A New Approach For Understanding Musicality

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HOW MUSICAL ARE YOU?

BBC
http://bbc.in/euY8lk

Guardian.co.uk

Telegraph.co.uk
"I used to go to concerts – it was the thing to do, but I didn’t enjoy it really. My husband asked me what music I liked – I said “loud music”. I married him and he played Mozart. I said “turn off that awful noise”. We went to operas and I slept through several of them – he really nagged me. We got divorced."

“Music, I regret to say, affects me merely as an arbitrary succession of more or less irritating sounds. Under certain emotional circumstances I can stand the spasms of a rich violin, but the concert piano and all wind instruments bore me in small doses and flay me in larger ones.”

The Goldsmiths Musical Sophistication Index (Gold-MSI)

- Measure musical expertise on various dimensions:
  - Perception and production abilities
  - Musical training
  - Emotional use
  - Bodily movement
  - Social creativity
  - Openness
  - Importance in life

- Independent of:
  - Musical style and musical preferences
  - Musical literacy (doesn’t discriminate against non-musicians)
The Goldsmiths Musical Sophistication Index (Gold-MSI)

Components

- Self-report questionnaire
- Objective music tests, testing
  - Melodic memory
  - Rhythm production skills
  - Rhythm perception skills
  - Timbre discrimination skills
Example: rhythm perception

Based on:
The beat alignment test (Iversen & Patel, 2008)

On which track were the beeps in time with the music?

and in this example?
Example: Genre similarity

Based on:
Plink! - Identification of pop songs after a few hundred milliseconds (Krumhansl, 2010)
Turn the dial - Identification of musical genres with bursts of music (Perrot & Gjerdigen, 2008)

Which of these soundclips is the odd one out?
Measuring the musical nation
Measuring the musical nation

Collaborating with BBC LabUK

- Launch Jan 2011: https://www.bbc.co.uk/labuk/experiments/musicality/
- 160,000 collected datasets
Questions to answer:

- What is the musical landscape of an entire nation?
- Which aspects of musicality are shaped by practice on an instrument which ones are independent?
- What else is musicality related to?
Very preliminary results …
personality and musicality

Background: Personality and music:

- musical preferences (Rentfrow & Gosling, 2003, 2006)
- listening styles (Chamorro-Premuzic & Furnham, 2007)
- personality traits of accomplished performers
  - the bold introvert (Kemp, 1982): high on independence, sensitivity, state anxiety, psychological androgyny
  - Differences between instrumental groups (e.g. strings vs. brass; singers are different; Davies, 1978; Kemp, 1981; Builione & Lipton, 1983; Lipton, 1987)
  - No unique set of personality characteristics? (Woody, 1999)
    - Compare to other high achievers
    - Take socio-economic context into account
    - Take level of musicianship into account

- What about musical abilities amateur musicians?
Preliminary results on musicality and personality

Survey study: Personality and facets of musicality

- **Sample:**
  - 224 adults (mean age 25yrs), mainly students
  - 45% don’t play instrument
  - Most common instruments: piano, voice, guitar
  - Mainly Rock/Pop music listeners
  - Scales: Gold-MSI, short Big 5 inventory (Gosling & Rentfrow, 2008), Extraversion scale (Eysenck, 1979)
## Preliminary results on musicality and personality

Correlations between personality variables and musical factors

<table>
<thead>
<tr>
<th></th>
<th>Importance</th>
<th>Perception/Production</th>
<th>Musical Training</th>
<th>Emotional Functions</th>
<th>Bodily Movement</th>
<th>Social Creativity</th>
<th>Musical Openness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>.164*</td>
<td>.195**</td>
<td>.271**</td>
<td>.172*</td>
<td>.385**</td>
<td>.32**</td>
<td>.29**</td>
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<tr>
<td>Conscientiousness</td>
<td>-.088</td>
<td>-.106</td>
<td>-.123</td>
<td>-.142*</td>
<td>-.092</td>
<td>-.17*</td>
<td>-.051</td>
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<tr>
<td>Neuroticism / Emotional Stability</td>
<td>.075</td>
<td>.184**</td>
<td>.129</td>
<td>.015</td>
<td>.124</td>
<td>.139</td>
<td>.095</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.124</td>
<td>.195**</td>
<td>.1</td>
<td>.132*</td>
<td>.158*</td>
<td>.19*</td>
<td>.156*</td>
</tr>
<tr>
<td>Openness</td>
<td>.395**</td>
<td>.381**</td>
<td>.293**</td>
<td>.394**</td>
<td>.275**</td>
<td>.391**</td>
<td>.384**</td>
</tr>
</tbody>
</table>

n=222
Level of musicianship

Gold-MSI subscale 3: Musical Training

- Mean no yrs of formal music training: 3.12 (SD: 2.26)
- Mean no hrs/day of musical practice (during peak period): 2.61 (SD: 1.79)
- Mean no years of regular practice: 3.21 (SD: 2.37)
- ...
- => 9 Questions: Scale from 9 – 63
Distribution of musical training scores

F3Musicaltraining

Mean = 27.8
Std. Dev. = 13.537
N = 222
What’s makes people practice music?

Significant personality traits predicting formal musical training:

<table>
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<tr>
<th>Trait</th>
<th>Standardised β</th>
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</thead>
<tbody>
<tr>
<td>Openness</td>
<td>.217</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.214</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.125</td>
</tr>
</tbody>
</table>
What’s makes people practice music?

Predicting formal musical training from 3 personality traits (R2=.137):

Scatterplot

Dependent Variable: F3Musicaltraining

Regression Standardized Predicted Value
Open questions

- Does music change personality or does personality make you engage with music?
- How does music listening shape your personality?
- Does it matter what kind of music you engage with?

The wider picture

- Self-reported questionnaire and objective tests: *Do you know what you are capable of?*
- Musical expertise and other cognitive skills: *Does listening to music facilitate other skills?*
- The musical mind and the musical brain: *Does using music change your brain?*