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The accuracy of German citizens' confidence in their climate change knowledge

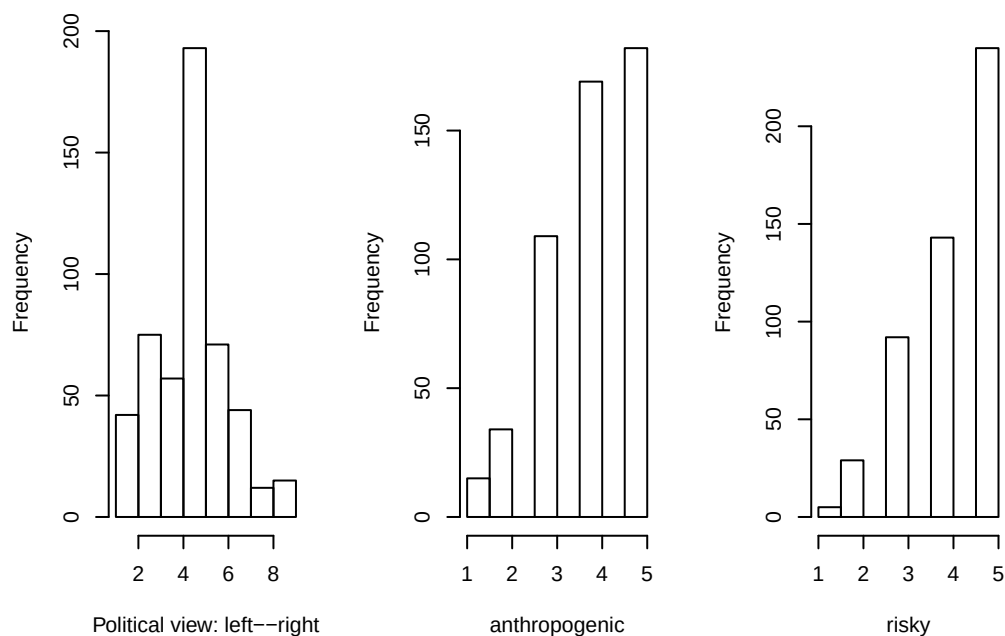
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Supplementary Figure 1: Participants

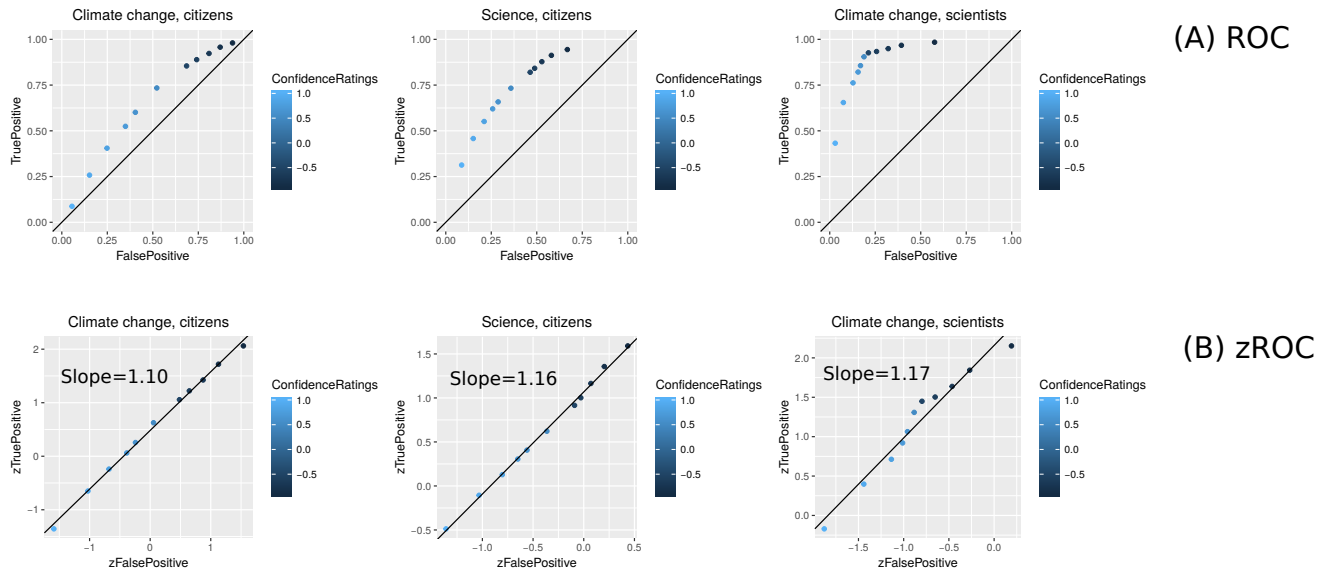
Climate change knowledge: German citizens sample. The sample's distributions of political orientation (nine-point scale, 1: left, 9: right), and climate change beliefs (“How much do you agree with the following statements?” 1. “Climate change is mostly caused by humans.”, 2. “Climate change is risky.”; five-point scale, 1: not agree at all, 5: totally agree) are displayed in Supplementary Figure 1.



Supplementary Figure 1. German sample distributions for political orientation, belief that climate change is anthropogenic, and belief that climate change is risky.

Supplementary Figure 2: Equal variance assumption of SDT model

Supplementary Figure 2 displays ROC and zROC curves for the three studies, climate change knowledge in citizens, science knowledge in citizens, and climate change knowledge in scientists. ZROCs of citizens are consistent with linearity, and slopes are close to 1; the zROC of scientists' climate change knowledge shows mild divergence from linearity.



Supplementary Figure 2. ROC (panel A) and zROC (panel B) curves for the three studies, climate change knowledge in citizens, science knowledge in citizens, and climate change knowledge in scientists. ROC curves plot the True Positive rate against the False Positive rate for varying confidence criteria; zROCs plot True Positive and False Positive rates in z-space. Equal-variance Gaussian distributions imply zROCS that are linear with slopes of 1.

Supplementary Note 1: Accuracy of knowledge for true compared to false statements: number-right scoring of responses

The accuracy of climate change knowledge was lower for citizens ($M=.61$, 95% CI [.59, .62]) compared to scientists ($M=.86$, 95% CI [.84, .88]), $F(1,714)=450.7$, $p<.001$, generalized $\eta^2 = 0.18$, and generally lower for FALSE statements ($M=.57$, 95% CI [.55, .60]) compared to TRUE statements ($M=.78$, 95% CI [.77, .80]), $F(1,714)=85.2$, $p<.001$, generalized $\eta^2 = 0.07$. However, for citizens the difference in accuracy between TRUE ($M=.73$, 95% CI [.71, .76]) and FALSE statements ($M=.48$, 95% CI [.45, .50]) was considerably larger than for scientists ($M=.90$, 95% CI [.88, .92] and $M=.81$, 95% CI [.78, .84], for true and false statements, respectively), $F(1,714)=24.1$, $p<.001$, generalized $\eta^2 = 0.02$.

Supplementary Table 1: Mokken analysis

Supplementary Table 1 displays Loevinger scalability coefficients for each statement within each of the two subscales (TRUE statements, FALSE statements) as indicators of climate change knowledge.

Cutoff values of $H_i > .3$ are usually assumed for an acceptable scale.

Supplementary Table 1. Mokken scale scalability coefficients H_i , within each of the two subscales (TRUE statements, FALSE statements).

Veracity	Statement	Loevinger scalability coefficients H_i (Standard error)
FALSE	The global average temperature in the air has increased approx. 3.1 °C in the past 100 years.	0.301 (0.043)
FALSE	An increasing amount of greenhouse gases increases the risk of more UV-radiation and therefore a larger risk of skin cancer.	0.406 (0.046)
FALSE	The 1990s was the warmest decade during the past 100 years.	0.334 (0.044)
FALSE	Climate change is mainly caused by a natural variation in sunbeam and volcanic eruption.	0.400 (0.070)
TRUE	The global change in temperature in the past 100 years is the largest during the past 1000 years.	0.324 (0.038)
TRUE	Carbon dioxide concentration in the atmosphere has increased more than 30% during the past 250 years.	0.334 (0.036)
TRUE	The increase of greenhouse gases is mainly caused by human activities.	0.328 (0.050)
	In 100 years from now, sea level will rise approximately one meter. *	--
TRUE	The blanket of snow in the Northern hemisphere has decreased approximately 10% since the 1960s.	0.349 (0.038)

Note. N=509. Statement marked with * was not included in the results as its veracity can be considered unclear with respect to the latest IPCC report (IPCC, 2014).