Proceedings of the Ninth Triennial Conference of the European Society for the Cognitive Sciences of Music, 17-22 August 2015, Manchester, UK
Ginsborg, J., Lamont, A., Phillips, M., Bramley, S. (Editors)

Rules of engagement: The structure of musical engagement and its personality underpinnings

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ABSTRACT

Background

There is clear anecdotal evidence for individual differences in musical engagement. For some listeners, music is like 'sonic wallpaper' (a feature that remains in the periphery in everyday life), while for others music is like a religion (their favourite musicians become their heroes and they go to music for an enlightened emotional or spiritual experience). People also vary in the style in which they engage with music. Some listen to music with deep intellectual concentration and little physical movement. Some become nostalgic and are moved to tears. Others move physically to music: they tap their foot, nod their head, dance, and in some cases jump up and down as seen in mosh pits at heavy metal concerts.

We identified six previous measures that examine individual differences in musical engagement or related constructs. These include the Uses of Music Inventory (15-item self-report) by Chamorro-Premuzic & Furnham (2007); Music Use Questionnaire (MUSE: 58 or 32-item self-report) by Chin & Rickard (2012); Barcelona Music Reward Questionnaire (BMRQ: 20-item self-report) by Mas-Herrero, et al. (2013); Goldsmiths Musical Sophistication Index (Gold-MSI: 38-item self-report) by Müllensiefen, Gingras, Musil, & Stewart (2014); Absorption in music scale (AIMS: 34-item self-report) by Sandstrom & Russo (2011); a 19-item uses of music scale that examines listener typology by Ter Bogt, Mulder, Raaijmakers, & Gabhainn (2010). Many of these report structures that contain four or five factors, and quite a few overlap with each other. There appears to be convergence on an a) emotion-based component (present in five of the six studies); b) cognitive-based component (present in three of the studies); c) physical-based component (present in two of the studies); d) social-based component (present in three of the studies); e) performance-based component (present in two of the studies); and f) consumption-based component that refers to the quantity of engagement, and whether music is in the foreground or background.

Though there is convergence, these common components are fragmented across studies. That is, none of the studies report all of the factors simultaneously. For example, Chamarro-Premuzic & Furnham (2007), and Müllensiefen, Gingras, Musil, & Stewart (2014) identified emotion- and cognitive-based components, but not social- or physical-based components; Ter Bogt, Mulder, Raaijmakers, & Gabhainn (2010) identified social- and emotion-based components, but not physical- or cognitive-based components; and Mas-Herrero, Marco-Pallares, Lorenzo-Seva, Zatorre, & Rodriguez-Fornells (2013) identified emotion-, social-, and physical-based components, but not a cognitive-based component.

The cause of this fragmentation is not only variation in scope, but also differences in the conceptualization of engagement. For example, some of these measures include items that assess both engagement during listening and performance. However, the processes involved in both listening and performance are vastly different, and it would be more beneficial if the two are studied independently of each other. Indeed, research on other topics has adopted this approach, for example in the study of strong experiences of music (Lamont, 2011; 2012).

To address these issues, we have developed a novel self-report measure of individual differences in musical engagement that concentrates solely on the processes present during musical listening. Further, we investigate the underlying structure of musical engagement and explore its links to a musical preferences and personality.

Aims

The aims of this study were to:

a) develop a measure of musical engagement that examines individual differences during music-listening;

b) examine its structure, reliability, and generalizability across samples;

c) test its test-retest reliability and convergent validity;

d) examine its correlates with musical preferences and personality.

Method

234 participants from four geographic regions (US, UK, Middle East, and Asia: mean per region = 58.5) provided open-ended responses about their everyday and strongest musical experiences. A thematic analysis was used to generate 352 items. Several pilot studies were conducted to remove redundant items; items that were too difficult to answer; items that were unclear; and items that did not describe aspects of everyday musical engagement (e.g. crying). This resulted in 23 items that remained for the final measure: the Musical Engagement Test (MET).

Three samples completed the 23-item MET (*N*s = 1,012, 1,070, and 146). Samples 1 and 2 were from the United States and Sample 3 was predominately from Europe. A subsample of 310 participants from S1 completed the MET for a second time approximately three weeks after the initial testing session. A subsample of 401 participants from S1 completed additional measures of musical engagement or related constructs to test for convergent validity. Specifically, these participants completed the a) 24-item musical engagement scale of the MUSE (Chin, & Rickard, 2012), b) 19-item scale measuring music typology

(Ter Bogt, Mulder, Raaijmakers, & Gabhainn, 2010), c) 20-item Barcelona Musical Reward Questionnaire (BMRQ: Mas-Herrero, et al., 2013), and d) 34-item Absorption in Music Scale (AIMS: Sandstorm & Russo, 2013).

Further, S1 and S3 completed the Short Test of Musical Preferences (STOMP: Rentfrow & Gosling, 2003), which is a genre-based self-report measure and S2 indicated their preferential reactions to each of 25 musical excerpts that have been used in previous research to assess musical preferences as conceptualized by the MUSIC Model (Rentfrow et al., 2011; 2012).

In terms of personality, all participants from S1 completed the Ten Item Personality Inventory (TIPI: Gosling, Rentfrow, & Swann, 2003); 343 participants from S2 completed the 120-item IPIP proxy of the NEO-PI-R (Johnson, 2014). 378 participants from S2 completed the 44-item Big Five Inventory (BFI: John, Donahue, & Kentle, 1999). 349 participants from S2 completed the 10-item BFI-short (Rammstedt & John, 2007).

Results

The structure of musical engagement. Findings across samples revealed a robust five-factor structure underlying musical engagement. These engagement factors are interpreted as: **Cognitive**, defined by intellectual processes related to perceiving sonic and surficial features in music; **Affective**, defined by emotional processes involved with cathartic and expressive engagement; **Physical**, defined by physiological processes related to movement, dance, and energetic responses to music; **Narrative**, defined by a perceptual focus on the symbolism, lyrical, and story-like features in music; and **Social**, defined by group bonding and identification processes with the musician(s) and fellow music listeners.

Results from test re-test sessions revealed high reliability with *r*s = .80, .75, .73, .74, and .75, for Cognitive, Narrative, Affective, Physical, and Social, respectively. Scale scores were used to examine between factor correlations between measurements. We only make note of correlations where $r = .50$ or above. Specifically, the Cognitive factor of the MET was positively correlated with scores on the AIMS ($r = .52$), and the Engaged Production factor of the M-USE ($r = .56$). The Affective factor of the MET factor was positively correlated with the Mood Enhancement and Coping dimensions of the music typology questionnaire (*r*s = .55 and .64), the Cognitive and Mood Regulation dimension of the M-USE ($r = .62$), and the Emotion Evocation and Mood Regulation dimensions of the BMRQ (*rs* = .54 and .54). The Physical dimension of the MET was positively correlated with the Dance dimension of the M-USE ($r = .63$) and the Sensory Motor dimension of the BMRQ ($r = .72$). The Narrative dimension of the MET was positively correlated with the Identity dimension of the music typology questionnaire ($r = .59$). The Social dimension of the MET was positively correlated with the Identity dimension of the music typology questionnaire ($r = .59$) and the Social Reward dimension of the BMRQ ($r = .59$).

Correlates with musical preferences. Cognitive Engagement was positively linked to the Sophisticated music-preference dimension and negatively linked to the Unpretentious and Contemporary dimensions of the MUSIC model. These trends were replicated within the genre-based measure: Cognitive engagement was positively correlated with the *Reflective* & *Complex* dimension ($r = .30$). Affective engagement was positively linked to the Intense music-preference dimension. Physical engagement was positively linked to the Contemporary dimension and negatively linked to the Intense and Sophisticated dimensions. Similar trends were observed with from the genre-based measure: physical engagement was positively correlated with the *Energetic* & *Rhythmic* dimension ($r = .27$). Narrative engagement was positively linked to the Mellow and Unpretentious dimensions of the MUSIC model. These trends were also observed within the genre-based measure: narrative engagement was positively correlated with the *Upbeat* & *Conventional* dimension ($r = .10$). Finally, social engagement was positively linked to the Intense dimension and negatively linked to the Mellow and Sophisticated dimensions. These same trends were also observed in the genre-based measure: social engagement was positively linked to *Intense* & *Rebellious* dimension ($r = .17$) and negatively linked to *Upbeat* & *Conventional* dimension ($r = -.09$).

Correlates with personality. Here we only make note if there were significant findings in at least three of the four samples. Cognitive engagement was most highly correlated (positively) with Openness and also negatively linked to Neuroticism. Affective engagement was positively linked to Neuroticism and Openness. Physical engagement was most highly correlated (positively) with Extraversion, and was also positively correlated with Openness and Agreeableness. Narrative engagement was positively linked to Openness. And Social engagement was positively linked to both Extraversion and Agreeableness.

Conclusions

The MET is a new measure that overcomes limitations by previous research and which can be useful for researchers investigating music-related phenomena. Results reveal a robust five-factor structure underlying musical engagement that is replicable and generalizable across geographic regions. The MET shows strong reliability and convergent validity across measures. Notably, it is the first musical engagement measure that captures Cognitive, Affective, Physical, and Social dimensions with a single measure. Further, the MET revealed a new dimension that has been underrepresented in the literature: narrative engagement. Importantly, we showed that musical engagement is linked to musical preferences and personality across samples, measurements, and methods.

Keywords

Musical Engagement, Preferences, Personality.

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APPENDIX

Musical Engagement Test (MET)

Below is a list of statements that may or may not describe your **music listening** experience. Please read each item very carefully, and indicate how characteristic each statement is of your musical engagement.

1 = Not at all characteristic
2 =
3 =
4 = Neutral
5 =
6 =
7 = Extremely characteristic

1.____Music makes me want to dance.
2.____Music magnifies my emotions.
3.____I feel a deep connection with my favorite musicians.
4.____When listening to live music, I feel in-tune with the musicians.
5.____When listening to music, my attention is often drawn to just a single instrument or section in the band or orchestra.
6.____Music pumps me up.
7.____When listening to music, I try to understand the underlying meaning of the lyrics or sounds.
8.____I am able to vent my frustrations through music.
9.____I focus on the instrumental or musical techniques that the musician or band is using.
10.____Music creates a story or narrative in my mind.
11.____My attention is drawn to the story or messages that are unfolding in the music.
12.____When listening to music, I try to deconstruct the different elements of the song or composition.
13.____When listening to music, I focus on the lyrics or sounds to understand the emotional content.
14.____Music makes me want to jump up and down.
15.____Music helps me to emotionally heal.
16.____I am drawn to the symbolism expressed in music.
17.____I can overcome painful emotions when I listen to music.
18.____I identify with the musicians that I listen to.
19.____When listening to music, I tend to concentrate on the melodies and counter-melodies.
20.____The rhythm in music gets my body moving.
21.____When listening to music, I pay attention to the blends of musical instruments mixing together.
22.____At a live concert I feel as if the entire audience and I are one.
23.____Music evokes a deep surge of emotion in me.

Scoring for the five musical engagement dimensions:

Cognitive: 5, 9, 12, 19, 21
Affective: 2, 8, 15, 17, 23
Physical: 1, 6, 14, 20
Narrative: 7, 10, 11, 13, 16
Social: 3, 4, 18, 22