Beat the drums loudly: wired for music?

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When the date of my presentation was set last spring, I knew what I really wanted to explore further was music and why do most of us love it. People play music in their homes and cars, buy expensive tickets to hear it performed, sing it at celebrations and in the shower. We hum, tap, whistle, shake, rattle and roll, and burst into song. Why?

I was specifically curious about my passion for percussion, manifested in playing the taiko, or "fat drum." As a new student of taiko, I view it with reverence: the tradition is many centuries old, but one which has undergone a radical transformation in its format and its usage. I also approach taiko as a non-Buddhist, and a non-Japanese person, stepping into a genre once associated with Buddhist temples and played by Japanese people.

So why am I drawn to taiko, to drumming, and is there any substance to my hunch that music is a critical piece of the human condition and integral to the fullness of our humanity if not our very survival? Like any good researcher, I set out with an open mind – certainly– but admittedly with a desire to validate my hunches.

In this paper I will start with music in general – from the perspectives of anthropology, neuroscience and social psychology. Then I will illustrate these theories through a look at the evolution of taiko drumming. I'll conclude with a brief attempt to elucidate my particular passion for taiko with recent research on music and emotions. Perhaps, however, you'll have to decide for yourself whether music in general and taiko in particular can evoke such emotions.

I. Music under the microscope

A. Anthropological/evolutionist

There is little consensus about whether human affinity and skill in music is related to our survival as a species. While scientist Steven Pinker scoffs at any link between human fitness and musical ability, calling it "auditory cheesecake,"[1] others claim evidence that musical ability enhanced the survival of Homo sapiens through natural selection.

Music has been with us for at least 35,000 years, as established by archeological findings such as a flute of the late Pleistocene era. A total of eight flutes from this era have been discovered; according to Tubingen University Professor Nicholas Conard, this suggests that music has been played since modern humans spread across Europe 40,000 years ago.[2] Canadian musicologist Bob Fink believes music originated even earlier, suggesting that the discovery of the bones of a bear having holes spaced like those of a flute, dating as many as 82,000 years ago proves that the Neanderthals had flutes.[3] Other scientists vehemently oppose this conclusion, instead attributing the holes to the chewing of animals.[4]

In his study *Music and the Mind*, Dr. Aniruddh Patel of San Diego's Neurosciences Institute makes the case that music distinguishes humans from other singing animals for several reasons. Only humans make music in a variety of contexts; music serves many functions from lullabies to church music; and human music is not limited to one gender nor is limited to sexual attraction. Only Homo sapiens have rhythmic ability. And, only humans innovate in music.[5]

A number of anthropologists believe there to be a strong tie to human rhythmic ability and our evolution as a two-legged creature.[6] It is hypothesized that the human ability to walk on two legs not only parallels the two-step pattern that is the basis of rhythm, but also the freedom to move to the beat.[7] Taking this a step further, Steven Mithen, in his book *The Singing Neanderthals*, notes that the difficult life of Neanderthals required emotional communications and intergroup cooperation; they met these needs through a sophisticated set of adaptive tools

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[1] Steven Pinker, *How the Mind Works* (2009), p. 534. The full quote is: "I suspect that music is auditory cheesecake, an equisite confection crafted to tickle the sensitive spots of at least six of our mental faculties."
[2] Conard, Nicholas J. et.al, in *Nature*,University of Tübingen, Germany, June 2009. Bones were discovered in caves in Spain.
[3] Fink, Robert, Neanderthal flute: oldest musical instrument, 1997.
[4] Nowell, April and Chase, Phillip, University of Pennsylvania, Philadelphia, 1998.
[5] Patel, Aniruddh, PhD, "Music and the Mind," lecture at the Neurosciences Institute, San Diego, January 2008.
[6] "Rhythmic" refers to both music sounds and musical movements such as dancing, tapping to the beat and swaying.
[7] Goodall, Howard, *How Music Works*, BBC video series.

that included gestures, dance, and vocalizations. Mithen theorizes that the "honest" emotional communication of music would contribute to social commitment and the sharing of emotions would promote selection of this cooperative behavior.[8] Perhaps such cognitive capacities evolved through natural selection for coordination and emotional unification among individuals in a group.

In a BBC series entitled *How Music Works*, Howard Goodall notes that rhythm evokes memories of our mother's heartbeat heard in the womb. Others link rhythm with footsteps, and still others posit that our urge to dance is designed to boost our energy levels in order to cope with someone, or some animal, chasing us – a fight or flight response.

Poetic illustration of the view of music as a means of sexual selection abounds in Shakespeare, who referred to music as, a "food of love:" in the words of Duke Orsino in *The Twelfth Night:*[9]

> *If music be the food of love, play on;*
> *Give me excess of it, that, surfeiting,*
> *The appetite may sicken, and so die.*
> *That strain again!*

Shakespeare's view that a suitor with talents in singing or playing an instrument would better attract mates is echoed by many, including Dr. Geoffrey Miller, an evolutionary psychologist at the University of New Mexico. Miller furthermore has studied jazz musicians, finding that musical productivity reaches its peak during young adulthood and declines with age. Because musical productivity requires creativity and mental agility, it would be expected that an unfit person has less ability to create music, just as a sick peacock does not grow a beautiful tail.[10]

In addition to sexual selection, a second theory is that music binds groups of people together, creating community. The resulting solidarity, its supporters suggest, might have helped bands of early humans to thrive at the expense of those that were less musical. Robin Dunbar refers to this as "group selection," saying that music fulfills the function of social grooming in

[8] Mithen, Steven, *The Singing Neanderthals*, p. 234.
[9] *Shakespeare, William,* Twelfth Night, *1601*.
[10] *While we love Music,* The Economist, December 2008.

groups too large for that individual activity.[11] Though I was not able to locate research to support this theory, it has also been suggested that music is a tonic for our less sociable emotions, such as rage, and thus music enhances our survival as a species by providing outlets for anti-social behaviors.

As noted, Steven Pinker, the author of *How the Mind Works,* dismisses all selection theories and states that music is a cross between an invention and an accident, albeit a "happy accident," and that the ability to make music actually evolved for other purposes. He notes that while humans have fashioned music for their own enjoyment, the species does not depend upon music for its survival.[12]

B. Neurological

Dr. Aniruddh Patel has researched the workings of the brain related to music. While a number of brain areas are affected by music, the most dramatic brain response to music is found in the basal ganglia, the same area which affects both motor control and vocal learning. This association, Dr. Patel concludes, explains why we move to musical beats. This explains the correlation between music and language development: both have grammar, structure, cadence, and other traits. This connection was observed earlier by Frederick Nietzsche, who stated that we listen to music with our muscles. Nietzsche also noted a connection between music and thinking, and claimed that he was a better philosopher when he was at a Bizet concert.[13]

Dr. Patel and others note promising studies on children with autism, using music therapy as a means of encouraging both vocal and social connections. He further suggests that an "either/or" solution to the debate about the role of music in our development is not necessary because music can be viewed as a "transformative technology, something invented by humans, building on existing brain systems and transforming the human world experience."[14]

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[11] Ibid.
[12] Pinker, Steven, interviewed in *the evolutionist,* June 1998.
[13] Sacks, Oliver, *Musicophilia (2008),* p. 282.
[14] Patel, Aniruddh, Music as a transformative technology of the mind (2008), Templeton Essay, p.1.

C. Social-psychological

Common to each of these hypotheses is acknowledgement of the impact of music on emotions. Should you doubt the connection between music and health you have only to search the internet for those two words and you will discover the true meaning of the word "plethora."

Not that my intent here is to ridicule the hype – actually quite the opposite – but just a few examples are a group in Dallas who call themselves, "Drums not guns" (subtitled: "Hippie attire not required"), music and beauty, music and healing for cancer, dementia, Parkinson's, aphasia, post-traumatic stress syndrome, and so on. Dr. Patel's research confirms the efficacy of music as a means of improving symptoms in patients with Parkinson's disease and children with autistic disorders. [15] Such health benefits seem promising.

But what about the question of music and emotions? Research on this topic is only recently developing. Patrik Juslin, project director of "Appraisal of Music and Emotions" (AMUSE) at Sweden's Uppsala University, is studying the psychological mechanisms leading to emotions experienced through music, factors that influence those emotions and why individual responses differ, and, of course, how those emotional functions may serve people in everyday life. Dr. Juslin has identified six ways in which music engages emotions:

1. brain stem reflexes
2. evaluative conditioning
3. emotional contagion
4. visual imagery
5. episodic memory
6. musical expectancy[16]

But can music promote peace, as one website proposes?[17] Perhaps. The notion that music does contribute to our survival as a species may be true not only as a basis for the development

[15] Neuroscience researcher Michael Thaut has also conducted promising research, finding that playing a regular beat to patients with Parkinson's disease significantly improved their gait (measured by stride velocity, cadence, and length of stride).

[16] Juslin, P. N., & Västfjäll, D. Emotional responses to music: The need to consider underlying mechanisms. *Behavioral and Brain Sciences.*

[17] For if art has the power to purify and refine hearts (as Shumei members believe), it then certainly has the power to transform the brutish din heard in battle into sublimely spiritual music. (www.shumeitaiko.org)

of human bipedalism, community development and mate selection, but also because music is a "safe" way to deal with emotions that otherwise can be destructive. In a word, music soothes.

II. The evolution of Taiko drumming

If we put all of the previous factors together, we are still left with the "so what?" In other words, it may be pleasant but what's in it for me (as a homo sapiens, of course).

I'll confess that I have always been drawn to percussion. Yes, I've taken years of piano lessons, and played the guitar to demonstrate my membership in the sixties. But, as an adult, my interests have been drawn to drums. I started with conga drums, took lessons and indulged in a few drumming circles. But, beginning about ten years ago, I have found my interest in Japanese taiko, the fat drums played in groups. And I joined Fresno Gumyo Taiko in 2008.

Taiko has an interesting history. A relief, dating 2,500 to 3,000 B.C., dug up from the remains of a Sumerian castle in Mesopotamia depicts a person playing a large drum two meters (seven feet) in diameter. [18] Although taiko bear similarities to Chinese and Korean drums, taiko have evolved into uniquely Japanese instruments.

It is believed that the first use of taiko was in sixteenth century Japan as a battlefield instrument used to intimidate the enemy - a function of drums in many cultures. Taiko were also used to communicate battle commands and coordinate movements since the large drums could be heard across the entire battlefield.

It is also thought that taiko were used for to signal various activities in the village, such as an approaching storm or the beginning of a hunt. Some believe that in ancient Japan a community was defined by borders of where its drum could be heard; it thus benefitted a community to secure the largest drum possible. Although lacking direct evidence of this use, Megumi Ochi, curator of the Taiko Kan Museum, notes that this is also consistent with its use in other cultures. Because these signals were so important to the flow of daily life, the people were very thankful for the booming taiko, and began to believe that the taiko was inhabited by a god. Gagaku music developed in Japan during the Nara period (seventh century) along with Buddhism, and has continued to find a place in Buddhist and Shinto religious ceremonies, and as the imperial court music.

[18] This article is served with kind permission of the author. Taken from the plenarary session "An Overview of Taiko in Japan," at the 1997 Taiko Conference. Comments in [brackets] are Taiko Resource editorial comment

Traditional use of taiko drums was well established in Japanese-American communities in North America before World War II. First generation Japanese American (Eisei) were expected to offer entertainment to fellow temple members, often following worship services. This was offered with less expectation of a perfect performance than as an act of community.[19]

Taiko as it is performed today in groups is a post war phenomenon born in 1951 (Showa 26). Daihachi Oguchi, a jazz drummer, re-arranged the traditional taiko music for use in religious ceremonies. Pleased with the results, he formed a taiko drum ensemble and kumi-daiko, or group taiko, was born. The style gained instant popularity, and taiko groups began playing for the entertainment of others. In 1958 the Hokuriku Taiko Association was founded. The advent of Japanese television brought further exposure and popularity to the style.

In the 1970's the Japanese Government authorized funds to help preserve the intangible cultural assets that were slowly vanishing in the post-war era. Many local communities used funds to start community taiko groups. Today an estimated 5,000 taiko groups play in Japan, and 200 in the United States.[20]

The World War II incarceration of Japanese and Japanese-Americans brought the expression of Japanese culture in the US to a halt. Instead, post-war Japanese Americans endeavored to assimilate, encouraging their children to adapt to American ways and turn from Japanese language and culture. But just as their parents urged assimilation, youth chose to re-explore the folk arts of their parents' homeland and embraced taiko, which is "anything but quiet" and a good mechanism for rejecting the stereotype of the "quiet Japanese."[21]

What began as a movement to reclaim a culture has evolved as a growing American taiko movement, most lead by Japanese-Americans and often associated with Buddhist temples. Taiko is a popular activity on college campuses, with groups requiring try-outs, strict practice schedules, and competitions with other college campuses. Taiko groups are found worldwide, including in countries in which there are not large communities of Japanese people (e.g., Russia, Germany and the United Kingdom).

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[19] Rev. Masao Kodani, lecture at *North American Taiko Conference*, August 8, 2009. Rev. Kodani is the minister of the Senshin Buddhist temple in Los Angeles.
[20] Fromartz, Samuel, "Anything but quiet," Natural History, March 1998.
[21] Fromartz, Samuel, "Anything but Quiet," Natural History, March 1998.

With the spread of taiko drumming, the boundaries of its traditional form have blurred. While taiko had its roots in folk performances, its globalization has attracted the influences of non-Japanese elements. In addition to the taiko "fat drums," groups have added gourds as shakers (similar to those in Africa), cymbals, clickers (similar to Mexican castanets), and flutes (found in many cultures). The style of taiko drumming in American today varies from traditional to fusion. With this stylistic evolution, of course, comes debate. Should taiko preserve its traditional style? One taiko group complains that while it draws audiences by representing taiko as an ancient Asian art, group members themselves enjoy taiko for its novelty and its rejection of stereotypes. In short, taiko drumming has evolved.

Conclusion

It is my belief that we come by our love for music naturally – that we are "wired for music." I do not need to die on the hill of whether music is necessary to the survival of the species, but neither am I willing to dismiss music as "auditory cheesecake." Perhaps my passion for percussion is related to the heartbeat-like sound of drums, perhaps it is because I feel it in my muscles and – having learned a song – it is in my "muscle memory." But in the end, if the brain involvement of music can be used to help Parkinson's patients walk, or help people with autism socialize – along with providing a pleasing experience, I'm content.

As for my particular passion for taiko drumming, I can think of no better way to illustrate its beauty and force than with the help of my fellow drum lovers:

Fresno Gumyo Taiko!

(*demonstration*)