Cross-Validation of the NEO-BFAS:

Further Evidence for Construct Validity

Scott R. Ross[1] & Colin G. DeYoung[2]
DePauw University[1] and University of Minnesota - Twin Cities[2]

Introduction

The Big Five Aspects represent a mid-level framework of personality traits within the Big Five model that were recently discovered by DeYoung, Quilty, and Peterson (2007). As part of their original research, DeYoung et al. (2007) developed the Big Five Aspect Scales (BFAS) to assess individual differences in standing on the aspects. Recently, we developed the NEO-BFAS to assess the Big Five Aspects using the NEO Personality Inventory – Revised (NEO-PI-R; Costa & McCrae, 1992). In a combined sample of 510 participants obtained using Amazon's crowdsourcing platform Mechanical Turk, we provide further evidence for the validity of the NEO-BFAS.

Methods

510 participants were recruited using Mechanical Turk. All participants were native English speakers and had been screened for random responding.

All participants completed the:

Big Five Aspect Scales (BFAS; DeYoung, Quilty, & Peterson, 2007): 100 items that assess the Aspects.

NEO-BFAS (Ross & DeYoung, 2019): 98 items from the NEO-PI-R that assess the Big Five Aspects discovered by DeYoung, Quilty, and Peterson (2007).

Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008): 9 items for three aspects of willingness to engage in sex.

Moral Foundations Questionnaire (MFQ-30; Graham, Haidt, & Nosek, 2008): 30-item measuring Haidt's 6 moral dimensions.

Short Dark Triad (DS; Jones & Pauhus, 2014) 58-item assessing Machiavellianism, Narcissism, and Psychopathy.

Results

Alpha estimates of internal consistency ranged from a high of .90 for NEO-Industriousness at 12 items, to .72 for NEO-Orderliness with 8 items (median alpha = .84). A multitrait-multimethod matrix (MTMM; Campbell & Fiske, 1959) was used to further evaluate construct validity (see Table 1). Concurrent/convergent validity coefficients for each of the NEO-BFAS scales with the original BFAS was very strong (range: .74 to .89; median r = .83). Additionally, support for divergent/discriminant validity was found where no NEO-BFAS scale was correlated greater than .67 with any other NEO-BFAS scale; in every case, there was a .20 (or greater) difference between the validity coefficient for a NEO-BFAS scale and that scale's correlation with every other NEO-BFAS scale. The original BFAS and NEO-BFAS also demonstrated a pattern of convergent relationships with the Dark Triad, measures of morality, and sociosexuality (see Table 2). Out of 120 pair-wise comparisons between NEO-BFAS and original BFAS correlations, 11 were significant at the .05 level and 10 were significant at the .01 level or below. Across all pair-wise correlations, the mean difference was .043 between the NEO-BFAS and original BFAS, indicating a very small effect or difference in convergence with external criteria.

MTMM BFAS	NEO Withdrawal	NEO Volatility	NEO Enthusiasm	NEO Assertiveness	NEO Intellect	NEO Openness	NEO Compassion	NEO Politeness	NEO Industriousness	NEO Orderliness
Withdrawal	**.89**	.65	-.48	-.43	-.29	-.02	-.20	.04	-.49	-.01
Volatility	.67	**.86**	-.34	-.24	-.35	-.03	-.26	-.22	-.37	-.02
Enthusiasm	-.52	-.32	**.83**	.55	.27	.25	.61	.02	.21	.09
Assertiveness	-.46	-.16	.60	**.83**	.45	.27	.37	-.37	.40	.15
Intellect	-.42	-.36	.36	.50	**.80**	.45	.36	-.05	.47	.07
Openness	.03	-.04	.24	.19	.54	**.81**	.42	.08	.15	.05
Compassion	-.15	-.22	.48	.28	.29	.33	**.83**	.35	.34	.09
Politeness	-.11	-.39	.04	-.20	.07	.00	.37	**.74**	.30	.11
Industriousness	-.60	-.47	.43	.53	.34	.08	.40	.11	**.85**	.36
Orderliness	-.01	-.01	.11	.21	-.01	.00	.15	.06	.44	**.80**

Table 2 Criterion	NEO/BFAS Withdrawal	Volatility	Enthusiasm	Assertiveness	Intellect	Openness	Compassion	Politeness	Industriousness	Orderliness
SOI-Behav	-.15/-.16	-.05/-.04	.17/.14	.21/.25	.12/.14	.05/.10	-.01/-.03	-.26/-.20	-.06/.02	-.12/-.16
SOI-Attitud	.01/-.05	-.02/-.03	.03/-.02	.09/.17	.15/.16	.13/.08	-.16/-.23	-.33/-.24	-.14/-.13	-.19/-.18
SOI-Desire	.12/.13	.10/.10	-.06/-.11	-.02/.02	.02/.00	.12/.05	-.19/-.23	-.32/-.29	-.27/-.21	-.17/-.24
M-Deceit	-.12/-.11	-.17/-.16	-.01/.10	-.02/-.08	.03/-.03	-.07/.03	.20/.22	.38/.42	.26/.18	.10/.12
M-Harm	-.03/-.06	-.07/-.06	.02/.08	.03/.03	.09/.04	.05/.11	.18/.17	.24/.33	.25/.16	.27/.24
M-Lazy	-.09/-.03	.04/.02	.13/.10	.19/.19	-.13/-.13	-.10/-.13	-.02/-.09	-.23/-.29	-.08/.05	.10/.04
M-Failure	-.05/-.05	-.03/-.02	.11/.14	.14/.10	-.07/-.07	-.10/-.05	.21/.20	.03/.06	.11/.14	.12/.06
M-Body	-.06/.01	.01/.03	.05/.03	.08/.01	-.18/-.17	-.19/-.19	.07/.02	.01/-.05	.06/.09	.19/.16
M-Disgust	-.09/-.06	.02/.02	.12/.12	.13/.10	-.16/-.16	-.13/-.09	.07/.04	.00/-.02	.17/.17	.26/.21
DT-Mach	.16/.17	.19/.16	-.03/-.11	.12/.17	-.02/-.01	-.01/-.06	-.28/-.34	-.63/-.49	-.16/-.11	.19/.10
DT-Narciss	-.32/-.30	-.06/-.11	.48/.40	.68/.73	.28/.34	.22/.12	.10/-.01	-.59/-.53	.15/.29	.16/.10
DT-Psychop	.10/.12	.28/.28	.06/-.04	.26/.29	-.02/.01	.00/-.11	-.27/-.37	-.77/-.76	-.26/-.13	-.04/-.12