Supporting Information

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SI Text

Interjudge Agreement Between Two Human Judges. For participants rated by two friends, the ratings were summed across judges (i.e., individual ratings were not recorded). Thus, the interjudge agreement was estimated using the following formulas.

Interjudge agreement is expressed as the Pearson product-moment correlation between the ratings of judge 1 and judge 2

$$Corr(J_1,J_2)=\frac{COV(J_1,J_2)}{\sqrt{VAR(J_1)\times VAR(J_2)}}, \quad [S1]$$

where J_1, J_2 are ratings of judge 1 and judge 2, respectively. Because

$$VAR(J_1+J_2)=VAR(J_1)+VAR(J_2)+2COV(J_1,J_2), \quad [S2]$$

the covariance between J_1 and J_2 can be expressed as

$$COV(J_1,J_2)=\frac{VAR(J_1+J_2)-VAR(J_1)-VAR(J_2)}{2}. \quad [S3]$$

By replacing the numerator in Eq. **S1** with Eq. **S3**, the interjudge correlation can be expressed as

$$Corr(J_1,J_2)=\frac{VAR(J_1+J_2)-VAR(J_1)-VAR(J_2)}{2\sqrt{VAR(J_1)\times VAR(J_2)}}. \quad [S4]$$

Because ratings are independent, it can be assumed that they have the same variance, therefore

$$Corr(J_1,J_2)=\frac{VAR(J_1+J_2)-2VAR(J_1)}{2\sqrt{VAR(J_1)\times VAR(J_1)}},$$

or

$$Corr(J_1,J_2)=\frac{VAR(J_1+J_2)}{2VAR(J_1)}-1,$$

where $VAR(J_1+J_2)$ can be calculated by taking the variance of the summed ratings, and $VAR(J_1)$ can be estimated from a sample of participants who were rated by one judge only.

Table S1. Self-other agreement for human judges in the current sample or as reported in Connelly and Ones's meta-analysis (1)

	n					ρ					
Context	O	C	E	A	N	O	C	E	A	N	Average
Current sample											
Human			17,622			0.59	0.41	0.54	0.48	0.39	0.49
Meta-analysis											
Cohabitant	2,144	3,333	3,144	2,634	2,777	0.47	0.51	0.48	0.34	0.40	0.45
Work colleague	1,396	1,647	1,647	1,647	981	0.27	0.24	0.30	0.31	0.18	0.27
Friend	7,388	9,935	11,418	10,225	9659	0.47	0.49	0.50	0.37	0.40	0.45
Spouse	2,429	2,957	3,331	3,023	3,439	0.60	0.63	0.64	0.54	0.53	0.58
Family	1,186	1,796	3,102	1,515	3,065	0.48	0.50	0.57	0.37	0.51	0.50

Self-other agreement across the five traits was averaged using Fisher's *r*-to-*z* transformation and weighted by sample-size. The corrected average self-other correlations (ρ) are used to plot Fig. 2. A cohabitant is a roommate or a housemate; a work colleague is a supervisor, a coworker, or a subordinate; different from the original grouping in the meta-analysis, a friend can be a best friend, a close acquaintance, or a peer at school (dating partners in the original group were removed); a spouse now includes a married or dating partner; a family member includes a parent or a sibling (spouses in the original group were removed). All correlations were significant at $P < 0.001$. A, agreeableness; C, conscientiousness; E, extraversion; N, neuroticism; *n*, sample sizes; O, openness; ρ, self-other correlations corrected for attenuation for self and others' ratings using Cronbach's α reliability in the current sample and test–retest reliability in the meta-analysis.

1. Connelly BS, Ones DS (2010) An other perspective on personality: meta-analytic integration of observers' accuracy and predictive validity. *Psychol Bull* 136(6):1092–1122.

Table S2. Zero-order and partial correlations between self-ratings, human judgments, and computer judgments for a subsample of participants (n = 1,919), for whom both human and computer judgments were available

	r					ρ				
Correlations	O	C	E	A	N	O	C	E	A	N
Human–computer (zero-order)	0.22	0.17	0.20	0.14	0.19	0.41	0.24	0.29	0.21	0.25
Human–computer (partial)	0.08	0.07	0.04^{NS}	0.03^{NS}	0.08	0.11	0.09	0.04^{NS}	0.01^{NS}	0.10
Self–human (zero-order)	0.30	0.26	0.37	0.29	0.29	0.61	0.39	0.55	0.49	0.40
Self–human (partial)	0.22	0.21	0.32	0.26	0.24	0.50	0.32	0.49	0.45	0.34
Self–computer (zero-order)	0.51	0.42	0.45	0.38	0.40	0.56	0.44	0.47	0.41	0.41
Self–computer (partial)	0.48	0.40	0.42	0.36	0.36	0.43	0.39	0.39	0.36	0.35

All correlations were significant at $P < 0.01$, unless otherwise stated. NS, not significant; r, raw correlations; ρ, correlations corrected for attenuation for self and humans' ratings using Cronbach's α reliability.

Table S3. Summary of the external behaviors, behaviorally related traits, or life outcomes used in the study

Variables	Scales or sources	Past findings
Network size	Number of Facebook friends	(1)
Network characteristics	Facebook network 1) betweenness, 2) density, 3) transitivity, and 4) brokerage	(2)
Facebook activities	Number of Facebook 1) status posts, 2) picture tags, 3) events, and 4) groups	(1)
Self-monitoring	Self-Monitoring Scale, a 25-item scale assessing the degree to which one regulates self-presentation using situational cues (3)	(4)
Impulsivity	Barratt Impulsiveness Scale (BIS-11), a 30-item scale assessing general and specific dimensions of impulsiveness (5)	(6, 7)
Sensational interests	The Sensational Interests Questionnaire, assessing 1) wholesome interests, 2) intellectual activities, 3) violent occultism, 4) militarism, and 5) credulousness (8)	(7, 8)
Life satisfaction	Satisfaction with Life Scale, a five-item scale assessing life satisfaction (9)	(10)
Depression	Centre for Epidemiological Study Depression Scale (CES-D) (11)	(12)
Substance use	Questionnaire assessing 1) alcohol consumption, 2) smoking behavior, and 3) drug use	(13–15)
Physical health	Pennebaker Inventory of Limbic Languidness (16), an inventory of respondents' 1) experience of common physical symptoms, 2) recent days sick, 3) recent physician visits, and 4) recent days restricted due to illness	(17, 18)
Values	Schwartz's Values Survey, assessing 10 types of universal values, including 1) achievement, 2) benevolence, 3) conformity, 4) hedonism, 5) power, 6) security, 7) self-direction, 8) stimulation, 9) tradition, and 10) universalism	(19, 20)
Political attitude	Facebook profile information indicating political views of Conservative or Liberal	(21–24)
Field of study	Facebook profile information indicating university major: 1) arts, 2) sciences, or 3) humanities	(25)

Past findings show references of how the variable relates to the Big Five personality traits.

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Table S4. External validity of personality judgments

Variables	Variable type	*r*/AUC			*n*		
		Self	Computer	Human	Self	Computer	Human
Network size	CONT	0.23	0.24	0.17	11,587	5,443	829
Network characteristics		0.14	0.14	0.13	11,587	5,443	829
Betweeness	CONT	0.19	0.21	0.14^{NS}			
Density	CONT	0.05	0.04^{NS}	0.12^{NS}			
Transitivity	CONT	0.13	0.08	0.13			
Brokerage	CONT	0.19	0.21	0.14			
Social network activities		0.06	0.16	0.03			
Number of status posts	LOG	0.16	0.20	0.05^{NS}	25,853	11,806	1,287
Number of picture tags	LOG	0.02	0.11	0.03^{NS}	168,925	27,115	11,649
Number of groups	LOG	0.16	0.20	0.05^{NS}	35,368	17,909	1,918
Number of events	LOG	0.09	0.14	0.04^{NS}	3,784	1,804	292
Self-monitoring	DICH	0.40	0.23	0.19	18,990	3,545	4,280
Sensational interests		0.32	0.29	0.16	75,787	9,566	17,794
Wholesome interests	CONT	0.30	0.26	0.12			
Intellectual activities	CONT	0.49	0.32	0.21			
Violent occultism	CONT	0.29	0.29	0.18			
Militarism	CONT	0.25	0.33	0.15			
Credulousness	CONT	0.28	0.27	0.14			
Impulsivity	CONT	0.52	0.28	0.26	5,935	1,382	1,211
Life satisfaction	CONT	0.52	0.22	0.24	51,734	6,291	13,053
Depression	CONT	0.37	0.30	0.24	2,422	761	562
Substance use		0.09	0.16	0.09	7,438	2,027	1,759
Smoking	CONT	0.12	0.19	0.11			
Alcohol consumption	CONT	0.11	0.20	0.08^{NS}			
Drug use	CONT	0.05	0.10	0.08^{NS}			
Physical health		0.26	0.20	0.12			
Recent physician visits	LOG	0.16	0.15	0.04^{NS}	8,005	2,065	1,875
Recent days sick	LOG	0.19	0.17	0.10	7,945	2,052	1,872
Experience of common physical symptoms	LOG	0.42	0.27	0.20	9,244	2,285	2,138
Days of restricted activity	LOG	0.20	0.20	0.10	7,924	2,049	1,870
Values		0.16	0.14	0.07	5,595	1,627	1,113
Conformity	CONT	0.16	0.11	0.03^{NS}			
Tradition	CONT	0.14	0.17	0.04^{NS}			
Benevolence	CONT	0.13	0.13	0.02^{NS}			
Universalism	CONT	0.20	0.23	0.08^{NS}			
Self-direction	CONT	0.15	0.16	0.07^{NS}			
Stimulation	CONT	0.21	0.19	0.12^{NS}			
Hedonism	CONT	0.11	0.13	0.12			
Achievement	CONT	0.12	0.04^{NS}	0.08^{NS}			
Power	CONT	0.26	0.17	0.15			
Security	CONT	0.11	0.03^{NS}	0.03^{NS}			
Field of study		0.60	0.62	0.58	2,845	1,827	208
Arts	DICH	0.58	0.56	0.55			
Business	DICH	0.62	0.65	0.60			
Science	DICH	0.60	0.64	0.57			
Political attitude	DICH	0.63	0.63	0.57	19,043	5,037	1,335

External validity for continuous compound variables were averaged using Fisher's *r*-to-*z* transformation and weighted by sample size. The average external validity for dichotomous compound variable was calculated using the average AUC. CONT, continuous variable; DICH, dichotomous variable; LOG, continuous and log-transformed variable; NS, not significant; all correlations were significant at $P < 0.05$, unless otherwise stated.