Study Information

Title

A Replication Study to Evaluate People's Conformity to Descriptive Norms

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Description

Forming groups and creating societies has played a major role in human evolution, especially the association with a group (=ingroup) or a society has played a decisive role in survival, further development, and in the identification and formation of one's self-image (Asch, 1951; Guindre-Parker & Rubenstein, 2020; Sherif, 1936). It can also positively contribute to one's well-being (Greenaway et al., 2015). Groups tend to have similar norms, values and belief systems. Therefore, we will test whether people are more prone to conform to descriptive norms of their social ingroup in the situation of a moral dilemma or whether we are more likely to follow the overall descriptive norm even if it is the norm of the outgroup. This study is a replication of an experiment that was conducted by Pryor, Perfors, and Howe in 2019.

The hosted version of our experiment can be found here:

https://xplab-experiment.netlify.app/

Hypotheses

In our experiment, two opposing hypotheses are presented. The null hypothesis reflects self-categorization theory (Hogg, Turner, & Davidson, 1990) while the alternative hypothesis states that the overall descriptive norm is more strongly conformed to.

According to self-categorization theory, people will actively disagree with the beliefs of their outgroup. Therefore, to prove self-categorization theory, the mean number of choices of action conforming to the ingroup descriptive norm (conformity is given when *response* ≥ 4 for *ingroupNorm* = 0; *response* ≤ 3 for *ingroupNorm* = 1) should be greater in the both norms shown condition (*bothShown = 1*) than in the design where only the ingroup norm (*bothShown = 0*) is shown.

In contrast, the alternative hypothesis describes the idea that people tend to conform to the descriptive norm regardless of whether it originates from the in- or outgroup. In detail, this implies that if people tend to conform to the descriptive norm, the mean choices of action will be identical to the descriptive norm across all possible experimental conditions. This implies that mean choices of action conforming to the ingroup descriptive norm in the both norms shown condition (*bothShown = 1*) will be identical or lower than in the condition where only the ingroup norm (*bothShown = 0*) is shown.

Design Plan

Study type

Experiment - psychological online experiment with human subjects

Blinding

In this study, we plan to use double-blinding. The participants will not be aware of the group they were assigned to although experimental conditions vary in the number or the content of

descriptive norms shown. Since the experiment will be conducted online and the experimental conditions will be randomly assigned to each participant, the experimenters won't be aware of the experimental manipulations. When we analyse the data we will be able to distinguish between different treatment groups.

Additional blinding

No response

Study design

This study follows a 2x2 factorial, between-subjects design. The first factor being the *ingroup descriptive norm* with two levels for the two possible norms and the second factor being *both norms shown* with two levels for either only the ingroup norm being shown or the in- and outgroup norm being presented. More information on the manipulated variables can be found in the section *Variables*.

At the beginning of the experiment, the participant is asked to choose one of eight socially and politically critical topics and is then presented with a statement on their chosen issue. This is done to establish the basis for the main trial where the subject is confronted with a moral dilemma and is either presented with only their ingroup descriptive norm or also possibly with their outgroup descriptive norm describing how others act in the situation of this moral dilemma. The participants are then asked to act upon the situation in said dilemma.

To ensure that all participants have followed the instructions carefully, an understanding check follows, which is intended to prevent participants from making random decisions when answering the questions.

Last but not least, Postmes, Haslam, and Jan's single-item social identification measure (Postmes et al., 2013) is used which includes an assessment of whether the test persons identify with the relevant ingroup and separate themselves from the relevant outgroup.

To view more details on the study's experimental design, see:

https://docs.google.com/document/d/1S7nyP9rwfJwY5D7-UHAcCHOuor9c3zCs8DOGnvblIh U/edit?usp=sharing

Randomisation

The experiment will use simple randomisation where each participant will be randomly assigned to one of the four experimental conditions. Participants get randomly assigned to an experimental condition using a version of the Fisher-Yates shuffle, implemented via the '_.shuffle' function of the [Lodash library](#) in JS. We will also use randomisation of order whenever both norms are shown.

Sampling Plan

Existing data

This experiment will not use or analyse already existing data. As of the date of submission of this research plan for preregistration, the data have not yet been collected, created, or realised. All data which is relevant to the analysis will be collected in the online experiment, as described before, to enable a true replication of the study of Pryor et al. The analyses that will be performed are declared in section Analysis Plan.

Data collection procedures

Subjects will be recruited through the experimenters' social media accounts such as Instagram but also via messenger platforms like Whatsapp, Telegram, and Signal. Participation is voluntary and there will be no compensation for it. Data collection will start on August 12, 2021, and after ten days, the data collection will stop regardless of the target sample size and the gathered dataset will be analysed according to the analysis plan.

Sample size

As it most probably will not be possible to recruit as many participants as Pryor et al., we define our own target sample size of 100 participants. Assuming that not all recruited participants will complete the total task we will try to recruit 120 subjects.

Sample size rationale

The rationale for choosing our target sample size was that we want to collect as much data as possible to make the dataset as representative as possible. But, by taking time constraints into consideration and performing a realistic assessment of the recruitment of participants we concluded that 100 subjects would be a realistic yet valuable target size.

Stopping rule

If our recruitment aim of 120 participants is fulfilled before the ten days of data gathering we will stop data collection for the study. If that goal is not reached, data collection will stop as soon as the collection period has finished.

Variables

Manipulated variables

Our experiment includes two independent variables. First, we have the ingroup descriptive norm (*ingroupNorm*). This variable contains two possible outcomes, namely whether the ingroup descriptive norm favoured reporting the robber (*ingroup descriptive norm* = 0) or leaving the robber alone (*ingroup descriptive norm* = 1). In addition, another manipulated variable both norms shown (*bothShown*) is used. This is defined by showing only the ingroup descriptive norm (*bothShown* = 0) or by showing the ingroup descriptive norm as well as the outgroup descriptive norm (*bothShown* = 1). This results in the experiment having four possible experimental conditions.

Measured variables

The variable of interest will be *response*, the choice of action the participant decides to take in response to the moral dilemma. There will be two possible actions the participant gets to choose from. They will either be able to '*call the police and report the robber*' or '*do nothing and leave the robber alone*'. However, the subjects won't have a dichotomous choice but will have six possible options in total, with three stages for each course of action. These nuances will comprise 'definitely', 'very likely' and 'probably'.

Further, we are going to measure whether the participants actually agree with their in- and disagree with their outgroup, based on their rating of the statement shown at the beginning. *ingroupAgree* and *outgroupDisagree* are both binary (1 if true, 0 if false). Further supplementary measures (e.g. topIssue) will help to assign the participants to their respective in- and outgroup but won't be used in the statistical analysis.

Analysis Plan

Statistical models

We will perform a confirmatory analysis using Bayes Factors to compare the two models 'self-categorization' and 'herding' (alternative model, overall descriptive norm). The first account predicts that an individual will conform with the ingroup descriptive norm and actively avoid conforming with her outgroup. The second account predicts that an individual will follow the overall descriptive norm, regardless of whether that norm originates from the in- or outgroup. Both models can be expressed as Bayesian versions of ordinal logistic regression, which we will use to compute the Bayes Factor:

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

In this formula, I represents the variable *ingroupNorm*, B represents *bothShown*, and $I \times B$ is an interaction term between those two referring to the outgroup norm; since the outgroup

norm was always opposite to the ingroup it can be derived from the former two. All three variables are independent. The coefficients b_{in}, b_{both}, and b_{out} stand for "the effects of changing these conditions" (Prior and Perfors, 2019). The dependent variable is *response*.

To realise this, we will use the same STAN models as used by the original authors of the paper we aim to replicate (Pryor et al., 2019).

Inference criteria

We will use the Bayes factor interpretation scale by Jeffreys (Jeffreys, 1998) to determine whether our data provides evidence in favour of either model. We will consider a Bayes Factor of six as substantial evidence.

Data exclusion

Data from participants who fail the understanding check will be excluded as well as data from subjects who claimed to have a neutral stance on the statement regarding their chosen social/political issue. This data exclusion procedure is similar to the approach of Pryor et al.

Missing data

Subjects whose data is incomplete or missing will be excluded from the analysis since the missing data could falsify the experimental results. This should, however, not be necessary since data is only submitted once the entire experiment is finished. It is not possible to proceed without answering mandatory questions.

Exploratory analysis

Additionally to our Bayesian confirmatory analysis, we might perform a frequentist ordinal logistic regression to dive deeper into exactly which condition has how much influence on the participant and her choice. This will depend on time constraints and data quantity, i.e. we

need enough data for every combination of condition and response. No further exploratory analysis is planned.

Other

Paper of replication

Pryor, C., Perfors, A., & Howe, P. D. L. (2019). Conformity to the descriptive norms of people with opposing political or social beliefs.
Retrieved July 30, 2021, from https://doi.org/10.1371/journal.pone.0219464

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