

## Evolutionary Psychology

www.epjournal.net – 2008. 6(3): 550-554

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### Book Review

#### What is Music for? Perhaps to Give Evolutionary Psychologists Work

A Review of Daniel J. Levitin, *The World in Six Songs: How the Musical Brain Created Human Nature*. Dutton, New York, 2008, 336 pp., US\$25.95, ISBN 978-0-525-95073-8 (hardcover)

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Interest in the psychology of music is on the rise. For instance, membership in the Society for Music Perception and Cognition (SMPC) is growing and attendance at its biannual conference is way up. As readers of *Evolutionary Psychology* know very well, when an inherently interesting field takes off, related books for the lay reader often do too. McGill University cognitive neuroscientist Dan Levitin's 2006 bestseller, *This is Your Brain on Music*, and last year's bestseller *Musicophilia* by neurologist Oliver Sacks, are the two books that I have been recommending to friends and colleagues who like music (who doesn't?) and who want to know what the scientific buzz is all about.

Given its eyebrow-raising title, readers of this journal may be curious to learn about Levitin's latest book, *The World in Six Songs: How the Musical Brain Created Human Nature*. Whereas *Brain on Music* is about what goes on in the mind/brain when we listen to music, *Six Songs* is about where music comes from. Because Levitin is both a top-notch researcher and one of the coolest guys you could meet—a rock musician turned record producer turned cognitive scientist who weaves amusing personal anecdotes and conversations with famous musicians into his narratives—*Six Songs* should play well with a general audience. Leading researchers in music cognition are already singing its praises—Jamshed Bharucha of Tufts University calls it a “tour de force.” What will evolutionary psychologists say? The *World in Six Songs* might be read as an invitation—an entertaining collection of just-so stories just begging for empirical test.

I confess that I sort of hoped that *Six Songs* would be a compendium of all the most important thinking about evolution and music. It isn't. For instance, Levitin is clearly arguing that music is an adaptation, but he doesn't cite all the important proponents of this view (Geoffrey Miller is conspicuously absent). He also actively avoids addressing the opposition. I'm referring of course to Steven Pinker, who has suggested that music might just be “auditory cheesecake”—an evolutionary by-product of adaptive mechanisms that evolved for other reasons (language, auditory scene analysis, emotional calls, habitat selection, motor control, etc.; Pinker, 1997). But both these omissions are justifiable—

Levitin promotes Miller's sexual selection account (Miller, 2000) in the last chapter of *Brain on Music*, where he also responds at length to the cheesecake challenge, arguing against Pinker as if the very existence of the field of music cognition depends on it. (Does it? Personally, I'm interested either way.) The jury is still out in the adaptation-cheesecake debate. Pinker has returned to working on language development and apparently he has not responded to *Brain on Music* or to other recent anti-cheesecake bids by music researchers such as David Huron and Ian Cross, who show up quite a bit in *Six Songs*. However, Levitin did mention on a recent webcast that Pinker will appear briefly in a PBS show about music featuring Levitin and musician Bobby McFerrin, scheduled to air in March.

Rather than surveying the field, Levitin seems to be trying to build his own case in *The World in Six Songs* for two main claims suggested by his title: 1) the novel proposal that "there are six kinds of songs, six ways that we use music in our lives, six broad categories of music" (p. 6); and 2) the more familiar adaptationist hypothesis that "those of our ancestors who just happened to feel good during musical activities are the ones who survived to pass on the gene [I assume he intends 'gene' to be plural here] that gave rise to these feelings" (p.20). To me, a crucial point to notice is that he links these two claims with a third, 3) that "through a process of co-evolution of brains and music, through the structures throughout our cortex and neocortex, from our brain stem to the prefrontal cortex, from the limbic system to the cerebellum, music uniquely insinuates itself into our heads. *It does this in six distinctive ways, each of them with its own evolutionary basis* [my italics]" (p. 39).

The first claim, that there are six types of songs, is bound to ruffle some feathers. Partly, that's because it is bound to be misinterpreted. The six song categories are friendship, joy, comfort, knowledge, religion, and love. My favorite aversive response to the six-song thesis comes from the book's website ([www.sixsongs.net](http://www.sixsongs.net)) by music icon Joni Mitchell:

This is the worst idea for a book I've ever heard - it makes me want to vomit. The idea encapsulates the very worst part of Western thought. It makes a purely Socratic distinction about something that isn't intellectualizable. [One week later:] I take it back - I'm sorry! This is great!

Several preliminary points might save readers some interpretive effort here. First, Levitin's claim is psychological, not musicological—he's not saying that there are say, six kinds of chord progressions or six musical forms. Second, the categories are not intended to be mutually exclusive. A piece of music can serve more than one function. Third, I take it that the claim refers not to what a song is about, but how it is used. A given song can serve different purposes for different people or in different contexts. Lyrics can provide clues about a song's intended function, but they are not decisive.

Fourth, the category names are just monikers and should be construed broadly. For instance, "friendship" songs are not just tunes about our pals ("I get by with a little help from my friends..."). They are the much larger category of dance-songs that involve synchronized movement of individuals in a group--this includes war or attack dances, defensive singing vigils against impending attack, hunting songs, work songs, and songs that promote social bonding through collective movement. Interpreting the categories broadly, we can sort songs that might not at first seem to fit into the big six, so that, for instance, an angry antisocial heavy metal tune that might initially seem to require a new

category of “anger song” can actually be seen as a friendship song that unites like-minded metalheads as they headbang to Metallica in concert.

That said, readers are still liable to wonder just what the six-songs claim really amounts to. Isn't this just a neat organizational theme for a trade book? After all, the chapters are organized around the six categories, and I couldn't help but notice that Levitin credits his editor with the initial concept in his acknowledgements. My sense, though, is that he is putting this forward as a serious scientific proposal. Is it testable? Levitin will say that he has already done so by basing the categories on hundreds, maybe thousands, of songs across cultures and historical time periods. He discusses many of these as examples throughout the book, but he doesn't offer any kind of quantitative support. It is certainly possible that others will look at the same “data” and come up with a different taxonomy. Seemingly, we can each put the six-song thesis to the test individually: Driving into work today, I was listening to a recording of duets by two jazz guitarists. Which of the six categories applies? (I'm pretty sure it's joy.) This is definitely a fun game to play, but what exactly is at stake?

The six-song theory begins to make more sense when considered along with the second and third claims above, that music—both the performance and appreciation of it—is indeed an adaptation, and that the six types of songs have distinct evolutionary origins. As a source of intriguing hypotheses about the adaptive value of music, I thought the chapter on friendship songs was the strongest. Here, Levitin nicely presents several variations on the social bonding hypothesis, the suggestion that individuals who found coordinated song and movement rewarding fared better than those who were unmoved by group synchrony. Collective dancing and singing may have served as a signal of group cohesion and deterred attacks, aroused and synchronized aggressors during attacks, assisted in collective tasks such as hunting and other work, and more generally promoted feelings of togetherness. How these functional explanations fit together is an important problem—for instance, do music and dance *signal* social cohesion, *cause* social cohesion, or both (see Hagan and Bryant, 2003)? Levitin himself believes that the coordinating power of music/dance made it possible for humans to form larger groups, while at the same time music's ability to promote good feeling between members (which “remains partly a mystery,” p. 59) helped to ease the inevitable social tensions that would arise from doing so. For him, music is not only the “soundtrack of civilization,” but a major factor in the emergence of society.

Joy songs dominate my music listening so, of course, accounting for their origin is crucial. This category includes happy songs (“don't worry, be happy”) but appears to refer more generally to the pleasure of musical activities. Why does music make us feel good? Levitin describes important recent work that documents how music engages neural systems designed for pleasure—by modulating levels of dopamine, endorphins, oxytocin, for instance—and cautiously interprets some recent studies pointing to health benefits of both performing and listening to music. He eventually concludes: “Our brains evolved the responses to joyful music making that they did because joy can be a reliable indicator of a person's mental and physical health” (p. 103). This is possible, but much remains mysterious. For one thing, I spend a lot of time listening to and enjoying joy music by myself. Admittedly, this may be an evolutionarily novel behavior. Or is this more like eating cheesecake by myself, something I do quite a bit as well? And I wonder if this might have been the place to provide an account of why musical tastes are so idiosyncratic and selective—my joy music may be someone else's ice picks on the ears. I recently collected

some survey data indicating that people's musical "pet peeves" are indeed intensely felt. In my case—and I am not proud to admit this—I am not going to see any benefits, psychological or physical, from listening to rap any time soon. In fact, I think it might be bad for me.

Subsequent chapters on comfort, knowledge, religion and love songs are thoughtful and wide-ranging, but my reading is that they don't fully deliver on the promise of distinct evolutionary stories for each song type. Comfort songs include lullabies, sad songs that paradoxically lift us out of a low mood, and the blues. Levitin points out that these all serve to make us feel less alone, but does not expand on how being comforted in this way might have promoted fitness in our ancient ancestors. Lullabies in particular suggest a connection with attachment theory, but he doesn't explore this.

Knowledge songs—those that encapsulate important information in a highly memorable musical form (think epic poems or the ABC song)—strike me as a valid and historically important category. Music's possible function as an honest signal of emotion is an important idea that emerges early in this chapter, but its connection with what follows feels a little forced. Levitin moves on to a convincing presentation of research by Wanda Wallace and David Rubin, showing that music is an effective way for groups to encode and remember important information. However, the evolutionary story offered seems for the most part to piggy-back on the social bonding and feel-good/look-good functions developed in the chapters on friendship and joy songs.

The same seems to be true of both religion songs—"songs associated with religion, ritual, belief" (p. 192)—and love songs. Levitin devotes a good portion of these chapters to arguing that religion/ritual and love are themselves adaptations. While music's ubiquitous and central role in these activities is clear, I don't see the *distinct* adaptive functions for engaging in the use of these song types. Music as an honest signal reprises in the discussion of love songs, however, and this seems to me to be a promising area for future research. I wonder how good listeners are at detecting cheaters, that is, performers who only pretend to feel the emotion expressed in a song.

I'm definitely going to recommend *Six Songs* to my friends and colleagues. I also recommend it to other readers of *Evolutionary Psychology*, with a few caveats. Like music itself, it may be just too darn entertaining. One has to work to dig out the important scientific claims, as these are buried among background information intended for lay readers, extended conversations with Sting, Joni Mitchell and David Byrne, and captivating anecdotes. At one point, while engrossed in a story about a dishwasher who becomes homicidal over a disagreement about the merits of "Tie a Yellow Ribbon 'Round the Old Oak Tree" by Tony Orlando and Dawn, I had to refer back to the chapter title to remember what song category we were covering (oh, right, comfort songs...). You may at times have the odd sensation that two formerly separate areas of your life are coming together, that "universes are colliding," sometimes uncomfortably. I certainly squirmed a bit when Joni Mitchell, whose art has provided me with friendship, comfort, joy ... actually all six categories of satisfaction, states that "there's no such thing as romantic love. It was a myth invented in ancient Sumeria, repopularized in the Middle Ages..." (p. 229; quick, someone send Joni a copy of Jankowiak and Fischer, 1992!).

As I said earlier, *Six Songs* doesn't attempt to survey all work on evolution and music. As a portal into the empirical literature, its backmatter is somewhat sparse (especially compared to *Brain on Music*). I would like to read those experiments on finger-

tapping synchrony that are mentioned in the narrative but not referenced in the notes, and the other ones on how sad listeners use sad music to elevate their mood. Some directly relevant empirical work that should be mentioned, like Hagan and Bryant's (2003) test of the "coalition quality hypothesis," isn't. So, for quick entry into the straight science, I would suggest the edited volume of Wallin, Merker, and Brown (2001) or the September 2006 issue of the journal *Music Perception*.

I urge you to read *Six Songs*, however, and not just as a guilty pleasure. Read it as a call for more data, which we sorely need. Music is deeply rooted in our natures, whether it is an adaptation or an evolutionary by-product. I suspect it's a bit of both, and that we may be able to have our cheesecake and eat it too.

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