Preregistration for Quantitative Research in Psychology (PRP-QUANT) Template

Title

T1 Title
The title should be focused and descriptive, using relevant key terms to reflect what will be done in the study. Use title case (https://apastyle.apa.org/style-grammar-guidelines/capitalization/title-case).
(Working Title) “Self-Serving Bias: More than just a Shortcut to Positive Self-Enhancement? Methodologies of Self-Referential Processing and Judgement” - Part 2

T2 Contributors, Affiliations, and Persistent IDs (recommend ORCID iD)
Provide in separate entries the full name of each contributor, each contributor's professional affiliation, and each contributor's persistent ID. See ORCID iD for an example of persistent ID (https://orcid.org/). Optional: include the intended contribution of each person listed (e.g. statistical analysis, data collection; see CRediT, https://casrai.org/credit/).
• Rebecca Lövenich, M.Sc. Psychology, Doctoral Researcher (https://orcid.org/0000-0002-2712-1529) • Dr. rer. medic. Saskia Doreen Forster, Postdoctoral Researcher (https://orcid.org/0000-0002-7847-3700) • Dr. rer. medic. Lorenz Weise, Postdoctoral Researcher (https://orcid.org/0000-0001-7469-6344) • PD Dr. rer. medic. Verena Mainz, postdoctoral Researcher (https://orcid.org/0000-0002-0053-9722) • Prof. Dr. phil. Siegfried Gauggel, Director of the Institute for Medical Psychology and Medical Sociology, University RWTH Aachen (https://orcid.org/0000-0002-2742-4917)

T3 Date of Preregistration

This is assigned by the system upon preregistration submission.

T4 Versioning information

This is assigned by the system upon submission of original and subsequent revisions. Should be a persistent identifier, if not a DOI.

T5 Identifier

This unique identifier is assigned by the system upon submission.

T6 Estimated duration of project

Include best estimate for how long the project will take from preregistration submission to project completion.

1-1.5 years

T7 IRB Status (Institutional Review Board/Independent Ethics Committee/Ethical Review Board/Research Ethics Board)

If the study will include human or animal subjects, provide a brief overview of plans for the treatment of those subjects in accordance with established ethical guidelines. If appropriate institutional approval has been obtained for the study, provide the relevant identifier here. If the study will be exempt from ethical board review, provide reasoning here.

The study has been approved by the ethics committee of the Medical Faculty of the RWTH Aachen University (EK 223/20).

T8 Conflict of Interest Statement

Identify any real or perceived conflicts of interest with this study execution. For example, any interests or activities that might be seen as influencing the research (e.g., financial interests in a test or procedure, funding by pharmaceutical companies for research).

No conflict of interest are declared by the author with respect to research, authorship or publication

T9 Keywords

Include terms specific to your topic, methodology, and population. Use natural language and avoid words used in the title or overly general terms. If you need help with keywords, try a keyword search using your proposed keywords in a search engine to check results.

Self-Image, Self-Serving Bias, Self-Referential Processing, Time Pressure, Methodology, Self-Assessment

T10 Data accessibility statement and planned repository

"We plan to make the data available (yes / no)
If "yes", please specify the planned data availability level by selecting one of the options:

- Data access via download; usage of data for all purposes (public use file)
- Data access via download; usage of data restricted to scientific purposes (scientific

use file)
- Data access via download; usage of data has to be agreed and defined on an individual case basis
- Data access via secure data center (no download, usage/analysis only in a secure data center)
- Data available upon email request by member of scientific community
- Other (please specify)

Yes, anonymized data will be available upon email request by member of scientific community

Abstract

(150 words)

A1 Background

(See introduction I1)

Previous studies have established a solid ground for the existence of the Self-Serving Bias Effect (SSBE). This study wants to explore methodological aspects of the effect in self-judgement tasks, in particular the influence of different assessment aspects like response type or trial time.

A2 Objectives and Research questions

(See introduction I2)

The aim of the study is to investigate whether participants self-related trait responses would differ depending on the amount of time they have to respond to the task. With this the research the question whether we should actually speak of a bias or a natural tendency should be addressed.

A3 Participants

(See methods M4)

All 60 participants have to be between 18 and 50 years of age, male or female, without current or past mental health diagnosis and proficient in the German language.

A4 Study method

(See methods M10-14)

The experimental task consist of a trait-judgment paradigm which consists of participant rating trait words as self-describing or non-self-describing. The task is carried out on the computer in a laboratory setting. The study is constructed as a 2x2 factor design with a within-participant analysis set-up.

Introduction

I1 Theoretical background

Provide a brief overview that justifies the research hypotheses.

People tend to follow generously and (over) positive reasoning in self-assessments. This positive judgement tendency is referred to as the Self-Serving Bias Effect (SSBE). The SSBE has been established and replicated as a stable psychological construct over the course of various studies (Cunningham & Turk, 2017; Duval & Silvia, 2002; Forster et al., 2021; Forster, Drueke, Britz, Gauggel, & Mainz, 2019; Mainz, Britz, Forster, Drüke, & Gauggel, 2020). We constructed the study to further investigate the SSBE and shed more light on the question whether the effect results from biased self-referential processing or represents a natural tendency in peoples self-image. Both studies focus on specific methodological aspects of the experimental task which were shown to be catalyst for biased measures in previous literature. As we have seen in other studies participants tend choose more often positive trait words to represent their self-image compared to negative trait words (Forster et al., 2021; Forster et al., 2019). These decision-making studies are often bound to specific time-frames for the responses which can result in subjectively felt time pressure for the participants. This methodological setting is often known to become victim of process heuristics (Hilbert, Kuechenhoff, Sarubin, Toyo Nakagawa, & Buehner, 2016; Williamson, 2007). To get a better understanding of whether we can actually talk about a bias or a consistent natural tendency of a person we want to take a closer look at this methodological aspect of the paradigm and observe the potential influence on the effect.

I2 Objectives and Research question(s)

Outline objectives and research questions that inform the methodology and analyses (below).

The aim of the second study is to investigate whether participants self-related trait responses would differ depending on the amount of time they have to respond to the task. With this the research the question whether we should actually speak of a bias or a natural tendency should be addressed.

I3 Hypothesis (H1, H2, …)

Provide hypothesis for predicted results. If multiple hypotheses, uniquely number them (e.g., H1, H2a, H2b,) and refer to them the same way at other points in the registration document and in the manuscript.

H1: The SSBE will be replicated in the form as seen in previous studies by Forster and colleagues. This means that participants show in general a tendency to choose more positive and flattering personality traits in describing themselves and also refuse more of the negative traits adjectives as self-describing.

H2: The SSBE will show a difference in strength of expression depending on the different response length used for the response trials in the paradigm. The ratio of chosen positive self-describing adjectives and refused negative self-describing adjectives will differ significantly depending on whether the choice was made in the long or short timeframe condition.

Method

M1 Time point of registration

Select one of the options:

- Registration prior to creation of data
- Registration prior to any human observation of the data
- Registration prior to accessing the data
- Registration prior to analysis of the data
- Other (please specify; might include if T1 longitudinal data has been analyzed, but T2 has not yet been analyzed)

Registration prior to recruitment and analysis of the planned 60 participants

M2 Proposal: Use of pre-existing data (re-analysis or secondary data analysis)

Will pre-existing data be used in the planned study? If yes, indicate if the data were previously published and specify the source of the data (e.g., DOI or APA style reference of original publication). Specify your level of knowledge of the data (e.g., descriptive statistics from previous publications), whether or not this is relevant for the hypotheses of

the present study, and how it is assured that you are unaware of results or statistical patterns in the data of relevance to the present hypotheses.
No pre-existing data will be used in this study

Sampling Procedure and Data Collection

M3 Sample size, power and precision
(1) Relevant sample sizes: e.g., single groups, multiple groups, and sample sizes (or sample ranges) found at each level of multilevel data. (2) Provide power analysis (e.g. power curves) for fixed-N designs. For sequential designs, indicate your 'stopping rule' such as the points at which you intend to be viewing your data and in any way analyzing them (e.g., t-tests and correlations, but even descriptively such as with histograms).
The plan is to recruit 60 participants (30 female and 30 male) in a single group for the study. The necessary sample size was estimated using the software G*Power Version 3.1 for an a priori power analysis of our statistical construct in which we planned to perform a 2x2 analysis of variance (Faul, Erdfelder, Lang, & Buchner, 2007). The a priori power analysis that assumed one repeated tested group in two conditions produced a required total sample size of 54 participants setting the power at .95 with alpha error at .05. All participants will take part in the same paradigm which for which the order of condition is counterbalanced across participants to rule out any response biases due to sequence effects.

M4 Participant recruitment, selection, and compensation
Indicate (a) methods of recruitment (e.g., subject pool advertisement, community events, crowdsourcing platforms, snowball sampling); (b) selection and inclusion/exclusion criteria (e.g., age, visual acuity, language facility); (c) details of any stratification sampling used; (d) planned participant characteristics (gender, race/ethnicity, sexual orientation and gender identity, SES, education level, age, disability or health status, geographic location); (e) compensation amount and method (e.g., same payment to all, pay based on performance, lottery).
Recruitment is conducted via flyer and online advertisement at the campus facilities of RWTH University Aachen and University Clinic Aachen, as well as other frequently visited places throughout the city. All participants who are between 18 and 50 years old, don't have a current or past diagnosis of a mental disorder, and have a proficient understanding of the German language can be included into the study.

M5 How will participant drop-out be handled?

Indicate any special treatment for participants who drop out (e.g., there is follow-up in a manner different from the main sample, last value carried forward) or whether participants are replaced.

The study is planned to take place at a single timeslot for each participant. In case of a dropout of the participant during the task the researcher will delete the started data and a substitute participant will be recruited.

M6 Masking of participants and researchers

Indicate all forms of masking and/or allocation concealment (e.g., administrators, data collectors, raters, confederates are unaware of the condition to which participants were assigned).

The researcher and the participant will be informed about the sequence of conditions. Except for the hypotheses the participants will be informed about all the theoretical background information of the study.

M7 Data cleaning and screening

Indicate all steps related to data quality control, e.g., outlier treatment, identification of missing data, checks for normality, etc.

An outlier analysis depending on missing trial responses will be considered

M8 How will missing data be handled?

Indicate any procedures that will be applied during the analysis to deal with missing data, such as (a) case deletions; (b) averaging across scale items (to handle missing items for some); (c) test of missingness (MAR, MCAR, MNAR assumptions; (d) imputation procedures (FIML vs. MI); (e) Intention to treat analysis and per protocol analysis (as appropriate).

See M7. No other missing data are anticipated.

Conditions and design

M10 Type of study and study design

Indicate the type of study (e.g., experimental, observational, crosssectional vs. longitudinal, single case, clinical trial) and planned study design (e.g., between vs. within subjects, factorial, repeated measures, etc.), number of factors and factor levels, etc..

The described study is planned as an experimental study with a within-participant design.

M11 Randomization of participants and/or experimental materials

If applicable, describe how participants are assigned to conditions or treatments, how stimuli are assigned to conditions, and how presentation of tests, trials, etc. is randomized. Indicate the randomization technique and whether constraints were applied (pseudo-randomization). Indicate any type of balancing across participants (e.g., assignments of responses to hands, etc.).

All participants are randomly assigned to one sequence of the response type conditions. The order of presentation of conditions within each task will be counterbalanced. Half of the participants start the task with the binary response type before switching to the scaled response type. The other half will have the opposite sequence.

M12 Measured variables, manipulated variables, covariates

This section shall be used to unambiguously clarify which variables are used to operationalize the hypotheses specified above (item I3). Please (a) list all measured variables, and (b) explicitly state the functional role of each variable (i.e., independent variable, dependent variable, covariate, mediator, moderator). It is important to (c) specify for each hypothesis how it is operationalized, i.e., which variables will be used to test the respective hypothesis and how the hypothesis will be operationally defined in terms of these variables. The description here shall be consistent with the statistical analysis plans specified under AP6 (below).

Manipulated Variable:
- Trial time
- Word valence

Measured Variable:
- Response to trait adjectives (agreement/disagreement)
- Response time

Demographic Variable:
- Participants age

- Participants gender
- Participants education

M13 Study Materials

Please describe any relevant study materials. This could include, for example, stimulus materials used for experiments, questionnaires used for rating studies, training protocols for intervention studies, etc.

A general participant information and informed consent will be handed out to the participants prior to the task.

The study uses an adapted version of the Trait-Judgment Paradigm which has already been used by Forster and colleagues (2019). For our study we expanded the amount of adjectives to receive a higher trial number in total. To evaluate the differences between rating formats we will ask participants to rate positive and negative matched trait adjectives taken from the Aachen List of Trait Words in two versions (Britz, Gauggel, & Mainz, 2019).

Moreover, we will use a preparation interview consisting of three closed and three open questions in which participant are asked about their general self-judgement and with which they are prepared for the following trait-judgement task.

The PANAS (Positive and Negative Affect Schedule) scale will be used to assess the participants current affect before starting the paradigm.

A Socio-Demographic questionnaire will assess the age, gender and years of education of the participants.

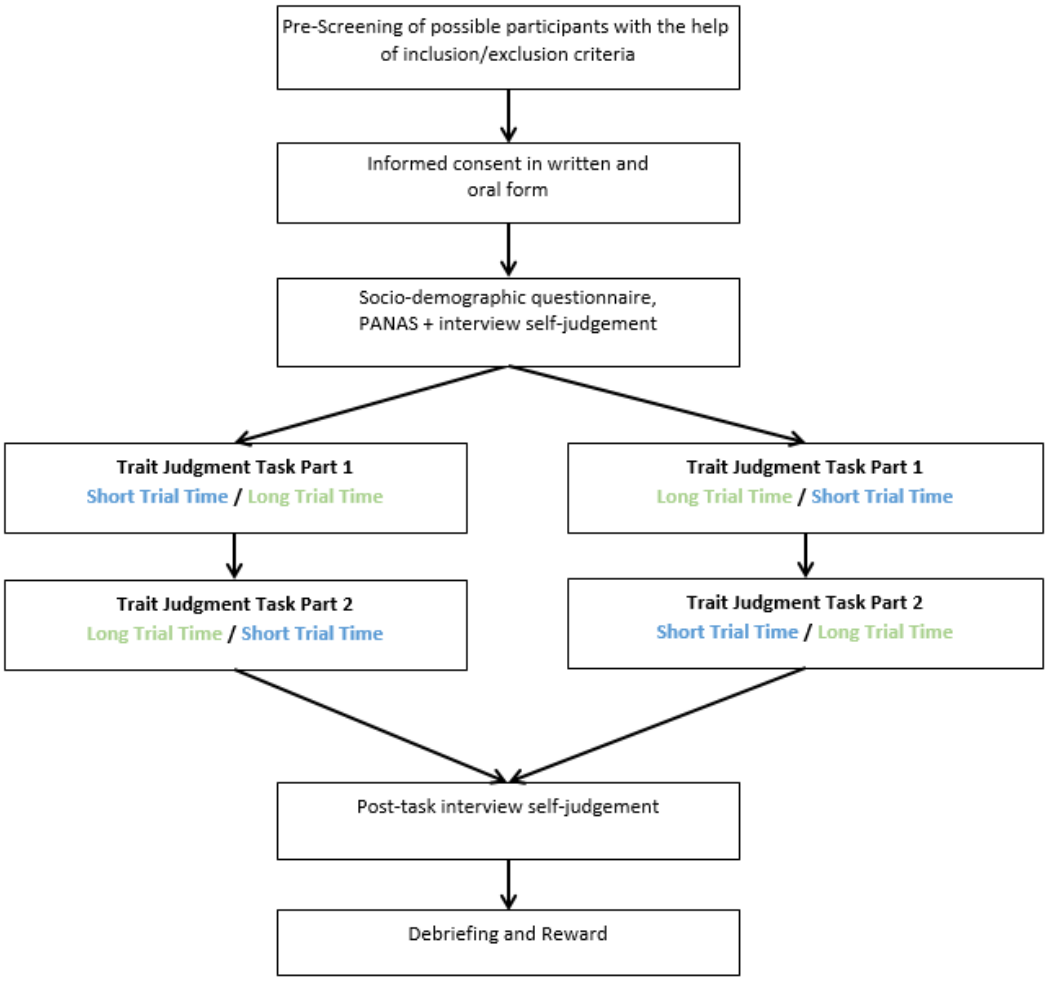
A post-task interview will measure how participants experienced the task with the help of 3 closed questions.

M14 Study Procedures

Please describe here any relevant information about how the study will be conducted, e.g., the number and timing of measurement time points for longitudinal research, the number of blocks or runs per session of an experiment, laboratory setting, the group size in group testing, the number of training sessions in interventional studies, questionnaire administration for online assessments, etc.

After the participants arrive at the lab they are instructed with oral and written information on the procedure. Afterwards they are instructed to fill out a sociodemographic form as well as the affect scale, before they are prepared for the following computer task with a short interview questionnaire on their current self-judgment. Then they start with the trait-judgment task in one of the two sequence orders. After the first block the participants will have a short break and then continue the judgment task in the other response type condition. After finishing the second condition, the participants answer several questions

as part of the post-task interview. At the end the participants will be debriefed on the research questions as well as hypotheses, they will be rewarded with 10€ and thanked for their participation. The overall duration of the study is estimated around 30 minutes.



Analysis plan

(NOTE: If this varies by hypothesis, repeat analysis plan for each)

AP1 Criteria for post-data collection exclusion of participants, if any
Describe all criteria that will lead to the exclusion of a participant's data (e.g. performance criteria, non-responding in physiological measures, incomplete data). Be as specific as possible.
In the process of data cleaning (as described in M7) missing trial responses can lead to an exclusion of the participant.

AP2 Criteria for post-data collection exclusions on trial level (if applicable)
Describe all criteria that will lead to the exclusion of a trial or item (e.g. statistical outliers, response time criteria). Be as specific as possible.
Unless the trial is marked as missed there are no exclusion criteria for the analysis of the responses

AP3 Data preprocessing
Describe all data manipulations that are performed in preparation of the main analyses, e.g. calculation of variables or scales, recoding, any data transformations, preprocessing steps for imaging or physiological data (or refer to publicly accessible standard lab procedure, cf. T12).
A self-serving ratio based on the responses will be calculated for every participant prior to the main analysis.

AP5 Descriptive statistics
Specify which descriptive statistics will be calculated for which variables. If appropriate, specify which indices of effect size will be used. If descriptive statistics are linked to specific hypotheses, explicitly link the information given here to the respective hypothesis.
Averages, standard deviations as well as min. and max. of the demographic variables (see M12) will be calculated for a complete overview of the used sample.

AP6 Statistical models (provide for each hypothesis if varies)
Specify the statistical model (e.g. t test, ANOVA, LMM) that will be used to test each of your hypotheses. Give all necessary information about model specification (e.g., variables, interactions, planned contrasts) and follow-up analyses. Include model selection criteria (e.g., fit indices), corrections for multiple testing, and tests for statistical violations, if applicable. Wherever unclear, describe how effect sizes will be calculated (e.g., for d-values, use the control SD or the pooled SD).
The hypotheses are tested with repeated measure ANOVAs using the statistical package of the software R. Before testing of the hypothesis all the assumptions for the analysis will be examined.

AP7 Inference criteria
Specify the criteria used for inferences (e.g., p values, Bayes factors, effect size measures) and the thresholds for accepting or rejecting your hypotheses. If possible, define a smallest effect size of interest. If inference criteria differ between hypotheses, specify separately for each hypothesis and respective statistical model by explicitly referring to the numbers of the hypotheses. Describe which effect size measures will be reported and how they are calculated.
As inference criteria we will refer to the given p-value (>0.05) as well as an effect size measure

Other information optional

(NOTE: If needed, multiple lines with other information can be included)

O1 Other information (optional)

If there is any additional information that you feel needs to be included in your preregistration, please enter it here. Literature cited, disclosures of any related work such as replications or work that uses the same data, or other context that will be helpful for future readers would be appropriate here.

The explained study is part of a bigger project it is planned to publish it with another part study which is also registered by the author (http://dx.doi.org/10.23668/psycharchives.5087)

References

R1 References

Enter your references below. Use a consistent format (e.g., https://apastyle.apa.org/style-grammar-guidelines/references/examples)

Britz, S., Gauggel, S., & Mainz, V. (2019). The Aachen list of trait words. *Journal of psycholinguistic research, 48*(5), 1111-1132.

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Duval, T. S., & Silvia, P. J. (2002). Self-awareness, probability of improvement, and the self-serving bias. *Journal of Personality and Social Psychology, 82*(1), 49.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods, 39*(2), 175-191.

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Hilbert, S., Kuechenhoff, H., Sarubin, N., Toyo Nakagawa, T., & Buehner, M. (2016). The influence of the response format in a personality questionnaire: An analysis of a dichotomous, a Likert-type, and a visual analogue scale. *TPM: Testing, Psychometrics, Methodology in Applied Psychology, 23*(1).

Williamson, S. N. (2007). Development of a self-rating scale of self-directed learning. *Nurse researcher, 14*(2).