

to, and tendency toward synchronous movement with an auditory rhythm exist in chimpanzees in common with humans. Absence of reports of explicit use of rhythm for social bonding in wild chimpanzees suggests that factors unique to human society, such as larger group size and/or complex vocal learning, may have expanded behavioral synchrony to unique forms of auditory and visual communication during the course of human evolution.

## [2-14] Effects of music and dance education on working memory

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A body of evidence demonstrates that musicians perform better than non-musicians on various cognitive functions and general intelligence. Executive functions, such as working memory, are one proposed mechanism underlying this link, and have been associated with both music and intelligence. Since previous research has been largely correlational, randomized controlled designs are needed to investigate causal effects. The objective of this study was to assess the effect of music and dance training on working memory. Fifty participants, aged between six and nine, were randomly assigned to either music or dance/movement education, stratifying for age, gender, and non-verbal IQ. Both groups received a month of training, matched on duration, intensity, and delivery. Participants were tested before and after the training on two measures of working memory: digit span and the self-ordered pointing task. For each task, number of errors and span scores were calculated. Using active control groups will elucidate whether results are specific to one training domain. Preliminary findings from the forward digit span task show a significant improvement on performance following training,  $F(1, 48) = 9.633$ ,  $p = .003$ ,  $\eta^2 = 0.167$ , with no significant effect of training group or interactions. Further analyses will be presented on the digit symbol task and self-ordered pointing task. Together, these data support recent findings on musical training and improved cognition, and indicate the causal role of training in this link. They also suggest that other training programs (such as dance education) may offer similar benefits.

## [2-15] On the determinants of listening time for novel musical excerpts

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One implicit measure of how much a listener likes a piece of music is how long they listen to it before choosing to listen to something else. Although the amount of time spent engaging with a stimulus is a common measure of preference or familiarity in infant studies, and was utilized decades ago in aesthetics research, the potential of this simple appetitive measure seems underutilized in music perception research. Across three studies, we sought to determine musical and psychological factors that influence the amount of time a person listens to a stimulus. Stimuli were polyphonic loops, consisting of 4 instrument parts, constructed from Apple Loops or composed *de novo*. Loop durations were 4–8 seconds, and participants were free to listen to each loop as long as they desired, up to a maximum of 2 minutes. Upon termination of each loop, participants rated how much they enjoyed the loops and endorsed reasons for choosing to stop listening to the loop and reasons for why they listened to each loop as long as they did. Across the 162 loops constructed for Study 1, all instruments entered synchronously and were heard the entire time. For Study 2, instrument entrances of 30 Study 1 loops with the longest, shortest, and intermediate listening times were staggered. For Study 3 we composed 40 core loops, and manipulated them further to (1) minimize harmonic variability, (2) minimize rhythmic variability, (3) introduce spatialization, or (4) change timbral characteristics. Overall, multiple regression and path analyses indicated that listening times were best predicted by increased variation in stimulus features and the desire/expectation for such variation, as well as by subjective enjoyment. Enjoyment was predicted by perceived groove, the urge to move, interest in the stimulus, and congruency with current mood.