

Discriminant Validity

Standalone verified Python analysis

Test: Discriminant Validity

Design: HTMT and latent-correlation separation for academic versus social constructs.

Variables: G1, G2, G3, famrel, freetime, goout

Null hypothesis: The two constructs are not empirically distinguishable.

Formula: $HTMT = \frac{\text{mean}|r_{\text{heterotrait}}|}{\sqrt{(\text{mean}|r_{\text{monotrait}}|, A) \text{ mean}|r_{\text{monotrait}}|, S)}}$.

Source rows: 649

Calculated metrics:

htmt: 0.21043104090296003

factor_correlation: -0.14469453186032052

sqrt_ave_academic: 0.934069241707824

sqrt_ave_social: 0.5177814247212298

fornell_larcker_margin: 0.37308689286090924

Independent reference values:

htmt: 0.21043104090296003

factor_correlation: -0.14469453186032052

sqrt_ave_academic: 0.934069241707824

sqrt_ave_social: 0.5177814247212298

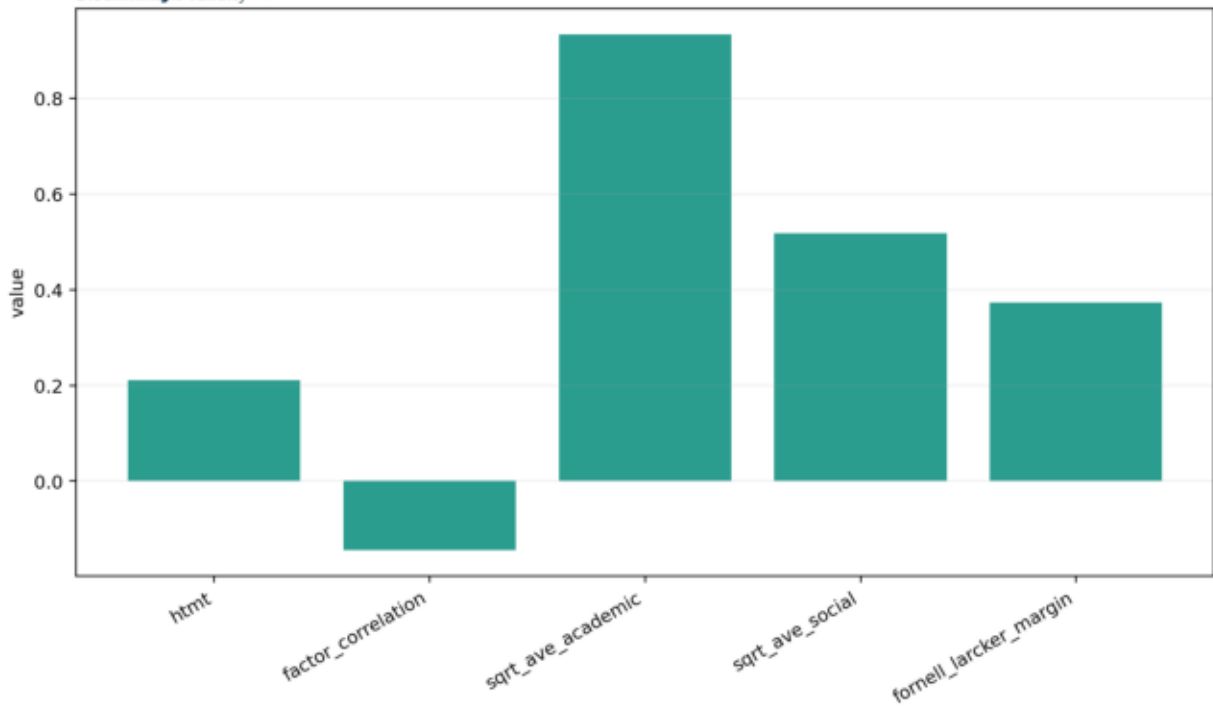
fornell_larcker_margin: 0.37308689286090924

Interpretation:

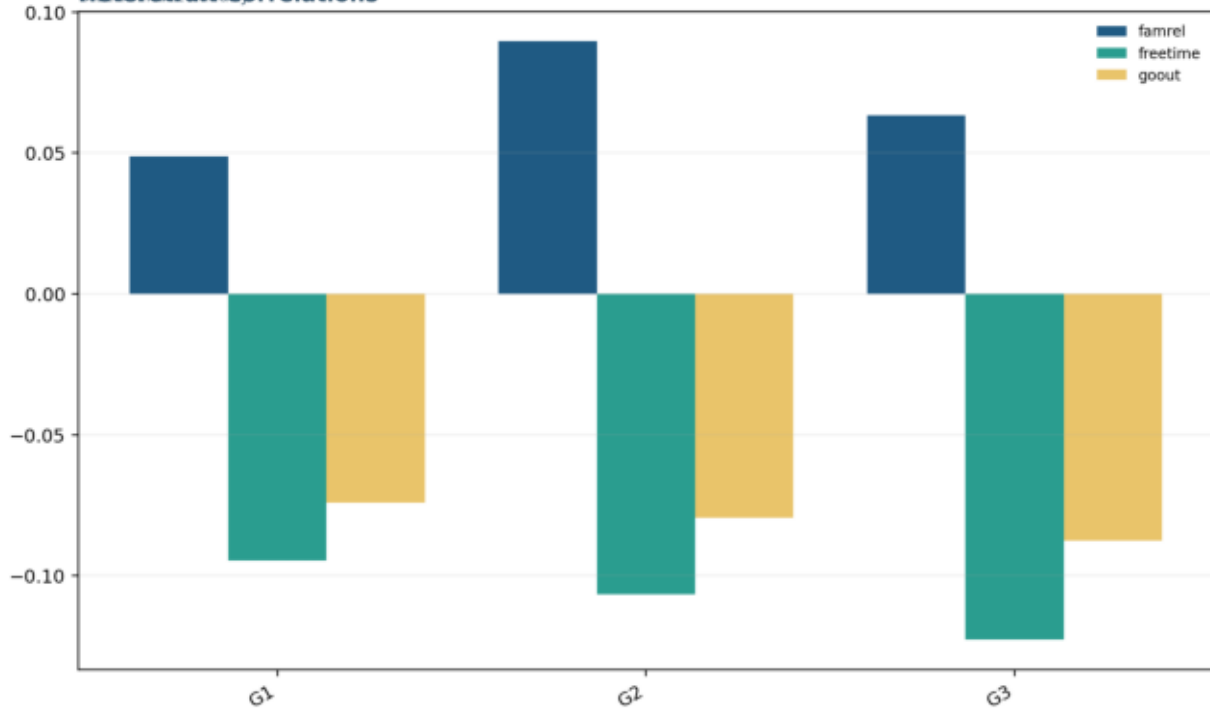
HTMT and Fornell-Larcker provide noninterchangeable separation checks.

HTMT=0.210431; latent r=-0.144695.

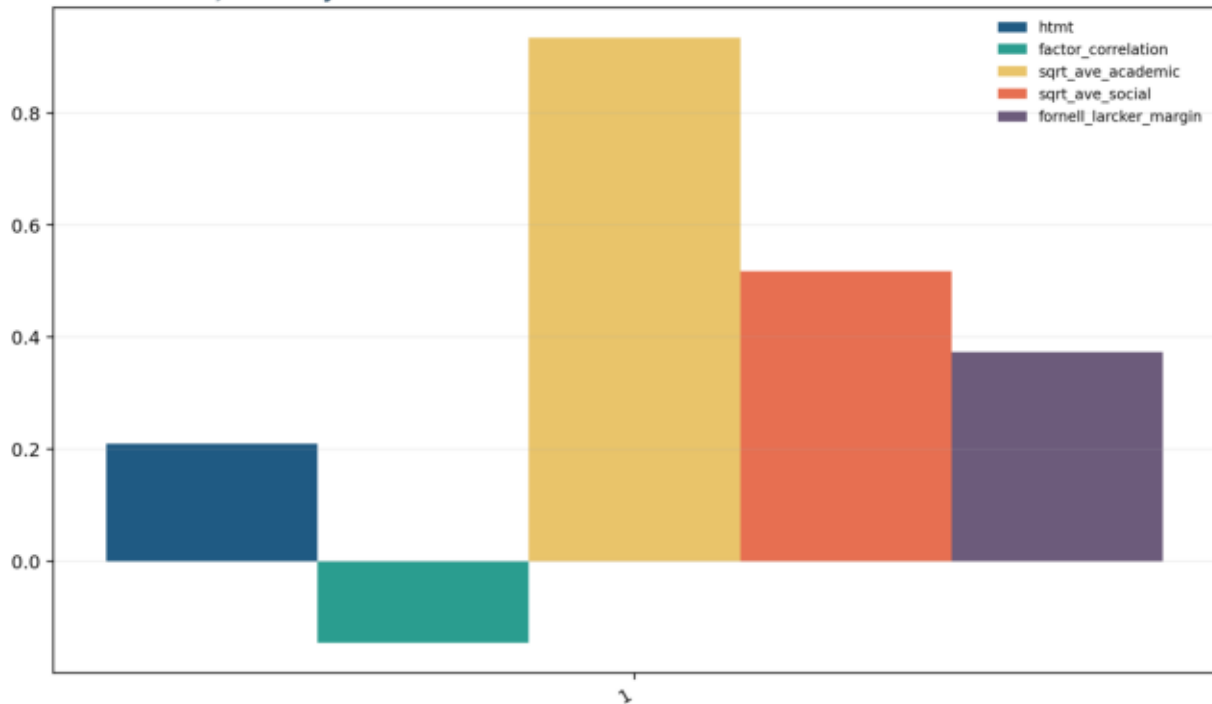
Primary Metrics



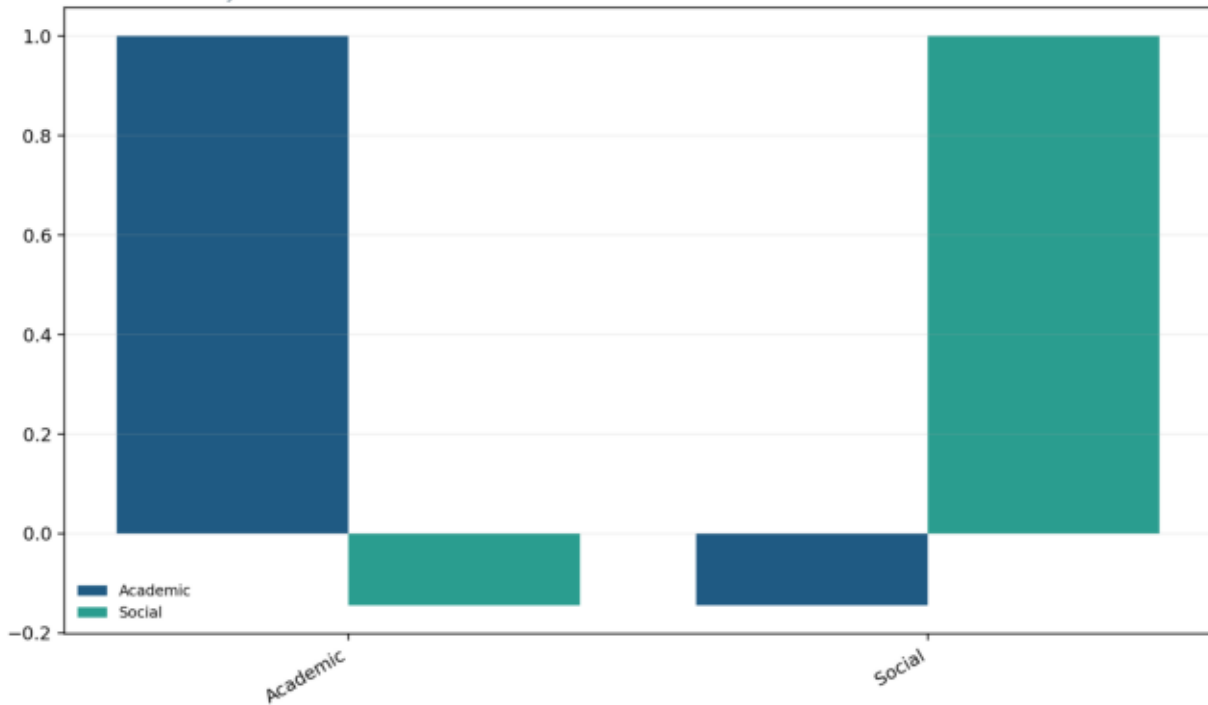
Heterotrait Correlations



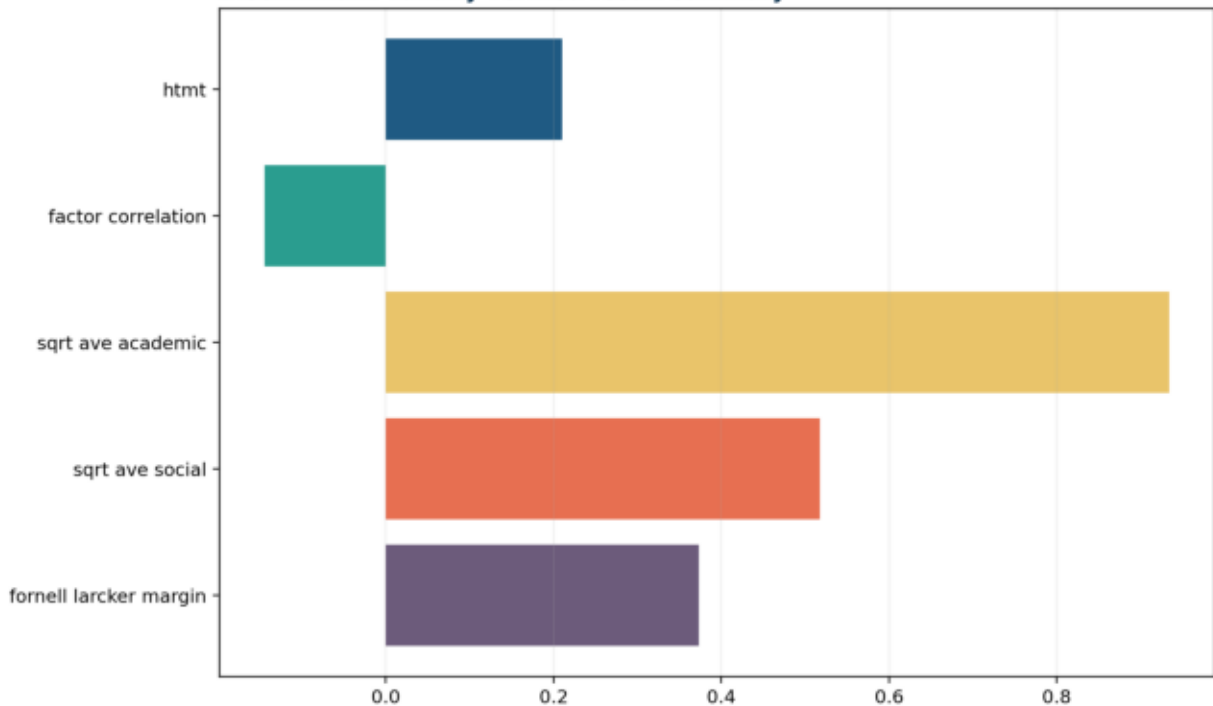
Discriminant Summary



Latent Factor Correlation



Discriminant Validity verified result summary



Primary Metrics

metric	value
hmt	0.210431
factor_correlation	-0.144695
sqrt_ave_academic	0.934069
sqrt_ave_social	0.517781
fornell_larcker_margin	0.373087

Heterotrait Correlations

academic_item	famrel	freetime	goout
G1	0.0487946	-0.0944966	-0.0740526
G2	0.0895878	-0.106678	-0.0794692
G3	0.0633611	-0.122705	-0.0876407

Discriminant Summary

htmt	factor_correlation	sqrt_ave_academic	sqrt_ave_social	fornell_larcker_margin
0.210431	-0.144695	0.934069	0.517781	0.373087

Latent Factor Correlation

construct	Academic	Social
Academic	1	-0.144695
Social	-0.144695	1