Electronic Supplementary Material

Introduction

Table E1. Most common Big Five models

Taxonomy	Domains	Facets	Reliability	Nom.net. /Number of items
HEXACO-PI-R (Lee & Ashton, 2016)				100 items
	Humility			
		Sincerity	0.66	
		Fairness	0.76	
		Greed Avoidance	0.81	- Social Dominance Orientation (-.45) (Leone et al., 2012)
		Modesty	0.68	
	Emotionality			
		Fearfulness	0.70	
		Anxiety	0.64	
		Dependence	0.80	
		Sentimentality	0.70	- Callous affect (-.68) (Gaughan et al., 2012); + Diversity (.22) (McAbee et al., 2014)
	Extraversion			
		Social Self-Esteem	0.67	+ Adaptability / Life skills (.25) (McAbee et al., 2014)
		Social Boldness	0.76	+ Emision-reduction behavior (Brick & Lewis, 2014) + Leadership (.36) (McAbee et al., 2014)
		Sociability	0.71	
		Liveliness	0.76	+ Adaptability / Life skills (.25), + Social responsability (.22), + Health (.21) (McAbee et al., 2014)
	Agreeableness			
		Forgivingness	0.74	
		Gentleness	0.66	
		Flexibility	0.61	
		Patience	0.79	
	Conscientiousness			
		Organization	0.74	
		Diligence	0.70	+ GPA (.31), + Adaptability / Life skills (.37), + Perseverance (.50) (McAbee et al., 2014)
		Perfectionism	0.69	+ Emision-reduction behavior (.25)

			(Brick & Lewis, 2014)
	Prudence	0.69	- Erratic life-style (-.58) (Gaughan et al., 2012)
Openness			
	Aesthetic	0.66	
	Unconventionality	0.52	- Political Conservatism (.29) (Brick et al., 2014)
	Creativity	0.75	
	Inquisitiveness	0.66	+ Continuous learning (.30) (McAbee et al, 2014)
NEO-PI-r (McCrae et al., 2011)		240 items	
Neuroticism			
	Anxiety	0.78	- Fearless dominance (-.49) (Gaughan et al, 2009)
	Angry Hostility	0.75	
	Depression	0.81	
	Self-Consciousness	0.68	
	Impulsiveness	0.70	+ Alcohol related problems (.29) (Ruiz et al., 2003)
	Vulnerability	0.77	
Extraversion			
	Warmth	0.73	
	Gregariousness	0.72	- Autism-spectrum Quotient (-.43) (Wakabayashi et al., 2006)
	Assertiveness	0.77	
	Activity	0.63	
	Excitement Seeking	0.65	+ Fearless dominance (.53) (Gaughan et al, 2009)
	Positive Emotions	0.73	
Openness			
	Fantasy	0.76	
	Aesthetics	0.76	
	Feelings	0.66	- Alexithymia (-.55) (Bagby et al., 1994)
	Actions	0.58	
	Ideas	0.80	
	Values	0.67	+ SAT verbal (.26) (Noftle et al., 2007)
Agreeableness			
	Trust	0.79	- Attachment avoidance (-.26) (Noftle et al., 2006)
	Straightforwardness	0.71	
	Altruism	0.75	

	Compliance	0.59	
	Modesty	0.67	
	Tender-Mindedness	0.56	- Callous affect (-.56) (Gaughan et al., 2012)

Conscientiousness

	Competence	0.67	
	Order	0.66	
	Dutifulness	0.62	- Dysregulation / Disinhibition (-.49) (Gaughan et al, 2009)
	Achievement Striving	0.67	+ Supervisor rating (.23) (Piedmont et al., 1994)
	Self-Discipline	0.75	
	Deliberation	0.71	- Erratic life-style (-.57) (Gaughan et al., 2012); - Alcohol related problems (-.38) (Ruiz et al., 2003)

BFI-2 (Soto & John, 2016)   60 items

Extraversion

	Sociability	0.83	- Conformity (-.36), - Tradition (-.24), + Stimulation (.21), + Positive affect (.32) (Soto et al., 2016)
	Assertiveness	0.80	+ Power
	Energy level	0.74	+ Purpose in life (.53), + Self-acceptance (.53), + Social connectedness (.33)

Agreeableness

	Compassion	0.68	+ Benevolence (.47), - Power (-.44), + Positive relations (.41)
	Respectfulness	0.66	+ Conformity (.39)
	Trust	0.75	+ Universalism (.21), + Likability (.25)

Conscientiousness

	Organization	0.76	+ Security (.30)
	Productiveness	0.74	- Hedonism (-.35), + Achievement (.26), + Environmental mastery (.56)
	Responsability	0.68	- Stimulation, + Autonomy

Negative Emotionality

	Anxiety	0.79	- Autonomy (-.32)
	Depression	0.74	
	Emotional Volatility	0.70	- Stress resistance
Open-mindedness			
	Intellectual curiosity	0.78	+ Self-direction (.44), + Personal growth (.50)
	Aesthetic Sensitivity	0.67	
	Creative Imagination	0.67	
IPIP-NEO-120 (Johnson, 2014)		120 items	
Neuroticism			
	Anxiety	0.78	
	Anger	0.87	
	Depression	0.85	
	Self-Consciousness	0.74	
	Inmoderation	0.72	+ Hangover symptoms (.35) (McAdams et al., 2009)
	Vulnerability	0.76	
Extraversion			
	Friendliness	0.81	
	Gregariousness	0.79	
	Assertiveness	0.85	
	Activity Level	0.71	
	Excitement Seeking	0.77	+ Alcohol Use (.45), + Drinking problems (.37) (McAdams et al., 2009)
	Cheerfulness	0.80	+ Addictive mobile phone usage style (.28) (Siddiqui, 2011)
Openness to Experience			
	Imagination	0.83	
	Aesthetics	0.76	
	Emotionality	0.69	
	Adventurousness	0.72	
	Intellect	0.75	
	Liberalism	0.64	+ Trendy mobile phone usage style (.31) (Siddiqui, 2011)
Agreeableness			
	Trust	0.86	
	Morality	0.76	+ Thrifty mobile phone usage style (.48) (Siddiqui, 2011)
	Altruism	0.76	
	Cooperation	0.73	

	Modesty	0.76	
	Sympathy	0.72	
Conscientiousness			
	Self-Efficacy	0.63	
	Orderliness	0.83	
	Dutifulness	0.69	
	Achievement-striving	0.80	+ Academic Performance (.23) (Rosander et al., 2011)
	Self-Discipline	0.73	+ General health behaviors (.27) (Hagger-Johnson et al., 2007)
	Cautiousness	0.87	

Note: Reliability stands for internal consistency estimates (Cronbach's α), retrieved from sources cited in the reliability column. Nom.net stands for nomological network. Coefficients in the nom.net column represent Pearson r coefficients. Numbers in the initial row of the predictive validity column represent number of items.

Study 1

Data analysis procedure

Exploratory Factor Analysis (EFA). The first subset of the collected sample was used to identify the number of components underlying the personality items in our dataset, with a top-down approach as proposed by Goldberg (2006). This means that a series of EFAs was run within each item group allocated to a specific Big Five domain. Velicer's (1976) Minimum Average Partial (MAP) and Horn's (1965) Parallel Analysis (PA) methods were applied in order to guide the subsequent factor analysis. EFAs were calculated via Mplus (Muthen et al., 2012) using geomin rotation and Maximum Likelihood (ML) estimation. Decisions to retain facets were partly based on model fit information (CFI, RMSEA, SRMR) and partly on the interpretability of the facet solution. Additionally, alternative facet models inspired from other personality measures were considered and compared to the facet structure found. In case of omission of relevant content captured in other models, new items were added a-posteriori.

Reliability. Cronbach's α and McDonald's ω were estimated for each facet score to provide evidence for the test scores' internal consistency. For the domains, only McDonald's ω was estimated. The second subsample was used to compute these statistics.

Confirmatory Factor Analysis (CFA). To verify the structure outlined by EFAs, one CFA per facet was fitted using the second subsample. This has been conducted with R. We restricted the number of possible indicators to a maximum of five per facet in order to obtain facets as balanced as possible (Ziegler, 2014). This selection was done based on item content and pattern of the factor loading matrix. CFAs were fitted using WLSMV (Weighted Least Squares adjusted for Means and Variances) for ordered indicators due to floor and ceiling effects on some item's response distribution. Model fit was determined based on the usual goodness-of-fit indicators: the Cumulative Fit Index (CFI), for which a score > 0.95 indicates adequate fit; the Root Mean Square of Approximation (RMSEA), for which a value < 0.06 indicates approximate fit; and the Standardized Root Mean Residual (SRMR), for which a value < 0.05 indicates adequate fit.

Exploratory Structural Equation Modelling (ESEM). In a third step with the second subsample, the higher order structure of the facets was tested with a bifactor ESEM (Asparouhov et al., 2009) using facet scores as indicators of the five domains. ESEM was the preferred procedure as it allows to relax the too strict independent clusters model in which CFA is usually performed (Marsh et al., 2010), allowing cross-loadings that would be otherwise constrained to zero, thereby accommodating personality data more realistically. The bifactor reflects variance in socially desirable responding (Ziegler & Bühner, 2009). We used a target rotation (oblique) to minimize cross-loadings. The bifactor ESEM model was fitted using ML estimation in Mplus.

Nomological network. In order to examine preliminary evidence of construct validity of our proposed facet model, a nomological network linking our constructs with external outcomes was tested. This network was constructed by examining associations with a set of linear models and zero-order correlations. Pearson correlations were calculated for each outcome with both facets and domains' scores. One linear model per domain and per criteria was fitted, using all facets included in the domains as predictors, but excluding the domain sum-scores. Standardized coefficients for each predictor (β) were reported, as well as the R^2 of the overall model -to represent associations at the domain level.

Results

EFA

Table E2. EFA model fit

Domain (number of facets according to EFA)	Chi-squared (df)	CFI	RMSEA	SRMR	Eigenvalues	MAP	PA
Agreeableness (10)	6477.67*** (4363)	0.837	0.039	0.034	42.99	9	9
Conscientiousness (10)	8377.56*** (5243)	0.827	0.041	0.034	51.09	12	9
Extraversion (8)	4643.64*** (2620)	0.837	0.046	0.036	38.25	13	9
Emotional stability (8)	9346.97*** (5987)	0.836	0.039	0.034	53.50	9	7
Openness (9)	8178.52*** (5142)	0.824	0.040	0.036	47.41	10	11

Note: *** means p value < 0.01.

Nomological Network

Table E3. Nomological network

	Satisfaction with life			GPA			Absences		
	r	stdβ	$r^2 domain$ /$R^2 facets$	r	stdβ	$r^2 domain$ /$R^2 facets$	r	stdβ	$r^2 domain$ /$R^2 facets$
Appreciation	0.16	-0.01		0.12	-0.03		-0.07	0.02	
Integrity	0.19	0.14*		0.17	0.1		-0.11	-0.01	
Low competitiveness	0.03	-0.09		0.02	-0.13*		-0.05	0.04	
Good faith	0.25	0.2*		0.17	0.11*		-0.11	-0.08	
Genuineness	0.12	0.04		0.16	0.14*		-0.15	-0.15*	
Altruism	0.14	0.02		0.15	0.07		-0.09	-0.03	
Agreeableness	0.16		0.03/0.08	0.2		0.04/0.06	-0.14		0.02/0.03
Dominance	0.03	0.02		0.06	0.06		0.03	0.04	
Persistence	0.27	0.16*		0.12	-0.01		-0.16	0	
Self-discipline	0.19	0.08		0.13	0.07		-0.2	-0.09	
Planfulness	0.2	0.01		0.16	-0.01		-0.25	-0.14*	
Goal-orientation	0.28	0.13		0.22	0.15*		-0.24	-0.08	
Carefulness	0.23	0.1		0.16	0.03		-0.17	0.03	
Orderliness	0.11	-0.07		0.14	0.06		-0.2	-0.05	
Wish to work	0.1	-0.05		0.11	0.03		-0.09	0.03	
Initiative	0.23	0.07		0.13	0		-0.24	-0.13*	
Conscientiousness	0.3		0.09/0.13	0.23		0.05/0.06	-0.28		0.08/0.10
Sociability	0.26	0.09		0.11	0.11		-0.03	-0.04	
Wish for affiliation	0.2	0.06		0.06	0		0.01	0.07	
Positive attitude	0.49	0.52*		0.07	0.03		-0.07	-0.07	
Forcefulness	0.09	-0.03		0	-0.05		0.06	0.07	
Communicativeness	0.11	-0.05		0.06	0.03		0.02	-0.01	
Humor	0.16	-0.07		0.02	-0.02		0.08	0.13*	
Conviviality	0.22	-0.06		0.05	-0.01		-0.01	0.01	
Energy	0.25	0.02		0.06	0.02		-0.15	-0.18*	
Extraversion	0.33		0.11/0.26	0.05		<0.01/0.02	0.02		<0.01/0.05
Equanimity	0.22	0.02		0.11	0.13*		-0.11	-0.09	
Mental balance	0.53	0.59*		0.09	0.13		-0.11	-0.08	
Carefreeness	0.31	-0.04		-0.01	-0.11		-0.04	0.09	
Confidence	0.25	0.09*		0.03	0.02		-0.02	0.04	
Drive	0.27	-0.05		0.08	0.06		-0.15	-0.14*	
Emotional robustness	0.18	-0.07		-0.05	-0.11		-0.01	0.04	
Self-attention	0.21	-0.04		0	-0.03		-0.06	-0.01	
Emotional stability	0.4		0.16/0.3	0.05		<0.01/0.04	-0.1		0.01/0.04
Creativity	0.06	-0.1		-0.01	-0.14*		0	0.03	
Wish for variety	0.18	0.09		0.09	0.06		0.01	0.07	
Open-mindedness	0.22	0.14*		0.14	0.08		-0.07	-0.07	
Interest in reading	0.07	-0.02		0.15	0.12*		-0.04	-0.04	
Artistic Interests	0.04	-0.09		0.04	-0.06		0.04	0.09	

Wish to analyze	0.13	-0.05		0.1	0.01		0.01	0.11
Willingness to learn	0.21	0.13		0.1	-0.04		-0.08	-0.15*
Intellect	0.24	0.16*		0.2	0.17*		-0.09	-0.08
Openness	0.2		0.04/0.09	0.15		0.023/0.07	-0.03	<0.01/0.03

Note: * means significant at alpha = 0.01. For the R^2 column, * means $p < 0.01$ in the linear regression's F statistic.

Study 2

Results

Table E4. Reliability, CFA and ESEM.

facets	alpha	omega	chisq(df)	pvalue	cfi	rmsea	ESEM
Agreeableness							
Appreciation	0,71	0,73	15.141(5)	0.01	0,99	0,072	-0,443
Integrity	0,72	0,74	34.724(5)	< 0.001	0,974	0,124	0,64
Low competitiveness	0,72	0,72	28.603(5)	< 0.001	0,964	0,11	0,774
Good faith	0,65	0,69	15.098(5)	0.01	0,991	0,072	-0,204
Genuineness	0,65	0,68	29.404(5)	< 0.001	0,965	0,112	0,732
Altruism	0,4	0,41	6.636(2)	0.036	0,932	0,077	-0,403
Conscientiousness							
Dominance	0,71	0,73	19.883(5)	0.001	0,989	0,088	0,192
Persistence	0,57	0,62	8.72(5)	0.121	0,995	0,044	-0,486
Self-discipline	0,68	0,69	36.07(5)	< 0.001	0,937	0,127	-0,229
Task planning	0,81	0,81	47.719(5)	< 0.001	0,977	0,149	0,486
Goal-orientation	0,77	0,77	154.106(5)	< 0.001	0,909	0,278	0,844
Carefulness	0,68	0,69	18.672(5)	0.002	0,978	0,084	0,375
Orderliness	0,82	0,83	92.76(5)	< 0.001	0,954	0,213	-0,234
Wish to work	0,63	0,67	35.668(5)	< 0.001	0,954	0,126	0,571
Productivity	0,68	0,69	19.16(5)	0.002	0,979	0,086	0,732
Extraversion							

Sociability	0,66	0,68	6.341(5)	0.274	0,997	0,026	-0,69
Wish for affiliation	0,65	0,68	50.828(5)	< 0.001	0,943	0,154	-0,541
Positive attitude	0,82	0,83	29.172(5)	< 0.001	0,989	0,112	0,507
Forcefulness	0,68	0,7	6.587(5)	0.253	0,998	0,029	0,242
Communicativeness	0,75	0,75	127.563(5)	< 0.001	0,883	0,252	0,741
Humor	0,79	0,79	28.17(5)	< 0.001	0,983	0,109	0,448
Conviviality	0,69	0,71	31.239(5)	< 0.001	0,981	0,116	0,508
Energy	0,71	0,73	0(0)	< 0.001	1	0	0,196
Emotional Stability							
Equanimity	0,74	0,75	29.498(5)	< 0.001	0,974	0,113	-0,036
Mental balance	0,86	0,86	57.719(5)	< 0.001	0,981	0,165	0,003
Carefreeness	0,77	0,77	14.337(5)	0.014	0,99	0,069	0,158
Confidence	0,7	0,71	43.461(5)	< 0.001	0,95	0,141	0,117
Drive	0,62	0,64	22.031(5)	< 0.001	0,972	0,094	0,004
Emotional robustness	0,75	0,76	15.515(5)	0.008	0,988	0,074	0,091
Self-attention	0,55	0,56	0(0)	< 0.001	1	0	0,068
Openness							
Creativity	0,68	0,68	6.403(5)	0.269	0,997	0,027	0,067
Wish for variety	0,7	0,72	63.079(5)	< 0.001	0,967	0,173	-0,061
Open-mindedness	0,66	0,67	100.749(5)	< 0.001	0,869	0,222	-0,154
Interest in reading	0,85	0,86	17.058(5)	0.004	0,998	0,079	-0,094
Artistic Interests	0,81	0,82	5.175(5)	0.395	1	0,01	0,07
Wish to analyze	0,78	0,79	7.965(5)	0.158	0,998	0,039	0,137
Willingness to learn	0,81	0,82	7.74(5)	0.171	0,999	0,038	-0,11
Intellect	0,8	0,82	0(0)	< 0.001	1	0	-0,244

Note: The ESEM column represents standardized loadings of the facet in its intended factor

Measurement Invariance.

Table E5. Highest degree of measurement invariance in each facet

Domain	Configural	Partial metric	Metric	Partial scalar	Scalar
Agreebleness					
	Readiness to give feedback	Altruism	Integrity	Search for support	
		Appreciation		Good faith	
		Genuineness			
		Low competitiveness			
Conscientiousness					
		Dominance	Self-discipline	Carefulness	
		Productivity		Self-discipline	
		Task planning		Orderliness	
				Persistence	
				Wish to work	
				Goal orientation	
Extraversion					
		Forcefulness	Wish for affiliation	Energy	Sociability
		Comunicativeness		Humor	
				Positive attitude	
		Readiness to take risks		Conviviality	
Emotional Stability					
		Equanimity	Mental balance	Carefreeness	
		Confidence		Drive	
				Emotional robustness	
				Self-attention	
Openness					
		Willingness to learn	Artistic interests	Wish to analyze	
		Open-mindedness	Creativity	Wish for variety	
		Sensitivity		Interest in reading	
				Intellect	

Table E6. Metric non-invariant items

facet	item	labels	lambda.usa	lambda.ger
Altruism	agree75	I return extra change when a cashier makes a mistake.	1.32 (0.29)	0.58 (0.19)
Appreciation	agree73	I respect others.	1.02 (0.11)	1.43 (0.17)
Genuineness	agree43	I find it easy to manipulate others.	0.95 (0.13)	1.13 (0.13)
Genuineness	agree71	I respect authority.	-0.52 (0.1)	-0.18 (0.09)
Low competitiveness	agree77	I see other people as my competitors.	0.89 (0.09)	0.69 (0.09)
Low competitiveness	agree91	I tend to brag about my accomplishments.	0.63 (0.09)	0.98 (0.11)
Search for Support	agree80	I show my fear.	0.77 (0.12)	1.19 (0.14)
Search for Support	agree92	I tend to complain.	0.62 (0.14)	0.37 (0.16)
Dominance	con106	I try to outdo others.	0.65 (0.1)	0.31 (0.06)
Dominance	con93	I resist authority.	0.19 (0.09)	0.59 (0.06)
Goal orientation	con4	I am a goal-oriented person.	1.01 (0.09)	0.77 (0.1)
Orderliness	con71	I make a mess of things.	0.73 (0.08)	0.99 (0.07)
Persistence	con66	I like to take my time.	-0.09 (0.07)	0.31 (0.09)
Persistence	con8	I am easily discouraged.	0.51 (0.09)	0.92 (0.1)
Productivity	con97	I start tasks right away.	1.13 (0.23)	1.68 (0.25)
Task planning	con6	I am always prepared.	0.77 (0.09)	0.44 (0.06)
Communicativeness	extra84	I disclose my intimate thoughts.	0.28 (0.08)	0.76 (0.05)
Conviviality	extra28	I am good at getting people to like me.	0.67 (0.12)	0.22 (0.07)
Conviviality	extra341	I would enjoy a lot of social interaction.	1.18 (0.16)	0.52 (0.08)
Energy	extra49	I am usually active and full of energy.	1.06 (0.15)	0.75 (0.1)
Forcefulness	extra80	I challenge others` points of view.	0.82 (0.11)	0.24 (0.08)
Readiness to take risks	extra60	I avoid dangerous situations.	-0.88 (0.08)	-0.64 (0.08)
Sociability	extra124	I feel comfortable around people.	-1 (0.11)	-0.7 (0.08)

facet	item	labels		
Carefreeness	neuro29	I am filled with doubts about things.	0.72 (0.09)	0.98 (0.08)
Confidence	neuro54	I face danger confidently.	0.86 (0.1)	0.59 (0.09)
Equanimity	neuro147	I snap at people.	0.83 (0.09)	0.48 (0.07)
Self-attention	neuro32	I am preoccupied with myself.	0.36 (0.14)	0.99 (0.2)
Self-attention	neuro69	I feel threatened easily.	0.73 (0.29)	1.43 (0.4)
Intellect	open30	I can handle a lot of information.	0.86 (0.08)	0.55 (0.05)
Open-mindedness	open35	I come up with alternatives.	0.95 (0.12)	0.59 (0.15)
Open-mindedness	open77	I know how to apply my knowledge.	0.91 (0.11)	0.45 (0.14)
Sensitivity	open114	I rarely notice my emotional reactions.	-0.14 (0.07)	-0.41 (0.08)
Willingness to learn	open40	I dislike learning.	-0.75 (0.09)	-1.15 (0.09)
Wish for variety	open71	I have been creative during the last year.	0.65 (0.09)	0.32 (0.08)

Note: lambda.usa and lambda.ger represent unstandardized factor loadings on the configural model for the American and German sample respectively. Standard errors in parenthesis.

Table E7. Scalar non-invariant items

facet	item	labels	tau.usa	tau.ger
Good Fatih	agree13	I am good at working with a group.	2.75 (0.05)	2.52 (0.05)
Good Fatih	agree97	I trust what people say.	2.27 (0.05)	2.08 (0.06)
Integrity	agree67	I misuse power.	0.91 (0.05)	0.67 (0.05)
Search for Support	agree83	I show my sadness.	1.62 (0.06)	2 (0.09)
Carefulness	con102	I take precautions.	2.4 (0.05)	2.65 (0.05)
Carefulness	con15	I avoid mistakes.	2.22 (0.05)	2.5 (0.05)
Goal orientation	con114	I work hard.	3.12 (0.05)	2.69 (0.06)
Orderliness	con21	I can never find anything.	1.37 (0.05)	1.01 (0.07)
Orderliness	con7	I am continually losing things.	1.57 (0.06)	0.95 (0.07)

Persistence	con66	I like to take my time.	2.7 (0.05)	2.42 (0.05)
Persistence	con77	I never give up.	2.8 (0.05)	2.65 (0.06)
Self-discipline	con10	I am easily talked into doing silly things.	1.59 (0.06)	2.3 (0.07)
Self-discipline	con2	I act impulsively when something is bothering me.	1.83 (0.06)	2.61 (0.07)
Wish to work to capacity	con11	I am exacting in my work.	2.38 (0.04)	2.95 (0.04)
Wish to work to capacity	con56	I have extra time on my hands.	1.62 (0.06)	2.21 (0.06)
Conviviality	extra28	I am good at getting people to like me.	2.56 (0.05)	2.17 (0.05)
Conviviality	extra99	I enjoy being part of a group.	2.72 (0.05)	2.53 (0.06)
Energy	extra238	I maintain high energy throughout the day.	2.29 (0.05)	2.1 (0.07)
Energy	extra311	I tire out quickly.	1.51 (0.05)	1.87 (0.06)
Positive attitude	extra182	I laugh a lot.	3.2 (0.05)	2.89 (0.05)
Positive attitude	extra233	I love life.	3.26 (0.04)	2.24 (0.05)
Wish for affiliation	extra112	I enjoy silence.	2.24 (0.06)	2.65 (0.06)
Wish for affiliation	extra125	I feel isolated from other people.	1.39 (0.06)	1.14 (0.05)
Carefreeness	neuro121	I often feel tense.	1.83 (0.06)	2.04 (0.07)
Carefreeness	neuro29	I am filled with doubts about things.	1.93 (0.06)	1.64 (0.07)
Drive	neuro117	I never spend more than I can afford.	2.07 (0.07)	2.44 (0.07)
Drive	neuro87	I hardly know where my life is going.	1.45 (0.06)	1.77 (0.07)
Emotional robustness	neuro114	I need protection.	1.53 (0.05)	1.82 (0.05)
Emotional robustness	neuro81	I get overwhelmed by emotions.	1.58 (0.06)	2.08 (0.06)

			tau.usa	tau.ger
Self-attention	neuro116	I need the approval of others.	1.84 (0.06)	2.1 (0.07)
Self-attention	neuro32	I am preoccupied with myself.	1.5 (0.05)	1.67 (0.06)
Intellect	open111	I am quick to understand things.	2.73 (0.04)	2.53 (0.09)
Intellect	open85	I learn quickly.	2.85 (0.05)	2.51 (0.09)
Interest in reading	open118	I read a lot.	2.06 (0.07)	2.25 (0.08)
Wish for variety	open5	I am excited by many different activities.	2.75 (0.05)	3.04 (0.05)
Wish for variety	open71	I have been creative during the last year.	2.84 (0.05)	2.61 (0.05)
Wish to analyze	open145	I try to understand myself.	3.12 (0.04)	2.8 (0.05)
Wish to analyze	open93	I like to speculate about things.	2.48 (0.05)	3.03 (0.05)

Note: tau.usa and tau.ger represent unstandardized intercepts on the metric invariant model for the American and German sample respectively. Standard errors in parenthesis.

Table E8. ESEM factor loadings and cross-loadings for the USA sample

	AGREE	CONSC	EXTRA	NEURO	OPEN
A1	-0.383	0.124	0.261	0.446	0.095
A2	0.638	-0.218	-0.181	-0.099	0.13
A3	0.757	0.058	0.063	0.118	0.102
A6	-0.229	0.007	0.407	0.137	0.226
A7	0.635	-0.172	-0.034	-0.001	0.144
A8	-0.347	-0.003	0.246	0.334	0.132
C1	0.677	0.273	0.081	0.177	0.041
C2	0.033	-0.325	-0.203	-0.169	0.457
C3	0.265	-0.302	0.096	0.163	0.533
C4	0.183	0.816	-0.097	0.012	0.034
C5	0.068	0.681	0.133	0.184	-0.147
C6	-0.071	0.585	-0.194	0.321	0.013
C7	0.032	-0.46	0.045	0.185	0.364
C8	0.054	0.35	0.114	0.191	0.148
C9	0.12	0.4	0.077	0.16	-0.24
E1	-0.082	0.015	-0.746	-0.002	0.025
E3	0.045	0.078	-0.694	0.456	0.029
E4	-0.081	0.169	0.547	0.249	-0.163
E5	0.6	0.039	0.196	0.398	-0.007

E6	0.113	-0.077	0.699	-0.001	0.36
E7	0.08	-0.203	0.289	0.414	-0.027
E8	0.048	0.012	0.744	0.083	0.137
E9	0.106	0.042	0.492	0.11	-0.264
N1	0.46	0.011	-0.055	-0.135	0.389
N2	0.052	-0.1	-0.489	0.083	0.54
N3	0.003	0.144	-0.243	0.09	0.755
N4	0.204	-0.013	0.064	0.537	-0.411
N5	0.027	-0.365	-0.234	0.006	0.587
N6	-0.162	0.247	0.055	-0.129	0.729
N7	0.136	0.106	0.009	-0.089	0.629
O1	0.22	-0.236	-0.014	0.806	-0.158
O2	-0.184	0.121	0.284	0.42	0.038
O3	-0.082	-0.012	0.066	0.768	-0.095
O4	-0.208	-0.04	-0.173	0.543	0.107
O5	-0.27	-0.095	0.031	0.586	0.056
O6	-0.001	0.154	-0.152	0.776	0.065
O7	-0.246	0.137	0.044	0.706	-0.05
O9	0.073	0.17	-0.114	0.623	-0.197

Table E9. ESEM factor loadings and cross-loadings for the German sample

	AGREE	CONSC	EXTRA	NEURO	OPEN
A1	-0.443	0.098	0.121	0.081	0.382
A2	0.64	-0.036	-0.042	0.17	-0.125
A3	0.774	0.059	-0.017	0.144	0.082
A6	-0.204	-0.053	0.426	0.076	0.177
A7	0.732	-0.049	0.008	0.008	-0.037
A8	-0.403	0.097	0.033	0.154	0.029
C1	0.68	0.192	0.183	0.009	0.085
C2	0.014	-0.486	-0.046	0.387	-0.056
C3	0.341	-0.229	0.328	0.419	-0.07
C4	0.053	0.486	-0.094	0.185	0.117
C5	-0.01	0.844	0.046	0.173	0.014
C6	-0.021	0.375	-0.236	-0.052	0.406
C7	0.22	-0.234	0.059	0.288	-0.109
C8	-0.045	0.571	-0.077	0.39	-0.156
C9	0.044	0.732	0.072	-0.014	-0.17
E1	-0.07	-0.065	-0.69	0.033	0.021
E3	0.006	-0.063	-0.541	0.074	0.395
E4	-0.052	0.044	0.507	-0.391	0.058

E5	0.663	0.192	0.242	-0.042	0.053
E6	0.157	-0.03	0.741	0.312	0.038
E7	0.071	-0.084	0.448	-0.081	0.318
E8	-0.113	0.118	0.508	0.009	0.09
E9	0.065	0.605	0.196	-0.108	-0.203
N1	0.354	0.041	0.128	0.46	-0.036
N2	0.076	-0.056	-0.357	0.571	0.003
N3	-0.003	-0.013	-0.218	0.78	0.158
N4	0.199	0.223	-0.012	-0.455	0.117
N5	0.013	-0.473	-0.07	0.502	0.004
N6	-0.131	0.145	0.239	0.776	0.091
N7	0.173	0.001	-0.159	0.629	0.068
O1	0.427	0.031	0.062	0.067	0.411
O2	0.026	-0.008	0.374	-0.061	0.342
O3	0.042	0.116	0.009	-0.154	0.564
O4	-0.108	-0.051	0.07	-0.094	0.53
O5	-0.15	0.011	0.104	0.07	0.537
O6	0.126	-0.023	-0.018	0.137	0.761
O7	-0.019	0.107	0.055	-0.11	0.682
O9	0.209	0.286	-0.041	-0.244	0.29

Table E10. 10 largest modification indices of the ESEM with the USA sample

modV1	operator	modV2	MI	EPC	Std_EPC	StdYX_EPC
N5	WITH	C2	57.66	0.073	0.073	0.469
E5	WITH	C1	49	0.073	0.073	0.476
O5	WITH	O4	31.104	0.137	0.137	0.314
N6	WITH	C6	27.34	-0.035	-0.035	-0.335
C6	WITH	C4	24.225	0.034	0.034	0.363
E7	WITH	C1	22.426	-0.079	-0.079	-0.281
N6	WITH	E3	22.3	0.076	0.076	0.301
O3	WITH	O2	22.167	-0.046	-0.046	-0.278
O9	WITH	C9	22.049	0.042	0.042	0.264
E4	WITH	E1	20.958	0.04	0.04	0.288

Table E11. Residual correlation matrix ESEM USA sample

	A1	A2	A3	A6	A7	A8	C1	C2	C3	C4	C5	C6	C7	C8	C9	E1	E3	E4	E5	E6	E7	E8	E9	N1	N2	N3	N4	N5	N6	N7	O1	O2	O3	O4	O5	O6	O7	O9
A1	0																																					
A2	-0.005	0																																				
A3	0.034	0.024	0																																			
A6	-0.095	0.017	0.065	0																																		
A7	-0.017	0.005	-0.007	0.044	0																																	
A8	-0.063	-0.057	0.012	-0.054	0.014	0																																
C1	-0.02	0.013	0.047	0.026	0.029	0.072	0																															
C2	-0.008	0.058	0.001	0.062	0.048	0.013	0.006	0																														
C3	-0.023	0.014	-0.02	-0.001	-0.052	0.032	0.074	0.051	0																													
C4	-0.004	0.021	-0.006	-0.002	-0.004	-0.014	0.035	0.057	0.017	0																												
C5	-0.022	0.022	0.041	-0.02	0.021	-0.019	0.006	0.063	0.02	0.001	0																											
C6	-0.007	0.026	0.014	-0.005	-0.061	0.037	0.005	-0.071	0.075	0.075	0.012	0																										
C7	-0.018	-0.003	0.031	-0.028	0.001	0.066	0.037	-0.051	-0.032	0.044	0.003	0.014	0																									
C8	0	-0.008	-0.002	-0.008	-0.09	0.045	0.018	0.076	0.021	0.043	0.011	0.094		0																								
C9	-0.02	0.022	0.024	-0.032	0.012	-0.069	0.037	0.047	0.016	0.042	0.011	0.022	0.019	0.003	0																							
E1	0.003	0.007	0.011	0.065	0.038	0.04	0.02	-0.026	-0.051	0.031	-0.006	0.023	-0.006	-0.003		0																						
E3	-0.026	-0.008	-0.019	-0.027	0.026	-0.025	-0.042	-0.047	0.047	-0.022	0.009	-0.037	0.017	0.008	0.001	0.058	0																					
E4	-0.017	-0.033	-0.007	0.044	-0.037	-0.03	-0.008	-0.024	-0.06	-0.015	0.008	-0.017	0.007	0.026	0.052	0.078	0.054	0																				
E5	-0.019	-0.064	-0.005	0.014	-0.007	-0.046	-0.104	0.029	-0.04	-0.014	-0.027	-0.003	-0.002	-0.022	-0.01	0.032	-0.004	-0.054	0																			
E6	-0.068	-0.014	-0.026	-0.039	-0.045	-0.006	-0.019	-0.017	0.014	-0.003	0.008	-0.003	-0.025	0.008	-0.014	-0.055	-0.027	-0.016	-0.049	0																		
E7	-0.008	-0.041	-0.022	0.058	-0.033	-0.045	-0.115	0.018	0.06	-0.072	-0.019	-0.011	-0.043	0.046	-0.009	0.031	-0.057	-0.031	-0.032	-0.039	0																	
E8	-0.033	-0.011	-0.035	-0.043	-0.019	-0.034	-0.023	-0.011	-0.015	-0.037	-0.003	-0.055	-0.005	-0.038	-0.031	-0.05	-0.044	-0.017	-0.01	-0.033	-0.017	0																
E9	-0.067	-0.039	-0.045	-0.01	-0.014	-0.073	-0.019	-0.036	-0.006	-0.018	-0.045	-0.022	-0.025	-0.027	0.094	0.003	-0.03	0.04	-0.058	-0.049	-0.017	-0.055	0															

N1	0.024	0.081	-0.055	-0.121	0.033	0.061	-0.012	0.047	-0.047	0.018	0.023	0.014	0.039	0.027	0.026	0.041	0.056	0.031	0.006	0.026	0.012	-0.011	0.000	0								
N2	0.013	0.001	0.002	0.042	0.032	0.022	0.026	-0.02	0.011	0.014	0.023	0.018	0.01	0.017	-0.02	0.025	0.062	0.007	0.016	0.032	0.027	0.015	0.024	0								
N3	0.013	0.034	0.008	0.026	0.016	0.022	-0.007	0.051	0.053	0.012	0.013	0.002	0.025	0.034	0.011	0.018	0.051	0.049	-0.001	-0.05	0.025	0.024	-0.007	0.034	0							
N4	-0.007	0.021	-0.029	0.008	0.003	0.067	0.046	0.036	0.068	0.018	0.032	0.017	0.069	0.024	0.027	0.021	0.021	-0.05	0.054	0.002	0.046	-0.05	0.009	0.01	0							
N5	0.015	0.036	-0.017	0.073	0.034	0.04	0.017	0.13	0.037	0.028	0.005	0.052	0.005	0.013	0.016	0.029	0.014	0.004	0.001	0.022	0.029	-0.019	-0.026	0.01	0.019	0						
N6	0.001	0.036	0.049	0.087	0.003	0.015	0.016	0.018	0.038	0.006	0.009	0.105	-0.04	0.017	0.024	-0.03	0.107	0.055	0.004	0.056	-0.012	0.043	0.014	0.095	-0.016	0.003	0.055	0.03	0			
N7	0.025	0.017	0.082	0.109	0.049	0.007	0.024	0.025	0.052	0.001	-0.03	0.015	0.033	0.038	0.016	0.036	0.02	0.03	0.058	0.031	0.017	0.021	0.001	0.056	0.05	0	0.055	0.052	0			
O1	0.027	0.007	0.034	-0.07	0.04	0.016	0.036	0.041	0.059	0.034	0.033	0.041	0.051	0.018	0.024	0.025	0.012	0.019	0.013	0.057	0.017	0.07	0.017	0.036	0.024	0.012	0.011	0.012	0.041	0		
O2	0.019	0.041	0.01	0.034	0.024	0.08	0.008	0.082	0.072	0.027	0.038	0.043	0.041	0.001	0.096	0.065	0.021	0.033	0.029	0.024	0.031	0.01	-0.05	0.02	0.007	0.006	0.013	0.062	0.022	0.07	0.038	0
O3	-0.08	0.006	0.006	0.015	0.042	0.017	0.007	0.05	0.046	0.026	0.027	0.039	0.009	0.04	0.051	0.019	-0.05	0.034	0.043	-0.02	0.024	0.028	0.027	0.006	0.008	0.035	-0.03	0.019	0.018	0.097	0	
O4	0.041	0.069	0.025	0.016	0.038	0.007	0.001	0.037	-0.08	0.025	0.024	0.025	0.001	0.125	0.153	0.012	0.028	-0.01	0.096	0.007	0.038	0.036	0.013	0.033	0.045	0.097	0.034	0.057	0.006	0.035	0.002	0
O5	0.042	0.048	0.008	0.052	0.048	0.012	0.021	0.024	0.071	0	0.012	0.022	0.036	0.018	0.039	0.002	0.007	0.015	0.017	0.053	0.016	0.024	0.019	0.013	0.034	0.048	0.006	-0.06	0.033	0.036	0.009	0.189
O6	0.026	-0.01	0.017	0.029	0	0.016	0.026	0.007	0.005	-0.02	0.024	0.028	0.014	0.015	0.085	0.008	0.008	0.022	0.036	0.012	0.032	0.019	0.046	0.042	0.048	0.033	0.034	0.041	0.017	0.077	0.011	-0.02
O7	0.006	0.033	0.004	-0.03	0.008	0.068	0.007	0.003	0.022	-0.02	0.005	0.007	0.032	0.015	0.073	0.013	0.013	0.033	0.024	0.007	0.014	0.022	0.005	0.001	0.011	0.032	0.025	0.013	0.029	0.058	0.042	0.028
O9	0.009	0.023	0.002	0.076	0.006	0.008	0.008	0.037	0.007	0.005	0.007	0.011	0.056	0.068	0.133	0.013	0.025	0.034	0.02	0.006	0.025	0.022	0.017	0.029	0.09	0.056	0.062	0.023	0.024	0.033	0.038	0.026

References (not included in the manuscript)

Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. Structural equation modeling: a multidisciplinary journal, 16(3), 397-438.doi:10.1080/10705510903008204

Bagby, R. M., Taylor, G. J., & Parker, J. D. (1994). The twenty-item Toronto Alexithymia scale-II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, *38*(1), 33–40. doi:*10.1016/0022-3999(94)90006-X*

Brick, C., & Lewis, G. J. (2014). Unearthing the "Green" Personality: Core Traits Predict Environmentally Friendly Behavior. *Environment and Behavior*, *48*(5), 635–658. doi:*10.1177/0013916514554695*

Gaughan, E. T., Miller, J. D., & Lynam, D. R. (2012). Examining the Utility of General Models of Personality in the Study of Psychopathy: A Comparison of the HEXACO-PI-R and NEO PI-R. *Journal of Personality Disorders*, *26*(4), 513–523. doi:*10.1521/pedi.2012.26.4.513*

Gaughan, E. T., Miller, J. D., Pryor, L. R., & Lynam, D. R. (2009). Comparing two alternative measures of general personality in the assessment of psychopathy: A test of the NEO PI-R and the MPQ. *Journal of Personality*, *77*(4), 965–995. doi:*10.1111/j.1467-6494.2009.00571.x*

Goldberg, L. R. (2006). Doing it all bass-ackwards: The development of hierarchical factor structures from the top down. Journal of research in personality, 40(4), 347-358.

Hagger-Johnson, G. E., & Whiteman, M. C. (2007). Conscientiousness facets and health behaviors: A latent variable modeling approach. *Personality and Individual Differences*, *43*(5), 1235–1245. doi:*10.1016/j.paid.2007.03.014*

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. Psychometrika, 30(2), 179–185. doi:10.1007/BF02289447

Johnson, J. A. (2014). Measuring thirty facets of the Five Factor Model with a 120-item public domain inventory: Development of the IPIP-NEO-120. Journal of Research in Personality, 51, 78-89.

Lee, K., & Ashton, M. C. (2016). Psychometric Properties of the HEXACO-100. *Assessment*, *1-15*. doi:*10.1177/1073191116659134*

Leone, L., Chirumbolo, A., & Desimoni, M. (2012). The impact of the HEXACO personality model in predicting socio-political attitudes: The moderating role of interest in politics. *Personality and Individual Differences*, *52*(3), 416–421. doi:*10.1016/j.paid.2011.10.049*

Marsh, H. W., Lüdtke, O., Muthén, B., Asparouhov, T., Morin, A. J., Trautwein, U., & Nagengast, B. (2010). A New Look at the Big Five Factor Structure Through Exploratory Structural Equation Modeling. Psychological Assessment, 22(3), 471–491. doi:10.1037/a0019227

Mcabee, S. T., Oswald, F. L., & Connelly, B. S. (2014). Bifactor Models of Personality and College Student Performance: A Broad Versus Narrow View. *European Journal of Personality*, *28*(6), 604–619. doi:*10.1002/per.1975*

Mccrae, R. R., Kurtz, J. E., Yamagata, S., & Terracciano, A. (2011). Internal consistency, retest reliability and their implications for personality Scale Validity. *Personality and Social Psychological Bulletin*, *15*(1), 28–50. doi:*10.1177/1088868310366253.Internal*

Muthén, L. K., & Muthén, B. O. (2012). MPlus: statistical analysis with latent variables--User's guide.

Noftle, E. E., & Shaver, P. R. (2006). Attachment dimensions and the big five personality traits: Associations and comparative ability to predict relationship quality. *Journal of Research in Personality*, *40*(2), 179–208. doi:*10.1016/j.jrp.2004.11.003*

Ruiz, M. A., Pincus, A. L., & Dickinson, K. A. (2003). NEO PI-R predictors of alcohol use and alcohol-related problems. *Journal of Personality Assessment*, *81*(3), 265–270. doi:*10.1207/S15327752JPA8103*

Schimmack, U., Diener, E., & Oishi, S. (2002). Life-satisfaction is a momentary judgment and a stable personality characteristic: The use of chronically accessible and stable sources. *Journal of Personality*, *70*(3), 345–384. doi:*10.1111/1467-6494.05008*

Shaver, P. R., & Brennan, K. A. (1992). Attachment styles and the" Big Five" personality traits: Their connections with each other and with romantic relationship outcomes. *Personality and Social Psychology Bulletin*, 18(5), 536-545.

Siddiqui, K. (2011). Personality influences mobile phone usage. *Interdisciplinary Journal of Contemporary Research In Business,* 3(3).

Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of personality and social psychology*, 113(1), 117. doi:*10.1037/pspp0000096*

Piedmont, R. L. (1994). Validation of the NEO PI-R observer form for college students: Toward a paradigm for studying personality development. Assessment, 1(3), 259-268.

Rosander, P., Bäckström, M., & Stenberg, G. (2011). Personality traits and general intelligence as predictors of academic performance: A structural equation

modelling approach. *Learning and Individual Differences*, *21*(5), 590–596. doi:*10.1016/j.lindif.2011.04.004*

Velicer, W. F. (1976). Determining the number of components from the matrix of partial correlations. Psychometrika, 41(3).

Wakabayashi, A., Baron-Cohen, S., & Wheelwright, S. (2006). Are autistic traits an independent personality dimension? A study of the Autism-Spectrum Quotient (AQ) and the NEO-PI-R. *Personality and Individual Differences*, *41*(5), 873–883. doi:*10.1016/j.paid.2006.04.003*

Ziegler, M. (2014). Comments on item selection procedures. European Journal of Psychological Assessment, 30, 1-2.