

English version of the report

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Introduction

In recent years, various cases of research misconduct have received high levels of media attention. The examples of the Korean stem-cell researcher Hwang Woo-suk, who was found guilty of enormous falsifications in 2005, and the Dutch social psychologist Diederik Stapel, whose work based on fictitious data is already impressive in terms of its sheer quantity, have certainly taken centre stage in media reports and tested the boundaries of what is considered conceivable as "deviant behaviour" by scholarly standards. In the wake of those cases, the discussion of research integrity in academic circles has revolved around the difficult question of whether such egregious misconduct can be put down to a few isolated cases, whether they should be seen as a symptom of the ongoing erosion of Mertonian norms, or whether their discovery can be considered evidence of the science and research system's ability to "cleanse" itself.

Taking an empirical approach to these questions in a direct survey of researchers is certainly a controversial endeavour which poses problems similar to those encountered in "dark field" research on deviant behaviour (cf. Schneider 1987; Tourangeau und McNeeley 2003). The figures obtained by surveying researchers about their own misconduct – even in a credibly anonymous setting – are most probably lower than the actual frequencies of occurrence.

Although several studies have been published on (self-reported) scholarly misconduct among researchers, it is hardly possible to make reliable statements about the extent of such behaviour. As Fanelli (2009) shows in his meta-study, the findings generated by such research efforts vary relatively widely. Moreover, comparisons across multiple studies are encumbered by the different methods, modes of operationalisation and populations used in different surveys. In this context, the relationships between research misconduct and the respective science and research system, the respective discipline and/or other sociodemographic variables can only be identified by means of uniform operationalisation (cf. Fanelli 2009: 10).

An initial step in this direction was taken in the DFG-iFQ Scientists Survey in Germany 2010 (Böhmer et al. 2011), in which an item set developed by Martinson was modified slightly to capture research misconduct (Martinson et al. 2006). In that survey, self-reported data on research misconduct at German universities were collected across multiple disciplines for the first time (*ibid.*, p. 151 et seq.).

In the summer of 2012, the Austrian Science Fund (FWF) commissioned the Institute for Research Information and Quality Assurance (iFQ) to carry out an online survey of academic faculty at institutions of higher education and at non-university research institutions in Austria.¹ In addition to examining the central topics of the survey, this project also provided the iFQ with an opportunity to integrate the item set used in the DFG-iFQ Scientists Survey in Germany 2010

¹ In addition to general aspects of research supported by third-party funding, the survey also focused on the FWF's funding activities and attitudes toward the organisation's work and procedures. The survey therefore represents an essential part of the FWF self-evaluation process which has been under way since 2010. The results of the survey were presented to the public in March 2014, and the complete study is available on the FWF web site (<http://www.fwf.ac.at/de/downloads/pdf/iFQ-FWF-Umfrage-Bericht.pdf>).

into the FWF survey, thus making it possible to generate comparative data for Austria. As this part of the questionnaire did not refer to the FWF but captured the researchers' experience in general, the results cannot be associated with the FWF itself in any way. The results of the Austrian survey conducted in 2013 are presented briefly and compared to the findings from the 2010 DFG-iFQ survey below.

Methods

The survey of academic faculty members in Austria (Austrian Researcher Survey 2013) was carried out as a comprehensive survey. With only few exceptions, potential respondents were invited to take part via their universities or non-university research institutions, thus ensuring the privacy of individual addressees. For this purpose, the institutions sent their faculty members a standardised invitation message containing a link to the questionnaire. The technical implementation of the survey was handled by uzbonn GmbH, and the questionnaire was hosted on that company's servers. This arrangement ensured that it was not possible to establish any connections between the respondents' e-mail addresses and the information provided in the survey.

The questionnaire link was opened by a total of 6,273 people, 3,087 of whom responded to at least 75 per cent of the questions asked. Based on the university faculty headcount published by Statistics Austria (uni:data) for the year 2012, this represents a response rate of 20.0 per cent among university professors and 5.9 per cent among other academic faculty members (universities). With regard to unit non-response, comparisons with known population parameters (Statistics Austria, uni:data, FWF data) showed that respondents from disciplines where third-party funding is less common tended to be underrepresented, while those who had successfully acquired third-party funding in the past were slightly overrepresented.²

Operationalisation

The section of the questionnaire which dealt with research misconduct (Austrian Researcher Survey 2013) was preceded by the following introduction:

"For some time now, integrity in research has been an increasingly important topic of discussion in society and the media. In this section, we would like you to answer a few questions on your experience with this topic. In the last three years, have you been confronted with one or more of the following behaviours? In the first column, please indicate whether you have observed the given behaviour in your colleagues in the last three years. In the second column, please indicate whether you have done so yourself in the last three years (multiple responses possible)."

² A detailed description of the sample can be found in the main study (Neufeld et al. 2014).

The respondents were then presented with a response matrix containing the items used in the survey. These items included a total of 17 forms of misconduct of varying severity, ranging from inappropriate attribution of authorship to careless manuscript reviews as well as data manipulation and falsification (Table 1, Column 1). For each type of misconduct, the respondents were asked to indicate whether they had observed those behaviours in others and/or engaged in such practices themselves.³

Table 1: Research misconduct - Grouping of items – Austrian Researcher Survey 2013

Original item	N (Total = 2945)	Per cent	New grouping	N (Total = 2945)	Per cent
"Embellishment" of research findings	677	25,8	Group_A: Falsification/manipulation of data and results	750	25,5
Inappropriate alteration of data	197	7,4			
Falsification or fabrication of data	117	4,4			
Attribution of authorship w without substantial contribution	1498	56,1	Group_B: Inappropriate attribution of authorship	1658	56,3
Non-inclusion of researchers as co-authors despite substantial contributions	667	24,8			
One-sided or distorted interpretation of data or findings	614	23,6	Group_C: Concealment / distorted interpretation of findings, insufficient record- keeping	1044	35,4
Withholding of data/findings w hich contradict previous research findings	390	15,0			
Insufficient records of project history or archiving of data	666	26,1			
Publication of one's own previously published data or texts as original work	455	17,2	Group_D: Use of ideas/data/publications w without	1132	38,4
Use of others' ideas without permission	717	26,9			
Publication of others' texts or data w without citation	581	21,8			
Unauthorised use of university/institution resources for external consulting jobs or other personal reasons	465	17,7	Group_E: Unlawful use of funds	673	22,9
Misappropriation of research funds	358	13,6			
Non-disclosure of personal ties to business organisations w hich use research results for product development purposes	234	9,3	Group_F: Influence of companies/sponsors	475	16,1
Inappropriate alteration or withholding of research findings due to pressure from sponsors	308	11,8			
Inappropriate or careless review of manuscripts or proposals	855	32,5	Group_G: Bias/carelessness in review activities	975	33,1
Non-disclosure of grounds for bias in review activities	326	12,9			

³ In the process of preparing the questionnaire for the 2010 DFG survey, it was feared that admitting to one's own misconduct would represent too great an obstacle for the respondents. For this reason, the 2010 survey used milder wording, namely "it has happened to me in the past".

Findings

As expected, relatively few respondents indicated that they had engaged in misconduct themselves (Figure 1). In this context, the unjustified attribution of authorship, with which 56 per cent of respondents indicated that they had experience (both in their own conduct and that observed in others), yielded the highest values by far. However, at least nine per cent indicated that they had engaged in such behaviour themselves. Likewise, nine per cent indicated that they had failed to keep sufficient records of their work at least once in the past. In contrast, only four per cent of the respondents indicated that they had experience with the explicit alteration, falsification or fabrication of data; this behaviour was observed exclusively in others, not in their own conduct. The relatively seldom indications for most items make it difficult to draw comparisons between groups of disciplines or positions. For this reason, it appears appropriate to group the items, as was done in the DFG-iFQ survey in 2010 (cf. Böhmer et al. 2011: 153). Depending on the type of behaviour in question, similar items were aggregated and dichotomised. In this approach, if a respondent's own or others' behaviour was indicated for one item in an item group, the person was assigned a positive value for that item group. Table 1 shows the grouping performed in this way, and Figure 2 shows the overall results compared to those of the 2010 DFG survey. In this context, it is important to note that the DFG survey in 2010 involved professors only, while the Austrian Researcher Survey 2013 included all academic/artistic faculty members.

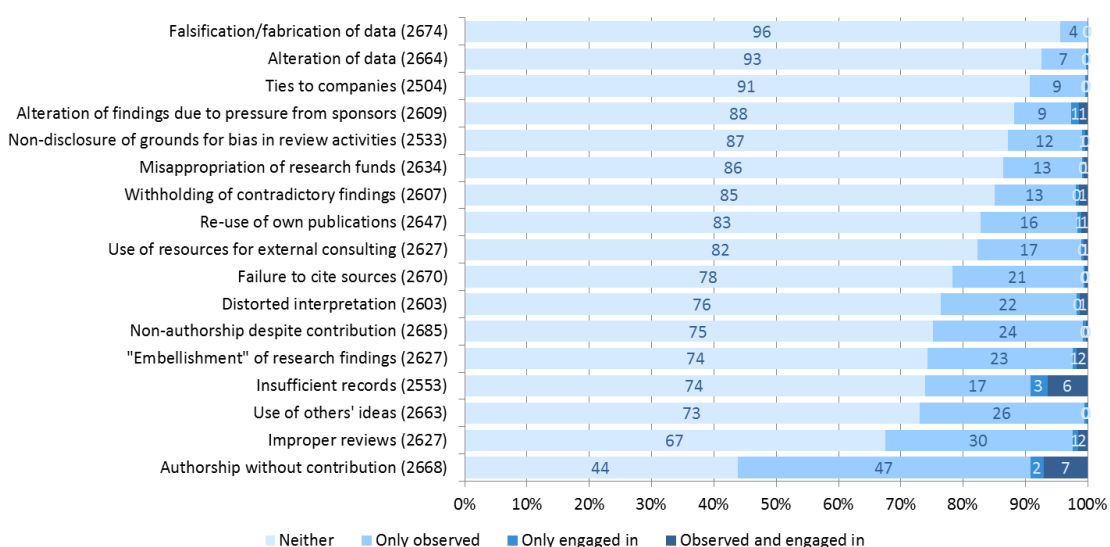


Figure 1: Austrian Researcher Survey 2013: Research misconduct (items abbreviated for chart, number of cases in parentheses represent 100%)

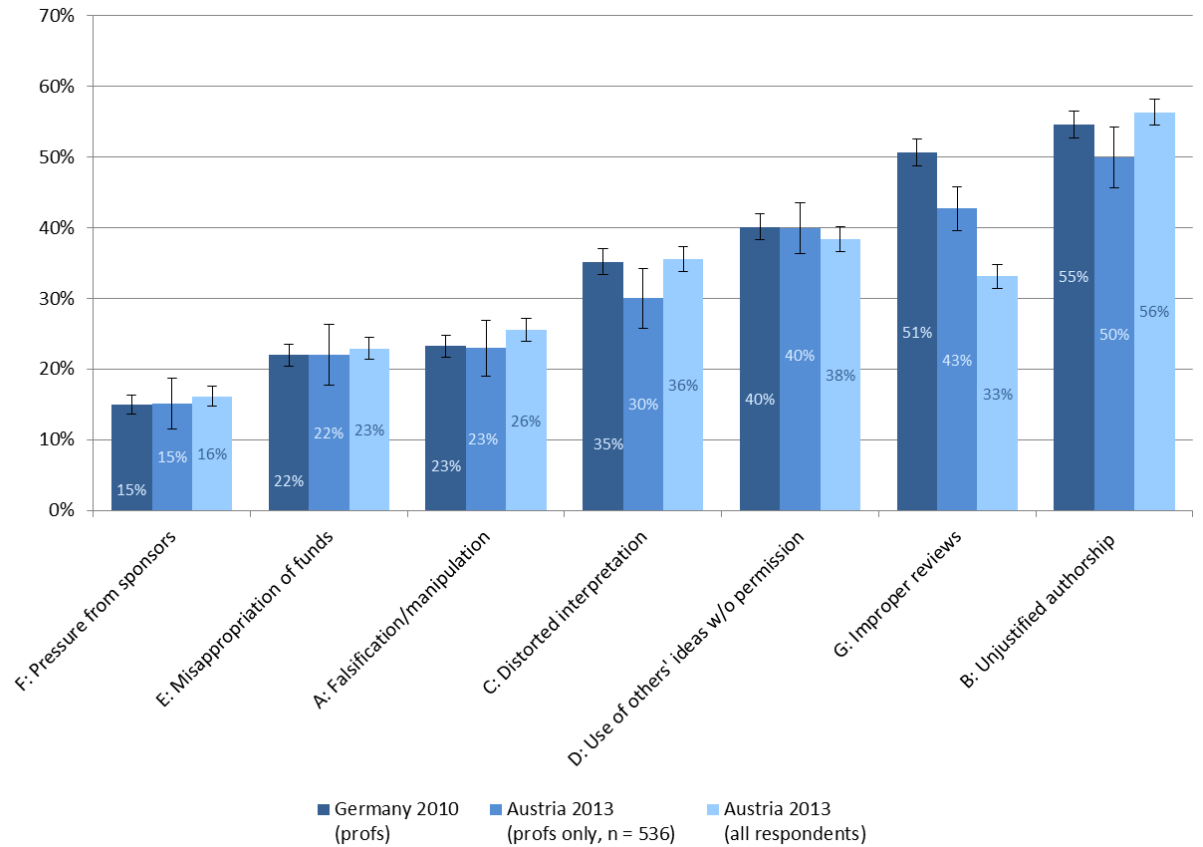


Figure 2: Research misconduct by item group – Comparison of Germany 2010 and Austria 2013

In order to account for this difference, the data collected from professors in the Austrian Researcher Survey 2013 are also shown separately in Figure 2. With specific regard to misconduct in review activities, the surveys yielded substantially different results. In the other item groups, it is striking that the percentages from both surveys are almost completely congruent.

Overall, these figures confirm the dominance of misconduct in attributing authorship at 50 to 56 per cent, while the influence of sponsors (15 to 16 per cent) and misappropriation of funds were indicated relatively rarely.

In addition, it is interesting to note whether specific forms of misconduct occur more frequently in certain disciplines than in others. Figures 3a to 3g provide a comparison across the various disciplines. The figures show that indications of unjustified attribution or denial of authorship (68 per cent) and distorted interpretation of results (43 per cent) were especially common in the life sciences. With regard to the falsification and manipulation of data (Figure 3a), the life sciences also exhibited high percentages, as did the humanities. Here it is also important to point out the social sciences, where the misappropriation of funds (30 per cent) is clearly more common than in other fields (Figure 3e).

However, these differences cannot necessarily be interpreted as differing levels of "criminal" potential within the various fields of activity. Instead, they appear to reflect the "production conditions" specific to each discipline. For example, in fields where journal articles are the dominant form of publication – as is the case in the life sciences – unjustified authorship will be far more prevalent than in fields where monographs and anthologies are more common. These conditions also include the competitive pressure in each discipline, a factor which has been identified as a driver of research misconduct in various studies, especially in the investigation of the life sciences by Anderson et al. (2007). Due to the questionnaire's limitations in this regard, it is unfortunately not possible to determine the extent to which this also applies to the researchers and scientists surveyed in Austria.

Despite the (well-founded) methodological caution in interpreting the findings, these results – as well as those of the other studies cited – clearly indicate that if more than one-third of respondents have observed or engaged in misconduct in one form or another, it is obviously not a rare exception, but a more or less established practice in research activities. As a result, this topic warrants (even) closer attention and further research. With the "Shaming Science"⁴ project funded by the German Federal Ministry of Education and Research, the iFQ has taken yet another step in this field of research. In addition to the motives for misconduct, the project focuses on the effects and dynamics of the relatively new prevention and sanctioning mechanisms with which the science and research system has responded to the problem.

Figure 3a: Form of misconduct: A Falsification/manipulation
(by discipline)

⁴ http://www.forschungsinfo.de/Projekte/besWiss/projekte_besWiss.asp

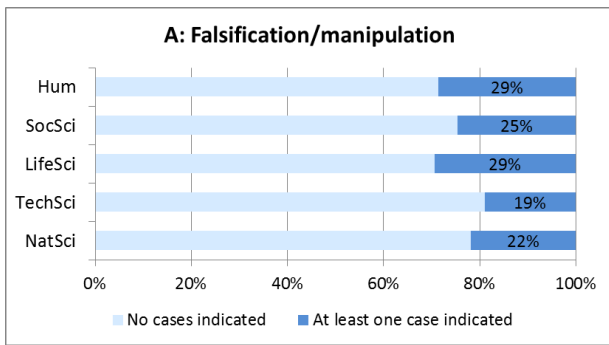


Figure 3b: Form of misconduct: B Unjustified authorship (by discipline)

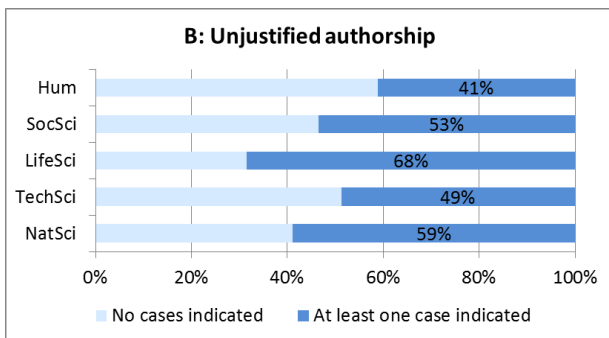


Figure 3c: Form of misconduct: C Distorted interpretation (by discipline)

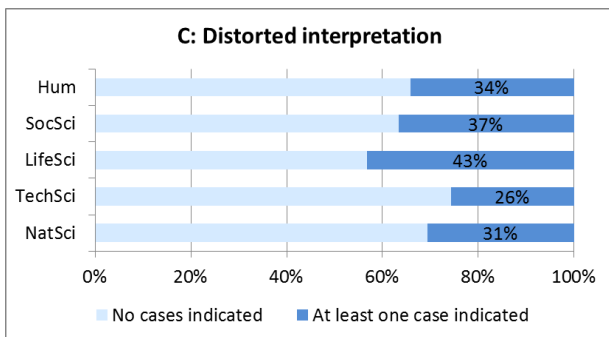


Figure 3d: Form of misconduct: D Unauthorised use of ideas (by discipline)

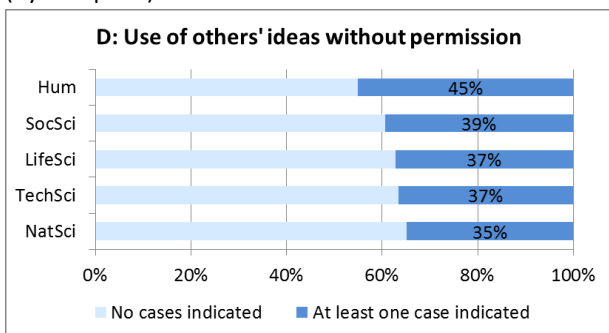


Figure 3e: Form of misconduct: E Misappropriation of funds (by discipline)

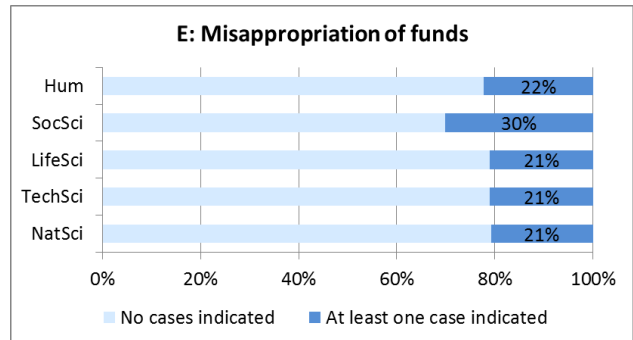


Figure 3f: Form of misconduct: F Alteration of findings due to pressure from sponsors (by discipline)

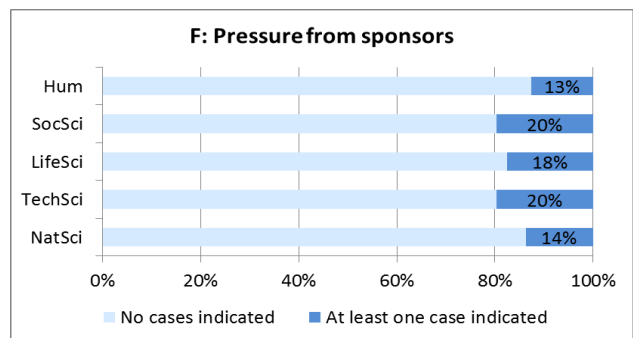


Figure 3g: Form of misconduct: G Improper reviews/bias (by discipline)

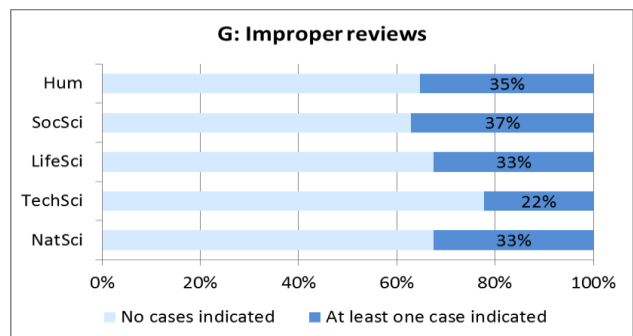


Figure 3a to 3g: Austrian Researcher Survey 2013: Research misconduct item groups by discipline

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