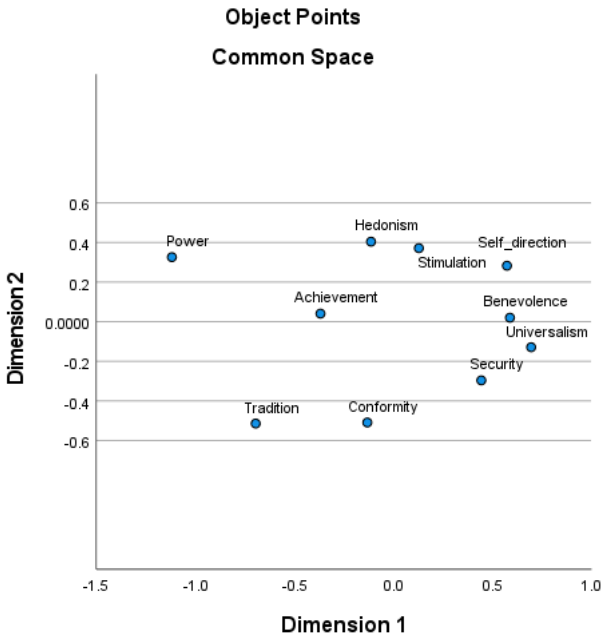
Supplementary Materials

Figure S1

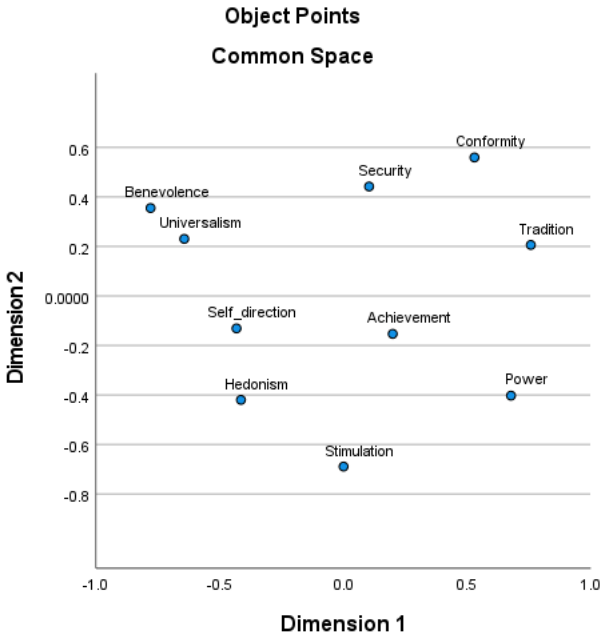
Common space plot displaying Schwartz's (1992) model of values (Sample 1)



Note. We used Torgerson configurations.

Figure S2

Common space plot displaying Schwartz's (1992) model of values (Sample 2)



Note. We used Torgerson configurations.

Figure S3

Scree Plot (Sample 1)

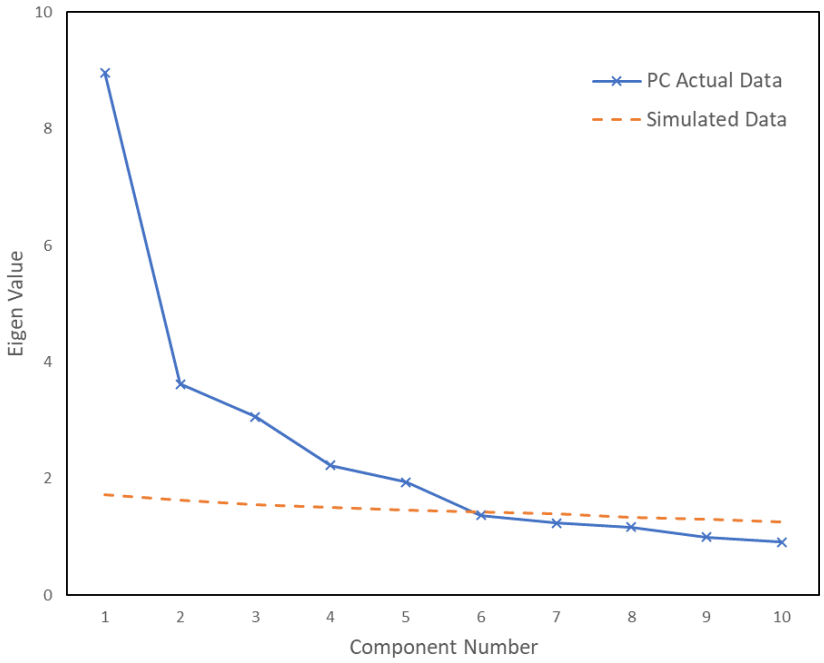


Figure S4

Scree Plot (Sample 2)

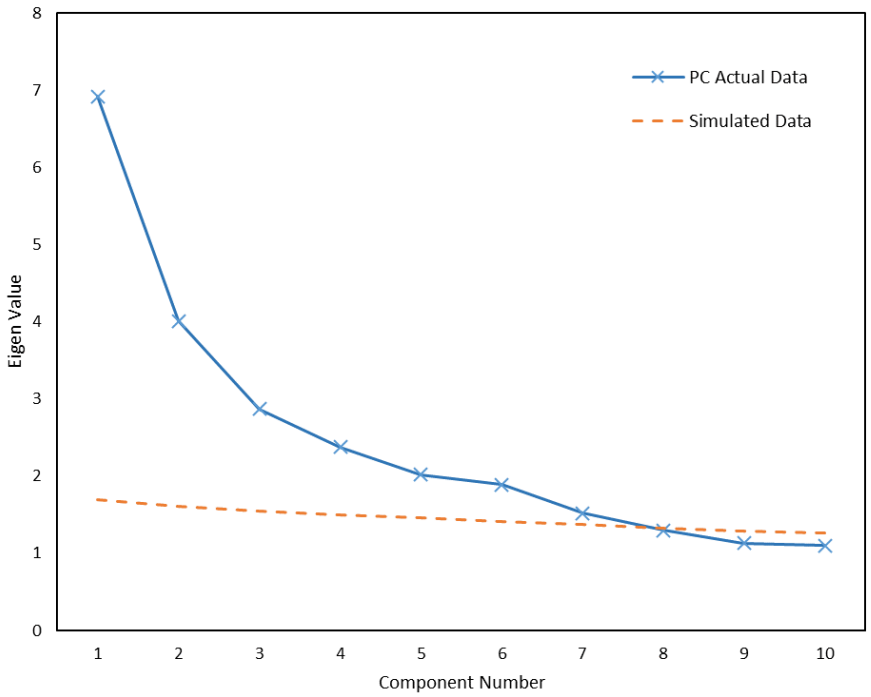


Table S1a

Variable distributional properties for Sample 1 (N = 330).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
PO	2.000	2.642	1.297	0.444	0.134	-0.712	0.268	1.000	6.000
ACH	4.000	4.112	1.107	-0.535	0.134	0.075	0.268	1.000	6.000
HE	4.000	4.345	1.023	-0.493	0.134	0.457	0.268	1.000	6.000
ST	4.000	4.439	0.954	-0.471	0.134	0.379	0.268	1.000	6.000
SD	5.000	5.336	0.787	-1.313	0.134	2.658	0.268	1.000	6.000
UN	6.000	5.412	0.799	-1.564	0.134	3.390	0.268	1.000	6.000
BE	6.000	5.400	0.709	-1.318	0.134	3.704	0.268	1.000	6.000
TR	4.000	3.448	1.407	-0.134	0.134	-0.911	0.268	1.000	6.000
CO	4.000	4.148	1.172	-0.599	0.134	0.083	0.268	1.000	6.000
SEC	5.000	5.282	0.773	-1.129	0.134	2.541	0.268	1.000	6.000
v.beau	3.600	3.579	0.637	-0.401	0.134	0.444	0.268	1.000	5.000
v.coura	3.400	3.456	0.622	-0.261	0.134	0.625	0.268	1.000	5.000

Table S1a

Variable distributional properties for Sample 1 (N = 330).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
v.creat	3.200	3.215	0.727	-0.210	0.134	-0.012	0.268	1.000	5.000
v.curio	3.600	3.466	0.614	-0.511	0.134	0.326	0.268	1.200	5.000
v.fair	4.200	4.073	0.559	-1.111	0.134	2.981	0.268	1.000	5.000
v.forg	3.600	3.581	0.666	-0.377	0.134	0.123	0.268	1.000	5.000
v.grat	3.600	3.596	0.687	-0.537	0.134	0.504	0.268	1.000	5.000
v.honest	4.200	4.168	0.472	-0.982	0.134	5.264	0.268	1.000	5.000
v.hope	3.600	3.498	0.745	-0.604	0.134	0.245	0.268	1.000	5.000
v.hum	3.800	3.819	0.677	-0.466	0.134	0.246	0.268	1.200	5.000
v.kind	4.200	4.266	0.538	-1.036	0.134	2.874	0.268	1.200	5.000
v.lead	3.600	3.508	0.496	-0.429	0.134	1.613	0.268	1.000	4.800
v.lern	3.400	3.306	0.675	-0.320	0.134	-0.208	0.268	1.000	4.800
v.love	4.000	3.935	0.723	-0.647	0.134	0.202	0.268	1.200	5.000

Table S1a

Variable distributional properties for Sample 1 (N = 330).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
v.mod	3.200	3.195	0.665	-0.299	0.134	0.082	0.268	1.200	5.000
v.open	3.800	3.847	0.552	-0.728	0.134	1.940	0.268	1.000	5.000
v.pers	3.600	3.484	0.659	-0.410	0.134	0.403	0.268	1.000	5.000
v.persp	3.400	3.379	0.591	-0.042	0.134	0.489	0.268	1.000	4.800
v.prud	3.400	3.423	0.624	-0.346	0.134	-0.078	0.268	1.200	4.800
v.sreg	3.000	3.001	0.715	-0.163	0.134	-0.400	0.268	1.000	4.800
v.soin	4.000	3.860	0.566	-0.646	0.134	1.188	0.268	1.200	5.000
v.spiri	2.200	2.304	0.951	0.716	0.134	-0.047	0.268	1.000	5.000
v.team	3.800	3.716	0.529	-0.810	0.134	2.671	0.268	1.000	5.000
v.zest	3.400	3.398	0.639	-0.261	0.134	0.152	0.268	1.000	5.000
MF.Harm	5.000	4.948	0.621	-1.584	0.134	5.839	0.268	1.000	6.000

Table S1a

Variable distributional properties for Sample 1 (N = 330).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
MF.Fair	5.167	5.030	0.569	-1.406	0.134	6.336	0.268	1.167	6.000
MF.LOY	3.500	3.535	0.657	-0.260	0.134	0.127	0.268	1.000	5.500
MF.AUTH	3.667	3.571	0.830	-0.581	0.134	-0.043	0.268	1.000	5.500
MF.PUR	2.833	2.769	0.810	0.083	0.134	-0.519	0.268	1.000	5.167
HX.HON	4.000	3.811	0.618	-0.421	0.134	-0.254	0.268	1.750	5.000
HX.EMO	3.500	3.373	0.658	-0.364	0.134	0.037	0.268	1.250	4.750
HX.EXT	4.000	3.867	0.604	-0.069	0.134	-0.491	0.268	2.000	5.000
HX.AGR	3.000	2.984	0.563	0.112	0.134	-0.220	0.268	1.750	4.500
HX.CON	3.250	3.083	0.506	-0.169	0.134	-0.084	0.268	1.500	4.500
HX.OPE	3.250	3.171	0.499	-0.402	0.134	0.788	0.268	1.000	4.500
negaf	2.400	2.406	0.521	-0.053	0.134	-0.081	0.268	1.000	3.800
verschl	1.800	1.852	0.528	0.538	0.134	-0.133	0.268	1.000	3.600

Table S1a

Variable distributional properties for Sample 1 (N = 330).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
antag	1.400	1.449	0.438	1.215	0.134	1.567	0.268	1.000	3.400
enth	1.800	1.783	0.445	0.227	0.134	-0.397	0.268	1.000	3.000
psycho	2.200	2.215	0.582	0.350	0.134	0.106	0.268	1.000	4.000

Note. PO: Power (value), ACH: Achievement (value), HE: Hedonism (value), ST: Stimulation (value), SD: Self-Direction (value), UN: Universalism (value), BE: Benevolence (value), TR: Tradition (value), CO: Conformity (value), SEC: Security (value). v.beau: Appreciation of Beauty (character strength), v.coura: Courage (character strength), v.creat: Creativity (character strength), v.curio: Curiosity (character strength), v.fair: Fairness (character strength), v.forg: Forgiveness (character strength), v.grat: Gratitude (character strength), v.honest: Integrity (character strength), v.hope: Hope (character strength), v.hum: Humor (character strength), v.kind: Kindness (character strength), v.lead: Leadership (character strength), v.lern: Love of Learning (character strength), v.love: Love (character strength), v.mod: Modesty (character strength), v.open: Judgement (character strength), v.pers: Perseverance (character strength), v.persp: Perspective (character strength), v.prud: Prudence (character strength), v.sreg: Self-Regulation (character strength), v.soin: Social Intelligence (character strength), v.spiri: Spirituality (character strength), v.team: Citizenship (character strength), v.zest: Zest (character strength). MF.Harm: Care (moral foundation), MF.Fair: Fairness (moral foundation), MF.LOY: Loyalty (moral foundation), MF.AUTH: Authority (moral foundation), MF.PUR: Purity (moral foundation). HX.HON: Honesty-Humility (HEXACO), HX.EMO: Emotionality (HEXACO), HX.EXT: Extraversion (HEXACO), HX.AGR: Agreeableness (HEXACO), HX.CON: Conscientiousness (HEXACO), HX.OPE: Openness to Experience (HEXACO). negaf: Negative Affect (PID-5), verschl: Detachment (PID-5), antag: Antagonism (PID-5), enth: Disinhibition (PID-5), psycho: Psychoticism (PID-5).

Table S1b

Variable distributional properties for Sample 2 (*N* = 346).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
PO	3.500	3.358	0.975	0.162	0.131	-0.115	0.261	1.000	6.000
ACH	4.000	4.048	0.984	-0.056	0.131	-0.335	0.261	1.500	6.000
HE	4.500	4.551	0.880	-0.399	0.131	-0.095	0.261	1.500	6.000
ST	4.000	3.892	1.066	-0.251	0.131	-0.284	0.261	1.000	6.000
SD	4.500	4.488	0.881	-0.463	0.131	0.165	0.261	1.500	6.000
UN	5.000	5.057	0.647	-0.701	0.131	0.434	0.261	2.667	6.000
BE	5.500	5.237	0.639	-0.640	0.131	-0.073	0.261	3.500	6.000
TR	3.500	3.419	1.026	-0.007	0.131	-0.385	0.261	1.000	6.000
CO	3.500	3.525	1.061	-0.140	0.131	-0.344	0.261	1.000	6.000
SEC	4.000	4.043	0.979	-0.301	0.131	0.012	0.261	1.000	6.000
v.beau	3.600	3.585	0.665	-0.138	0.131	-0.237	0.261	1.800	5.000
v.coura	3.400	3.442	0.598	-0.033	0.131	-0.187	0.261	1.800	5.000
v.creat	3.200	3.206	0.703	-0.159	0.131	0.061	0.261	1.000	5.000
v.curio	3.500	3.505	0.573	-0.276	0.131	0.898	0.261	1.400	5.000

Table S1b

Variable distributional properties for Sample 2 (*N* = 346).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
v.fair	4.200	4.066	0.541	-0.809	0.131	0.795	0.261	2.400	5.000
v.forg	3.600	3.557	0.626	-0.238	0.131	-0.021	0.261	1.600	5.000
v.grat	3.600	3.617	0.623	-0.239	0.131	0.084	0.261	1.600	5.000
v.honest	4.200	4.147	0.410	-0.374	0.131	0.460	0.261	2.600	5.000
v.hope	3.500	3.428	0.680	-0.336	0.131	-0.220	0.261	1.600	5.000
v.hum	3.800	3.800	0.615	-0.410	0.131	0.182	0.261	1.600	5.000
v.kind	4.200	4.277	0.474	-0.446	0.131	-0.160	0.261	2.600	5.000
v.lead	3.600	3.579	0.506	-0.069	0.131	0.283	0.261	2.000	5.000
v.lern	3.400	3.326	0.730	-0.092	0.131	-0.506	0.261	1.400	5.000
v.love	4.000	3.869	0.719	-0.613	0.131	-0.109	0.261	1.800	5.000
v.mod	3.200	3.145	0.638	-0.241	0.131	0.102	0.261	1.200	4.800
v.open	4.000	3.919	0.549	-0.185	0.131	-0.333	0.261	2.200	5.000
v.pers	3.600	3.474	0.681	-0.313	0.131	-0.174	0.261	1.200	5.000
v.persp	3.400	3.409	0.594	-0.101	0.131	-0.254	0.261	1.800	4.800

Table S1b

Variable distributional properties for Sample 2 (*N* = 346).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
v.prud	3.400	3.457	0.615	-0.205	0.131	-0.514	0.261	2.000	5.000
v.sreg	3.000	2.983	0.717	-0.069	0.131	-0.552	0.261	1.200	4.800
v.soin	4.000	3.882	0.534	-0.759	0.131	1.215	0.261	1.600	5.000
v.spiri	2.200	2.323	0.944	0.637	0.131	-0.244	0.261	1.000	5.000
v.team	3.800	3.731	0.499	-0.323	0.131	0.527	0.261	2.000	5.000
v.zest	3.400	3.373	0.631	-0.231	0.131	-0.268	0.261	1.800	4.800
MF.Harm	5.000	4.910	0.680	-1.536	0.131	4.316	0.261	1.333	6.000
MF.Fair	5.167	5.044	0.557	-1.161	0.131	3.360	0.261	2.000	6.000
MF.LOY	3.333	3.353	0.655	-0.099	0.131	-0.257	0.261	1.500	4.833
MF.AUTH	3.500	3.512	0.801	-0.319	0.131	0.003	0.261	1.000	5.667
MF.PUR	2.667	2.700	0.800	0.198	0.131	-0.346	0.261	1.000	5.333
Emp.ec	5.000	4.939	0.709	-0.742	0.131	1.159	0.261	1.750	6.000
Emp.per	4.750	4.785	0.788	-0.912	0.131	1.572	0.261	2.000	6.000
Mid.int	4.500	4.285	0.570	-0.908	0.131	0.428	0.261	2.250	5.000

Table S1b

Variable distributional properties for Sample 2 (*N* = 346).

	Median	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Minimum	Maximum
Mid.sym	3.167	3.115	0.646	-0.302	0.131	-0.033	0.261	1.333	4.667

Note. PO: Power (value), ACH: Achievement (value), HE: Hedonism (value), ST: Stimulation (value), SD: Self-Direction (value), UN: Universalism (value), BE: Benevolence (value), TR: Tradition (value), CO: Conformity (value), SEC: Security (value). v.beau: Appreciation of Beauty (character strength), v.coura: Courage (character strength), v.creat: Creativity (character strength), v.curio: Curiosity (character strength), v.fair: Fairness (character strength), v.forg: Forgiveness (character strength), v.grat: Gratitude (character strength), v.honest: Integrity (character strength), v.hope: Hope (character strength), v.hum: Humor (character strength), v.kind: Kindness (character strength), v.lead: Leadership (character strength), v.lern: Love of Learning (character strength), v.love: Love (character strength), v.mod: Modesty (character strength), v.open: Judgement (character strength), v.pers: Perseverance (character strength), v.persp: Perspective (character strength), v.prud: Prudence (character strength), v.sreg: Self-Regulation (character strength), v.soin: Social Intelligence (character strength), v.spiri: Spirituality (character strength), v.team: Citizenship (character strength), v.zest: Zest (character strength). MF.Harm: Care (moral foundation), MF.Fair: Fairness (moral foundation), MF.LOY: Loyalty (moral foundation), MF.AUTH: Authority (moral foundation), MF.PUR: Purity (moral foundation). Emp.ec: Empathic concern, Emp.per: Perspective taking, Mid.int: Internalization (moral identity), Mid.sym: Symbolization (moral identity).

Table S2a

Factor pattern (oblimin rotation) of principal component analyses for Sample 1 (N = 330)

	FUPC	Two-component solution		Three-component solution		
	1	2-1	2-2	3-3	3-1	3-2
MFT Moral Foundations						
Care/Harm	.44	.45	.13	-.07	.58	.08
Fairness/Cheating	.26	.19	.15	-.09	.52	-.18
Loyalty/Betrayal	.39	.58	-.08	.03	.09	.61
Authority/Subversion	.32	.62	-.22	-.02	-.06	.76
Purity/Degradation	.38	.64	-.16	.03	-.03	.77
SVT Values						
Power	-.05	-.02	-.06	.21	-.47	.34
Achievement	.11	.03	.12	.35	-.36	.32
Hedonism	.16	-.16	.38	.47	-.18	-.04
Stimulation	.24	-.24	.60	.62	-.08	-.21
Self-Direction	.31	-.22	.66	.59	.10	-.32
Universalism	.40	.15	.40	.10	.63	-.31
Benevolence	.54	.39	.33	.17	.51	.07
Tradition	.35	.61	-.17	-.13	.23	.54
Conformity	.29	.63	-.27	-.24	.21	.57
Security	.28	.55	-.20	-.08	.05	.61
VIA Character Strengths						
Appreciation of Beauty	.40	.10	.45	.42	.14	.02
Courage	.25	-.16	.51	.48	.03	-.20
Creativity	.30	-.19	.62	.62	-.02	-.19
Curiosity	.46	-.01	.66	.63	.11	-.09
Fairness	.56	.44	.32	.05	.70	-.03
Forgiveness	.38	.34	.17	.00	.47	.04

Gratitude	.61	.39	.43	.47	.17	.33
Integrity	.63	.46	.38	.27	.46	.18
Hope	.56	.30	.45	.52	.08	.30
Humor	.30	-.06	.49	.51	.00	-.06
Kindness	.63	.44	.41	.29	.46	.17
Leadership	.59	.40	.39	.23	.53	.07
Love of learning	.18	-.16	.42	.30	.17	-.32
Love	.46	.31	.31	.37	.09	.30
Modesty	.44	.59	-.01	-.21	.62	.21
Judgement	.34	.21	.25	.17	.28	.04
Perseverance	.55	.48	.25	.24	.28	.35
Perspective	.38	.07	.45	.46	.08	.03
Prudence	.49	.46	.18	.02	.52	.14
Self-regulation	.32	.27	.17	.22	.06	.27
Social Intelligence	.58	.36	.42	.37	.31	.20
Spirituality	.34	.26	.19	.29	-.02	.32
Citizenship	.57	.51	.24	.05	.60	.14
Zest	.55	.15	.60	.69	-.01	.20

Table S2b

Factor pattern (oblimin rotation) of principal component analyses for Sample 2 (N = 346)

	FUPC	Two-component solution		Three-component solution		
	1	2-1	2-2	3-1	3-3	3-2
MFT Moral Foundations						
Care/Harm	.54	.43	.31	.64	-.04	.15
Fairness/Cheating	.47	.52	-.10	.59	.13	-.24
Loyalty/Betrayal	.41	.19	.60	.19	.02	.62
Authority/Subversion	.27	-.02	.77	-.03	-.05	.84
Purity/Degradation	.29	.03	.71	.04	-.05	.76
SVT Values						
Power	.03	-.04	.18	-.52	.35	.45
Achievement	.22	.12	.27	-.31	.35	.49
Hedonism	.23	.23	.02	.01	.24	.09
Stimulation	.34	.44	-.24	.05	.48	-.14
Self-Direction	.36	.45	-.23	.07	.46	-.14
Universalism	.51	.54	-.04	.62	.13	-.18
Benevolence	.50	.50	.04	.54	.14	-.07
Tradition	.27	.02	.67	.05	-.07	.70
Conformity	.19	-.02	.58	.23	-.25	.50
Security	.44	.29	.43	.41	-.03	.36
VIA Character Strengths						
Appreciation of Beauty	.53	.53	.03	.47	.22	-.03
Courage	.42	.54	-.29	.02	.61	-.15
Creativity	.47	.59	-.29	.02	.67	-.13
Curiosity	.59	.70	-.26	.09	.74	-.09
Fairness	.61	.55	.19	.72	.04	.02
Forgiveness	.44	.39	.15	.63	-.06	-.03
Gratitude	.67	.60	.20	.52	.26	.15

Integrity	.66	.62	.17	.37	.38	.19
Hope	.64	.61	.11	.20	.51	.22
Humor	.49	.52	-.06	.18	.45	.01
Kindness	.71	.66	.19	.67	.20	.08
Leadership	.67	.64	.11	.40	.40	.13
Love of learning	.19	.36	-.43	-.04	.47	-.33
Love	.56	.52	.13	.39	.27	.11
Modesty	.35	.22	.36	.60	-.25	.16
Judgement	.37	.47	-.22	-.04	.57	-.07
Perseverance	.52	.46	.18	.00	.50	.35
Perspective	.44	.55	-.24	-.08	.69	-.04
Prudence	.45	.43	.08	.16	.36	.15
Self-regulation	.40	.34	.18	.05	.33	.28
Social Intelligence	.66	.68	-.01	.38	.46	.01
Spirituality	.35	.20	.40	.19	.05	.40
Citizenship	.64	.54	.32	.65	.07	.19
Zest	.69	.68	.06	.19	.61	.19

Table S3

Multiple regression analyses testing the associations between MFT moral foundations, SVT basic values, or VIA character strengths and criterion variables.

		Trait Empathy		Moral Identity	
	Criterion Variable	Empathic Concern	Perspective Taking	Internalization	Symbolization
MFT Moral Foundations		*Adj.* R^2 = .22***, f^2 = .28	*Adj.* R^2 = .06***, f^2 = .06	*Adj.* R^2 = .05***, f^2 = .05	*Adj.* R^2 =.04**, f^2 = .04
	Care/Harm	**.41** [.27, .56]	**.30** [.12, .49]	.12 [-.01, .25]	.07 [-.09, .22]
	Fairness/Cheating	.15 [-.04, .31]	-.05 [-.27, .17]	.13 [-.02, .28]	.03 [-.14, .21]
	Loyalty/Betrayal	.01 [-.12, .14]	.13 [-.05, .30]	-.08 [-.18, .03]	-.03 [-.17, .11]
	Authority/Subversion	-.07 [-.19, .04]	-.08 [-.23, .07]	.02 [-.09, .13]	-.03 [-.16, .07]
	Purity/Degradation	.02 [-.10, .14]	-.11 [-.26, .02]	.04 [-.06, .13]	.18 [.06, .29]
SVT Basic Values		*Adj.* R^2 = .24***, f^2 = .32	*Adj.* R^2 = .18***, f^2 = .22	*Adj.* R^2 = .11***, f^2 = .12	*Adj.* R^2 = .18***, f^2 = .22
	Power	-.12 [-.20, -.03]	-.07 [-.18, .03]	.00 [-.07, .09]	-.07 [-.18, .02]
	Achievement	.05 [-.03, .13]	.04 [-.05, .13]	.08 [.01, .15]	.04 [-.05, .13]
	Hedonism	-.00 [-.10, .09]	.00 [-.11, .10]	.05 [-.04, .13]	.00 [-.11, .11]
	Stimulation	.01 [-.07, .08]	.06 [-.04, .17]	.02 [-.05, .09]	.06 [-.05, .16]
	Self-Direction	.01 [-.07, .11]	-.01 [-.14, .09]	-.01 [-.09, .07]	-.01 [-.13, .09]
	Universalism	**.25** [.13, .38]	**.44** [.31, .57]	.16 [.06, .26]	**.44** [.30, .57]
	Benevolence	**.37** [.23, .50]	.14 [-.01, .31]	.16 [.06, .25]	.14 [-.02, .31]

	Tradition	-.11 [-.19, -.04]	-.02 [-.10, .07]	.02 [-.04, .09]	-.02 [-.10, .07]
	Conformity	.05 [-.02, .14]	.04 [-.06, .14]	.01 [-.05, .08]	.04 [-.05, .13]
	Security	.05 [-.04, .12]	-.03 [-.13, .05]	.03 [-.05, .11]	-.03 [-.12, .06]
VIA Character Strengths		*Adj.* R^2 = .32***, f^2 = .47	*Adj.* R^2 = .28***, f^2 = .39	*Adj.* R^2 = .15***, f^2 = .18	*Adj.* R^2 = .10***, f^2 = .11
	Appreciation of Beauty	**.30** [.19, .43]	.10 [-.05, .22]	-.02 [-.11, .10]	.16 [.03, .29]
	Courage	.09 [-.04, .23]	.13 [-.03, .31]	-.18 [-.32, -.05]	-.07 [-.22, .07]
	Creativity	-.05 [-.15, .07]	-.02 [-.15, .14]	-.05 [-.16, .06]	-.02 [-.15, .10]
	Curiosity	-.14 [-.29, .03]	.08 [-.15, .28]	.07 [-.08, .24]	.06 [-.11, .22]
	Fairness	**.20** [.04, .35]	.19 [-.01, .39]	.12 [-.05, .27]	-.12 [-.27, .04]
	Forgiveness	.15 [.04, .29]	.08 [-.08, .24]	-.05 [-.16, .07]	-.08 [-.2, .04]
	Gratitude	.06 [-.10, .22]	.14 [-.06, .35]	.00 [-.14, .13]	-.01 [-.19, .17]
	Integrity/Honesty	-.02 [-.22, .17]	-.25 [-.51, .01]	.12 [-.07, .32]	.00 [-.21, .24]
	Hope	-.16 [-.29, -.01]	-.04 [-.2, .13]	-.05 [-.19, .08]	-.05 [-.21, .13]
	Humor	-.04 [-.18, .10]	.01 [-.14, .17]	.09 [-.02, .23]	.06 [-.07, .21]
	Kindness	**.24** [.07, .42]	.10 [-.12, .33]	-.01 [-.18, .15]	.02 [-.18, .20]
	Leadership	.11 [-.05, .27]	.04 [-.14, .26]	-.09 [-.26, .07]	.08 [-.10, .25]
	Love of learning	.07 [-.05, .18]	.02 [-.11, .16]	.16 [.07, .26]	.07 [-.03, .19]
	Love	.14 [.03, .26]	.04 [-.09, .17]	**.23** [.14, .34]	-.03 [-.16, .09]
	Modesty	-.06 [-.18, .07]	-.08 [-.20, .07]	-.06 [-.16, .05]	.06 [-.06, .19]
	Judgement	.04 [-.13, .20]	**.27** [.06, .45]	.03 [-.11, .17]	.02 [-.15, .19]
	Perseverance	-.05 [-.17, .08]	-.13 [-.29, .01]	.06 [-.05, .18]	.10 [-.03, .24]

Perspective	-.02 [-.14, .09]	.03 [-.11, .17]	.08 [-.04, .19]	.12 [-.02, .27]
Prudence	.11 [-.06, .29]	**.25** [.07, .43]	-.02 [-.17, .12]	.00 [-.16, .18]
Self-regulation	-.05 [-.15, .07]	.05 [-.09, .19]	-.08 [-.17, .02]	-.02 [-.14, .08]
Social Intelligence	**.23** [.05, .43]	**.31** [.11, .52]	.13 [-.02, .26]	.06 [-.1, .21]
Spirituality	-.02 [-.11, .07]	-.04 [-.15, .05]	.04 [-.03, .12]	.11 [.02, .20]
Citizenship/Teamwork	-.02 [-.21, .14]	.18 [-.01, .38]	.01 [-.17, .19]	-.05 [-.24, .12]
Zest	-.04 [-.19, .12]	-.19 [-.37, .00]	-.07 [-.23, .09]	.07 [-.11, .26]

Note.

95% CIs are bootstrap bca confidence intervals based on 2000 replications.

Overall: Adjusted R^2 of all set of predictors included simultaneously. * $p < .05$, ** $p < .01$, *** $p < .001$

Table S4

Multiple regression analyses testing associations between participant component scores and HEXACO personality dimensions, and amount of variance (adj. R^2) moral foundations, values, and character strengths explained in the HEXACO personality traits above and beyond the principal components (Sample 1)

	H	E	X	A	C	O
(Intercept)	3.81***	3.37***	3.87***	2.98***	3.08***	3.17***
PC1: Self-Expansion	-0.12***	-0.16***	0.39***	-0.03	0.06*	0.16***
PC2: Preservation	0.01	0.08*	-0.05*	0.07*	0.12***	-0.11***
PC3: Universal Caring	0.29***	0.17***	0.01	0.21***	0.01	0.05*
PC4: Self-Control	-0.08*	-0.05	-0.01	-0.06	0.14***	0.03
Adj. R^2	.22***	.11***	.41***	.15***	.17***	.16
Incremental Validity (*Δadj.* R^2)						
+ Moral Foundations	.03**	.03**	-.01	.07***	.00	-.01
+ Values	.03**	.05**	.00	.04**	.05**	.04**

+ Character Strengths	.06**	.17***	.11***	.23***	.18***	.09***

Note.

H = Honesty-Humility; E = Emotionality; X = Extraversion; A = Agreeableness; C = Conscientiousness; O = Openness to Experience.

Incremental validity: Variance each set of predictors explained beyond the principal components. * $p < .05$, ** $p < .01$, *** $p < .001$

Table S5

Amount of variance (adj. R^2) moral foundations, values, and character strengths explained in the HEXACO personality traits individually and beyond the other two sets of predictors (Sample 1)

		Baseline Models			Incremental validity			
		Moral Foundations	Values	Character Strengths	+Moral Foundations	+Values	+Character Strengths	Overall
HEXACO Dimension		*adj. R^2*	*adj. R^2*	*adj. R^2*	*Δ adj. R^2*	*Δ adj. R^2*	*Δ adj. R^2*	*adj. R^2*
	H	.09***	.18***	.24***	.03**	.04**	.12***	.33***
	E	.07***	.11***	.26***	.01	.01	.15***	.29***
	X	.02*	.20***	.51***	-.01	.01	.33***	.52***
	A	.03**	.07***	.37***	.00	.00	.29***	.39***
	C	.05***	.10***	.32***	-.00	.01	.24***	.34***
	O	.02*	.12***	.24***	.00	.02	.12***	.25***

Note.

H = Honesty-Humility; E = Emotionality; X = Extraversion; A = Agreeableness; C = Conscientiousness; O = Openness to Experience.

Baseline Models: Only one set of predictors were entered (e.g., only moral foundations).

Incremental validity: Variance each set of predictors explained beyond the other two.

Overall: Adjusted R^2 of all set of predictors included simultaneously. * $p < .05$, ** $p < .01$, *** $p < .001$

Table S6

Independent Contributions (Adj. R^2) of MFT, SVT, and VIA Frameworks in Predicting Empathy and Moral Identity (Sample 2)

	Baseline Models		
	Moral Foundations	Values	Character Strengths
	adj. R^2	*adj.* R^2	*adj.* R^2
Moral Identity			
Symbolization	.04**	.06***	.10***
Internalization	.05***	.11***	.15***
Empathy			
Empathic Concern	.22***	.24***	.32***
Perspective-Taking	.06***	.18***	.28***

Note.

Baseline Models: Only one set of predictors were entered (e.g., only moral foundations).

Overall: Adjusted R^2 of all set of predictors included simultaneously. * $p < .05$, ** $p < .01$, *** $p < .001$

Table S7

Output of multiple regression analyses testing associations between participant component scores and dimensions of moral identity and empathy (Sample 2)

	Moral Identity		Empathy	
	Symbolization	Internalization	Empathic Concern	Perspective-Taking
(Intercept)	3.11***	4.28***	4.94***	4.78***
PC1: Self-Expansion	.15***	.11***	.11***	.08*
PC2: Preservation	.07*	.04	-.02	-.11**
PC3: Universal Caring	-.00	.10**	.35***	.27***
PC4: Self-Control	.06	.01	.04	.23***
Adj. R^2	.08***	.07***	.29***	.25***
Incremental Validity *(ΔAdj.* R^2*)*				
+ Moral Foundations	.02	.03***	.03***	-.00

+ Values	.01	.03*	.06***	.02*
+ Character Strengths	.03	.13***	.10***	.06**

Note.

Incremental validity: Variance each set of predictors explained beyond the principal components. * $p < .05$, ** $p < .01$, *** $p < .001$

Supplementary Analysis 1 (3.2.2.3 Sensitivity Analysis)

EFA WITH SAMPLE 1

Preliminary steps

Normality of data

Multivariate normality

To say the data are multivariate normal Z-kurtosis < 5 (Bentler, 2006) and the p-value should be ≥ .05. In Sample 1, Z-Kurtosis = 19.87, p < .001, thus the data are not normally distributed at the multivariate level.

Suitability of data for analysis

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA)

To say data are suitable for factor analysis we calculated the KMO value, which can be interpreted with the rules of thumb presented by Kaiser and Rice (1974), with KMO > 0.7 generally considered acceptable. In Sample 1, KMO = .88.

Bartlet's test of sphericity

In Sample 1, the outcome of Bartlet's test was $\chi^2(741) = 5634.1$, p <.001, suggesting worthwhile correlations between items.

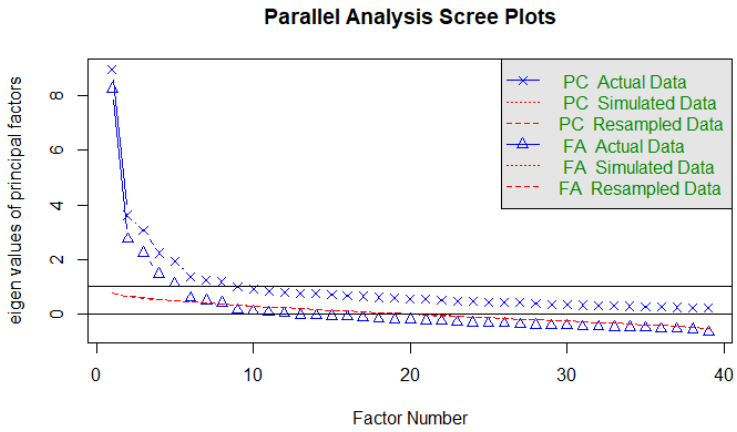
Determining the number of factors

Kaiser's eigenvalue > 1 rule

The first ten eigenvalues of factors were: 8.26, 2.73, 2.23, 1.46, 1.12, 0.59, 0.48, 0.41, 0.15, and 0.10. Based on these values the suitable number of factors = 5.

Parallel analysis

The parallel analysis suggests that the suitable number of factors = 8. However, the scree plot showed clear inflexion points on the fourth and sixth factors, suggesting the suitable number of factors = 3-5.


Parallel Analysis Scree Plots
eigen values of principal factors
Factor Number
0
2
4
6
8
0
10
20
30
40
PC Actual Data
PC Simulated Data
PC Resampled Data
FA Actual Data
FA Simulated Data
FA Resampled Data

EFA

The data were not normality distributed, so EFA was conducted using the principal axis factoring extraction method, which does not assume normality (Brown, 2015). An oblimin rotation was used. Guided by the analyses conducted in Step 1.2 and the favoured four-component solution obtained in PCA, we chose to test a four-factor EFA model.

Standardized Factor Loadings

	UNI.CARE	SELF.EXP	PRESERV	SELF.CON
v.fair	**0.68**			
v.kind	**0.61**			
MF.Harm	**0.60**			
v.mod	**0.60**			
v.team	**0.59**			
MF.Fair	**0.55**			
v.forg	**0.54**			
UN	**0.54**			
PO	-0.49		0.39	
BE	0.45			
SEC	0.37		0.31	
v.beau	0.37	0.31		
v.zest		**0.81**		
v.curio		**0.72**		
v.hope		**0.62**		
v.hum		**0.58**		
ST		**0.50**		
v.grat	0.41	0.49		
v.creat		0.46		0.31
v.love	0.30	0.38		
v.coura		0.35		0.34
v.soin	0.32	0.33		

HE		0.30		
SD				
MF.AUTH			**0.83**	
MF.PUR			**0.72**	
TR			**0.64**	
MF.LOY			**0.56**	
CO			0.44	
ACH			0.42	
v.spiri		0.30	0.34	
v.open				**0.76**
v.prud				**0.63**
v.persp				**0.57**
v.honest	0.36			0.45
v.pers				0.46
v.lead	0.37			0.41
v.lern				0.33
v.sreg				

EFA WITH SAMPLE 2

Preliminary steps

Normality of data

Multivariate normality

To say the data are multivariate normal Z-kurtosis < 5 (Bentler, 2006) and the p-value should be ≥ .05. In Sample 2, Z-Kurtosis = 20.74, p < .001, thus the data are not normally distributed at the multivariate level.

Suitability of data for analysis

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA)

To say data are suitable for factor analysis we calculated the KMO value, which can be interpreted with the rules of thumb presented by Kaiser and Rice (1974), with KMO > 0.7 generally considered acceptable. In Sample 2, KMO = .80.

Bartlet's test of sphericity

In Sample 2, the outcome of Bartlet's test was $\chi^2(741) = 5550.8$, p <.001, suggesting worthwhile correlations between items.

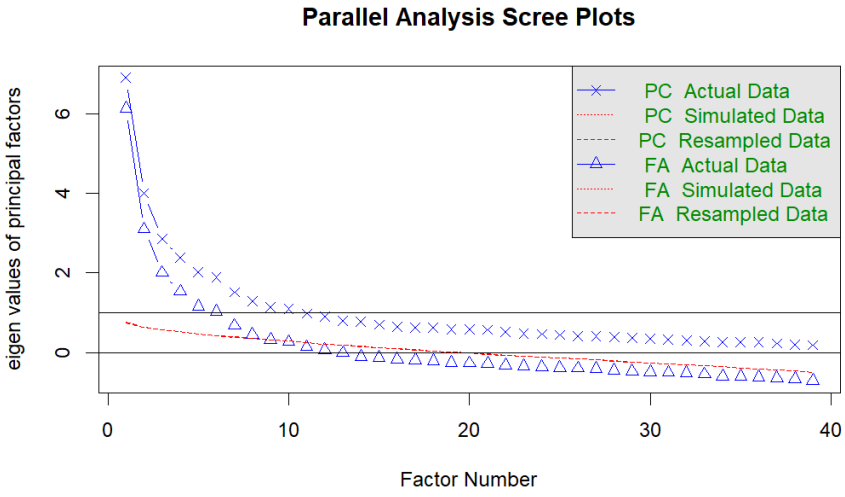
Determining the number of factors

Kaiser's eigenvalue > 1 rule

The first ten eigenvalues of factors were: 6.14, 3.11, 2.01, 1.53, 1.16, 1.03, 0.67, 0.45, 0.32, and 0.26. Based on these values the suitable number of factors = 6.

Parallel analysis

The parallel analysis suggests that the suitable number of factors = 8. However, the scree plot showed an inflexion point on the fifth factor, suggesting the suitable number of factors = 4.



EFA

The data were not normality distributed, so EFA was conducted using the principal axis factoring extraction method, which does not assume normality (Brown, 2015). An oblimin rotation was used. Guided by the analyses conducted in prior steps and the favored four-component solution obtained in PCA, we chose to test a four-factor EFA model.

Standardized Factor Loadings

Cross-loadings can so be judged based on item complexity. An item specific to a factor should have an item complexity close to one (Pettersson & Turkheimer, 2010).

	SELF.EXP	UNI.CARE	PRESERV	SELF.CON
v.zest	**0.68**	-0.01	0.18	0.03
STIM	**0.62**	0.01	-0.19	-0.13
v.curio	**0.56**	0.05	-0.11	0.17
v.creat	**0.54**	-0.05	-0.20	0.11
SD	**0.52**	0.07	-0.31	0.09
v.grat	**0.50**	0.20	0.32	-0.04
v.hope	**0.47**	0.04	0.25	0.14
HED	**0.46**	-0.06	-0.03	-0.17
v.hum	**0.46**	0.03	-0.06	-0.01
v.beau	**0.44**	0.20	0.04	-0.11
v.love	0.35	0.10	0.26	0.01
v.spiri	0.32	0.06	0.30	-0.12
v.soin	0.31	0.23	0.15	0.18
v.fair	0.04	**0.60**	-0.03	0.18
UNV	0.09	**0.56**	-0.28	0.11
MF.Harm	-0.01	**0.56**	0.10	-0.04
BENE	0.22	**0.52**	0.09	-0.06
v.mod	-0.19	**0.52**	0.20	0.14

v.team	0.06	**0.51**	0.13	0.12
v.kind	0.34	**0.49**	0.18	-0.06
MF.Fair	-0.04	**0.48**	-0.12	-0.04
POW	0.12	**-0.47**	0.25	0.15
v.forg	0.03	**0.40**	0.05	0.06
PER	0.24	-0.37	0.22	0.18
v.lead	0.14	0.36	0.03	0.35
MF.PUR	0.07	-0.03	**0.75**	-0.01
MF.AUTH	0.01	-0.06	**0.73**	0.00
MF.LOY	0.04	0.05	**0.55**	0.09
SEC	-0.08	0.01	**0.53**	0.11
KON	-0.23	0.14	**0.52**	0.14
TRAD	-0.07	0.23	**0.51**	-0.04
v.lern	0.19	0.04	-0.31	0.27
v.open	-0.04	-0.04	-0.07	**0.69**
v.prud	-0.16	0.22	0.04	**0.68**
v.persp	0.28	-0.12	-0.05	**0.49**
v.sreg	0.07	-0.15	0.17	**0.49**
v.pers	0.12	0.07	0.26	**0.47**
v.honest	0.17	0.28	0.12	**0.40**
v.coura	0.33	-0.10	-0.24	0.35

Supplementary Analysis 2 (3.3.1 Sensitivity Analysis)

Latent-factor associations (SEM)

First, for each of the four domains of moral functioning we calculated the mean based on PCA scores.

We then estimated latent factor correlations between these means and HEXACO domains using SEM. Specifically, each variable was modelled as a latent factor by using a single composite indicator and fixing its error variance. The unstandardized error variance of each composite was calculated using the equation: $(1 - r_{xx}) \times var(x)$ where r_{xx} is the internal consistency reliability estimate and $var(x)$ is the variance of the composite scores. The latent factors representing the four components (domains of moral functioning) were allowed to freely correlate. Because orthogonal HEXACO dimensions may make laten factor locations easier to interpret, HEXACO factors were modelled as being orthogonal.

Latent factor correlations (values in brackets are Pearson's correlations for comparison)

	H	E	X	A	C	O
UNICARE	0.54 (.40)	0.22 (.21)	0.29 (.15)	0.56 (.37)	0.30 (.12)	0.32 (.16)
SELFEXP	-0.03 (-.13)	-0.14 (-.19)	0.78 (.63)	0.16 (.03)	0.47 (.22)	0.58 (.33)
PRESERV	0.12 (.04)	0.30 (.12)	-0.03 (-.03)	0.25 (.17)	0.49 (.27)	-0.11 (-.17)
SELFCON	-0.03 (-.11)	0.17 (-.09)	0.35 (.16)	0.08 (-.04)	0.69 (.34)	0.29 (.15)

Note. HON: Honesty-Humility, EMO: Emotional stability (neuroticism), EXT: Extraversion, AGR: Agreeableness, CON: Conscientiousness, OPE: Openness to new experiences. UNICARE: Universal Caring, SELFEXP: Self-Expansion, PRESERV: Preservation, SELFCON: Self-Control.