

Find your groove: a pilot study on the influences of beat salience and social connectedness on groove perception

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Abstract

Is beat salience an accurate way to measure groove? Does personal identification with the music affect groove ratings? Weigl (2016) lists 24 17-second clips from Rock/Pop/Electronic Dance Music genres in categories of high, medium, and low beat salience. To determine if beat salience influences groove perception, participants in my pilot study completed a Likert scale for each of Weigl's clips, ranging from "1 = no need to move" to "7 = dance party!"; the results suggest that this phrasing is an effective operationalized proxy for groove and beat salience. Participants also filled out social surveys to see if a propensity towards social connectedness would influence groove perception (GP). There was a weak correlation between GP and feeling connected to the musical environment. This connected feeling was correlated with prior emotional engagement with music. Self-construal as an independent or interdependent person did not have any correlation with GP; this result suggests that the intersection of musical and social elements in groove should focus on the musical environment, rather than self-construal elements.

KEYWORDS: *beat salience, groove perception, musical-social entrainment, self-construal.*

Introduction

Groove tends to elicit a desire to move through a combination of both musical elements and social elements (Senn et al., 2018). It has been defined as "crystallizations of collaborative expectancies in time" (Feld, 1988, p.74) and "the bodily experience of shared timing" (Doffman, 2013, p.62). As a type of "music-specific social entrainment" (Kim et al., 2019, p. 11), groove perception may rely on both musical perception and social elements. Many performance environments where groove can be observed involve many contributing factors that can complicate experimental control. In this pilot study, participants evaluated one element of musical groove, beat salience, alone in a sound attenuation booth; afterwards, participants also filled out surveys that investigate engagement tendencies in musical and social situations. This provided separate assessment of both musical perception and social tendencies as agents in groove perception.

Method

Twenty participants listened to randomized playlists of Weigl's (2016) dataset of 17 second excerpts from Rock/Pop/Electronic Dance Music (EDM) genres. These 24 stimuli fall equally into three categories of high, medium, and low beat salience. During the non-periodic stimuli after each musical stimulus, participants rated how much the music made them want to move using the following Likert scale: "On a scale of 1-7, how much did this music make you want to move?" where 1 = "no movement needed" and 7 = "dance party!" After completing the playlist, participants completed the following post-test surveys: Self-Construal Scale (SCS) that evaluates the participant's independent and interdependent tendencies in social situations (Singelis, 1994); Inclusion of Other in the Self (IOS) that shows seven pairs of increasingly overlapping circles (Aron et al., 1992), where other in this case means "experience with the musical environment in the booth"; and Goldsmith's Musical Sophistication Index (Gold-MSI) that assesses different elements of musical sophistication (Müllensiefen et al., 2013).

Results

Participants rated the music stimuli with higher beat salience as prompting more of a need to move, or groove. The mean of each stimulus's groove rating was calculated. The ratings were categorized into three grand means, with a maximum of 7.00, that represented each level of beat salience according to Weigl's dataset, see Figure 1. The high beat salience condition [music stimuli 1-8] had a grand mean of 3.948 (SD = 0.807), the medium beat salience condition [music stimuli 9-16] had a grand mean of 3.077 (SD = 0.681), and the low beat salience condition had a grand mean of 2.084 (SD = 0.727). This slight decrease in grand means as the beat salience decreases suggests that asking participants to rate the need to move may be an accurate proxy for assessing participant's perception of beat salience.



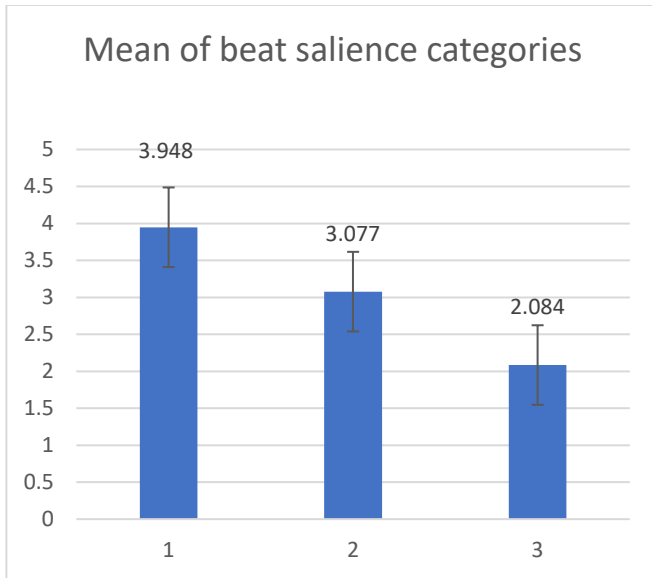


Figure 1: Means of groove ratings for each of Weigl’s (2016) beat salience categories

Each participant’s groove responses were averaged to create their Groove Perception (GP) score. The GP score indicates the participant’s propensity to want to move with the music. For example, if a participant had a high GP score, it indicates that the musical stimuli frequently prompted them to move. The GP scores were then correlated with the participant’s other scores from the post-test surveys using the Pearson correlation coefficient, r .

GP had a weak positive correlation with IOS ratings, $[r(18) = .46, p = .039]$, as shown in Figure 2. This indicates that individuals who tended to rate music high for groove also tended to feel more included in the overall musical experience.

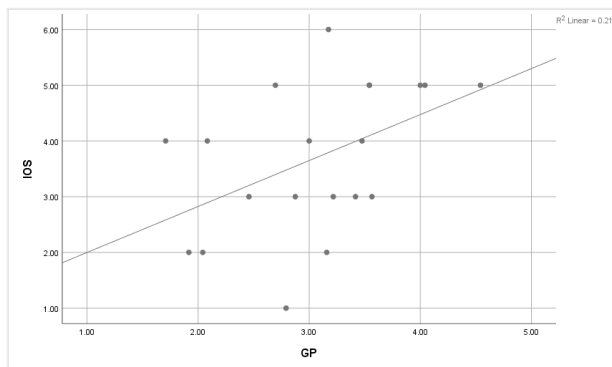


Figure 2: Groove Perception (GP) has a weak positive correlation with Inclusion of Other in Self (IOS) $[r(18) = .46, p = .039]$

IOS scores also had a weak positive correlation with the Emotional Engagement subscale of the Gold-MSI, $[r(18) = .46, p = .042]$, as shown in Figure 3. This suggests that individuals who felt most connected with the musical environment in the experiment also recalled feeling emotionally connected to music overall in previous experiences. There were no other significant correlations between IOS ratings and Gold-MSI scores.

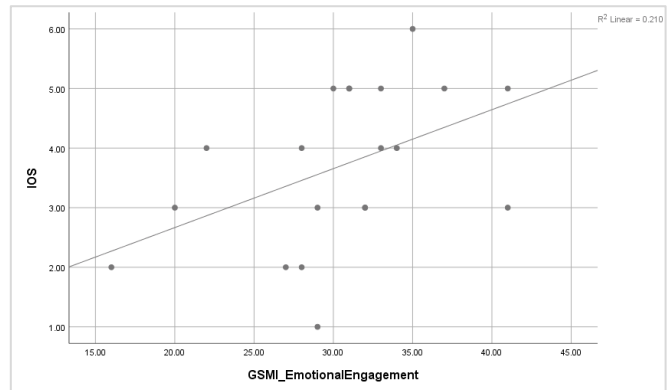


Figure 3: Inclusion of Other in Self (IOS) has a weak positive correlation with Gold-MSI’s Emotional Engagement subscale $[r(18) = .46, p = .042]$.

There were no statistically significant correlations between GP and either independent $[r(18) = .28, p = .230]$ or interdependent $[r(18) = -.29, p = .219]$ SCS scores. While it is fascinating that an independent self-construal seems to be positively correlated with groove perception while an interdependent self-construal seems to be negatively correlated with groove perception, neither are statistically significant. This suggests that self-construals of independent or interdependent approaches to social situations may not impact groove perception.

Discussion

The participant responses validated the phrasing of “need to move” as a proxy for beat salience in groove. While beat salience is not the only important musical element in groove, these results show that this description of a need to move produces similar results as assessing beat salience. It is possible that this embodied definition of beat salience may be more accessible to participants without musical training.

These results suggest that feeling connected to the musical environment may be correlated with groove perception. This correlation may indicate why

participants in intense musical environments have difficulty distinguishing the music from the environment: “[the experience at raves] melds into one cosmic soup and everything is one and you can’t separate the music or the moves or which came first” (Hutson, 2000, p. 42).

This connection to the musical environment may be connected by previous emotional engagement with music. Lee and Robbins’ (1995) article on social belongingness shows that emotional engagement is an important element for inclusion. Perhaps prior emotional engagement with music predicts the propensity for feeling included in a current musical environment. As there is not a significant correlation between GP ratings and Gold-MSI Emotional Engagement, it does not follow that emotional engagement will necessarily lead to more groove perception.

The lack of significant correlation of self-construal suggests that larger-scale social interactions may not be a fruitful path for groove perception. Rather, future research on groove perception should focus on prior emotional engagement with music along with current feelings of being connected to the environment.

Conclusion

Participant ratings of the music’s ability to prompt movement, an element of groove, were similar to previous assessments of beat salience. This suggests that “the need to move” is an appropriate operationalized proxy for beat salience in groove. Participant’s individual groove perception was linked with feeling included in the musical environment; this inclusion in the musical environment was linked with prior emotional engagement with music. Neither the independent nor the interdependent self-construal had any correlation with groove perception. The results of this pilot study suggest that future work on the intersection of musical and social elements at work in groove perception should focus on relationships to the musical environment rather than self-construal.

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