

ESM Electronic supplement material

For the article

Validation of a German and English Version of the Revised Art-of-Living Inventory

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Electronic Supplement material

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ESM 1: Description of the Process of Revising the Former Art-of-Living Instrument

The original construct was comprehensively analysed (Schmitz, 2016), yielding good internal consistency values (overall scale $\alpha = .96$). Convergent validity was substantiated by moderate to strong correlations with well-being measures ($r = .59$ with SWLS, $r = .62$ with SHS, and $r = .72$ with AHI), and with similar constructs ($r = .68$ with resilience, $r = .64$ with mindfulness, and $r = .69$ with sense of coherence). The instrument showed a negative correlation with anxiety ($r = -.75$). The incremental validity of art-of-living was also demonstrated by examining prediction of well-being over and above the effect of personality. Art-of-living was further validated in a 28-day diary study. The art-of-living instrument was also completed by peers to enable comparison between self- and peer assessments, which yielded a moderate correlation of $r = .38$. Art-of-living was applied in a number of training studies, which demonstrated that art-of-living could be enhanced by relative short interventions such as a web-based training with three units presented weekly.

The main obstacle to implementation of the instrument in intervention studies was its length. Participants reported that it was a significant burden to complete the instrument in pre-, post- and follow-up assessments. A second shortcoming was its availability in German only. We therefore wanted to develop an English language version.

The aim was to abbreviate the instrument, and to use the revision to further refine the theoretical conception, while retaining the instrument's empirical quality. The theoretical analyses deal with the question as to which constructs are crucial and belong to the core construct. The empirical analyses comprised factor analyses of the existing subconstructs, analyses of internal consistency, and multiple regressions predicting well-being by art-of-living.

The criteria were complex, combining a conceptual revision with statistical considerations. A construct was retained if it met the following conditions:

- 1) It fits the conceptual revision.
- 2) The subconstruct is reliable, and also the overall scale.
- 3) The group of predictors shows a clear factorial structure.
- 4) It is related to well-being.
- 5) It shows moderate overlap with the other variables.
- 6) There is convergent validity with similar constructs (e.g., resilience, mindfulness).

This was a very complex iterative process because eliminating one construct influences the others.

Decisions about eliminating items within subscales were informed by Cronbach's Alpha for the subscale, specifically whether high internal consistency was retained after eliminating the item.

Because the aim of this article is to present a new instrument we will not elaborate on the details on the revision process. We therefore briefly present the following considerations that informed the instrument's restructuring. We note that this is not an exhaustive description.

- 1) Although "openness" and flexibility are important for leading a good life, openness is a part of personality (i.e. the Big five domains). To avoid overlap we eliminated it from the list of subconstructs.

- 2) 'Integration of different living contexts' (e.g. work and family) is also important for leading a good live. However, it is not a basic construct, because it is related to other more central parts of art-of-living, e.g. coping and optimization.
- 3) The abovementioned argument also holds for 'Shaping of living conditions', which is similarly important for leading a good live. One is not only influenced by external conditions but also has the capacity to alter these conditions according to one's preferences. This concept is also related to coping and optimization.
- 4) Although 'balance' (e.g. to avoid extreme behaviours or to integrate cognitive and intuitive approaches to decision-making) is viewed as being important for well-being, it is difficult to measure with a few items. Our empirical attempts did not lead to sufficient high internal consistency to warrant inclusion.
- 5) 'Self-efficacy' is needed to reach goals in spite of obstacles. The concept overlaps with a self-determined way of living, as well as coping and optimization.
- 6) 'Self-actualization' is a concept stemming from humanistic psychology. Correlation and regression analyses showed that our measure did not add sufficient unique predictive power. It is also related to a self-determined way of living, meaning and optimization.

Old vs. new version

The iterative procedure of developing the new instrument led to three major changes

- a) Start: old version 17 subconstructs with 131 items, that is version1)
- b) A reduction of subconstructs from 17 in the old version to 11 in the new version leading to version 2)
- c) A reduction of items: the 11 subconstructs in version 2 comprise 91 items: the revised version with 11 subconstructs reduces the item number to 35 items, leading to the version 3)
- d) Some of the items of these 35 from version 3) were reformulated, leading to the version 4)

In a data set with 638 subjects we can compare the results of step b) and step c) because the subjects worked on the old version and we can build the scales belonging to the version1), version 2) and version 3). The version 4) is the new version applied in the manuscript. But we have no data containing answers to the version 1) and version4).

Analyses show that there was a high correlation $r = .98$ between version 1) and version2) showing that a reduction of scales led to minimal changes.

The correlation between version 2) and version 3) was $r = .89$. It follows that the reduction of nearly 60% of items did not change the result very much.

We do not know what the effect is of the change of the wording for some items (step d) in the revision process). But it seems highly probable that the intensive shortening steps in b) and c) can be viewed as much more severe than the change of wording for some items in step d).

It can be concluded that the iterative revision process does not lead to a totally different content.

ESM 2*Description of Subsamples and Instruments*

Study number	Language	Total	Men	Women	Well-being	Other Constructs	Retest ^b	Art-of-living
E1	E	207	64	143	SHS, PA, NA			Art-of-living
E2	E	245	59	186	SWLS			Art-of-living
E3	E	207	91	116		PWB, life orientation, self-oriented perfectionism	Retest Aol	Art-of-living
E4	E	903	197	706	SWLS, PERMA, Who5	Sense of coherence, Resilience		Art-of-living
E5	E	604	182	422	SWLS, AHI, Flourishing (FS)	Eudaimonic Wb., Meaning, Anxiety		Art-of-living
G1	G	407	90	317	SWLS, AHI	Resilience, Mindfulness, Big five: BFI	Retest Aol	Art-of-living
G2	G	210	60	150	SWLS, SHS	Emotional Intelligence Big five BFI	Retest Aol	Art-of-living
G3	G	293	102	191	^a			Art-of-living
G4	G	392	123	269	SWLS, FS-D	Egoism, NEO-FFI	Retest Aol	Art-of-living
	Total	3468	968	2500				
	English	2166	593	1573				
	German	1302	375	927				

Note. ^a It was planned to measure SWLS, but there were serious problems with the scale. ^b for a part of the subsamples.

ESM 3: Detailed Description of Instruments

Some of these descriptions are also contained in the instrument section of the article. But we want to give the complete information here.

Instruments: English and German**Authentic Happiness Inventory (AHI)**

The Authentic Happiness Inventory (AHI) is an indicator of well-being (Seligman, Steen, Park and Peterson, 2005). It consists of 24 items. For each item there are five answer options. The one which is most appropriate has to be ticked. The German version of Proyer, Gander, Wellenzohn and Ruch (2017) was applied. In our study Cronbach's α is .93/.92 (English/ German sample).

Subjective Happiness Scale (SHS)

The Subjective happiness scale (SHS) is an additional indicator for subjective well-being (Lyubomirsky & Lepper, 1999). It is defined as evaluation of an individual whether he/she feels happy or not. The German version is validated by Swami, Stieg, Voracek, Dressler, Eisma, and Furnham (2009). The scale has four items, two items are statements and have to be answered on a 7-point Likert scale. The other two items are questions which also have to be answered on a 7-point Likert scale (1 = *strongly disagree*; 7 = *totally agree*). In our study Cronbach's α is .84/.85 (English/ German sample).

Satisfaction With Life Scale (SWLS)

The Satisfaction with life scale (SWLS) measures subjective well-being as global life satisfaction (Diener, Emmons, Larsen & Griffin, 1985). It consists of five items which have to be rated from 1 (= *strongly disagree*) to 7 (= *strongly agree*). Higher scores indicate higher life satisfaction. The German version from Glaesmer, Grande, Braehler and Markus (2011) was used for the German sample. In our study Cronbach's α is .86/.86 (English/ German sample).

Flourishing

Flourishing is a concept of well-being in a broader sense, including theories of psychological potentials, human functioning and social relationships.

We apply the flourishing scale (FS) following Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi and Biswan-Diener (2010) which integrates social and psychological well-being based on eight items. The answer format is a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). The German version FS-D was developed by Esch, Jose, Gimpel, von Scheidt and Michalsen (2013). In our study Cronbach's α is .86/.88 (English/ German sample).

Resilience

The original questionnaire for resilience goes back to Wagnild and Young (1993). These authors also developed a short form consisting of 13 items. A German short form (RS-13) was developed by Leppert, Koch, Brähler and Strauß (2008) with 13 items. The answer format is a

7-point Likert scale, reaching from 1 = *totally disagree* to 7 = *totally agree*. In our study Cronbach's α is .84/.88 (English/ German sample).

Instruments: English

PERMA

Another instrument to capture flourishing is PERMA (Seligman, 2011). PERMA is an acronym for positive emotions, engagement, positive relationships, meaning and accomplishment. The questionnaire assessing PERMA was developed by Butler and Kern (2014), it consists of 15 items, three for each component. As answer format a 10-point Likert scale is used. In our study Cronbach's α was .84, .57, .83, .89, .80, respectively.

Positive and Negative Affect

To assess positive and negative affect the I-PANAS-SF (Thompson, 2007) was applied. The PANAS-SF consist of ten items measuring positive and negative trait affect (five items per dimension).

The questionnaire's question is: Thinking about yourself and how you normally feel, to what extent do you generally feel (e.g. upset, inspired). Participants indicate to what extent they generally feel certain affects via a 5-point Likert scale (1 = *never*, 5 = *always*). In our study Cronbach's α was .75 for positive affect and .60 for negative affect.

Eudaimonic well-being

Eudaimonic well-being captures the development of ones potentials. It is related to meaning in life and engagement (cf. Waterman et al., 2010). The questionnaire consists of 21 items with a 6-point Likert-scale (0 = *not at all*; 5 = *totally agree*). In our study the internal consistency is $\alpha = .80$.

The Who-5 Well-being index

The Who-5 Well-being index was developed by WHO (World-health-organization) (Topp, Ostergard, Sondergaard & Bech, 2015). It consists of five items with a 6-point Likert scale (1 = *all the time*; 6 = *never*) asking for their feeling during the last two weeks. In our study Cronbach's α is .85.

Psychological well-being

Psychological well-being goes back to Ryff (1989). Psychological well-being comprises six components: autonomy, environmental mastery, personal growth, positive relations, purpose and self-acceptance.

We apply the 18-item version (Ryff & Keyes, 1995) with three items for each subscale. The items were answered on a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*). The internal consistencies in our study are: autonomy (.58), environmental mastery (.61), personal growth (.51), positive relations (.64), purpose (.42) and self-acceptance (.71).

Life Orientation Test

Dispositional optimism was measured using Scheier, Carver and Bridges (1994) revised Life Orientation Test (LOT-r). It consists of 10 items with a 5-point-Likert scale (0 = *strongly disagree*; 4 = *strongly agree*) as answer format. Cronbach's α is .78, Scheier, Carver and Bridges (1994).

Sense of coherence (SOC)

Antonovsky and Sourani (1988) developed the concept of sense of coherence and its measurement. We apply the short version SOC-13 with 13 items and a 7-point Likert scale. In our study Cronbach's α is .83.

Meaning

The multidimensional Existential Meaning Scale (MEMS) (George & Park, 2017) was used to measure meaning. It summarizes three dimensions: comprehension, purpose and mattering. The answer format is a 7-point Likert Scale (1 = *strongly disagree*; 7 = *strongly agree*). In our study Cronbach's α is between .88 and .91.

Anxiety

The Generalized Anxiety disorder (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006) is 7-item measure that assesses anxiety-related symptoms. The Answer format is a 4-point Likert scale (0 = *not at all*; 3 = *nearly every day*). In our study Cronbach's α is .88.

Perfectionism

The multidimensional Perfectionism Scale (Hewitt & Flett, 1991) is a 45 item-instrument which measures perfectionism on three subscales, each containing 15 items. We apply only the subscale Self-oriented perfectionism. Statements are rated on a 7-point scale (1 = *disagree*; 7 = *agree*). Cronbach's α is .88, (Hewitt & Flett, 1991).

Instruments: German**Mindfulness**

In the German sample the Freiburger Fragebogen zur Achtsamkeit (FFA) was used (Walach, Buchheld, Buttenmüller, Kleinknecht, Grossmann & Schmidt, 2004). The short form with 14 items was applied. The answer format was a 4-point Likert scale (1 = *hardly ever*, 4 = *almost always*). In our study Cronbach's α was .80.

Situational Judgement test of Emotional Intelligence

Situational Judgement test of Emotional Intelligence (SJT of EI; Sharma, Gangopadhyay, Austin & Mandal, 2013) was applied to use an instrument which is not based purely on subjective evaluations but measures more objective reactions to situations. We used our own translation. The SJT of EI captures three dimensions Utilizing own emotions, sensing other emotions and understanding emotional context with 12 to 18 items per dimension; in sum 46 items. The items are formulated as life situation and one has to choose one of three behaviour

options (1 = *last preferred*; 3 = *most preferred*). In our study we use only two dimensions: own emotions and other emotions. Cronbach's α in this study was .55, .67 respectively, which is quite high for situational judgement tests.

Egoism

For the German sample the translation of the Egoismn-scale by Shajek (2007) was used. The scale measures egoism as personality trait based on 20 items with a 7-point Likert scale as answer format (1 = *totally disagree*; 7 = *totally agree*). In our study Cronbach's α was .86.

Big five Inventory – 10 (BFI-10)

To measure the big five personality dimensions for the German sample, the translation of Rammstedt and John (2007) was applied. This questionnaire measures the big five dimensions with two items per dimension. The answer format is a 5-point Likert scale (1 = *not correct at all*; 5 = *completely right*). The retest reliability was .83 for extraversion, .68 for agreeableness, .77 for conscientiousness, .74 for neuroticism and .72 for openness, (Rammstedt & John, 2007).

Big five NEO-FFI

The German version of the NEO-FFI questionnaire (Borkenau & Ostendorf, 2008) is a validated translation of the original instrument. It contains 60 items, with a 5-point Likert-scale (1 = *strong disapproval*; 5 = *strong approval*). In our study Cronbach's α is between .76 and .91.

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ESM4*Factor Loadings for the 11-Dimension CFA of the Art-of-Living Items*

Items	German (n = 1,302)											English (n = 2,166)										
	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
PA1	.86											.73										
PA2	.74											.77										
PA3	.68											.73										
PA4	.63											.46										
M1		.83											.77									
M2		.77											.48									
M3		.68											.69									
M4		.59											.71									
SE1			.92											.93								
SE2			.79											.69								
SE3			.68											.82								
SK1				.89											.79							
SK2				.73											.83							
SK3				.72											.74							
OP1					.86											.85						
OP2					.77											.77						
OP3					.70											.75						
BC1						.87											.81					
BC2						.77											.78					
BC3						.70											.85					
SD1							.84											.51				
SD2							.70											.64				
SD3							.70											.68				
RE1								.85											.81			

Continuation ESM4*Factor Loadings for the 11-Dimension CFA of the Art-of-Living Items*

RE2	.70			.71	
RE3	.69			.73	
SC3		.60			.66
SA1			.92		.64
SA2			.62		.46
SA3			.49		.63
CO1			.75		.64
CO2			.65		.53
CO3			.60		.76

Note. PA = Positive attitude towards life. M = Meaning. SE = Serenity. SK = Self-knowledge. OP = Optimization. BC = Bodily care. SD = Self-determined way of living. RE = Reflection. SC = Social contact. SA = Savoring. CO = Coping.

ESM5

Intercorrelations of the Factors

[illegible]

ESM6*Measurement Invariance Tests based on the 11-Factor Model*

Kind of invariance	df	AIC	BIC	χ^2	χ^2/df	Δdf	CFI	RMSEA	ΔCFI	$\Delta RMSEA$
<u>Language</u>										
Configural	1010	307390	309359	3114.8	-	-	.966	.035	-	-
Loadings	1034	307428	309249	3200.4	85.64***	24	.965	.035	.001	.000
Intercepts	1058	307799	309472	3619.0	418.58***	24	.958	.037	.006	.003
Means	1069	307428	309710	3947.2	328.21***	11	.952	.039	.005	.002
<u>Gender within English</u>										
Configural	1010	190140	191958	2534.7	-	-	.960	.037	-	-
Loadings	1034	190140	191821	2582.4	47.72**	24	.959	.037	.001	.000
Intercepts	1058	190182	191727	2672.9	90.44***	24	.957	.038	.002	.000
Means	1069	190310	191793	2822.6	149.68***	11	.954	.039	.004	.001
<u>Gender within German</u>										
Configural	1010	116683	118338	1827.6	-	-	.966	.035	-	-
Loadings	1034	116675	118206	1867.5	39.90*	24	.965	.035	.001	.000
Intercepts	1058	116711	118118	1951.5	84.00***	24	.963	.036	.003	.001
Means	1069	116873	118123	2135.5	184.01***	11	.956	.039	.007	.003

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

ESM 7*Descriptives for the Art-of-Living Items: Means, SDs, and Part-Whole-Correlations*

Item	German			English		
	M	SD	Part-whole correlation ^a	M	SD	Part-whole correlation ^a
PA1	3.94	1.23	.73	4.15	1.24	.72
PA2	4.35	1.20	.76	4.61	1.19	.71
PA3	4.32	1.13	.74	4.51	1.14	.69
PA4	4.30	1.22	.73	4.60	1.10	.68
M1	4.49	1.19	.79	4.65	1.16	.76
M2	4.57	1.13	.77	4.62	1.12	.67
M3	4.28	1.18	.71	4.39	1.16	.71
M4	4.14	1.24	.64	4.21	1.23	.67
SE1	3.86	1.21	.79	4.25	1.21	.81
SE2	3.93	1.18	.70	4.34	1.13	.73
SE3	3.85	1.26	.72	4.36	1.19	.75
SK1	4.26	1.03	.75	4.59	1.01	.73
SK2	4.02	1.08	.76	4.43	1.06	.75
SK3	4.37	1.02	.75	4.61	0.99	.71
OP1	4.33	1.10	.77	4.44	1.06	.75
OP2	4.60	1.04	.72	4.67	0.99	.72
OP3	4.42	0.99	.75	4.51	0.98	.73
BC1	4.09	1.23	.65	4.34	1.14	.73
BC2	3.94	1.21	.67	3.97	1.33	.68
BC3	4.17	1.09	.74	4.26	1.11	.77
SD1	5.06	0.93	.68	5.12	0.85	.56
SD2	4.84	0.98	.76	4.71	0.98	.66
SD3	4.70	1.04	.69	4.62	1.16	.56
RE1	3.58	1.48	.69	3.68	1.45	.67
RE2	3.42	1.38	.60	3.72	1.39	.61
RE3	3.49	1.58	.60	3.87	1.45	.62
SC1	4.72	1.05	.65	4.67	1.11	.44
SC2	5.26	0.84	.55	5.59	0.70	.43
SC3	4.85	0.96	.66	5.05	0.85	.53
SA1	4.69	1.08	.71	4.94	0.92	.62
SA2	4.30	1.15	.64	4.56	1.06	.58
SA3	4.91	1.07	.52	4.89	1.01	.54
CO1	4.55	1.05	.62	4.81	0.93	.60
CO2	4.33	1.04	.58	4.66	0.93	.57
CO3	4.54	1.05	.61	4.82	0.92	.63

Note. PA = Positive attitude towards life. M = Meaning. SE = Serenity. SK = Self-knowledge. OP =

Optimization. BC = Bodily care. SD = Self-determined way of living. RE = Reflection. SC = Social contact. SA = Savoring. CO = Coping.

^a corrected.

ESM 8*Correlations of the Subscales of Art-of-Living with Well-Being*

	SD	SK	SA	BC	PA	RE	M	OP	SE	CO	SC	Aol
English												
AHI 5	.48***	.45***	.56***	.40***	.57***	.41***	.67***	.57***	.38***	.42***	.39***	.71***
SHS1	.45***	.27***	.64***	.43***	.67***	.31***	.56***	.37***	.36***	.18**	.45***	.59***
SWLS 2	.39***	.28***	.51***	.42***	.50***	.43***	.61***	.41***	.30***	.26***	.37***	.68***
SWLS 4	.32***	.31***	.45***	.30***	.42***	.45***	.52***	.39***	.26***	.28***	.25***	.49***
SWLS 5	.39***	.33***	.52***	.33***	.49***	.28***	.60***	.49***	.31***	.31***	.39***	.60***
Pos. Affect 1	.43***	.47***	.39***	.33***	.38***	.28***	.50***	.55***	.24***	.27***	.22**	.56***
Neg. Affect 1	-.40***	-.21**	-.48***	-.36***	-.48***	-.33***	-.45***	-.35***	-.39***	-.24***	-.41***	-.54***
PERMA 4	.57***	.48***	.58***	.39***	.52***	.41***	.60***	.54***	.34***	.39***	.40***	.65***
Flourishing (FS) 5	.39***	.45***	.50***	.34***	.56***	.28***	.69***	.55***	.40***	.38***	.45***	.68***
German												
AHI 6	.49***	.53***	.36***	.33***	.52***	.43***	.50***	.49***	.29***	.32***	.30***	.68***
SHS 7	.33***	.30***	.41***	.19**	.61***	.47***	.57***	.37***	.33***	.22**	.30***	.62***
SWLS 6	.40***	.34***	.27***	.24***	.41***	.34***	.41***	.35***	.16***	.18***	.17***	.49***
SWLS 7	.17**	.32***	.36***	.33***	.38***	.43***	.54***	.44***	.25***	.34***	.27***	.57***
SWLS 8	.42***	.43***	.41***	.35***	.58***	.38***	.58***	.44***	.35***	.25***	.34***	.64***
FS-D 8	.54***	.49***	.42***	.32***	.64***	.38***	.63***	.50***	.40***	.27***	.48***	.71***

Note. PA = Positive attitude towards life. M = Meaning. SE = Serenity. SK = Self-knowledge. OP = Optimization. BC = Bodily care. SD = Self-determined way of living.

RE = Reflection. SC = Social contact. SA = Savoring. CO = Coping, AoL = Art-of-Living total.

¹ English study 1, n = 207. ² English study 2, n = 245. ³ English study 3, n = 207. ⁴ English study 4, n = 903. ⁵ English study 5, n = 604. ⁶ German study 1, n = 407.

⁷ German study 2, n = 210. ⁸ German study 4, n = 392.

* $p < .05$. ** $p < .01$. *** $p < .001$.

ESM 9*Correlations Between Subscales of Art-of-Living*

Subscales	SC	BC	OP	SK	M	PA	SE	SA	CO	SD	RE
English											
SC											
BC	.31**										
OP	.39**	.38**									
SK	.37**	.33**	.57**								
M	.43**	.36**	.58**	.51**							
PA	.38**	.28**	.40**	.40**	.60**						
SE	.22**	.22**	.29**	.34**	.37**	.51**					
SA	.44**	.37**	.43**	.45**	.59**	.59**	.38**				
CO	.29**	.28**	.43**	.43**	.40**	.40**	.49**	.41**			
SD	.35**	.34**	.54**	.43**	.52**	.43**	.37**	.52**	.46**		
RE	.08**	.06**	.10**	.11**	.14**	.12**	.08**	.11**	.09**	.08**	
Aol total	.57**	.57**	.72**	.69**	.78**	.73**	.61**	.73**	.65**	.70**	.32**

Continuation ESM 9*Correlations Between Subscales of Art-of-Living*

<u>German</u>											
SC											
BC	.23**										
OP	.32**	.37**									
SK	.27**	.32**	.56**								
M	.36**	.34**	.58**	.53**							
PA	.31**	.26**	.40**	.44**	.56**						
SE	.13**	.16**	.21**	.34**	.35**	.49**					
SA	.43**	.32**	.32**	.42**	.43**	.45**	.25**				
CO	.19**	.26**	.42**	.46**	.41**	.38**	.43**	.34**			
SD	.35**	.32**	.56**	.45**	.52**	.43**	.28**	.35**	.41**		
RE	.03	.12**	.10**	.12**	.11**	.11**	.12**	.07*	.08**	.10**	
AoL total	.50**	.55**	.70**	.72**	.76**	.71**	.57**	.63**	.64**	.69**	.33**

Note. PA = Positive attitude towards life. M = Meaning. SE = Serenity. SK = Self-knowledge. OP = Optimization.

BC = Bodily care. SD = Self-determined way of living. RE = Reflection. SC = Social contact. SA = Savoring. CO = Coping,

AoL = Art-of-Living.

* $p < .05$. ** $p < .01$. ; English sample $n = 2166$, German sample $n = 1302$

ESM 10:*Synergistic effects*

Finally, we assessed whether there are synergistic effects relating to art-of-living subconstructs (sufficient common compared to unique parts of variance in predicting well-being)?

The first step was to examine the correlations between the subscales of the AOLI, which are shown in the ESM 9 table. Overall, the correlations were positive and statistically significant (partly due to the large sample size). The correlations were at least moderate, but for a few rare exceptions. We computed common and unique proportions of variance in the prediction of well-being (SWLS) by art-of-living. For the German sample, the sum of the unique variance components is 7.6% whereas the sum of total variance explained is 35.2%. This indicates that a far greater amount of variance is due to synergistic effects.