Musical Preferences Linked to Empathizing-Systemizing Cognitive Styles

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Introduction

Why do we like the music we do? Research has shown that musical preferences and personality are linked, however, little is known about other influences on preferences such as cognitive and affective abilities. We addressed this gap by investigating how musical preferences are linked to empathizing-systemizing cognitive styles (i.e. 'brain types').

This project had two aims:

1) To examine how empathy levels are linked to musical preferences across multiple samples.

2) To replicate and extend these findings by examining how empathizing-systemizing cognitive styles are linked to musical preferences for
   a) broad musical styles
   b) fine-grained psychological and sonic attributes

Method and Measures

Five samples indicated their liking for musical excerpts in varied stimulus sets. All samples completed the Empathy Quotient (EQ) and sample 5 also completed the Systemizing Quotient (SQ-R), which allowed for calculations about cognitive style to be made. Big Five scores were also available for samples 1 to 4 (20-100 item IPIP proxy version of the NEO-PI-R).

Table 1. Summary of sample characteristics.

	S1	S2	S3	S4	S5
N	2,178	891	747	320	353
Recruitment	Facebook	Facebook	Facebook	Facebook	MTurk
Excerpt Type	Mixed Genres	Mixed Genres	Rock Music	Jazz Music	Mixed Genres
# of Excerpts	50	25	50	50	25
Measures	EQ	EQ	EQ	EQ	EQ, SQ-R
% Female	60%	63%	60%	57%	62%
Mean Age	24.8	23.71	25.31	24.63	31.1

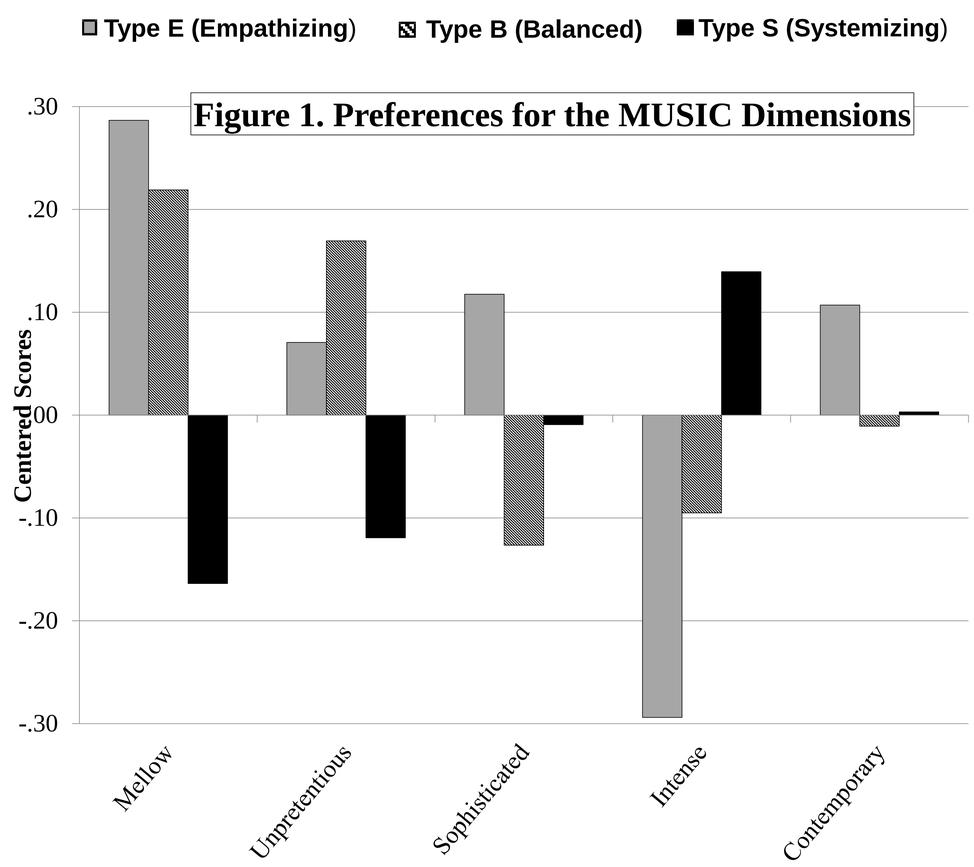
Results: Empathy

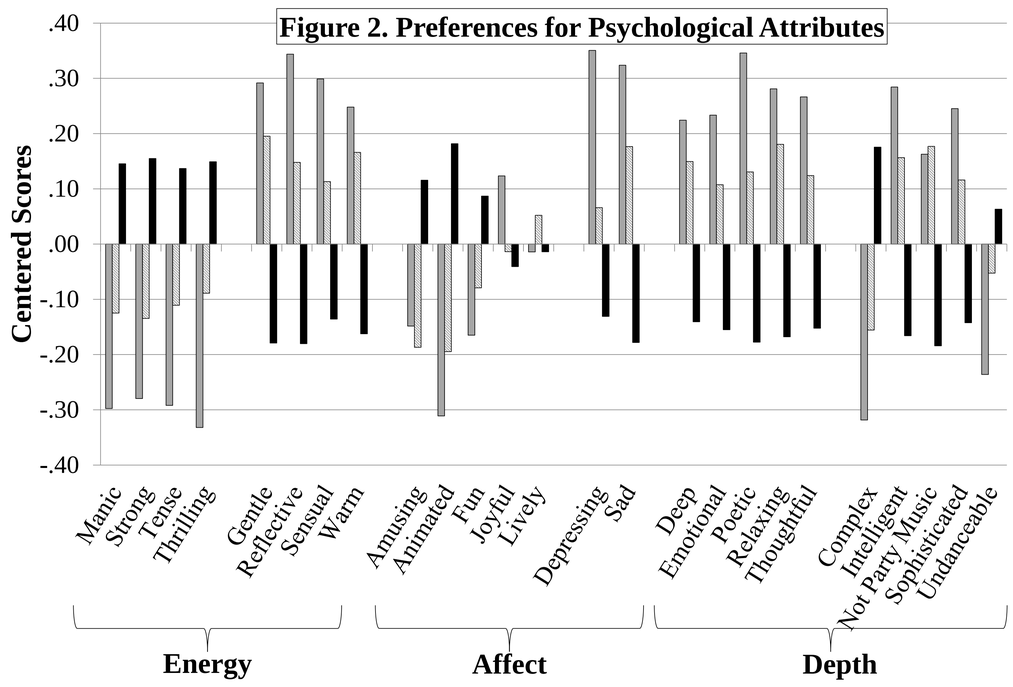
Correlations between empathy and musical preferences across the five samples show that empathy is positively linked to Mellow and Contemporary music-preference dimensions and negatively linked to Intense music-preference dimension.

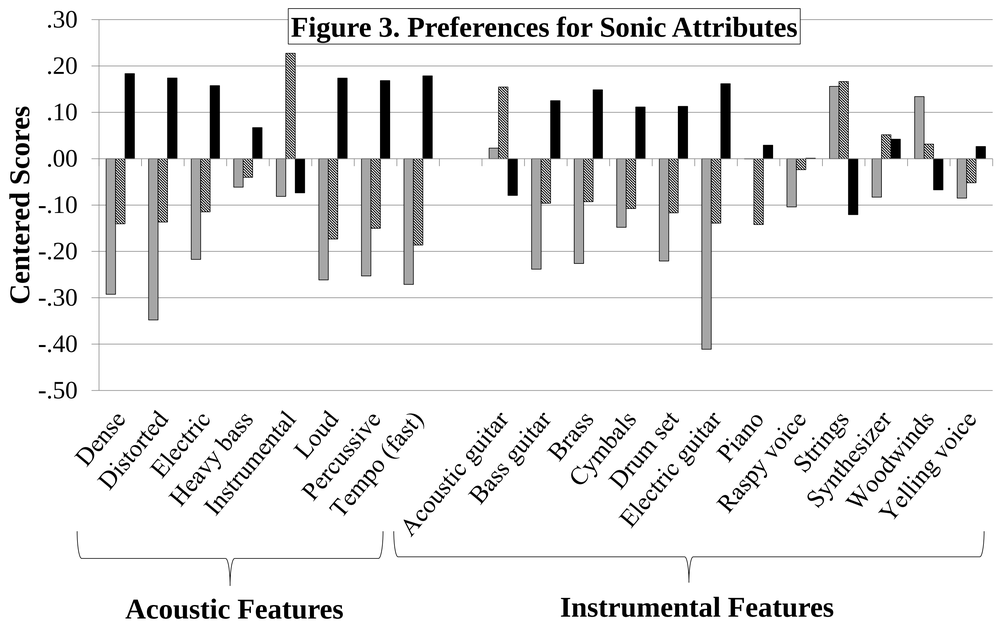
Table 2. Correlations between musical preferences and EQ scores.

	Empathy				
	S1 (Mixed)	**S2** (Mixed)	**S3** (Rock)	**S4** (Jazz)	**S5** (Mixed)
Mellow	.**09****	.**11****	.**14****	.06	.**15****
Unpretentious	.**08****	.04	.04	.01	.**13***
Sophisticated	.03	.01	.00	-.**14***	.00
Intense	-.**10****	-.**11****	-.**13****	-.08	-.10
Contemporary	.**04***	.**09****	.**13****	.**11***	-.06

These results remain consistent when controlling for sex differences and scores on the Big Five personality domains. Further, multiple regression analyses revealed that EQ scores accounted for more unique variance in preferences than the Big Five for the Mellow and Intense dimensions (see handout).







Results: Cognitive Styles

Broad Styles (MUSIC dimensions):
There was a significant effect of cognitive style on preferences for the Mellow ($F(2, 341) = 7.73$ $p < .01$), and Intense ($F(2, 341) = 4.80$ $p < .01$) dimensions (Fig. 1).

Psychological Attributes:
There was a significant effect of cognitive style on preferences for all but three of the psychological attributes (i.e., joyful, fun, and undanceable). Of those for which there was a significant effect, effect sizes ranged from ($F(2, 341) = 3.68$, $p < .05$) (for amusing) to ($F(2, 341) = 8.11$, $p < .001$) (for animated) (Fig. 2)

Sonic Attributes:
There was a significant effect of cognitive style on preferences for 13 of the 20 sonic attributes (i.e., all except for heavy bass, acoustic guitar, cymbals, piano, raspy voice, woodwinds, and yelling voice). Of those for which there was a significant effect, effect sizes ranged from $F(2, 341) = 3.52$, $p < .05$ (strings), to $F(2, 341) = 8.76$, $p < .01$ (electric guitar). (Fig. 3).

Discussion

Those who are type E (bias towards empathizing) preferred music on the Mellow dimension (R&B/soul, adult contemporary, soft rock genres) compared to type S (bias towards systemizing) who preferred music on the Intense dimension (punk, heavy metal, and hard rock). Analyses of fine-grained psychological and sonic attributes in the music revealed that type E individuals preferred music that featured low energy (gentle, warm, and sensual attributes), negative affect (depressing and sad), and emotional depth (poetic, relaxing, and thoughtful), while type S preferred music that featured high energy (strong, tense, and thrilling), and aspects of positive affect (animated) and cerebral depth (complexity). Type E preferred music with strings, while type S preferred music that was dense, distorted, loud, percussive, fast, and that featured brass and electric guitar.

Future Directions

- Research has shown there is a neurological basis to empathizing-systemizing cognitive styles (Auyeung et al., 2009; Baron-Cohen et al., 2011; Lai, et al., 2012) . Since musical preferences and cognitive styles are linked, is there a neurological basis to musical preferences?
- What musical styles and attributes can increase empathy?
- What is the nature of musical preferences in autism (largely type S or extreme type S)?

Selected References

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