

Convergent Validity

Standalone verified Python analysis

Test: Convergent Validity

Design: Within-construct convergence using CFA loadings, AVE, and composite reliability.

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

Null hypothesis: Indicators do not share sufficient variance within their prespecified construct.

Formula: Convergence is summarized by loadings, AVE, and CR for each construct.

Source rows: 649

Calculated metrics:

academic_ave: 0.8724853483046293

social_ave: 0.26809760378634656

academic_cr: 0.9534645459795349

social_cr: 0.46472892919002623

minimum_loading: 0.1664098058173534

Independent reference values:

academic_ave: 0.8724853483046293

social_ave: 0.26809760378634656

academic_cr: 0.9534645459795349

social_cr: 0.46472892919002623

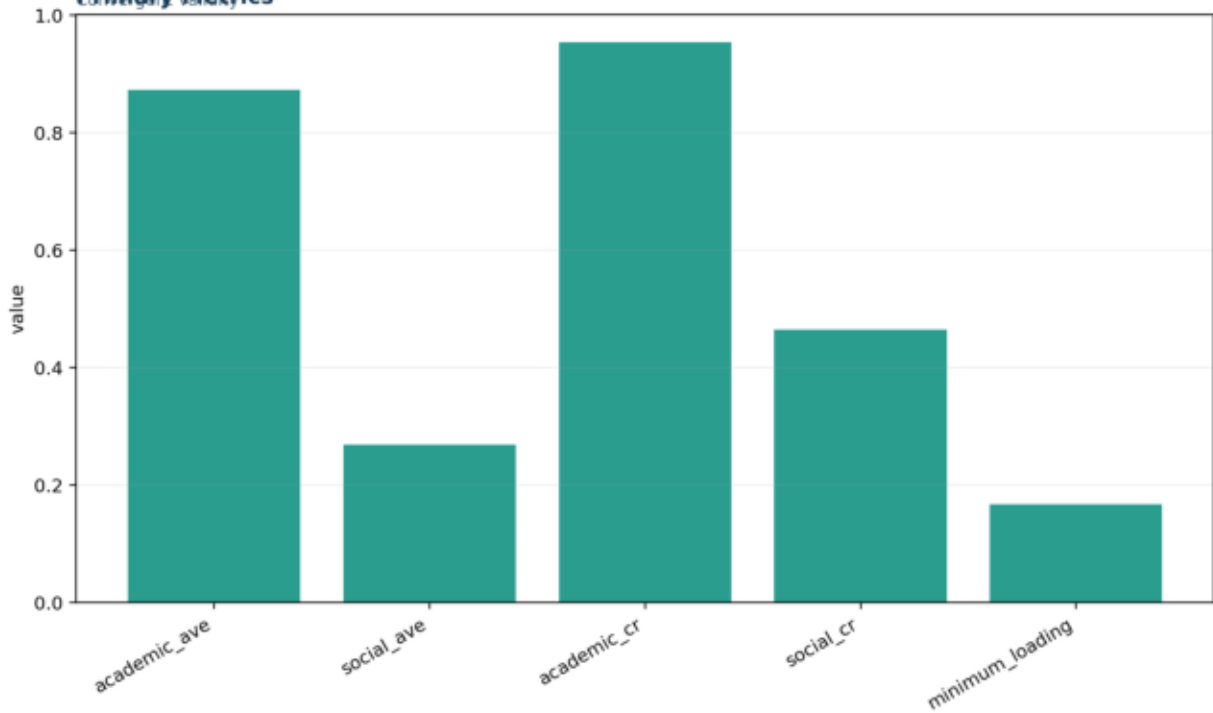
minimum_loading: 0.1664098058173534

Interpretation:

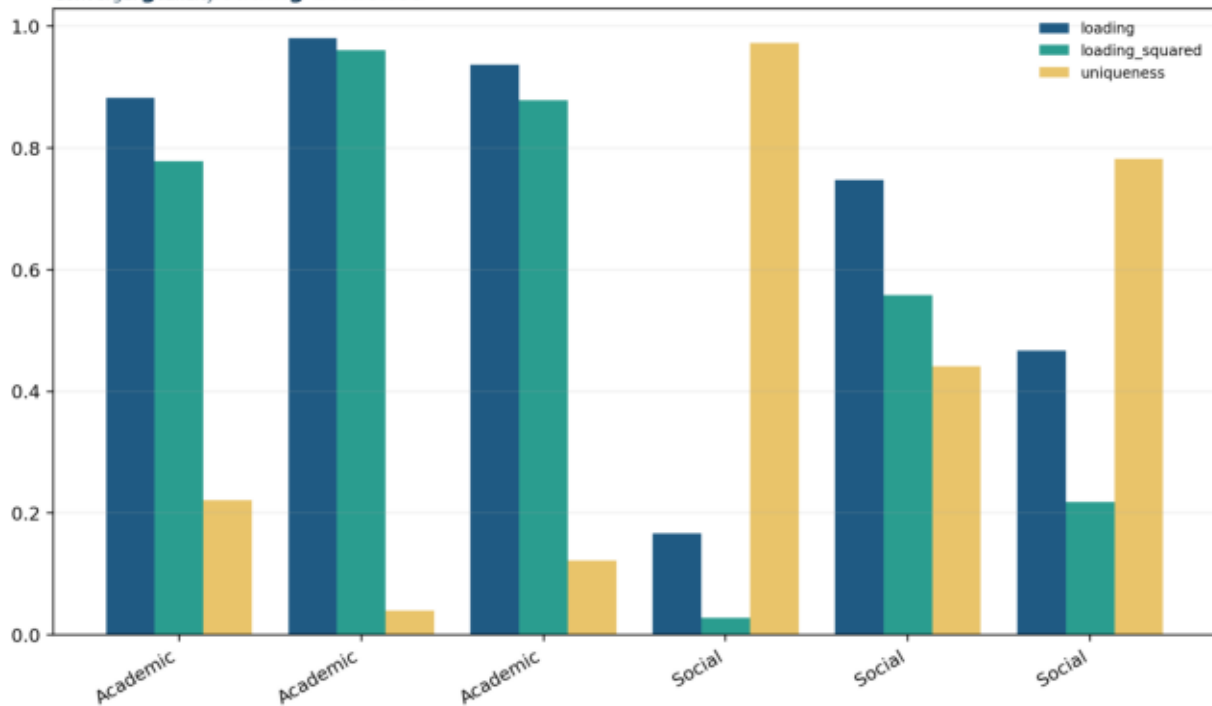
Convergence is evaluated within each prespecified construct.

Minimum absolute loading=0.166410.

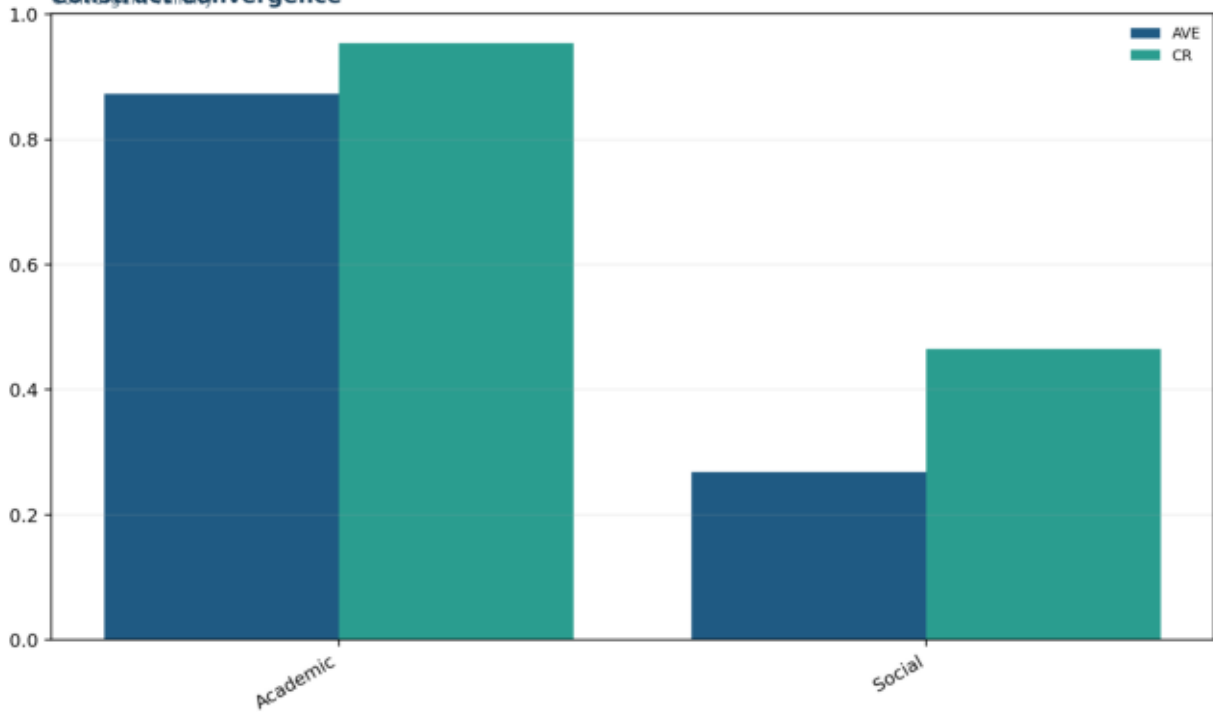
Primary Metrics



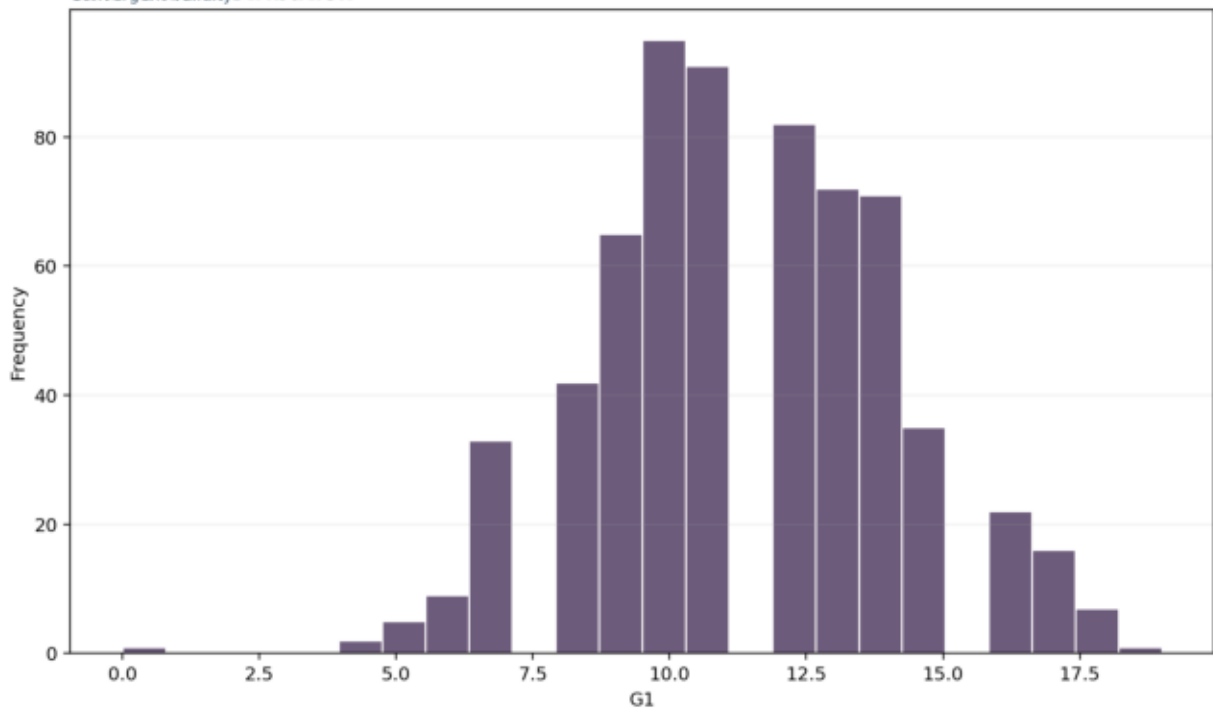
Convergent Loading Evidence



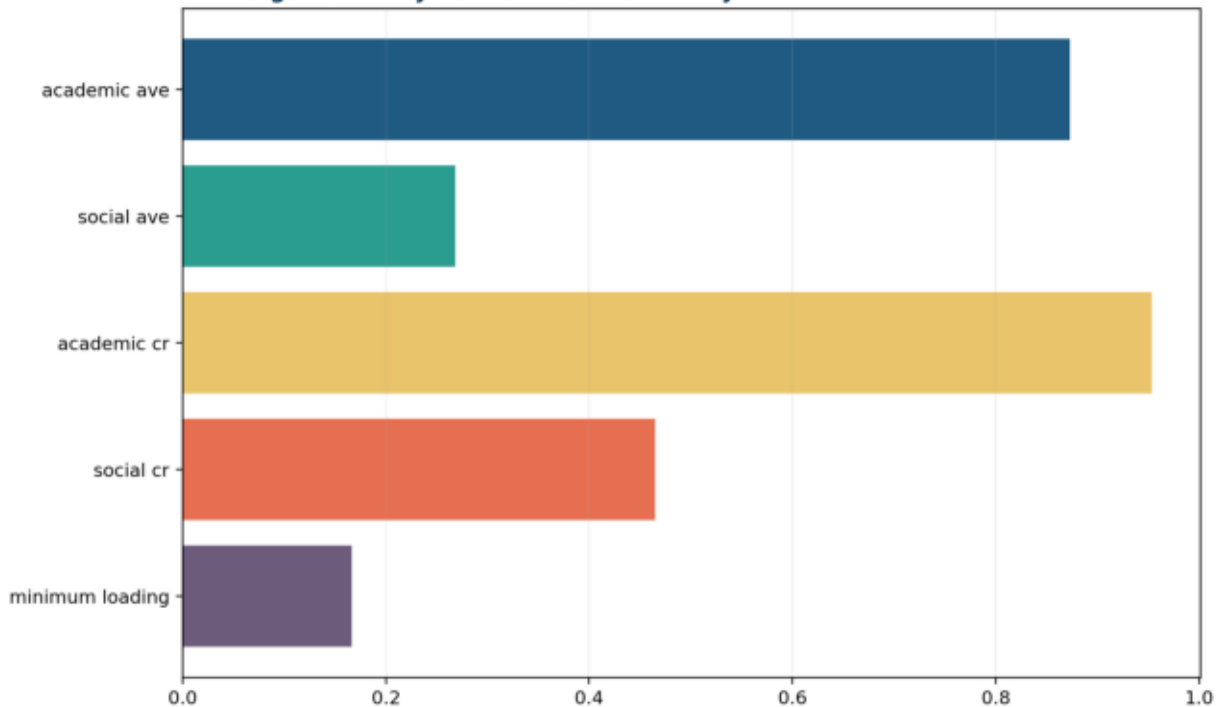
Construct Convergence



Source: G1 Distribution



Convergent Validity verified result summary



Primary Metrics

metric	value
academic_ave	0.872485
social_ave	0.268098
academic_cr	0.953465
social_cr	0.464729
minimum_loading	0.16641

Convergent Loading Evidence

construct	item	loading	loading_squared	uniqueness
Academic	G1	0.882325	0.778498	0.221502
Academic	G2	0.980163	0.96072	0.0392796
Academic	G3	0.937143	0.878238	0.121762
Social	famrel	0.16641	0.0276922	0.972308
Social	freetime	0.747409	0.55862	0.44138
Social	goout	0.466884	0.217981	0.782019

Construct Convergence

construct	AVE	CR
Academic	0.872485	0.953465
Social	0.268098	0.464729

Convergence Decisions

construct	AVE_above_0_50	CR_above_0_70
Academic	True	True
Social	False	False