The relationships between dance and musical abilities and sophistication as measured by the Goldsmiths Dance Sophistication Index (DSI) and Goldsmiths Musical Sophistication Index (MSI)

Abstract:

This study investigates the relationships between dance and musical abilities and sophistication as measured by the Goldsmiths Dance Sophistication Index (DSI) and Goldsmiths Musical Sophistication Index (MSI) with Individual musical preferences assessed through the Short Test of Musical Preferences (STOMP). A total of 36 participants from two Master's programs of Music Mind and Brain and Psychology of Arts, Neuroaesthetics and Creativity participated in the study. They were asked to complete an online questionnaire which collected the data of their demographic information and responses to the analysis questions from the Gold DSI , Gold MSI and STOMP surveys. Correlational analyses were conducted to explore if there were potential associations between the sophistication indices and musical genre-related preferences.

The assumptions of association between them revealed no significant correlation between DSI and STOMP scores and between MSI and STOMP scores when statistical tests were run on the subsequent scores collected from the participants.This lack of correlation suggests that individuals with higher dance or musical sophistications did not exhibit specific genre related preferences. The genre neutral nature of these indices enhances the strength of the tests and applicability across various populations.

INTRODUCTION

The seashore test paved the way towards testing musical abilities and preferences by Carl Seashore in 1919. Following this, many other tests were published for similar tests in listening abilities, such as the wing test, the Bentley test, Gordan's measure of Audiation, and the musical ear test. However, the traditional tests often focus on specific musical skills while neglecting the broader spectrum of musical engagement. In response to the previous limited testing methods, Mullensiefen et al.(2104) developed the Goldsmiths Musical Sophistication Index (Gold- MSI). This index is a comprehensive tool designed to assess various musical skills and attitudes. It not only encompasses traditional aspects such as melodic and rhythmic memory but also considers skills like the ability to communicate about music and manipulate emotional states. This wholesome approach is important not only in consideration of the limitations of previous tests which aspects primarily Western musical exposure, but also to check the psychological principles such as perceptual abilities and emotions as studied in the MSI. To underscore the need for including psychological

principles in a broad inclusive index, Krumhansl CL et al., 2000, conducted research that gave evidence in favour of psychological principles underlying melody formation. The relative significance of these varied across musical styles indicated in the studies involving the listeners and the application Self-Organizing map (SOM) model. This also emphasises the need for comprehensive indexes such as the MSI to be independent of musical styles or genres in its testing methodologies.

Similar to the MSI, the Goldsmiths Dance Sophistication Index (GOLD-DSI) was introduced by Rose et al. (2020), to address the need for a psychometric tool to measure individual differences in dance experience. Much like music, Dance has also gained a significant level of scientific interest spanning empirical aesthetics, social and motor cognition, and interventions for neurodegenerative and neurodevelopmental disorders. The Gold MSI aims to provide a standardized and continuous assessment of dance experience which covers both participatory and observational aspects.

This study seeks to investigate the presumed genre neutrality of the GOLD MSI and DSI by comparing scores on the Short Test Of Musical Preferences (STOMP) with the averages of the scores on these sophistication indices. The STOMP was developed by Rentfrow and Gosling (2003) and it is a standard measurement instrument for musical genre preferences. This therefore allows for the examination of how musical and dance sophistication relate to specific musical preferences.

Understanding the independence of musical and dance sophistication from musical preferences is crucial for validating these indices as comprehensive measures of testing. If the individual test scores show no correlation across various genres of musical styles it would affirm the neutrality and inclusivity of these indices.

METHOD

DESIGN

The design involves a cross-sectional comparative study. The independent variables of this study are the scores from the Gold Dance Sophistication Index (DSI) and the Gold Music Sophistication Index (MSI). The dependent variable in this design methodology is the scores from STOMP. The analysis approach is correlational and comparative analysis.

PARTICIPATION

For the study, a total of 36 participants from the Master’s program participated. Out of the 36 participants, 15 participants belonged to the Psychology of Arts, Neuroaesthetics and Creativity (PANC) program while the rest of the participants were from the Music Mind and Brain program. Further, their demographic information pertaining to age, gender and an account of their hearing impairment was also collected for subsequent analysis.

MATERIALS

All the participants were asked to complete the Gold-MSI AND Gold-DSI questionnaires to measure their dance and music sophistication index from this web link - https://shiny.gold-msi.org/rs_lab1/?language=en&p_id=dc4fbf9d9c8a35e2d958569b30d817dff6260e97a9534068b214f27872477ded and were asked to submit honest responses for the same. The Gold-MSI comprised of 41 questions, of which 9 measure Active engagement, 9 measure perceptual abilities, 7 measure musical Training, 6 measure emotions, and lastly 10 measure general musical sophistication. while the Gold-DSI comprises 26 questions of which 20 items relate to 1 general factor that captures experience in dance participation. This includes 4 secondary factors: body awareness, urge to dance, social dancing and dance training. The rest of the 6 questions measure the experience in dance observation. The STOMP scales consisted of 14 scales in total of which the 4 sub-scores were grouped for factors: Reflective & Complex, Intense & Rebellious, upbeat & conventional, Energetic & Rhythmic.

PROCEDURE

Data was collected from the answers participants were encouraged to answer from the online questionnaire. All the data for individual scores was saved in one master file from the DSI, MSI and STOMP scores. The collected data was then scored. The scoring for Gold-MSI data was done on the app accessed through the app provided on shiny.gold-msi.org/gmsiscorer. Gold-DSI and STOMP were scored manually based on the guidelines provided in the paper. The scores for the negatively phrased questions were reversed for some scores on the Gold-DSI data.

Correlational tests were performed between Gold MSI, Gold DSI and Stomp scores to explore their relationship. Before the correlational tests, the normality distribution and outliers for each score were considered.

RESULTS: 250 WORDS ABOUT

The results show a significant difference between the 2 groups of participants from whom the data was collected. Specifically with respect to Dance training and General Musical Sophistication. The normality test for DSI scores suggested a steep Shapiro wilk p value of $p<0.001$ for Dance training. The correlation matrix was run between DSI AND STOMP, MSI and STOMP and DSI and MSI. There are a few correlations between DSI and MSI scores however, the correlations between DSI and STOMP and MSI and STOMP scores are negligible. They are largely not correlated as seen in the tables below as p values are >.05.

Table 1 : This Table shows significant difference in the descriptives between the 2 groups in the G-DSI scores

Descriptives

	enrollment	Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience
N	0	16	16	16	16	16
	1	19	19	19	19	19
Missing	0	0	0	0	0	0
	1	0	0	0	0	0
Mean	0	4.50	3.90	4.39	2.60	3.64
	1	4.26	4.44	4.64	2.37	3.89
Std. error mean	0	0.298	0.278	0.302	0.469	0.300
	1	0.316	0.311	0.270	0.392	0.267
Median	0	4.67	3.92	4.10	1.83	3.50
	1	4.17	4.50	5.00	1.67	3.67
Standard deviation	0	1.19	1.11	1.21	1.87	1.20
	1	1.38	1.36	1.17	1.71	1.16
Minimum	0	2.50	2.33	1.40	1.00	1.67
	1	1.00	1.17	3.00	1.00	2.33
Maximum	0	7.00	6.33	6.20	6.33	6.50
	1	6.67	6.33	6.60	6.00	6.17
Skewness	0	-0.0213	0.357	-0.656	0.941	0.706
	1	-0.279	-0.674	0.0244	1.10	0.489

Table 1 : This Table shows significant difference in the descriptives between the 2 groups in the G-DSI scores

Descriptives

	enrollment	Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience
Std. error skewness	0	0.564	0.564	0.564	0.564	0.564
	1	0.524	0.524	0.524	0.524	0.524
Kurtosis	0	0.209	-0.0578	1.07	-0.591	0.918
	1	0.655	0.476	-1.34	-0.129	-0.944
Std. error kurtosis	0	1.09	1.09	1.09	1.09	1.09
	1	1.01	1.01	1.01	1.01	1.01
Shapiro-Wilk W	0	0.950	0.957	0.917	0.819	0.961
	1	0.961	0.957	0.924	0.793	0.926
Shapiro-Wilk p	0	0.495	0.608	0.148	0.005	0.674
	1	0.599	0.523	0.135	< .001	0.144

Table 2: This table shows the descriptives of the overall GDSI scores

Descriptives

	Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience
N	35	35	35	35	35
Missing	0	0	0	0	0
Mean	4.37	4.19	4.53	2.48	3.77

Descriptives

	Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience
Std. error mean	0.217	0.213	0.199	0.298	0.198
Median	4.50	4.33	4.60	1.67	3.67
Standard deviation	1.28	1.26	1.18	1.76	1.17
Minimum	1.00	1.17	1.40	1.00	1.67
Maximum	7.00	6.33	6.60	6.33	6.50
Skewness	-0.223	-0.194	-0.284	0.985	0.546
Std. error skewness	0.398	0.398	0.398	0.398	0.398
Kurtosis	0.409	-0.248	-0.198	-0.465	-0.291
Std. error kurtosis	0.778	0.778	0.778	0.778	0.778
Shapiro-Wilk W	0.976	0.976	0.959	0.801	0.956
Shapiro-Wilk p	0.634	0.611	0.217	< .001	0.169

Table 3 : This table shows the descriptives of the 2 groups for G-MSI Scores

Descriptives

	enrollment	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
N	0	16	16	16	16	16	16
	1	19	19	19	19	19	19
Missing	0	0	0	0	0	0	0
	1	0	0	0	0	0	0
Mean	0	5.26	5.76	5.56	4.88	5.75	5.30
	1	4.21	4.87	2.63	3.55	5.43	3.61
Std. error mean	0	0.148	0.162	0.177	0.134	0.143	0.128
	1	0.205	0.150	0.279	0.229	0.145	0.174
Median	0	5.28	5.61	5.57	4.93	5.75	5.36
	1	4.00	4.67	2.43	3.57	5.50	3.44
Standard deviation	0	0.593	0.649	0.707	0.537	0.571	0.512
	1	0.893	0.654	1.22	0.998	0.634	0.760
Minimum	0	3.78	4.56	3.86	3.71	4.67	4.17
	1	1.89	3.67	1.00	2.00	4.00	2.22
Maximum	0	6.11	7.00	6.43	5.57	6.67	6.06

Descriptives

	enrollment	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	1	5.78	6.22	5.14	5.71	6.50	5.39
Skewness	0	-1.20	0.214	-0.721	-0.689	-0.318	-0.596
	1	-0.626	0.517	0.591	0.295	-0.684	0.440
Std. error skewness	0	0.564	0.564	0.564	0.564	0.564	0.564
	1	0.524	0.524	0.524	0.524	0.524	0.524
Kurtosis	0	1.81	-0.198	0.743	0.00490	-0.479	-0.0114
	1	1.31	-0.0928	-0.513	-0.136	0.534	0.794
Std. error kurtosis	0	1.09	1.09	1.09	1.09	1.09	1.09
	1	1.01	1.01	1.01	1.01	1.01	1.01
Shapiro-Wilk W	0	0.902	0.975	0.925	0.920	0.977	0.965
	1	0.957	0.939	0.944	0.957	0.943	0.962

Descriptives

	enrollment	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
Shapiro-Wilk p	0	0.088	0.911	0.204	0.168	0.932	0.747
	1	0.506	0.256	0.308	0.522	0.293	0.610

Table 4 : This table shows the overall descriptives of the GMSI scores

Descriptives

	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
N	35	35	35	35	35	35
Missing	0	0	0	0	0	0
Mean	4.69	5.28	3.97	4.16	5.58	4.38
Std. error mean	0.157	0.132	0.302	0.178	0.105	0.181
Median	5.00	5.22	4.14	4.14	5.67	4.39
Standard deviation	0.928	0.783	1.79	1.05	0.619	1.07

Descriptives

	ActiveEngagement_mean	PerceptualAbilities_mean	Musical Training_mean	Singing Abilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
Minimum	1.89	3.67	1.00	2.00	4.00	2.22
Maximum	6.11	7.00	6.43	5.71	6.67	6.06
Skewness	-0.832	0.220	-0.212	-0.490	-0.552	-0.193
Std. error skewness	0.398	0.398	0.398	0.398	0.398	0.398
Kurtosis	0.800	-0.492	-1.40	-0.651	0.294	-1.08
Std. error kurtosis	0.778	0.778	0.778	0.778	0.778	0.778
Shapiro-WilkW	0.941	0.977	0.918	0.943	0.968	0.950
Shapiro-Wilkp	0.061	0.666	0.012	0.069	0.391	0.113

Table 5 : This Table shows the correlation matrix of the DSI and STOMP Scores

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
Body_Awareness	Pearson's r	—							
	df	—							
	p-value	—							
	Spearman's rho	—							
	df	—							
	p-value	—							
Social_Dancing	Pearson's r	0.422 *	—						
	df	33	—						
	p-value	0.012	—						
	Spearman's rho	0.457 **	—						
	df	33	—						
	p-value	0.006	—						
Urge_to_Dance	Pearson's r	0.557 ***	0.705 ***	—					

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	df	33	33	—					
	p-value	< .001	< .001	—					
	Spearman's rho	0.557 ***	0.687 ***	—					
	df	33	33	—					
	p-value	< .001	< .001	—					
Observational_Dance_Experience	Pearson's r	0.585 ***	0.456 *	0.665 *	—				
	df	33	33	33	—				
	p-value	< .001	0.006	< .001	—				
	Spearman's rho	0.491 *	0.448 *	0.670 *	—				
	df	33	33	33	—				
	p-value	0.003	0.007	< .001	—				
Intense&Rebellious	Pearson's r	-0.336 *	-0.173	-0.315	-0.256	—			
	df	33	33	33	33	—			

Correlation Matrix

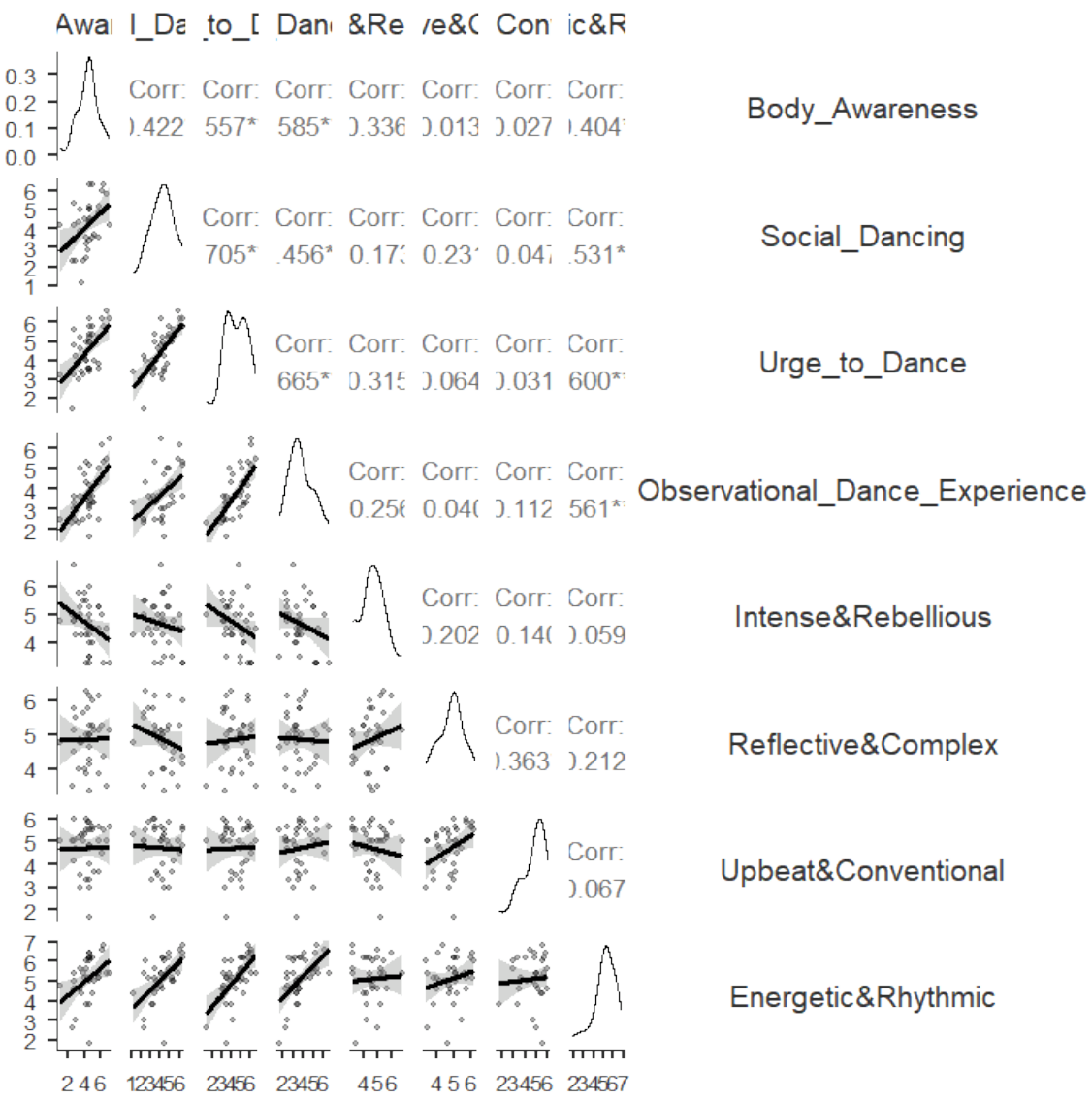
		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	0.048	0.321	0.065	0.137	—			
	Spearman's rho	-0.307	-0.148	-0.356 *	-0.220	—			
	df	33	33	33	33	—			
	p-value	0.073	0.397	0.036	0.205	—			
Reflective&Complex	Pearson's r	0.013	-0.231	0.064	-0.040	0.202	—		
	df	33	33	33	33	33	—		
	p-value	0.941	0.182	0.715	0.819	0.245	—		
	Spearman's rho	0.099	-0.279	0.041	-0.001	0.195	—		
	df	33	33	33	33	33	—		
	p-value	0.570	0.104	0.817	0.994	0.261	—		
Upbeat&Conventional	Pearson's r	0.027	-0.047	0.031	0.112	-0.140	0.363 *	—	
	df	33	33	33	33	33	33	—	
	p-value	0.879	0.789	0.859	0.523	0.422	0.032	—	

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
Energetic&Rhythmic	Spearman's rho	0.036	-0.136	-0.028	0.125	-0.097	0.449 *	—	
	df	33	33	33	33	33	33	—	
	p-value	0.836	0.436	0.872	0.474	0.579	0.007	—	
	Pearson's r	0.404 *	0.531 *	0.600 *	0.561 ***	0.059	0.212	0.067	—
	df	33	33	33	33	33	33	33	—
	p-value	0.016	0.001	< .001	< .001	0.737	0.222	0.703	—
	Spearman's rho	0.475 *	0.583 ***	0.599 *	0.547 ***	0.014	0.214	0.059	—
	df	33	33	33	33	33	33	33	—
	p-value	0.004	< .001	< .001	< .001	0.935	0.217	0.737	—

Note. * p < .05, ** p < .01, *** p < .001

Plot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Energetic&Rhythmic

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
ActiveEngagement_mean	Pearson's r	—									
	df	—									
	p-value	—									
	Spearman's rho	—									
	df	—									
	p-value	—									
PerceptualAbilities_mean	Pearson's r	0.701***	—								
	df	33	—								

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	< .001	—								
	Spearman's rho	0.715 ***	—								
	df	33	—								
	p-value	< .001	—								
MusicalTraining_mean	Pearson's r	0.446 **	0.607 ***	—							
	df	33	33	—							
	p-value	0.007	< .001	—							

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	Spearman's rho	0.528 *	0.594 ***	—							
	df	33	33	—							
	p-value	0.001	< .001	—							
SingingAbilities_mean	Pearson's r	0.492 *	0.750 ***	0.748 *	—						
	df	33	33	33	—						
	p-value	0.003	< .001	< .001	—						
	Spearman's rho	0.500 *	0.764 ***	0.713 *	—						
	df	33	33	33	—						

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
EMotions_mean	p-value	0.002	< .001	< .001	—						
	Pearson's r	0.703***	0.515*	0.231	0.232	—					
	df	33	33	33	33	—					
	p-value	< .001	0.002	0.182	0.179	—					
	Spearman's rho	0.695***	0.507*	0.234	0.234	—					
	df	33	33	33	33	—					
	p-value	< .001	0.002	0.177	0.177	—					

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
General Musicalsophistication_mean	Pearson's r	0.689***	0.817***	0.903***	0.875***	0.460*	—				
	df	33	33	33	33	33	—				
	p-value	< .001	< .001	< .001	< .001	0.005	—				
	Spearman's rho	0.704***	0.809***	0.909***	0.850***	0.452*	—				
	df	33	33	33	33	33	—				
	p-value	< .001	< .001	< .001	< .001	0.006	—				
Intense&Rebellious	Pearson's r	0.106	0.033	0.268	0.139	-0.030	0.209	—			

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	df	33	33	33	33	33	33	—			
	p-value	0.546	0.850	0.119	0.426	0.866	0.228	—			
	Spearman's rho	0.104	-0.009	0.276	0.162	-0.022	0.228	—			
	df	33	33	33	33	33	33	—			
	p-value	0.551	0.961	0.108	0.352	0.899	0.187	—			
Reflective&Complex	Pearson's r	0.363 *	0.321	0.341 *	0.129	0.324	0.341 *	0.202	—		
	df	33	33	33	33	33	33	33	—		
	p-value	0.032	0.060	0.045	0.459	0.057	0.045	0.245	—		

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	Spearman's rho	0.361 *	0.268	0.358 *	0.160	0.306	0.346 *	0.195	—		
	df	33	33	33	33	33	33	33	—		
	p-value	0.033	0.119	0.035	0.360	0.074	0.042	0.261	—		
Upbeat&Conventional	Pearson's r	-0.036	-0.050	-0.039	-0.054	0.180	-0.025	-0.140	0.363 *	—	
	df	33	33	33	33	33	33	33	33	—	
	p-value	0.836	0.776	0.822	0.759	0.300	0.885	0.422	0.032	—	

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	Spearman's rho	0.043	-0.024	0.078	0.036	0.156	0.044	-0.097	0.449**	—	
	df	33	33	33	33	33	33	33	33	—	
	p-value	0.806	0.891	0.656	0.839	0.369	0.800	0.579	0.007	—	
Energetic&Rhythmic	Pearson's r	0.149	-0.102	-0.204	-0.204	0.359*	-0.131	0.059	0.212	0.067	—
	df	33	33	33	33	33	33	33	33	33	—
	p-value	0.393	0.561	0.240	0.240	0.034	0.454	0.737	0.222	0.703	—

Correlation Matrix

		ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	Spearman's rho	0.255	0.010	-0.153	-0.096	0.373 *	-0.058	0.014	0.214	0.059	—
	df	33	33	33	33	33	33	33	33	33	—
	p-value	0.139	0.953	0.381	0.582	0.028	0.741	0.935	0.217	0.737	—

Note. * p < .05, ** p < .01, *** p < .001

Plot

Table : This table shows the partial correlation matrix controlling for enrolment.

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
Body_Awareness	Pearson's r	—								

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	—								
	Spearman's rho	—								
	p-value	—								
Social_Dancing	Pearson's r	0.455	—							
	p-value	1.000	—							
	Spearman's rho	0.509	—							
	p-value	1.000	—							
Urge_to_Dance	Pearson's r	0.573	0.702	—						

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	1.000	1.000	—						
	Spearman's rho	0.567	0.702	—						
	p-value	1.000	1.000	—						
Dance_Training	Pearson's r	0.459	0.223	0.210	—					
	p-value	1.000	1.000	1.000	—					
	Spearman's rho	0.440	0.282	0.244	—					
	p-value	1.000	1.000	1.000	—					
Observational_Dance_Experience	Pearson's r	0.602	0.445	0.661	0.634	—				

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	1.000	1.000	1.000	1.000	—				
	Spearman's rho	0.510	0.439	0.671	0.570	—				
	p-value	1.000	1.000	1.000	1.000	—				
Intense&Rebellious	Pearson's r	-0.361	-0.139	-0.303	-0.093	-0.242	—			
	p-value	0.018	0.216	0.041	0.300	0.084	—			
	Spearman's rho	-0.332	-0.114	-0.355	0.006	-0.208	—			
	p-value	0.028	0.260	0.020	1.000	0.119	—			
Reflective&Complex	Pearson's r	-0.037	-0.148	0.134	-0.065	0.014	0.134	—		

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	0.419	0.202	1.000	0.356	1.000	1.000	—		
	Spearman's rho	0.044	-0.184	0.066	-0.075	0.055	0.141	—		
	p-value	1.000	0.149	1.000	0.337	1.000	1.000	—		
Upbeat&Conventional	Pearson's r	0.019	-0.028	0.041	0.262	0.123	-0.160	0.366	—	
	p-value	1.000	0.437	1.000	1.000	1.000	0.184	1.000	—	
	Spearman's rho	0.012	-0.091	-0.022	0.259	0.148	-0.131	0.412	—	
	p-value	1.000	0.305	0.451	1.000	1.000	0.230	1.000	—	
Energetic&Rhythmic	Pearson's r	0.438	0.507	0.594	0.318	0.554	0.104	0.377	0.090	—

Partial Correlation

		Body_Awareness	Social_Dancing	Urge_to_Dance	Dance_Training	Observational_Dance_Experience	Intense&Rebellious	Reflective&Complex	Upbeat&Conventional	Energetic&Rhythmic
	p-value	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	—
	Spearman's rho	0.496	0.577	0.599	0.418	0.542	0.032	0.310	0.083	—
	p-value	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	—

Note. controlling for 'enrollment'

Note. H_a is negative correlation

TABLE : this table shows the normality test for DSI Sores

Normality Test (Shapiro-Wilk)

	W	p
Social_Dancing	0.989	0.973
Urge_to_Dance	0.967	0.377
Dance_Training	0.817	< .001
Observational_Dance_Experience	0.959	0.220
Body_Awareness	0.975	0.590

Note. A low p-value suggests a violation of the assumption of normality

Table: This table shows the normality tests for MSI Scores

Normality Test (Shapiro-Wilk)

	W	p
ActiveEngagement_mean	0.961	0.247
PerceptualAbilities_mean	0.953	0.137
MusicalTraining_mean	0.973	0.533
SingingAbilities_mean	0.957	0.182
EMotions_mean	0.963	0.288
GeneralMusicalsophistication_mean	0.976	0.640

Note. A low p-value suggests a violation of the assumption of normality

Table : this table shows the correlation matrix of GMSI and GDSI scores

Correlation Matrix

		Body_Awareness	**Social_Dancing**	**Urge_to_Dance**	**Observational_Dance_Experience**	**ActiveEngagement_mean**	**PerceptualAbilities_mean**	**MusicalTraining_mean**	**SingingAbilities_mean**	**EMotions_mean**	**GeneralMusicalsophistication_mean**
Body_Awareness	Pearson's r	—									
	df	—									
	p-value	—									

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	Spearman's rho	—									
	df	—									
	p-value	—									
Social_Dancing	Pearson's r	0.422 *	—								
	df	33	—								
	p-value	0.012	—								
	Spearman's rho	0.457 **	—								

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
Urge_to_Dance	df	33	—								
	p-value	0.006	—								
	Pearson's r	0.557**	0.705**	—							
	df	33	33	—							
	p-value	<.001	<.001	—							
	Spearman's rho	0.557**	0.687**	—							
	df	33	33	—							
	p-value	<.001	<.001	—							

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	Perceptual Abilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
Observational_Dance_Experience	Pearson's r	0.585***	0.456**	0.665***	—						
	df	33	33	33	—						
	p-value	<.001	0.006	<.001	—						
	Spearman's rho	0.491**	0.448**	0.670***	—						
	df	33	33	33	—						
	p-value	0.003	0.007	<.001	—						
ActiveEngagement_mean	Pearson's r	0.184	0.019	0.004	-0.080	—					
	df	33	33	33	33	—					

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	p-value	0.2889	0.9166	0.9844	0.647	—					
	Spearman's rho	0.2466	0.0655	0.074	-0.061	—					
	df	33	33	33	33	—					
	p-value	0.154	0.7099	0.6744	0.728	—					
PerceptualAbilities_mean	Pearson's r	0.0334	-0.1777	-0.1933	-0.1833	0.701***	—				
	df	33	33	33	33	33	—				
	p-value	0.8455	0.3099	0.2677	0.293	< .001	—				

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
MusicalTraining_mean	Spearman's rho	0.143	-0.116	-0.170	-0.157	0.715***	—				
	df	33	33	33	33	33	—				
	p-value	0.414	0.507	0.330	0.367	< .001	—				
	Pearson's r	0.016	-0.135	-0.197	-0.173	0.446**	0.607***	—			
	df	33	33	33	33	33	33	—			
	p-value	0.926	0.440	0.257	0.322	0.007	< .001	—			

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	Spearman's rho	0.123	-0.162	-0.157	-0.150	0.528 *	0.594 * * *	—			
	df	33	33	33	33	33	33	—			
	p-value	0.483	0.352	0.369	0.390	0.001	< .001	—			
SingingAbilities_mean	Pearson's r	-0.085	-0.196	-0.233	-0.219	0.492 *	0.750 * * *	0.748 * *	—		
	df	33	33	33	33	33	33	33	—		
	p-value	0.627	0.259	0.178	0.207	0.003	< .001	< .001	—		

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	Spearman's rho	-0.050	-0.196	-0.260	-0.279	0.500 *	0.764 * *	0.713 *	—		
	df	33	33	33	33	33	33	33	—		
	p-value	0.777	0.260	0.132	0.105	0.002	< .001	< .001	—		
EMotions_mean	Pearson's r	0.300	0.198	0.185	0.134	0.703 * * *	0.515 *	0.231	0.232	—	
	df	33	33	33	33	33	33	33	33	—	
	p-value	0.080	0.253	0.287	0.442	< .001	0.002	0.182	0.179	—	

Correlation Matrix

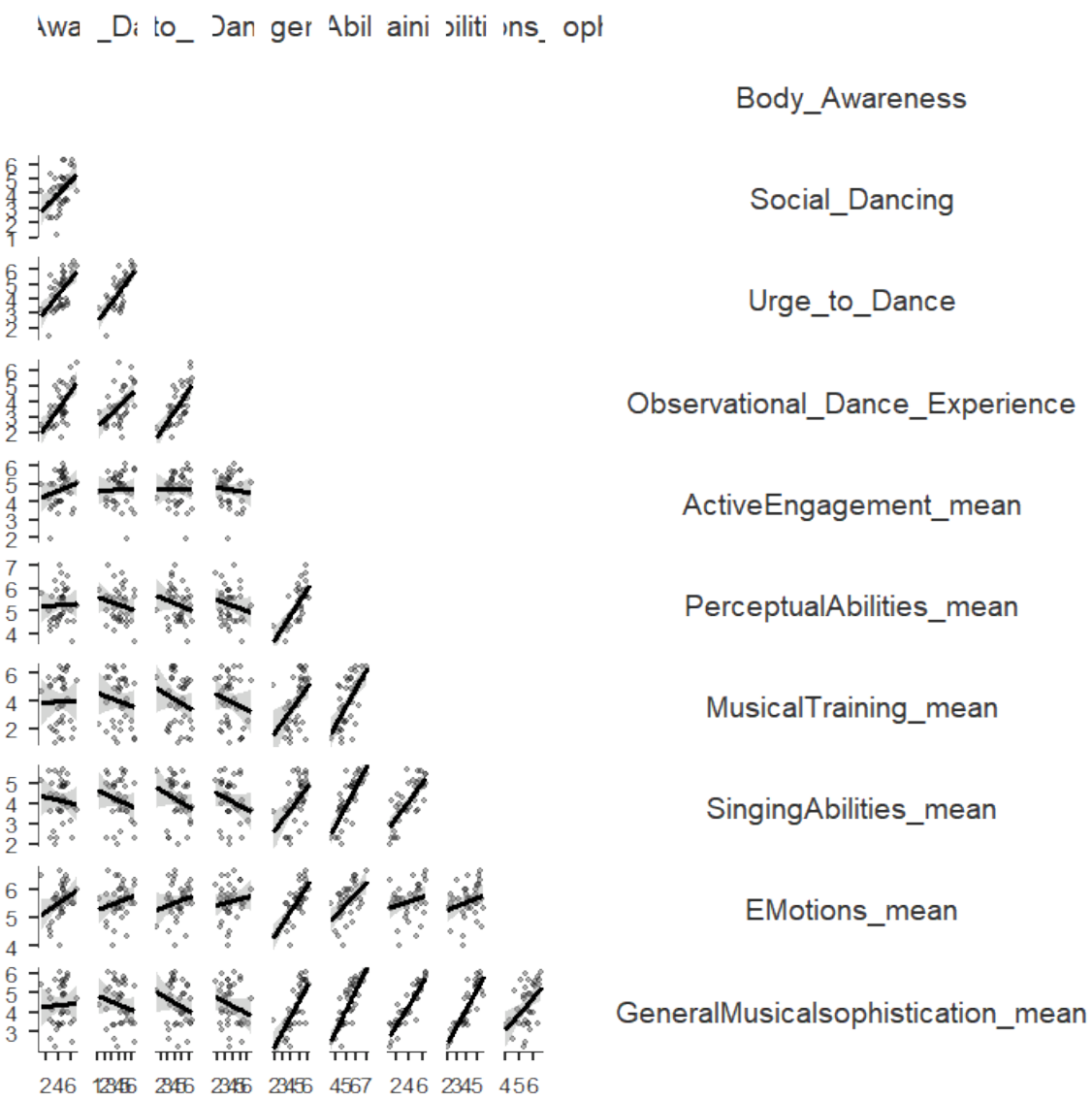
		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	Spearman's rho	0.390*	0.206	0.159	0.103	0.695***	0.507*	0.234	0.234	—	
	df	33	33	33	33	33	33	33	33	—	
	p-value	0.021	0.235	0.360	0.555	<.001	0.002	0.177	0.177	—	
GeneralMusicalsophistication_mean	Pearson's r	0.038	-0.178	-0.225	-0.210	0.689***	0.817***	0.903*	0.875*	0.460*	—
	df	33	33	33	33	33	33	33	33	33	—
	p-value	0.828	0.307	0.195	0.225	<.001	<.001	<.001	<.001	0.005	—

Correlation Matrix

		Body_Awareness	Social_Dancing	Urge_to_Dance	Observational_Dance_Experience	ActiveEngagement_mean	PerceptualAbilities_mean	MusicalTraining_mean	SingingAbilities_mean	EMotions_mean	GeneralMusicalsophistication_mean
	Spearman's rho	0.158	-0.141	-0.173	-0.194	0.704***	0.809***	0.909*	0.850*	0.452*	—
	df	33	33	33	33	33	33	33	33	33	—
	p-value	0.365	0.420	0.321	0.265	< .001	< .001	< .001	< .001	0.006	—

Note. * p < .05, ** p < .01, *** p < .001

Plot



DISCUSSION:

In this study, an examination of the correlation matrix involving the Goldsmiths Dance Sophistication Index (DSI), Goldsmiths Musical Sophistication Index (MSI) and the Short Test of Musical Preferences (STOMP) scores reveal certain insights into its relationships. Contrary to the assumption of these tests having correlations, the statistical tests show that there are no significant correlations observed in the correlation matrix. The absence of a significant correlations indicate that the dance and musical sophistication as measured through DSI and MSI respectively do not

seem to be associated with specific musical preferences by large as captured by the STOMP questionnaire.

The lack of significant correlation suggests that the Gold-DSI and Gold MSI indices maintain a genre neutral stance in their structure. That is, the individuals who exhibited higher levels of dance and/ or musical sophistication did not show any pronounced inclination or aversion towards a particular genre. However, there were certain clues indicating that participants who had an urge to dance had a general tendency to lean towards more upbeat genre of music. The study also shows that the from the 2 groups of participants, the participants in the Music Mind and Brain program have significant differences with respect to musical sophistication and music and dance training as compared to the participants from Psychology of arts program. Although, these differences were to be expected considering the diverse set of participants from a complex program that combines many areas of study.

The significant differences between the two groups, however did not show any prominent correlation between genre preference and dance and music sophistication. This further emphasises the comprehensive nature of the DSI and MSI tests. Future research endeavours could delve deeper into understanding how individuals with varying levels of Dance and Musical Sophistication perform with respect to the values of each sub score and the expertise and background of the individuals.

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