

Musical Aptitude/Ability or Musicality?

- biologically based spontaneously developing skill (like language) constrained by our biological and cognitive systems
- need not be related to special musical talent
- widely shared human capability
- a multifaceted cognitive skill that encompasses aspects of implicit learning, temporal processing, sensorimotor synchronization, and the role of expectation in music perception

— Honing (2020)

Musical Aptitude/Ability - a biological trait

Genes affecting inner ear development, dopaminergic systems, learning, and memory were found as candidate genes for musical aptitude, listening to and performing music

MOZART'S GENES



Mozart is a typical example of a talented composer whose family was musical. There are a lot of families in our days that have several professional musicians, so part of the musical talent is explained by the genes but of course also to exposure to music.

It's like an allergy; the risk for an allergy is only expressed when the pollen is coming, so you need this environmental trigger. And music is an excellent environmental trigger. Children who have an ability for music have to be exposed to music, otherwise we don't know whether they can become musicians. So a rich musical environment is of course needed.

Musical Aptitude/Ability - a biological trait

- new born babies have brain responses similar to adults if you omit the note on the down beat
- results strongly support the view that beat perception is innate
- infants (5-24 months) engage in significantly more rhythmic movement to music and other rhythmically regular sounds than to speech
- infants exhibit tempo flexibility to some extent (e.g., faster auditory tempo is associated with faster movement tempo)

Musical Aptitude/Ability - a biological trait

rhythm processing more natural
than pitch processing?

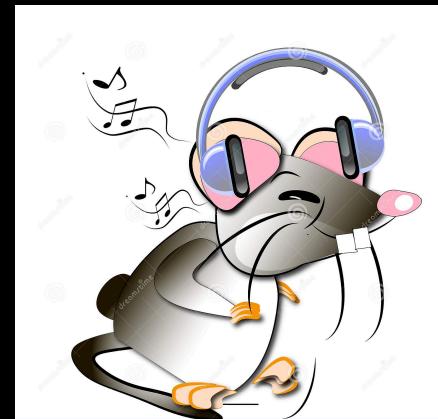
Musical Ability & Appreciation Only limited to humans?

"non-humans also have the potential to experience relaxation or stress in response to music" - Hargreaves & North, 2010



the effect of music versus no music on the cows' readiness to approach an automatic milking system

exposing rats to stress-inducing rock music could reduce their ability to heal wounds



Musical Ability & Appreciation

Only limited to humans?



Musical Ability & Appreciation

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non-humans also have the potential to discriminate between music/silence, musical genres and different versions of *Yesterday* - Hargreaves & North, 2008



But....?

does music improve animal welfare because it masks background noise (or has other second-order effects) or does it work simply because the animals concerned simply enjoy it?

to what extent can the effects of music on animal welfare be attributed to music only: would other (non-copyrighted and therefore cheaper) sounds provide a source of relaxation or stimulation that also improves welfare?

how much music has to be played for it to have a beneficial effect, how loud must this music be, how often does the music have to be changed, and so on? (Indeed, playing the 'wrong' types of music may well explain why Cloutier et al. (2000) and Hodgetts et al. (1998) found no welfare benefits of playing music to piglets and deer respectively.

But....?

to what extent would research on specifically music support Newberry's (1995) claim that any attempt at environmental enrichment for captive animals must have functional relevance?

although the results are broadly consistent with the ideas concerning human preferences (Konecni).....

it may be a grave mistake to automatically assume that all species should necessarily react similarly to the same music.

eg: simple, repetitive melodies of new age music may relax a relatively unintelligent animal such as a camel, but bore the pants off a relatively intelligent one such as a chimpanzee!

Musical Ability & Appreciation Only limited to humans?

“Snowball most likely dances to the music for social reasons and is not motivated by food or mating behaviour” - Patel, 2019



—>vocal learning prerequisite for beat perception

But....?



—>vocal learning prerequisite for beat perception?