Preregistration Report - Group 7

Conformity to the descriptive norms of people with opposing political or social beliefs

Authors

Jens Huth,

Thomas Nortmann,

Simon Roske,

Niko Britt

Study Information

1. Description

    Our study aims at replicating the results of the study *Conformity to the descriptive norms of people with opposing political or social beliefs*, conducted by CampbellPryor, Amy Perfors, and Piers D. L. Howe [1]. To ensure this, our design plan will be closely related to theirs.

    It is established that people tend to behave a certain way if they know that other people behave in a similar fashion. Yet, it is still undetermined whether people will exhibit the same behavior when they do not identify with these other people. Self-categorisation theory claims that people will more likely concur with a belief allegedly shared by the group they identify with (their ingroup), when an opposite belief allegedly shared by the group they do not identify with (the outgroup) is shown. According to the theory, this is done in an effort to distance themselves from the outgroup. Thus, it asserts that participants will actively refrain from conforming to the beliefs (descriptive norms) of groups with which they do not identify. The alternative hypothesis is that people will conform with the overall most common belief. Much like the study we want to replicate, we will test the prediction of self-categorisation theory against the alternative hypothesis.

2. Hypotheses

    First hypothesis (Hn): Participants will conform more with the ingroup descriptive norm, when the outgroup descriptive norm is shown (directional hypothesis). This can be interpreted as an effort by the participant to distance themselves from the outgroup.

    Alternative Hypothesis (Ha): Participants will conform less with the ingroup descriptive norm, when the outgroup descriptive norm is shown (directional hypothesis). They will conform with the overall most common belief, the outgroup descriptive norm of 85% approval.

Design Plan

3. Study type

> The type of study we will conduct is an experiment which includes randomized controlled trials.

4. Blinding

> This study involves blinding.
>
> Participants will not know the treatment group to which they have been assigned, nor will they be (to the extent to which we can control it) influenced by any biased party in any way.
>
> No personnel who will be aware of the assigned treatments will interact directly with the study subjects.
>
> Personnel who analyze the data collected from the study are aware of the treatment applied to any given group.

5. Study design

> Our study has a 2 (*Both Norms Shown*) x 2 (*Ingroup Norm*) between-subjects factorial design. One of the Independent variables is *Both Norms Shown* which has 2 levels. If *Both Norms Shown* = 1, both an ingroup descriptive norm and an outgroup descriptive norm were shown. If *Both Norms Shown* = 0, only an ingroup descriptive norm was shown. The other independent variable is *Ingroup Norm* which also has 2 levels where values -1 or 1 determine which of the two possible predetermined claims should be the one favored by the ingroup.
>
> The dependent variable of our study is *Participants Response* as determined by the participants' input of the Likert scale.
>
> The instances in which both an ingroup and an outgroup favorable statement are made, will be randomly ordered to control for potential order effects and will be ignored when analysing the data.

The experiment is conducted in the web browser using magpie.

Participants are introduced to the survey through the use of a "Welcome" and a succeeding "About this Survey" page. Then, their demographic information (age and gender) will be requested.

Afterwards, participants are presented with a list of nine social issues and are asked to select the one issue they care about most. Then, they are to choose a stance on a specific statement which is based on the topic they selected. This is done with the help of an 11-point (Likert) scale. We will then be able to determine which group they belong to. We will take advantage of this information by defining the participants' ingroups and outgroups.

After that, the participants will be presented with a moral dilemma:

"Imagine you have witnessed a man rob a bank. However, you then saw him do something unexpected with the money. He donated it all to a run-down orphanage that would benefit greatly from the money. You must decide whether to call the police and report the robber or do nothing and leave the robber alone."

They will be asked to choose one of two possible actions:

"call the police and report the robber", or "do nothing and leave the robber alone".

Displayed beneath the provided dilemma, we will present the participants with a statement claiming that 60% of their ingroup chose either to call the police or to let the man go (50/50).

Furthermore, half of the participants were then presented with a statement alleging that 85% of the outgroup chose the opposite outcome. This is therefore considered as the overall most common belief.

Next, the participants will be asked how they felt about their decision. This will be measured with a 6-point scale ranging from 'definitely call the police' to 'definitely do nothing'. The results however, will not be rated.

Participants are also asked questions to make sure they are paying attention and answering seriously in the form of an attention trial.

The attention trial (understanding check) question would look something like the following: "As mentioned before, this study is a follow-up to a previous

study. Given the information provided in the instructions, which of the following statements about the previous study are true?". Lastly, participants will be questioned about their group affiliation based on the social issue they deemed most important to test whether they identified with the appropriate ingroup and did not do so with the appropriate outgroup. This will be determined with the help of Postmes, Haslam and Jans' [2] single-item social identification measure which.

All relevant documents involved in this study will be stored on GitHub.

6. Randomization

Our study will randomly assign participants to either of the two levels of both independent variables (*Both Norms Shown* and *Ingroup Norm*). The instances in which both an ingroup and an outgroup favorable statement are made, are randomly ordered to control for potential order effects. The positioning of the ingroup descriptive norm in relation to the output descriptive norm (0 = below it, or 1 = above it) is randomised as well. This serves to eliminate systematic selection/attention bias. In all cases, we will be using simple randomization with the help of the lodash function "_.sample([X, Y])".

Sampling Plan

7. Existing data

Registration prior to creation of data: As of the date of submission of this research plan for preregistration, the data for analysis have not yet been collected, created, or realized. So far, there have only been pilot data collected which served the sole purpose of writing the analysis script, and testing and perfecting the experiment's functionality.

8. Data collection procedures

The human subjects necessary for our experiment will be able to access our experiment via a netlify link. The participants will be recruited through the use of social-media (e.g. Instagram) and various email mailing lists targeting students at the University of Osnabrück. This guarantees that all participants will have access to a smartphone, tablet, or computer with connection to the internet. Specified as a prerequisite in the recruitment message will be basic English reading comprehension abilities. The fact that the experiment's duration will average out at two minutes will also be conveyed. There will be no payment in exchange for participation.

The majority of the resulting demographic will consist of German men and women between the ages of 19 and 24 who are wealthy enough to own (or at least have access to) a smartphone, tablet, or computer and may have an academic career that goes or will go beyond a high school diploma.

9. Sample size

Our target sample size is 100 participants. We will attempt to recruit up to 120, assuming that not all will complete the total task, fail the attention task, or do not clearly identify themselves as part of a group.

10. Sample size rationale

Due to our limited resources of outreach (limited social-media accounts and mailing lists), we are not very confident in achieving a high target sample size. The perfect target sample size would be that of the study we are trying to replicate (301 participants) but due to our lack of monetary enticements that does not seem feasible. We will attempt to come as close to the sample size of 301 as reasonably possible to ensure a similarity to the study we want to replicate and to be able to conclusively make an analytical inference to a certain high level of certainty. The amount of participants must be great enough to account for a small statistical significance.

Variables

11. Manipulated variables

- **ingroupNorm**: whether the ingroup descriptive norm presented to the participants favoured reporting the robber (-1) or not reporting the robber (1).

- **bothNormsShown**: whether only the ingroup descriptive norm was shown (0) or an outgroup descriptive norm that was opposite to the ingroup norm was also shown (1).

12. Measured variables

- **timeSpent**: The time in which the experiment was completed, in Coordinated Universal Time.

- **submission**: the number of the experiment as reported in the manuscript.

- **age**: self-reported age.

- **gender**: self-reported gender.

- **RT**: Reaction time for each action.

- **response**: response to the moral dilemma, ranging from "Definitely call the police" (1) to "Definitely leave the robber alone" (6) (Likert scale).

- **understandingCheckResponse**: response to the understanding check, where 1 represents choosing the correct option.

- **topIssueRating**: the extent to which the participant agreed with the statement about the issue they identified as caring about most, ranging from "Strongly Disagree" (0) to "Strongly Agree" (10) (Likert scale).

- **identityIngroupResponse**: the extent to which the participant agreed with the statement "I identify with [ingroup description]" on a scale from "Strongly Disagree" (1) to "Strongly Agree" (7) (Likert scale).

- **identityOutgroupResponse**: the extent to which the participant agreed with the statement "I identify with [outgroup description]" on a scale from "Strongly Disagree" (1) to "Strongly Agree" (7) (Likert scale).

- **ingroupAgree**: a binary representation of whether the participant reported identifying with the ingroup as represented by scoring 5 or higher on identityIngroupResponse (1) or not (0).

- **outgroupDisagree**: a binary representation of whether the participant reported not identifying with the outgroup as represented by scoring 3 or lower on identityOutgroupResponse (1) or not (0).

Analysis Plan

13. Statistical models

Condition: Ingroup Norm

Group: Both Norms Shown

Y: Response

The manipulated, categorical independent variables (predictors) are 'ingroupNorm' and 'bothNormsShown' whereas the dependent variable (outcome) is 'response'.

For us to be able to establish whether our first hypothesis explains our soon-to-be-gathered data well, we will be conducting an analysis in which we are planning to compare two models representing our hypotheses, the self-categorisation model (our first hypothesis) and the alternative model. They are both versions of a bayesian ordinal logistic model with priors. The models assume that the descriptive norms change the odds of making higher (preferring not to report the robber) or lower (preferring to report the robber) responses on an ordinal scale. The ordinal logistic regression model predicts the distributions of these responses.

The variables are parameterized in the context of the natural log odds of preferring a higher response:

log_e(odds of responding higher)$=b_{in}I+b_{both}B+b_{out}I{\times}B$

b$_{in}$ = prior in

I = ingroupNorm

b$_{both}$ = prior both

B = bothNormsShown

b$_{out}$ = prior out

I x B = Outgroup Norm

Because self-categorisation theory (our first hypothesis) proclaims that participants tend to want to agree with their ingroup (the group they self-identify with) rather than their outgroup (the group separate from their self-identity), we will include the variables "ingroupAgree" and "outgroupDisagree" in our analysis.

log_e(odds)$=b_{in}I{\times}$INGROUP AGREE$+b_{both}B+b_{out}I{\times}B{\times}$OUTGROUP DISAGREE

Ingroup Agree = 1 if participant identifies, 0 if not

Outgroup Disagree = 1 if participant identifies, 0 if not

Prior b$_{in}$:

We will inform our prior for the ingroup descriptive norm effect (b$_{in}$), like in the study we are trying to replicate, with a log odds ratio of 1.02 with a standard deviation of 0.19. We will set the prior distribution for the effect of the ingroup descriptive norm to be a folded normal distribution with a mean of 0.816 and a standard deviation of 0.5 for both the self-categorisation and the alternative models. Here, the prior will be restricted to be greater than 0, given that the effect of the ingroup descriptive norm will be positive for both models.

Prior b$_{both}$:

b$_{both}$ will measure the effect of presenting both the ingroup and the outgroup norm. This effect will allow for an outgroup descriptive norm to be more

effective in one direction than in another. For both models (alternative and self-categorisation) the weak uninformative prior b*both* will be in the form of a normal distribution with a mean of 0 and a standard deviation of 0.5.

Prior b*out*:

This parameter will illustrate the degree to which presenting an outgroup descriptive norm shifted preferences towards or away from the option favoured by the ingroup descriptive norm.

For the self-categorisation model, we will portray the expected effect (increased conformity with the ingroup norm) with a half-normally distributed prior with a mean of 0 and a standard deviation of 0.5 that will be restricted to be greater than 0.

For the alternative model, we will set b*out* to be a transformation of b*in*, such that b*out* = - 0.85/0.6 b*in*.
Ingroup and outgroup norms are expected to influence the participants' preferences equivalently except for their strengths (85% vs. 60%)

The priors are identical to the one's mentioned in the paper we want to replicate. We plan to compare the models with the Bayes Factor which will compare the observed data's probability under both models:

$$BF= \frac{p(data|alternative)}{p(data|self-categorization)}$$

As an additional analysis we will run a frequentist ordinal logistic regression to measure the effect sizes of our independent variables (bothNormsShown and ingroupNorm).

All data will be preprocessed using Python and analysed using R.

14. Data exclusion

We will include an understanding check to exclude participants who do not pay attention. We will also exclude any participants who reveal a neutral

stance on their chosen social issue because in this case we will not be able to determine an ingroup and outgroup.

15. Missing data

If a subject does not answer all of the questions asked, that subject will not be included in the analysis.

Other

16. Other

The study we will be replicating was conducted by Pryor, Prefors, and Howe and is outlined in the research paper titled *Conformity to the descriptive norms of people with opposing political or social beliefs* (2019) [1].

References

1. Pryor, C., Perfors, A., & Howe, P. D. L. (2019). Conformity to the descriptive norms of people with opposing political or social beliefs. *PLOS ONE*, *14*(7). https://doi.org/10.1371/journal.pone.0219464

2. Postmes, T., Haslam, S. A., & Jans, L. (2012). A single-item measure of social identification: Reliability, validity, and utility. *British Journal of Social Psychology*, *52*(4), 597–617. https://doi.org/10.1111/bjso.12006