

Title: What is the role of music in human evolution?
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Human evolution is one of the most intriguing biological procedures that professional experts from multifaceted areas are trying to discover. It is so complicated that both biological evolution and social evolution intertwine together, which easily remind people of the image of the classic double helix formed by base pairs attached to a sugar-phosphate backbone- the DNA(U.S. National Library of Medicine, 2019). What a simile! Music, which is traditionally believed to be a part of the social form of human civilization, has been studied and considered by many experts to possibly be an evolutionary adaptation.

Despite those evolutionary theories about music remain wholly speculative, musical behaviours satisfy a number of basic conditions, which displays that there is benefits in pursuing possible evolutionary accounts. Not only has evolution shaped attitudes, dispositions, emotions and cognition. Some of our convictions could be traced back to the original points of evolution: we love life, we fear death, and we nurture our children because these dispositions better ensure the propagation of our genes(D. Huron, 2001)

So far one pattern across human evolution has been quite clear, that is as the evolution moved forward, our ancestors 'updated' their vocal system with more complex structures and more diverse sound. Steven Pinker proposes that the complexity of music make stimulating use of adaptations for multifaceted aspects of areas, such as language, emotion and fine motor control, etc., which evolved by itself due to selective pressures not associated with any functions peculiar to music(Pinker, 1997).

Taking Steven Pinker himself as an example, he is one of the genius guy who has musical advantage and many females would be attracted to him because of that, assuming the ancient 'Steven Pinker' fully used this advantage and he mated with all of the 'fans', his genes would have been successfully spread out. Internally, using music as a way to attract females' attention and defeat other males in similar ways like those traditional fight using weapons and muscles. Music can be used as another way to show male 'strength' and sexual attraction without physically injuring other males, which possibly further helped increase human evolutionary advantage, otherwise, it would have been a great internal cost. Losing young and healthy males could have a serious consequence when there was not enough food supply for the group, for example, lack of capable men to hunt down a protein-rich moose during winter. Even Charles Darwin back in the time indicated that the music in human evolution has its clear roots in courtship songs. Darwin also said that the vocalizations with the greatest pitch changes made by apes tend to be produced by males when soliciting females to mate (Darwin 1871). Miller argues that musical actions are able to indicate a holistic list of sexual fitness, including signalling things including status, the possible age, and fertility. Besides singing, dancing moves display aerobic fitness, flexibility, muscle strength and health; voice control could show self-confidence and status; rhythmic ability may indicate the 'capacity for sequencing complex movements reliably' (Miller, 2000: 340). There could be aesthetic preferences. Any aspect of music that we find entertaining might also be appealing to our ancestors (if they ever had a chance to listen to), and if it was the case, that appeal would naturally generate sexual selection pressures in favour of musical forms that match with the certain preferences. (Miller, 2000:342) But according to the definition, for a particular trait can happen only if that trait can arise by mutation of an existing gene and can be inherited. Additionally, while musical performing forms are found in all cultures across the globe and share dynamic features and specific motivations, the aesthetic musical preferences are often

culture-specific. Miller insists his knowledge that, to some extent, the sound quality, power of creativity, and emotional depth of someone's music is universal, it can be compatible with the sexual selection part on mate choice as well. There is much popular music transcending the border of languages, like K-Pop in the US and in Europe, American rap in East Asia, in places such as Taiwan and Japan. Neither can many audiences understand the lyrics nor the musical pattern in a professional way, but the fans are more than crazy about those singers and desiring to get attention from their private life. Hence there could be a musical mechanism in human evolution, on how music, in general, was refined, perpetuated and spread to various corners of the world.

2 million years ago, *Homo erectus* evolved. It lives on the savannah, hunts and butchers large game and develops cooking. However, it lacks anatomical adaptations for speech (Robson, 2019). Then a closely related *Homo* member to the *Erectus*- *Homo Ergaster* had very evolved vocal track and ear canals, like us, can well recognize and distinguish different sounds. When *Homo Neanderthal* and *Homo Sapiens* appeared and co-existed, there were once comparatively much larger predators especially the felids dating back to the Pleistocene, with a greater existing number than today. Predators such as *Smilodon populator* (the Saber-toothed Tiger) and *Panthera fossilis* can weigh up to 400 KG and 420 KG, *Panthera tigris soloensis* can even weigh up to 470 KG. They were one of the main external causes that cutting the human population. However, during the process of developing bipedalism, for a very long period of time, human ancestors became one of the easiest meal for these predators.

Researches show that 80% of the feline kill happens when there is no light at all, they have supreme night visions (way better than archaic hominids). Therefore when there is generally dark, usually in the evenings, when ancient humans gather to sing and dance together, the moves, sounding and lightening effect (from bonfire) would make predators in some occasions

give up approaching and hunt other preys instead which they think of easier. Predators are extremely sensitive to their own damages as a wound on them would have lethal cause due to risking their ability to continue hunting. Moreover, by 3-4 people singing together, it's hard to know how many people are there, which makes the situation more risky for predators to approach. When roaring up and down in different voices, it is even harder to figure out the exact numbers. Even observations from anthropological fieldwork today show that it is common for women and kids in the jungle gather together and sing really loud to warn the animals to stay away. Avoiding confrontation and leave each other the fairly private and safe space is another basic function that music plays. All those can be related to the common phenomenon that why people like music and singing in the evening (when the surrounding is in lack of light in general)-the genetic memory. In reality, concerts are often held after 5 pm and the climax are commonly reached after 7 pm; The colourful and dazzling lights in the night club with beatable sound make people feel more satisfied and feel unconsciously safe. Those tribes and individuals who better picked these musical skills were less likely to survive and pass on their genes, hence music here can also be called a skill only acquired by the few that succeeded to survive and pass on their lineage.

In order to survive more effectively against predators, ancient people started to live in larger groups, form greater musical activities in terms of size and sounding. At the same time, their brains got bigger because of the increased amount of interpersonal relationship, group hunting and group musical activities. Here music plays an important role which is like an 'amulet', an illusive indication to warn the predators, and to some extent, ensuring the continuation of the human species.

Brown indicated that language and music share origins in common, both of them can be conceived of as functioning at 'phonological' and 'meaning' levels. In the model that he proposed, language and music became separate capacities in the process of evolution. Language came to fulfil propositional functions such as the expression of 'truth values', whereas music came to constitute a pre-eminently social or interpersonal phenomenon. He suggests that 'the principal function of music-making is to promote group cooperation, coordination and cohesion' (296). Brown subsequently (2000b) adds the notion of music as strengthening the 'group' concept, which was defined as a 'suite of traits that favour the formation of coalitions, promote cooperative behaviour towards group members and create the potential for hostility towards those outside the group' (252). Interestingly, similar functions can be also used inside one big group but between sub-groups. when group talks, music is more powerful than language! Like the lyrics: penis all dead vagina always win. Music is like a group-group amplified way of language to convey certain limited information. Music offers the manifestation of group and self-identity and consciousness, the group inner co-operation via synchronization. Music gathered our ancestors together, 'we' share intentionality, essential to the emergence of language and music, trust was significantly required in between. when people start to lie, we lose trust and relationships break down. Normative space of shared values, understanding where we share values and understandings.

The evolutionary value of music does not only lie on the individual human but in its capability to promote group cohesion. However, Hagen and Bryant held the position that especially in the past, musical actions may be purposed to protect territory, in which the evolutionary memory can still be found in modern humans (Hagen & Bryant, 2003) They suggested that musical performance once acted as means to maintain group stability, laying the foundation for more complicated and well-organized group work. Individuals for most of

the times established their credibility within the group through other more 'pragmatic' ways, such as speed and strength in hunting and building dwellings. When it comes to the psychobiological area, musical practice is directly linked to the dynamic of life-sustaining regulatory hormones. Neuropeptide transmitter oxytocin aids in the formation of strong positive emotional feelings and in the supplanting of negative emotional feelings. Oxytocin would be released into the brain system when females are in lactation and are produced by males and females when reaching sexual orgasm. It also mediates in different biology-induced bondings, such as wife-husband bonding. Critically, Freeman's idea is that oxytocin is likely to be released while a person is merely listening to music. (Freeman, 1995) The suggestion helps prove that there is a neurological reason for the evolutionary role of music in the formation of social bonds.

After comparing musical characteristics, styles, and the actual sounds, etc. in different tribal and regional people dispersing in different continents and different cultural zones with evolutionary findings and DNA studies, this author suggested that music can gradually evolve and abruptly change over all sorts of time spans, short and long, and for all sorts of reasons, it would seem that some of the greatest different features among tribes located outside the African continent today may indeed have resulted from a social or genetic bottleneck stemming from a catastrophe during the Paleolithic era. And this explains what Grauer has ever encountered for the very striking patterns of stylistic distribution among numerous tribal groups. (A. Grauer, 2006).

The linguist Roman Jakobson indicated that there is the same relationship between a musical value and its realizations as there is in language between a phoneme and the articulated sounds (Jackson, 1987). There is second articulation in music but the music does not possess

the first articulation But unlike speech it lacks first articulation. 'Music is (traditionally) not made from raw sounds (with apologies to John Cage) but from sounds that are (with a nod to Claude Lévi-Strauss) "cooked "'(A. Grauer,2006:43) Early music might set the stage for language by providing phonological and semantic experimentation with a testing field. While one might need to rely on "native speakers" to puzzle out the phonology of a given verbal language, the "phonology" of music is, apparently, already given to us- i.e., we ourselves may already be "native speakers" of any and all (traditional) musical "dialects." This could explain why we are able to enjoy, and also notate, so many different kinds of music. Besides all evidence and research of what role music plays in human evolution, and despite all cultural and geographical difference, I think the existence of music in human evolution provides people with a companion, which is simple and important. Both playing and listening to music cultivates emotions. Music is a strong companion that followed our ancestors from Africa to different continents.

Roederer proposes that music developed from mother-infant communication. He suggests that musical manner of mother-infant interaction strengthens the emotional bonds between them, and practices the extraction of speech information from the musical components of talk, such as vowels and inflexions. Roederer indicates that music can convey emotional information to all audience within a 'group', effectively equalizing the emotional status of the group, which leads to an internal bonding effect amongst group members (Roederer, 1984). This bonding effect was also earlier identified by Blacking's (1969). Subsequently, from Sloboda, modern cultures have 'many complex artefacts that help us to externalize and objectify the organizations we need and value' (Sloboda,1985: 267), whereas in non-literate societies in the very past, the 'organizational structures' must be evidenced and expressed primarily in terms of the expressive ways that people interact with one another. For instance,

music is able to provide a mnemonic framework for the experience and wisdom of a tribe, as well as a way of expressing their cosmology and personal relations.

To conclude, the roles that music plays in human evolution varies as our ancestors stepped into different stages, and even today, the music changes faster than before attributing to the cultural globalization, development in the electronic musical device and the capital market. Music was not originally part of our evolution until the specific time point where it was used as an adaptive function. Music has always been contributing to human culture and vice versa. They mutually stimulate each other and the combined effect changed ways of life, then the incredibly vast amount of stimulation of that reflect on human evolution. So music being part of human evolution is not only the past in our evolution, but also in our contemporary bodies, the stars in different layers of our civilization appeared in different time points.

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