Towards a responsible research climate

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What is the influence of the academic research climate on research integrity? How is this research climate perceived across academic ranks and disciplinary fields? Is it a climate wherein researchers perceive high publication pressure? Do publication pressure and the research climate play a role in explaining research misbehavior? And what is a responsible research climate?

In chapter 1, I discuss how the case of Diederik Stapel, who was found guilty for fabricating data, led to intense discussions in the Netherlands and elsewhere about research integrity. From these and other discussions on breaches of research integrity, two themes emerged that paved the way for this dissertation. First, although falsification, fabrication and plagiarism (FFP) are bad, they may not be the most pressing problem. It became more evident that there are a variety of questionable research practices (QRPs) that are much more frequent and therefore may be more harmful to academic research in the aggregate. Second, we should look beyond the individual researcher ('bad apple') and investigate the research climate ('barrel') given that what we perceive around us likely influences us profoundly and will influence what sort of research behaviors we engage in (and which not, as we judge them to be in opposition to 'what is expected').

I conclude with a brief description of the theory that most heavily influenced this dissertation, namely organizational justice theory. Organizational justice theory reasons that the fairer people feel treated, the more likely they are to trust their organization, accept its decisions and not engage in questionable behavior or worse. But the reverse is also true, and when applied to academic research one would expect that in an organizational research climate where the perceived injustice is high, researchers would be more likely to engage in research misbehavior or QRPs.

Before assessing the research climate, I first discuss in chapter 2 theories about why humans go astray that can and have been applied to cases of researchers that falsify and fabricate data. Can these theories help us to better understand cases of research misconduct? My answer is that they might, though all such explanations presuppose certain details about the case that are often unknown...

In chapter 3, I describe the perceptions of academic research climate for integrity per academic rank and disciplinary field, as it seems likely that these perceptions differ depending on the academic rank and disciplinary field. The results indicate that the perceptions of the research climate differ substantially; the humanities perceive their departments' expectations more negatively compared to other fields, whereas the natural sciences' perceptions of the research climate are more positive. Senior researchers' (by which we mean: full and associate professors) perceptions are most optimistic about the research climate, and significantly more positive than assistant professors, postdocs and PhD students.

In chapter 4, I describe how my colleagues and I revised the Publication Pressure Questionnaire (PPQ) in light of previous research showing that publication pressure could be one of the salient aspects that may hamper research integrity. The revised PPQ-r consists of three subscales: Attitude, Stress, and Resources. The previous PPQ measured Attitudes only. Yet, to validly conclude someone experiences publication pressure, we need to know whether they perceived high demands to publish *and* whether they had too little resources to cope with these demands. The latter element is crucial since we can all benefit from a little stress, as long as we have, say, supportive colleagues, to help us cope.

In chapter 5, I describe the degree of perceived publication pressure among academic researchers in Amsterdam. We find that especially the postdocs and assistant professors perceive high publication stress. The PhD students perceive the largest shortage of resources, like help with challenging journal editors. This shortage was less vivid among PhD students in the natural sciences, a field that reported less publication pressure in general.

In chapter 6, I describe researchers' perceptions of research misbehaviors using both survey data and focus groups data. We asked our survey participants to indicate how often they perceived some misbehaviors and how much impact they thought it would have on the validity of the study at issue. To get a sense of the most detrimental research misbehaviors on the aggregate level, we combined the frequency and impact scores and ranked the misbehaviors, stratified per disciplinary field. All top 5's contained one item about insufficient supervision, and the remainder regarded different forms of sloppy science. To ensure we got the relevant misbehaviors in focus, we presented the top 5 items from this list to our focus group participants and asked them to add other misbehaviors they actually perceived in their own work. Their discussions helped us to understand what insufficient supervision really meant. Researchers from the natural sciences and the humanities also came up with research misbehaviors that were not yet on our radar, such as the stealing of ideas or destroying evidence (before publication).

In chapter 7, I relate the perceptions of the research climate and the perceived degree of publication pressure to the perceived research misbehaviors. In other words, how much of the variance in research misbehavior can be traced back to a poor-quality research climate or a high degree of publication pressure? Together someone's academic rank, the research climate and publication pressure explain 32% of variance in perceived research misbehavior. The research climate notably explained 23% of variance. If we correct that for impact (after all, if the impact of the frequently perceived trespasses is judged to be negligible, why bother?), the explained variance due to someone's academic rank, the research climate and publication pressure is 18%.

In chapter 8, I present what characteristics our focus group participants associated with a responsible research climate, what barriers they perceived for a responsible research climate and which interventions they considered fruitful to alleviate those barriers. According to our participants, a responsible research climate would be characterized by fair evaluation, openness, sufficient time, integrity, trust, and freedom. The most noted perceived barriers were the unfair evaluation policies, the lack of support, normalization of overwork and insufficient supervision of early career researchers. Interventions that our participants suggested included training modules for PhD supervisors focused on responsible research, openly discussing expectations and dilemmas, creating formal research time, and sound evaluation policies.

In the chapter 9, I summarize the main findings and connect them to existing trends in research on research integrity. I conclude that these studies align with two trends, namely that QRPs may be a more pressing problem than FFP and that it may be useful to focus on the 'barrel' instead of solely on the 'bad apples'. I review some methodological limitations of our studies and end with a brief list of recommendations.