

## Replication of Baldwin and Lammers, 2016

“Past-focused environmental comparisons promote proenvironmental outcomes for conservatives”

PNAS 113(52), 14953-14957.

<https://www.pnas.org/content/113/52/14953>

*The original paper includes several experiments. We randomly chose experiment 3. In this between-subject experiment, participants are presented with 14 pairs of photographs said to demonstrate the influence of climate change on the earth. Participants are randomly allocated to one of two conditions manipulating temporal comparisons: a past-focused condition (where the photos are described as reflecting changes in the environment from the past to the present) or a future-focused condition (where the photos are described as reflecting expected changes in the environment from the present to the future). Participants then report their proenvironmental attitudes and their political orientation. Conservatives become more proenvironmental when appeals to address climate change are framed as past-focused comparisons. The replication focuses on the interaction effect of political orientation and the condition.*

**Hypothesis to replicate and bet on:** Conservatives become more proenvironmental when appeals to address climate change are framed as past-focused comparisons. To evaluate this hypothesis, the authors perform a regression analysis, with focus on the interaction result between political orientation and condition (interaction  $b = 0.008$ ,  $SE = 0.004$ ,  $t(196) = 2.22$ ,  $p = 0.03$ ); p.14955.

**Criteria for replication:** The criteria for replication are an effect in the same direction as in the original study and a  $p$ -value  $< 0.05$  in a two-sided  $t$ -test of the interaction coefficient in an ordinary least squares regression of participants' environmental attitude on their political orientation, the treatment condition, and the interaction of political orientation and the condition.

**Power analysis:** The original study had 200 participants. The standardized effect size (Cohen's  $d$ ) was  $d = 0.628$ . To have 90% power to detect 67% of the original effect size, a sample size of  $n = 960$  is required.

**Sample:** Only participants from the US were allowed to participate in the original study. We will implement the same criterion and will target US adults based on self-identified political preference to include approximately equal numbers of liberals and conservatives. We will make sure that participants can only participate once from the same account in this specific study, and we will only recruit participants with a HIT approval rate of 95% or above. We will also check all IP addresses via <https://www.ipqualityscore.com/>; and we will remove any participants where one or more of the following is true: fraud score  $\geq 85$ ; TOR = True; VPN = True; Bot = True; abuse velocity = high. The replication sample size is the sample size after any exclusions of participants.

**Materials:** We will use the same material as in the original study, kindly provided by the original authors. In particular, the experiment will be conducted using the original *Qualtrics* survey, including the 14 photographs used in the original experiment.

**Procedure:** We will closely follow the procedure of the original experiment. The following summary of the experimental procedure is therefore largely based on the description of the

experiment in the article (p. 14955) and the section “Study 3” (p. 2) of the SI Materials and Methods. Additionally, we will closely follow the specifications provided through our direct communication with the original authors.

To include approximately equal numbers of Liberals (or Democrats) and Conservatives (or Republicans), we will target participants based on their self-identified political preference. In particular, we will follow the original authors’ sampling approach and will create two versions of the study on *TurkPrime*, each with instructions to only participate if they self-identify as Liberal (Conservative).

Participants will first be shown a Captcha, and will thereafter provide informed consent. After this we will include an attention check that participants will need to pass to continue to the study. This attention check is in addition to any other potential attention check(s) used in the original study. After this, participants will complete a demographics questionnaire in which they indicate their political orientation on a sliding scale (0 = extremely liberal; 100 = extremely conservative). Participants will be instructed that they will rate pairs of images demonstrating the effects of climate change on Earth (14 pairs in total). Based on the question “How much does this image demonstrate the effects of climate change?” subjects will indicate their assessments on a 5-point Likert Scale (1=“None at all, 5=“A great deal”) for each image.

Participants will be randomly allocated to one of two conditions: In the past-focused condition, participants will be shown images described as showing how the present has changed from the past, whereas in the future-focused condition they will be shown the same images described as showing how the present is likely to change in the future.

After viewing all 14 images, participants will indicate how uncertain (e.g., unsure, restless) they feel using a 19-item scale (1 = not at all, 5 = a great deal), and report their environmental attitudes using the eight-item New Ecological Paradigm scale (e.g., “Humans are seriously abusing the environment”), followed by a the 15-item Need for Closure Scale (e.g., “I dislike unpredictable situations”). The mean of the responses to the eight questions of the New Ecological Paradigm scale constitutes the dependent variable in the analysis.

**Analysis:** The analysis will be performed as in the original paper, with an ordinary least squares regression analysis in which participants’ environmental attitudes are regressed on political orientation, temporal comparison condition (0 = future-focused, 1 = past-focused), and the political orientation  $\times$  condition interaction. The replication focuses on the two-sided *t*-test of the interaction effect of political orientation and the condition.

**Subject payments:** We are standardizing payments across all replications so that studies have a certain show-up fee depending on the expected length of the study, with an hourly wage from the show-up fee of \$8 and a minimum payment of \$1 (for studies with incentive payment we use the same incentive payment as in the original study; and this payment is paid in addition to the show-up fee). If we have problems recruiting enough participants, we will increase the show-up fee.