

## Supplementary Material

### Appendix A

Table 1

#### *Measures by Question Wording Form*

		Association with the concept	
Item	Bi-directional	Unidirectional positive item-concept association	Unidirectional negative item-concept association
“Self-Esteem”			
SE1	Ich komme mir manchmal taten- und ideenlos vor / I am sometimes experiencing myself as act-less and idealess	Ich komme mir nur selten taten- und ideenlos vor / I am only seldom experiencing myself as act- less and idealess	original
SE2	In unklaren und gefährlichen Situationen weiß ich immer, was ich tun kann / In unclear and dangerous situations, I always know what to do	original	In unklaren und gefährlichen Situationen weiß ich kaum, was ich tun kann / In unclear and dangerous situations, I hardly know what to do
SE3	Manchmal weiß ich überhaupt nicht, was ich in einer Situation machen soll / Sometimes I absolutely do not know what to do in a situaiton	Ich weiß zumeist, was ich in einer Sutation machen soll / I mostly know what to do in a situation	original
SE4	Auch in schwierigen Situationen fallen mir immer viele Handlungsalternativen ein / Also in difficult situations, many alternative actions always come to my mind.	original	In schwierigen Situationen fallen mir immer keine Handlungsalternativen ein / In difficult situations, no alternative actions come to my mind

SE5	Für die Lösung von Problemen fallen mir immer viele Möglichkeiten ein / I always have many solutions for a problem	original	Für die Lösung von Problemen fallen mir immer nur wenige Möglichkeiten ein / I always have only a few solutions for a problem
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“Migration Scale”			
OF1	Zuwanderer erhöhen die Kriminalitätsrate / Foreigners increase crime rates	Zuwanderer haben keinen Einfluss auf Kriminalitätsrate / Foreigners have no effect on crime rates	Original
OF2	Zuwanderer sind im Allgemeinen gut für die deutsche Wirtschaft / In general, foreigners are good for the German economy	Original	Zuwanderer sind im Allgemeinen schlecht für die deutsche Wirtschaft / In general, foreigners are bad for the German economy
OF3	Zuwanderer nehmen Menschen, die in Deutschland geboren sind, die Arbeitsplätze weg / Foreigners take jobs away from the people who were born in Germany	Zuwanderer nehmen den in Deutschland geborenen Menschen keine Arbeitsplätze weg / Foreigners take no jobs away from the people who were born in Germany	original
OF4	Zuwanderer machen Deutschland offener für neue Ideen und andere Kulturen / Foreigners make Germany more open for new ideas and other cultures	Original	Zuwanderer machen Deutschland skeptischer gegenüber neuen Ideen und anderen Kulturen / Foreigners make Germany more skeptical to new ideas and other cultures
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#### Notes

- 1) The experiments were conducted in German and German versions are included in the above Table
- 2) Details of rewording

Using the explicit negation “not,” which is a “nicht” in German, was avoided when rewording the items, as “not” has been recommended to be avoided (e.g., Dillman et al. 2009). For SE1 (negated positive form) the negative association with the concept is realized by the negation with the postfix “-less”, but also by the quantity “sometimes”. To obtain the positive item-concept association “sometimes” was changed to “seldom” (by using a polar opposite), because it was not possible to comparable change the postfix “-less” for both, idea- and act-less (e.g., “idea-full” does not present a proper German). Therefore, the re-worded item “I am only seldom experiencing myself as act-less and idealess” was grammatically still a negation, but a positive association with the underlying concept was reached. To reword the item SE3, “I mostly know” as polar opposite of “sometimes I absolutely do not know” was used. Therefore, the re-written item obtained a direct positive form, while the original form can be classified as “negated positive”. The items SE2, SE4 and SE5 were originally (in the bi-directional form) direct positive and positively associated with the underlying concept. SE2 and SE5 were re-worded for the unidirectional form with the negative association with the concept by implementing polar opposites (and contain therefore no negations in this form). SE4 was re-worded by implementing a particle negation “no” (“keine”) and obtained “negated positive” form.

For the originally “direct negative” (polar opposite) item (OF1) “Foreigners increase crime rates,” an opposite, such as “Foreigners decrease crime rates” was not used, since this would be evaluated by the respondents as a wrong statement, due to crime incidents with refugees in Germany in 2016. Thus, with the rewording, it was expressed that no more crime is initiated by foreigners than by German citizens.

## Appendix B

Table 1

*Means and Standard Deviations (SD) by the Form and Results of the ANOVAs*

	Bi-directional		Unidirectional		Unidirectional		$F$ (2, 477)/(2, 477)	$part.$ $\eta^2$
			positive item-		negative item-			
			concept		concept			
			association		association			
Items	Mean	SD	Mean	SD	Mean	SD		
“Self-Esteem”								
SE1	2.76	1.24	3.89	1.41	2.86	1.38	32.41***	.12
SE2	3.92	1.16	4.02	1.02	2.49	1.26	89.37***	.27
SE3	2.87	1.23	4.35	1.06	2.52	1.28	99.27***	.29
SE4	4.10	1.13	4.25	1.07	2.47	1.22	123.21***	.34
SE5	4.04	1.14	4.26	1.05	2.60	1.23	100.25***	.30
Common score <sup>1</sup>	4.10	0.87	4.16	0.89	4.40	1.06	5.17**	.03
n	165		141		174			
“Foreigners”								
OF1	3.20	1.39	2.36	1.18	3.19	1.35	20.42***	.08
OF2	2.76	1.12	2.68	1.09	2.61	1.31	0.66	.00
OF3	2.43	1.29	3.00	1.30	2.43	1.33	10.62***	.04
OF4	2.87	1.22	3.18	1.22	2.81	1.26	3.83*	.02
Common score <sup>1</sup>	3.00	0.99	2.81	0.99	3.24	1.17	6.50**	.03
n	177		148		167			

\*\*\* $p < .001$ ; <sup>1</sup>re-coded to have positive association with the concept.

Table 2

*Mean Differences between the Forms and Test Results of Pairwise Comparison (Bonferroni Corrected)*

Item	Difference between		
	Bi-directional (reference) and positive item-concept association	Bi-directional (reference) and negative item- concept association	Positive (reference) and negative item- concept association
“Self-Esteem”			
SE1 (-)	-1.13***	-0.09	1.03***
SE2 (+)	-0.10	1.43***	1.53***
SE3 (-)	-1.49***	0.34*	1.83****
SE4 (+)	-0.14	1.65***	1.78***
SE5 (+)	-0.23	1.43***	1.66***
Common score <sup>1</sup>	-0.07	-0.32*	0.25
N	165	141	174
“Migration Scale”			
OF1 (-)	0.83***	0.01	-0.82***
OF2 (+)	0.14	0.07	.07
OF3 (-)	-0.59***	0.00	-0.59***
OF4 (+)	-0.31	0.06	-0.36*
Common score <sup>1</sup>	-0.19	0.29	0.43**
N	177	148	167

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; <sup>1</sup>re-coded, positive association with the concepts; (+)/(-):

original positive vs. negative association with the concept in the bi-directional form.

### Manipulation Check:

For the items of “Self-Esteem” inventory, strong and significant differences of expected directions were obtained for all items. One unexpected result was only, that for the item SE3, items with the same wording (in the bi-directional form and in the form with the negative item-concepts association) significantly differed from each other, which point to a higher degree of disagreement (disacquiescence) for the negative form. However, significantly higher means were obtained for the positive than negative forms (Table 1, 2). This shows, as a manipulation check, that the re-wording was successful.

For the “Foreigners Scale” significant mean differences of expected direction were obtained for both items, which are originally (in the bi-directional form) reflecting negative opinions toward migrants (OF1 and OF3) showing the success of the experimental manipulation for these items. For the item OF2, the differences between the three forms were not significant, which means that the item “Foreigners are good for the German economy” and “Foreigners are bad for the German economy” obtained comparable mean scores of agreement in different respondents’ groups. This result cannot be explained by the failure to find polar opposites when rewording the items, since this involved a change of “good” to “bad” only, which are strong opposites. Instead, the result can be explained by true responses so that both, positive and negative stems, found similar agreement in the different, randomly divided groups of respondents. Likewise, for the fourth item (OF4) no significant differences were found between the bi-directional and positive item-concept association forms (the same wording), and also between the bi-directional and the negative item-concept association forms (opposite wording). Hence, difference between the two unidirectional forms was as expected, showing a success of manipulation.

## Appendix C

Table 1

*Fixation Times (msec.) on Different Areas of the Screen by Form*

Question wording	Bi-directional		Unidirectional positive item-concept association		Unidirectional negative item-concept association		$F$ (2, 122)/ (2, 93)	$part. \eta^2$
Screen areas	Mean	SD	Mean	SD	Mean	SD		
“Self-Esteem”								
Answer field	8453.35	4051.14	7973.15	4295.86	8082.24	3715.28	0.55	.01
Instruction	734.44	755.16	775.09	939.72	782.61	886.19	0.06	.00
Items msec./char.	40.79	16.68	54.32	31.31	44.67	21.45	9.692***	.14
Rating scale	1319.59	1178.63	1110.28	1178.019	1157.68	1111.68	0.60	.01
n	50		42		37			
“Migration Scale”								
Answer field	6067.30	3471.80	6378.30	4917.14	5317.19	3552.43	1.05	.02
Instruction	4131.92	3473.90	3011.28	2388.46	3417.48	3232.90	0.76	.02
Items msec./char.	43.28	23.07	49.96	25.20	41.49	22.30	2.12	.05
Rating scale	9780.69	5213.20	11790.90	5947.58	10157.18	5364.45	1.51	.03
n	29		38		29			

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

Table 2

*Reliability and Validity Scores by Form for the Eyetracking Study*

	Bi- directional	Unidirectional positive item- concept association	Unidirectional negative item- concept association
<hr/> “Self-Esteem” <hr/>			
<i>Lambda</i> <sub>2</sub>	.60	.85	.89
<i>r</i> <sub>s</sub> (Self-Efficacy, ASKU)	.29	.41**	-.75**
<hr/> “Migration Scale” <hr/>			
<i>Lambda</i> <sub>2</sub>	.38	.92	.84
<i>r</i> <sub>s</sub> (Aggression, KSA-3)	-.20	-.52***	.35*
<i>r</i> <sub>s</sub> (Tradition, KSA-3)	-.57**	-.53***	.32*