become a major part of the business. It "could work in some cases, for certain genres perhaps. Certainly input from brain function will be more accurate than from focus groups from what we've seen there," says [Joel Beckerman](#) of Man Made Music, whose company's mission is to "tell stories by producing music that emotionally resonates with audiences." AT&T, Anthony Bourdain's *No Reservations* TV program and CNBC are Man Made Music clients, among other major brands, and Beckerman has collaborated with artists including composer John Williams and musician John Legend. "I think the brain research is just another tool," he says, "another piece of information, not the be-all and end-all, to go along with the inputs of my own gut check, my collaborators' intuition, and tastemakers."

If any successful businessman might be expected to support the idea of technology or science helping predict popular music, it's Pandora's chief strategy officer and cofounder [Tim Westergren](#). His streaming Internet radio service is powered by what it calls the [Music Genome Project](#), an algorithm design to match listeners with tracks based on their tastes. But, "We are not tastemakers," Westergren tells *Fast Company*. "We're not about *making* the Top 40." ([Pandora's recent introduction of social tools](#) does, however, open up the potential for listener groups and mentors to shape musical tastes more broadly.) "I don't think you can scientifically engineer music to be good, popular," Westergren says. "Music is a more mysterious art form than that. You can identify the pieces of music, but the whole, that ineffable dimension is more elusive. There is a whole world of [machine listening](#) that is connected to predictive modeling. I've never found something they've had that's worked, it's never borne out for me."

Experts in the academic neuroscientific field that *Fast Company* interviewed find the Emory study results interesting but not earth-shattering, and of limited use.

"Knowing in exquisite detail that brain area X is a small percentage more active when you hear a song that is an eventual hit than when you hear a non-hit is fairly useless," says [Paul Zak](#), neuroeconomics professor at Claremont Graduate University. "The Emory paper has nerd-cool, but won't change a thing in the music industry."

And [Steven Quartz](#), professor of neuroeconomics at California Institute of Technology,

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says, "Understanding the neural basis of musical preference may provide some insight into engineering hits, but the influence is likely going to be fairly small mostly because musicians/producers have already intuitively found what is appealing and what drives brain responses."

Quartz says brain feedback provides a better basis for predictability than self-reported preferences. (Beckerman and Westergren agree.) "I'm not that surprised that brain responses can be more accurate than subjects' likability ratings--not so much because the brain-based predictions are particularly powerful but because the likability ratings are so poor," he says. People tend to have limited introspective awareness of their preferences and find it difficult to quantify their preferences. Also, they tailor responses based on interviewer cues and their peer group, Quartz adds.

Still, he says, neuroresearch could play some role in the future of music-making. "The predictive data don't suggest there's a method to identify a 'hit' but it may be possible to distinguish moderate sales from poor ones. This might be useful in deciding on whether or not to sign a new band, etc.," Quartz says.

Zak adds, "The real horse race would be between surveys, expert listeners ("Delphi method"), crowdsourcing, and every possible neuroscience approach ever invented and to see, 1.) which had the most predictive power singly; and, 2.) what combination of these produced the highest likelihood of prediction." Short of that massive undertaking, he says, "I think we have gotten about as predictive as possible."

[Image: Flickr user [nooccar](#)]

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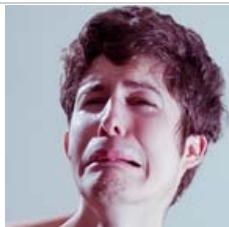
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