



BRAIN-BASED LEARNING

Don't Listen to Music While Studying

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By David Cutler, High School History, Government and Journalism teacher from Boston



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I notice several students listening to music while busy at work. I have no good reason to ask that they remove their headphones and turn off their devices. As I walk around the room, I admire the elegant, concise prose each produces.

I ask one student why music helps her concentrate. "It soothes me and makes me less stressed," she says. "Plus, Ed Sheeran is just awesome."

As a college student, I spent countless hours studying in a dark corner of the Brandeis University Library. Often, I would lose track of time and wonder about seeing the sun again. Once, my mother called to ask why I hadn't yet returned home for Thanksgiving. I had forgotten about the holiday, focused on getting a jump-start on a major history paper while listening to Bruce Springsteen's "Thunder Road" on repeat.

Placing aside the issue of my self-induced exile, for me as well, music offered not only comfort but also increased focus -- or so I thought, at least until coming across the work of Dr. Nick Perham (<http://www3.cardiffmet.ac.uk/English/health/p/Pages/DrNickPerham.aspx>), a lecturer in the School of Health Sciences at the University of Wales Institute, Cardiff.

Impaired Performance

Perham's 2010 study, "Can preference for background music mediate the irrelevant sound effect?" (<http://onlinelibrary.wiley.com/doi/10.1002/acp.1731/full>), shows how music can interfere with short-term memory performance.

I recently spoke with Perham, who told me about the "irrelevant sound effect." This involves a subject conducting a certain task, in this case recalling a series of numbers, while listening to different kinds of background music. If sound exhibits acoustical variations, or what Perham calls an "acute changing-state," performance is impaired. Steady-state sounds with little acoustical variation don't impair performance nearly as much.

I'm also interested by another of Perham's conclusions. "We found that listening to liked or disliked music was exactly the same, and both were worse than the quiet control condition," he says. "Both impaired performance on serial-recall tasks."

Still, I'm curious how prevalent serial-recall is in everyday life, and if one could get by without developing this skill. Unlikely, Perham says, as one would have tremendous difficulty recalling phone numbers, doing mental arithmetic, and even learning languages.

"Requiring the learning of ordered information has also been found to underpin language learning. If you consider language, learning syntax of language, learning the rules that govern how we put a sentence together, all of these require order information . . ." Perham says.

Perham asked his subjects how they think they performed when exposed to different tastes in music. Each reported performing much worse when listening to disliked music, although the study's results showed no difference.

I presented Perham's findings to my students, many of whom still refused to accept that listening to music while studying impairs performance. I even gave one of these otherwise bright and thoughtful individuals early access to my podcast interview with Perham.

"I enjoy listening to music while doing math," she says. "It really helps me think, and I won't stop listening even with the results of this study."

Silence Is Golden

My student is mistaken, but Perham explains that she should listen to music *before* getting to work, to engage what's known as the "arousal and mood effect." In fact, as long as she does something enjoyable before hitting the books -- whether it's listening to music or doing anything else -- past studies have shown that this can produce the same positive effect on performance.

I ask Perham then about the so-called "Mozart effect," which, in one early experiment, gave individuals who had recently listened to the famous classical composer enhanced spatial-rotation skills. When they stopped listening and were asked to cut and fold paper, they performed better than when listening to something else.

"Subsequent studies suggested that this wasn't correct," Perham says.

Instead, improved performance had more to do with the preference of sound one listened to before engaging in such work.

"They found it if you like listening to Stephen King's stories," Perham says. "It wasn't anything to do with classical music or Mozart, it was to do on whether you liked [listening to] something or not."

In one of his more recent studies, Perham says, he found that reading while listening to music, especially music with lyrics, impairs comprehension. In this case, it's spoken lyrics, not acoustical variation that impairs productivity.

"You've got semantic information that you're trying to use when you're reading a book, and you've got semantic information from the lyrics," Perham says. "If you can understand the lyrics, it doesn't matter whether you like it or not, it will impair your performance of reading comprehension."

In conducting my own little experiment, I decided to write this article in complete silence. These days, I write while listening to Dave Matthews, John Mayer and other "chill" music. I'm not sure if or how this fits exactly into Perham's findings, but I finished writing in about half the time it normally takes me for something of this length.

At the very least, here's to hoping that my experiment will entice my students to also give it a try.

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