

## S1: Survey Questions

### S1-TableS1a: First item-battery for the DVs Scientific Misbehaviour and Research Quality.

#### Instruction:

“Here we present 9 different forms of research behaviour. For each item, please answer the same 3 questions for the general situation in research in Astronomy as you experience it. Item 8 & 9 contain 4 questions. We are interested in your personal views and opinions. These may be based on direct experience, stories from colleagues and/or knowledge of the literature on research behaviour. Please remember that answering honestly about your personal experiences is vital for this study. Your answers are completely anonymous.”

#### Questions for each item:

- 1 - How frequently does this form of research behaviour happen in Astronomy?
- 2 - If it occurs, how impactful is it on the validity of the findings of the study at hand?
- 3 - If it occurs, how impactful is it on the resulting paper's ability to convey the research appropriately?
- 4 - If it occurs, how impactful is it on ensuring that a diverse set of research questions are studied in Astronomy?

For each question the response scale ranged from 1=Very Low to 5=Very High.

#### Items:

Items were adapted to the context of astronomy based on Martinson et al. (2005, 2006, 2009, 2010) and Bouter et al. (2016). ° denotes questions added by the authors.

Item #	Type of Misbehaviour
1	Inappropriate or careless peer review of papers or proposals
2	Not ensuring easy reproducibility when writing a paper
3	Spread study results over more papers than needed
4	Inadequate monitoring of research projects due to work overload

5	Cutting corners in a hurry to complete a project
6	Not sharing ancillary or meta data°
7	Not sharing the reduction algorithm used for data analysis°
8	Propose study questions solely because they are considered a 'hot' topic°
9	Not considering a study question because it isn't considered a 'hot' topic, even though it could be important for astronomy°

**S1-TableS1b: Second item-battery for the DVs Scientific Misbehaviour and Research Quality.**

Instruction:

“Here we present 9 different forms of research misbehaviour. For each item, please answer the same 3 questions for the general situation in research in Astronomy as you experience it. We are interested in your personal views and opinions. These may be based on direct experience, stories from colleagues and/or knowledge of the literature on research misbehaviour. Please remember that answering honestly about your personal experiences is vital for this study. Your answers are completely anonymous.”

Questions for each item:

- 1 - How frequently does this form of research behaviour happen in Astronomy?
- 2 - If it occurs, how impactful is it on the validity of the findings of the study at hand?
- 3 - If it occurs, how impactful is it on the resulting paper's ability to convey the research appropriately?

For each question the response scale ranged from 1=Very Low to 5=Very High.

Items:

Items were adapted to the context of astronomy based on Martinson et al. (2005, 2006, 2009, 2010) and Bouter et al. (2016).

Item #	Type of Misbehaviour
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10	Giving authorship credit to someone who has not contributed substantively to a manuscript
11	Denying authorship credit to someone who has contributed substantively to a manuscript
12	Intentionally overlooking others' use of flawed data or methods
13	Data fabrication and/ or falsification
14	Compromising the rigor of a study's design or methodology in response to (publication) pressure
15	Using published ideas or phrases of others without referencing (Plagiarism)
16	Using unpublished ideas or phrases of others without their permission
17	Concealing results that contradict one's earlier findings or convictions
18	Biased interpretation of data that distorts results

**S1-TableS2: Item-battery for the IV Perceived Publication Pressure.**

Instruction:

“Please indicate to what extent you agree/ disagree with the following statements:”

Items:

Items were adapted to the context of astronomy based on Tijdink et al. (2014a). ° denotes questions added by the authors.

For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree and included the option “NA”. \* denotes reverse coded items.

Publication of scientific articles is the most important aspect of my work
The number of scientific publications contributes to my status
I experience my colleagues' assessment of me on the basis of my publications as stressful

I experience the publication criteria formulated by my university for my appointment or reappointment as professor as a stimulus*
Publication pressure puts pressure on relationships with fellow-researchers
In my opinion the pressure to publish scientific articles has become too high
The competitive scientific climate stimulates me to publish more*
My colleagues judge me mainly on the basis of my publications
In spite of the pressure to publish, I enjoy investing in other activities that I feel complement research*
In my experience, professors maintain their teaching skills well, despite publication pressure*
I cannot confide innovative research proposals to my colleagues
Without publication pressure, my scientific output would be of higher quality
My scientific publications contribute to better (future) astronomy*
Publication pressure results in me publishing more without it compromising the quality of my scientific work*
I suspect that publication pressure leads some colleagues (whether intentionally or not) to fabricate data
The validity of astronomy literature is increased by the publication pressure in academia*
Publication pressure leads to serious worldwide doubts about the validity of research results
Publication pressure harms science
Without publication pressure, I would invest more time into publishing ancillary & meta data°
In spite of the pressure to publish, I take the time to make my reduction algorithm available and usable for other researchers°*
Without publication pressure I would spend more time on writing my publication in a clearly understandable and replicable way°

How often do you feel pressure to publish?<sup>°</sup> [This questions response scale was “Never”, “Very rarely”, “Rarely”, “Regularly”, “Often” and “Very often”; whereby “Never” and “Very rarely” were recoded into one category for the analysis]

### **S1-TableS3: Item-battery for the IV Perceived Distributive Justice.**

#### Instruction:

“To what extent do you agree/ disagree with the following statements?”

#### Items:

Items were adapted to the context of astronomy based on Siegrist et al. (2014). <sup>°</sup> denotes questions added by the authors. For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

Scale	Item
Effort	I have constant time pressure due to a heavy work load
Effort	I have many interruptions and disturbances while performing my job
Effort	Over the past few years, my job has become more and more demanding
Reward	I receive the respect I deserve from my supervisor or a respective relevant person
Reward	My job promotion prospects are good
Reward	I have experienced or I expect to experience an undesirable change in my work situation*
Reward	My job security is poor*
Reward	Considering all my efforts and achievements, I receive the respect and prestige I deserve at work

Reward	Considering all my efforts and achievements, my job promotion prospects are adequate
Reward	Considering all my efforts and achievements, my salary is adequate
Reward	My salary is fair compared to others who have similar work tasks <sup>°</sup>

**S1-TableS4a: Item-battery for the IV Perceived Organisational Justice in terms of Resource Allocation.**

Instruction:

“The following items refer to resource allocation decisions made in your primary institution that affect you. When you think of resources, think of things like salaries, office space, staff support, leaves, protected time for research, new positions, infrastructure, promotions, tenure, leadership roles and so on.

To what extent do you agree/disagree that in the past 3 years (or less if you have not been there for 3 years):”

Items:

Items were adapted to the context of astronomy based on Martinson et al. (2006). <sup>°</sup> denotes questions added by the authors. For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

<b>Resource allocation in your institution has reflected...</b>	... your effort in your work
	... your contributions to the institution
	... your accomplishments in your career
I experience resource allocation in my institution as fair	
In my opinion, the allocation of resources in my institution is mostly based on improper preferential treatment <sup>°*</sup>	
In my opinion, the allocation of resources in my institution is mostly based on luck <sup>°*</sup>	
<b>Procedures for making decisions about resource allocation in your institution have been ...</b>	... free of bias
	... applied with consistency
	... based on accurate information

	... Ethical
	... well managed
	... based on merit
You had an influence in these decisions	
You (would) have been able to appeal these decisions	

**S1-TableS4b: Item-battery for the IV Perceived Organisational Justice in terms of Peer Review.**

Instruction:

“The following items refer to the peer review of your most recent manuscript submitted for publication. When you think of the review, consider the overall quality and the review process. To what extent do you agree that:”

Items:

Items were adapted to the context of astronomy based on Martinson et al. (2006). ° denotes questions added by the authors. For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

<b>The reviews were appropriate relative to ...</b>	... the effort you put into the manuscript
	... the quality of the manuscript
I experience the reviews as fair	
In my opinion, the acceptance or refusal of a manuscript is mostly based on improper preferential treatment <sup>°*</sup>	
In my opinion, the acceptance or refusal of a manuscript is mostly based on luck <sup>°*</sup>	
<b>The review process was ...</b>	... free of bias
	... applied with consistency
	... based on accurate information
	... Ethical

	... well managed
	... based on merit
You (would) have been able to appeal the review decision	
The review process was typical of reviews you have received in the past 3 years	

**S1-TableS4c: Item-battery for the IV Perceived Organisational Justice in terms of Grant Application.**

Instruction:

“The following items refer to the review of your most recent extramural grant application. When you think of the review, consider the overall quality of the review and the review process. To what extent do you agree that:”

Items:

Items were adapted to the context of astronomy based on Martinson et al. (2006). ° denotes questions added by the authors. For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

<b>The reviews were appropriate relative to ...</b>	... the effort you put into the application
	... the quality of your proposal
	... your research track record
I experience the reviews as fair	
In my opinion, decisions on funding are mostly based on improper preferential treatment <sup>°*</sup>	
In my opinion, decisions on funding are mostly based on luck <sup>°*</sup>	
<b>The review process was ...</b>	... free of bias
	... applied with consistency

	... based on accurate information
	... Ethical
	... well managed
	... based on merit
You (would) have been able to appeal the review decision	
The review process was typical of reviews you have received in the past 3 years	

#### **S1-TableS4d: Item-battery for the IV Perceived Organisational Justice in terms of Telescope Time Application.**

##### Instruction:

“The following items refer to the review of your latest application for telescope time. When you think of the review, consider the overall quality of the review and the review process. To what extent do you agree that:”

##### Items:

Items were adapted to the context of astronomy based on Martinson et al. (2006). ° denotes questions added by the authors. For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

<b>The reviews were appropriate relative to ...</b>	... the effort you put into the application
	... the quality of your proposal
	... your research track record
I experience the reviews as fair	
In my opinion, the allocation of telescope is mostly based on improper preferential treatment <sup>°*</sup>	
In my opinion, the allocation of telescope is mostly based on luck <sup>°*</sup>	
<b>The review process was ...</b>	... free of bias
	... applied with consistency

	... based on accurate information
	... Ethical
	... well managed
	... based on merit
You (would) have been able to appeal the review decision	
The review process was typical of reviews you have received in the past 3 years	

### **S1-TableS5: Item-battery for the IV Perceived Overcommitment.**

#### Instruction:

“To what extent do you agree/ disagree with the following statements?”

#### Items:

Items were adapted to the context of astronomy based on Siegrist et al. (2014).

For each question the response scale ranged from 1=Strongly Disagree to 5=Strongly Agree. \* denotes reverse coded items.

I get easily overwhelmed by time pressures at work
As soon as I get up in the morning I start thinking about work
After I finish my work day, I can easily relax and 'switch off' work*
People close to me say I sacrifice too much for my job
Work rarely lets me go, it is still on my mind when I go to bed
If I postpone something at work that I was supposed to do today I'll have trouble sleeping at night