

Validating a short test of musical style grouping.

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ABSTRACT

Background

Extremely short musical clips can cue correct genre schemas (Gjerdingen & Perrott, 2008) and also knowledge of particular artists and recordings (Krumhansl, 2010). The most probable cueing mechanism is based on timbre, as very little music-structural information is present in sub-second length clips even when timbral information content can be very high. There is evidence to suggest that such specific cueing may be enhanced by musical training (Shahin et al., 2008). It therefore seems plausible that the extent to which individuals acquire and are able to use timbre-based musical knowledge may also vary with the breadth and extent of their engagement with the many different styles of music available to modern listeners.

Aims

We aimed to create and optimise a short and implicit musical clip sorting task, which would be an ecologically valid test of musical perception skills necessary for discriminating between musical styles in a general Western population. We were also interested in comparing the performance of self-recruiting online and laboratory tested participants.

Method

26 laboratory and 91 online participants grouped sets of 16 short musical clips into four equal sized bins. They were told to group by similarity and 'genre' was not mentioned explicitly. Four representative stimulus songs were chosen from each of jazz, rock, pop and hip-hop. Two vocal-free regions were extracted from each song and 400ms and 800ms clips created from each. Each participant sorted two sets of stimuli, the second set always having a different clip duration and region from the first.

Results

Population parameter estimates from test-wise scores did not differ significantly between online and offline participants (variance: $p=.1$; mean: $p=.57$). Low item-wise scores ($M=1.14$, $SD=.95$, out of 3) suggest high task difficulty, with longer clips being significantly easier to pair ($p<.001$). The sorting task precluded strict item independence and caused Item Response Theory calibration - using Samejima's (1969) Graded Response Model - to be less effective for difficult pop and hip-hop items. Complete linkage agglomerative hierarchical clustering cluster analyses of pairwise clip distances from the sampled solutions showed a suitable four-

cluster solution by genre for 800ms clips but 400ms pop clips showed a high confusion rate with the other genres. One of the 800ms stimulus sets was chosen as the most useful test set based on the overall distribution of correct pairing scores.

Conclusions

An ecologically valid and compelling test of musical style grouping is presented, which can be delivered over the internet to standard web-browsers. Planned future research will ascertain which cognitive abilities are being tested and how the measured ability relates to self-reported musical sophistication as measured by the Goldsmiths Musical Sophistication Index, which the test was designed to accompany. Future test development will focus on expanding the stimulus set and recording explicit pairwise similarity judgements to allow itemwise measurement parameter fitting.

Keywords

Genre, Timbre, Musical Sophistication, Musical Perception, Musical Ability.

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