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## Good Science III – Chair: Dr. Willem Halfman

### 1. Scientists' Views and Understanding of Research Integrity and Research

#### Misconduct

Vassiliki Petousi (University of Crete)

Eirini Sifaki (University of Crete)

Tina Garani-Papadatos (University of Crete)

The emergence of a new type of research that is characterized by its practical relevance, project-like nature and transdisciplinarity, which is the inclusion of the knowledge spread across a range of very different actors, marks a new relationship between science, politics and the general public. To respond to this epistemological challenge, in our project (<https://www.deform-h2020.eu/>) we first attempted to fully describe the phenomenon through quantitative, descriptive accounts of the extent and characteristics of scientific articles published in peer reviewed journals, through discourse analysis of selected scholarly journals and expert interviews.

Although a rapidly increasing volume of research addresses the phenomenon, limited attention is given in the ways scientists themselves understand, interpret and assess research misconduct. The main objective of this communication is to present dynamic and up to date qualitative data, involving experts from multiple research areas and disciplines in order to further investigate the different perceptions and attitudes of various stakeholders (e.g. researchers, academics, administrators in research funding and overseeing organization, ethics consultants, journal editors etc) who in one way or another may be aware of such cases or even be involved as arbitrators or decision makers. The methodology implemented is based on in-depth semi structured interviews with experts from different countries and scientific disciplines on the subject, in order to tap into their perceptions, understandings and experiences of Research Misconduct and Research Integrity.

Interviews focused on participants' views of research misconduct and integrity in research, broadly defined, the extent of the phenomenon, its impact, significance and suggestions for potential solutions. The different dimensions, analyses and interpretations of scientific misconduct also represent conflicting visions between disciplines but also between science and society. Experts' perceptions about what lies behind research misconduct, concurs with other studies (Sovacool 2008, Davis, 2003) in which the etiology of Research Misconduct is linked to structural, institutional, and personal factors. Institutional hierarchies, pressure to publish, assessment and promotion criteria, personal aspirations are only few of the factors identified in the literature and by our experts. Nonetheless, while institutional reputation built on individual quantifiable production has the negative potential to indirectly foster RM, in juxtaposition, it holds the positive potential of encouraging, promoting and supporting research integrity mainly through proactive measures. All in all, scientists discourse reflect on one hand their personal views and perspectives impregnated in the specific research culture, professional experience and institutional practices but are also inscribed into historical and ideological realms of different countries. This research is part of the HORIZON2020 funded research program DEFORM: Determine the global and financial impact of research misconduct.

## 2. What is Research Integrity to Researchers? Key Issues from Conversations with Natural Scientists

Sarah Davies (University of Copenhagen)

Recent discussions of research integrity have included concerns that there are increasing divergences between policy discourse and the language and practices of scientists. Horbach and Halfmann (n.d.), for instance, use scientometric analysis to suggest that “the discourses of scientists and policymakers are diverging increasingly ... scientists may come to see integrity policy initiatives as increasingly alien, not addressing their key concerns” (p.20-21). Salwén (2015) similarly argues for an ‘ordinary language condition’ in policy documents on integrity, such that these documents are meaningful to scientific practice. Meanwhile, previous research has indicated that researchers often remain unaware of developments such as Codes of Conduct or related policy statements (Davies & Horst 2015; Kjølberg & Strand 2011). With these dynamics in mind, there is a continued need to understand how the lived experiences of academic practice relate to formal discussion of research integrity.

This paper is grounded in a qualitative interview study, carried out in Denmark in 2017, that explored natural scientists’ experiences of enculturation into scientific practice, their career histories, and their ideas about research integrity and ethical research more generally. One focal point was international mobility, in order to explore whether enculturation happens differently in different national locations: interviewees (n=40) therefore all had experience of mobility (one year or more working in a country other than that where they had taken their PhD) but were now working in Denmark. Ethnographic in orientation, the study sought to explore scientists’ experiences and views of research integrity in their own terms and according to their own systems of meaning (Hammersley & Atkinson 1995).

As has been suggested elsewhere (Glerup et al in press; Horbach & Halfmann n.d.), interviewees framed the practice of good or robust – as opposed to unethical or fraudulent – research rather differently to the discourse of policy guidance and discussion. Two issues were particularly key to their conceptions of research integrity and of the ethics of scientific practice. First, though most suggested that ‘malicious’, deliberate misconduct such as outright falsification was rare, and that such conduct would eventually be discovered, many scientists depicted themselves as walking a delicate ‘balance’ in the quest for good, truthful and ethical science. Sloppiness, laziness or ignorance could all play a role. In a competitive environment, ‘unconscious bias’ was cited as a concern, while the need to ‘tell a good story’ without over-extrapolating or overselling was similarly understood as a complex but necessary practice if one were to survive in academia. Second, scientists repeatedly shifted the focus away from individual responsibility to what we might call the ethics of the scientific system. Intense competition, the treatment of junior researchers, insecurity of employment, the scientific reward system and gender inequity were all cited as dynamics that nurtured poor research, deliberate or otherwise, while simultaneously being ethically problematic in and of themselves.

### References

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Hammersley M and Atkinson P (1995) *Ethnography*. Routledge. Kjølberg KL and Strand R (2011) Conversations About Responsible Nanoresearch. *NanoEthics* 5(1): 99– 113.

Salwén H (2015) The Swedish Research Council’s Definition of ‘Scientific Misconduct’: A Critique. *Science and Engineering Ethics* 21(1): 115–126.

### **3. Mapping Normative Frameworks for Ethics and Integrity of Research (EnTIRE): Stakeholder Consultation**

Natalie Evans (EnTIRE)

de Vries, R. Valenti, E. Marusic, A. Veldkamp, C. Widdershoven, G.

The areas of Research Ethics and Research Integrity (RE+RI) are rapidly evolving. In the EU and internationally, new legislation, codes of conduct and good practices are constantly being developed. New technologies (e.g. gene editing), complex statistical methods (e.g. biostatistics), pressure to publish and obtain grants, and growing emphasis on stakeholder driven science (e.g. public-private partnerships) increase the complexity of conducting science. In this complex and dynamic environment, researchers and other parties involved in the research process cannot easily identify the correct rules and best tools for responsible conduct of research.

What are the views of researchers, publishers, funding organisations, RE+RI experts and other stakeholders about relevant normative frameworks, and what are their needs for information? The H2020 funded EnTIRE project entails a stakeholder consultation in all European countries in order to identify experiences in practice. The results of the stakeholder consultation will be used to create a dynamic online Wiki-platform, owned by the RE+RI community, that will make the normative frameworks governing RE+RI accessible. The platform development takes an iterative, 'bottom up' participatory approach, focusing on the RE+RI issues of most concern to stakeholders, practical experience with norms, regulations and guidelines, available resources, and existing best practices.

In this presentation, the preliminary results from the stakeholder consultation in Spain, Croatia, and the Netherlands are described. In particular, participants' informational support needs, identified from an exploration of their experiences in practice, are defined. Also, first evaluations of the EnTIRE platform are presented. Similarities and differences between countries and how these will be reflected on the platform are also discussed.

#### **4. Academic Research Climate Amsterdam - A cross-sectional survey study**

Tamarinde Haven (VU University)

Establishing a climate that fosters research integrity is a major responsibility of universities and university medical centres. Commonly, institutions concentrated on codes of conduct, courses on responsible research and procedures on allegations. Lately the focus shifted to fostering a climate of research integrity. The present study aims to explore the academic research climate in Amsterdam and discern potential ways to promote responsible research practices. We will explore the research climate using a cross-sectional survey among all active academic researchers in Amsterdam. The survey contains three instruments that each tap into a different feature of the research climate. Firstly, using the Survey of Organisational Research Climate we measure organisational climate. Secondly, perceived publication pressure will be determined with the Publication Pressure Questionnaire. Lastly, we will explore the perceived frequency and impact of research misbehaviours. We zoom in on differences between academic ranks and disciplinary fields. We hypothesise to find differences in scores between different disciplinary fields and academics ranks, but as the study is explorative we do not specify the direction of the difference. We also hypothesise that the higher the publication pressure and the more negative the organisational climate, the stronger the association with misbehaviours. Over the next two months, we will be analysing the survey data. The talk starts with a brief outline of the study context and explains the different stages of the Academic Research Climate Amsterdam project. After that we will explain the three instruments and our data collection procedure. Then we will present the first survey results focusing on our main hypotheses. We will end by discussing potential implications of our findings and explaining how this data will be used in future interventions.

The project is funded by the Templeton World Charity Foundation and part of a the project 'The Epistemic Responsibilities of the University'.

## Fraud – Chair: Dr. Svenn-Erik Mamelund

### 5. The Committee for Research Integrity: An Investigative Authority in Fraud Cases?

Stefanie Van der Burght (Ghent University)

All Flemish universities (Belgium) have installed a Committee for Research Integrity (CRI) in the last decennium. These committees are investigative entities, part of the university. They deal with issues of research integrity and fraud cases. Although there are some small differences according to an individual university, the main procedural characteristics of all CRI's in Flanders are the same. A similar evolution can be seen abroad; all over Europe, and by extension the world, CRI's have been installed, often with a similar constellation and procedure.

This presentation reflects on five years of experience as a secretary of the CRI at Ghent University. On average, two cases per year were handled. Some containing one or multiple minor breaches, others dealing with major fraud, from disputes on co-authorship rules to data fabrication. Looking back on the file progression of each of these cases, it is clear that there are still a lot of growing pains that could improve the entity of a CRI as such and the operational features in particular. However, this experience has also led to some critical questions.

Being faced with issues of research integrity and fraud, the necessity of a decisive form of response is without doubt. But, is a CRI in his current constellation the best way to go? Is being part of a university the best embedding for an investigative entity on fraud? How objective and neutral can the investigation be? What are key features to guarantee an efficient and effective working method? What is the authority of a CRI? And the impact? Also the composition and procedure of the CRI raises questions. Is professorial staff best suited to debunk fraud-colleagues? Do they have the necessary 'research skills' to handle the case professionally? And what about their jurisdiction to take the necessary measures? Do they have the authority to adjudicate a 'verdict'? And once a verdict is made, what needs to happen? How far (in time and in space) is a university willing to take the follow-up on a case? Where ends university responsibility? Is there an (academic) life after fraud?

After a short introduction on the constellation and procedure of the CRI at Ghent University, we discuss the questions mentioned above from our own personal experience as a Research Integrity Advisor and secretary of a CRI. With this critical look at the current constellation of CRI, we want to contribute to the theoretical framework of responding to research fraud and give a realistic approach to the topic.

## 6. Visibility Concerns, Invisible Institutions and the Making of Misconduct Scandals

Felicitas Heßelmann (Humboldt University Berlin)

Martin Reinhart (Humboldt University zu Berlin)

The proposed contribution looks at the structures established to detect and sanction scientific misconduct, especially at the effects of stigmatization, scandals, and public shaming they often produce. Looking at the institutional processes that precede scandalization and shame penalties, we ask how this outcome relates to existing regimes and configurations of visibility and larger symbolic structures. Punishments and public notifications for scientific misconduct are highly symbolic in nature and rely almost exclusively on the negative effects of visibility to sanction scientists. We use data from interviews with ombudspersons, members of investigative committees and editors as well as survey data from the Wissenschaftlerbefragung 2016, a survey of German academics, to trace the procedures and working conditions of the actors and institutions that form the (newly developing) system for social control in science. We aim to show how visibility features as a central concern and structuring element throughout this system. While these actors, e.g. offices of research integrity or ombudsman, struggle to make their work visible and transparent to the scientific community, they are threatened by a feedback loop of invisibility: By design, they solely rely on cases being reported to them and do not actively initiate investigations themselves; at the same time, cases are relatively rare and do not allow for continuous, day-to-day activities that could be made visible to an audience. The more the visibility of the institution subsides, the less cases will be reported, leading in turn to a further decrease of (potentially) visible activities. For such a system without stable representation or permanent visibility, convictions and the following upsurge of attention present the only way to gain visibility in the scientific community. Unable to produce visibility for themselves, these institutions feed off of the visibility of the scandals they incite. Visibility appears thus not as a situational feature, but as a complex cycle running through various situations, actors, and institutions and crucially shaping the way scientific misconduct is handled by the respective actors.



## 7. Scientific Misconduct: a Bibliometric Analysis of the Schön case

Marc Luwel (Leiden University)

N.J. van Eck and T.N. van Leeuwen

Although only a small fraction of scientific publications is retracted for misconduct, it has a large impact on the research community, policy makers and the public at large.

A few cases attracted a lot of attention due the renown of the researcher, the claims and/or the sheer number of publications involved. In this paper we analyze the impact of the misconduct of Jan Hendrik Schön. This researcher co-authored more than 90 papers and rose through prominence at the turn of the century with a number of apparent ground breaking discoveries in materials science<sup>1</sup>. In September 2002 an investigation commissioned by Bell Labs<sup>2</sup>, his employer concluded that 17 papers contained manipulation and misrepresentation of data. They were retracted along with an additional 14 papers based on them. Other papers raised suspicion among the co-authors and the scientific community. Indeed the former expressed concerns about the data in several non-retracted papers<sup>3</sup>. Subsequently after a long legal battle the University of Koblenz, this alma mater revoked his PhD degree due to "dishonorable conduct".

Notwithstanding all the rumors provoked by this scandal in the physics community, some of retracted papers remain cited even several years after they were removed from the body of literature.

In this study using natural language processing tools, the full text of the subset of the citing articles published in Elsevier journals is used to analyze the in-text distribution of the citations to Schön's retracted oeuvre, and their precise mention. Elsevier journals cover very well the sub-disciplines in which Schön was working. Between the retraction year and 2016 these papers were cited in Elsevier journals 211 times (self-citations were excluded) and mentioned 998 in the text of the citing articles.

This in-text distribution evolves over time with 2004, one or two years after the retraction year as caesura: after that year most references were located in the introduction and before they were more evenly distributed throughout the text. Each mention in the text was classified: 87% were neutral with no judgment on the cited work's validity, 7% were negative or mentioned fraud, and 6% were positive. However the latter category contains mostly theoretical work on models.

In ongoing work the evolution of the distribution and the classification of in-text references of retracted papers authored by Schön is benchmarked using a) the author's non-retracted publications and b) a stratified random sample from the same Elsevier journals in which the fraudulent work was published.

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<sup>1</sup> Reich, Eugenie Samuel (2009). *Plastic Fantastic*. ISBN 978-0-230-62384-2.

<sup>2</sup> Beasley, Malcolm R.; Datta, Supriyo; Kogelnik, Herwig; Kroemer, Herbert; Monroe, Don (September 2002). "Report of the Investigation Committee on the possibility of Scientific Misconduct in the work of Hendrik Schon and Coauthors". Bell Labs.

<sup>3</sup> Bao Z. et al. (2003). Retraction. *Advanced Materials*, 1, 478-478.

## **8. How to engage the whole research community in writing of the Code of Conduct for Research Integrity: Estonian experience**

**Margit Sutrop**  
**University of Tartu**

The aim of this paper is to elaborate on the challenges of engaging all the research institutions of the country in writing and implementing of the Code of Conduct for Research Integrity. The Estonian Code of Conduct for Research Integrity<sup>1</sup> was signed in November 2017 by 21 research institutions, Estonian Ministry of Education and Research and the Estonian Research Council. The document was prepared by the Centre for Ethics at the University of Tartu in cooperation with the work group formed by the Estonian Research Council.

The Code of Conduct for Research Integrity was meant to complement the Code of Ethics of Estonian Scientists adopted in 2002. Differently from the Code of Ethics for Estonian Researchers, the current document describes both individual researchers' and research institutions' responsibilities. Therefore, it was especially important that the Estonian Code of Conduct for Research Integrity Agreement was signed namely by research institutions.

The current document places greater emphasis on the activities of research institutions, separately pointing out the responsibility of researchers and research institutions, which helps to emphasize that responsibility for ethical research lies with everyone who is active in research. The underlying assumption is that researchers alone cannot ensure research integrity. So that researchers could behave ethically, the necessary conditions have to be created at the level of the organization and the system.

By joining the Estonian Code of Conduct for Research Integrity Agreement, the research institutions confirmed that they respect the main values of research and the principles of action described in the text of the Estonian Code of Conduct for Research Integrity. The Code of Conduct for Research Integrity was created as a framework document which provides guidelines to all Estonian research institutions and the researchers working there. The task of the research institution is to elaborate detailed procedural rules which help to increase awareness in the organization about the principles of research integrity, to monitor the research environment and, if necessary, to interfere and to deal with the cases of misconduct.

Before signing the agreement, Estonian research and development institutions finalized the content of the Estonian Code of Conduct for Research Integrity during a national feedback round. During two rounds of consultations more than 150 suggestions for improvement were made. Lively response and heated discussion on some issues showed that different research disciplines and research institutions may have different understandings of what is considered to be acceptable and what is not.

In this paper it will be outlined where the main disagreements and points of discussion arose and how consensus was reached among the research community. It will also be described how the further implementation of the Code of Conduct for Research Integrity is planned.

<sup>1</sup> The text of the Estonian Code of Conduct for Research Integrity is available <https://www.eetika.ee/et/estonian-code-conduct-research-integrity>

## Questionable Research Practices - Chair: Prof. Dr. Jenneke Christiaens

### 9. Making Sense of Questionable Research Practices

Eric Breit (Oslo and Akershus University College of Applied Sciences)

In this paper I want to explore how researchers make sense of questionable research practices. While much attention has focused the phenomenon of scientific misconduct, often conceptualized as instances of fabrication, falsification and plagiarism, considerably less is known of how they largely “grey” and contested area of questionable research practices (ref) is given meaning to in and through researchers’ experiences.

By using the term “making sense” I use the concept of sensemaking (Weick, 1990, Sensemaking in organizations). The concept has been used to elucidate how organizations and their members address uncertain or ambiguous situations, as well as how the legitimacy of specific actions and actors is negotiated. Hence, a sensemaking perspective on scientific misconduct helps understand how research practices that may be difficult to assess as neither legitimate nor fundamentally illegitimate are experienced and handled by researchers in the context of their everyday research lives.

Empirically, I draw on qualitative data collected as part of a cross-national survey sent out to academic members of eight universities in Europe. A part of the questionnaire contained open-ended questions related to the respondents’ potential first-hand experience of research misconduct, actions taken, and retrospective evaluation of the incidence. Overall, we obtained responses from about 200 researchers, divided across gender, academic position, research experience, and scientific discipline. Given the sensitive nature of this phenomenon, this qualitative data provides potentially rich empirical insights into its manifestation in research life. At the same time, the fact that the data collection has been structured and not face to face also raises interesting methodological questions. In the analysis I focus on some central experiential processes: Identification (articulating a specific activity as misconduct), reaction (attempt of handling the misconduct), and retrospective experience (reflections on outcomes and own actions). These have partially been developed prior to the survey, and have thus guided the responses. Within these overall categories, I will conduct a grounded analysis and inductively theorize on the central elements in researchers’ sensemaking processes regarding scientific misconduct.

## 10. The Role of “Intention” in Real Life Cases of Research Misconduct

Shila Abdi(KULeuven)

**Background:** Within the national guidelines in Europe on research integrity and research misconduct, a remarkable discrepancy can be found about whether “intention” should be considered as a key factor for defining a practice as misconduct. Consequently, due to the lack of consistency in those guidance similar forms of misconduct risk to be judged differently. No research has been done on the criteria used in judging similar cases of research misconduct. Therefore, a thorough investigation of the role attributed to “intention” when dealing with research misconduct cases is essential.

**Method:** For this study 11 European countries were selected, representing the three levels of regulation of investigation of research misconduct: *local commissions*, *national advisory commissions* and *national commissions with legal mandate*. The selected countries were contacted by e-mail regarding collecting misconduct cases from their organization. Regardless of their contribution to the collecting of misconduct files, they were also invited to fill in a short survey. A content analysis of the retrieved cases was conducted and the data was extracted and analyzed on how the criterion of “intention” was used in handling research misconduct (Elo, et al, 2008). Also other criteria that were considered as crucial by the organizations were taken into account.

**Results:** At this stage, data analysis is still ongoing. An analysis of 79 cases has already be done, providing an initial view of the role of “intention” when committing research misconduct. At the time of the conference, the results of data analysis (the role of “intention”) and survey will be presented. Provisional analysis seems to indicate that in some cases culpable careless acts could lead to research misconduct when those acts are repeated, or have a certain size or when these acts were committed with bad intentions. Our research shall contribute to the clarification about the role of “intention” in existing cases of research misconduct.

**Conclusion:** The results of content analysis could be framed in the scope of limited literature that refers to the intentionality of the person’s actions. According to the literature, three levels of intentionality/culpability can be emphasized: *intentional acts* (i.e. done with the intention to deceive), *grossly negligent acts* (i.e. done in reckless disregard for the truth) and *careless or negligent acts* (i.e. which discard ‘the standards of a reasonable, normal person). Also, with the results of our research, we could enter the discussion with the revised edition of the ‘*European Code of Conduct for Research Integrity*’ (2017), where the rule to demonstrate that misconduct was committed intentionally, knowingly or recklessly, is no more required.

## **11. Estimating the Number of Current Users of Questionable Research Practices: A Social Network Approach**

Nicholas W. Fox (Rutgers University)

Psychology is a field in crisis. Over the past 15 years, many well-cited, high impact research findings have failed to replicate, calling into question their validity. Increased methodological and statistical scrutiny has led to field-wide introspection on how to produce robust, reproducible research. One way to limit non-reproducibility is to decrease the number of false-positive findings in the literature, which is currently well-above the conventional 5% acceptable level. One potential cause for the increased observed rates in false-positive findings in the literature are the use of questionable research practices (QRPs). These practices, which range from selective disclosure of data, to post-hoc removal of outliers, to data fabrication, may enable researchers to more easily achieve a significant p value and in turn publish their work. As success in academia can often be distilled into how published one is, there is a perverse incentive to publish as frequently as possible.

There is currently no consensus on how prevalent the use of questionable research practices is in the scientific community. One study estimates over 60% of psychologists use QRPs, while another estimates the prevalence is less than 10% of psychologists. All of the current estimates of QRP use have relied on self-reports, which are sensitive to response and social desirability biases. Additionally, work on QRP prevalence has shown that survey participants are very sensitive to question wording, with questions worded slightly different generating vastly different estimates.

This current work seeks to avoid issues with direct, self-report estimates by using an indirect estimating method using more frequently in sociology and public health: social network scale-up. Using social network scale-up techniques, researchers in other fields have more accurately estimated the size of HIV+ and heavy drug using populations. This technique utilizes the fact that an individual's social contacts are generated from the general population, and across many individuals, will generate a representation of that population. By asking researchers about other researchers they know, the current research will avoid the most common problems associated with self-report, while simultaneously collecting additional information on how QRP-use information travels between peers and the social network sizes of different researcher sub-groups.

This work demonstrates a powerful new tool to estimate the number of researchers using questionable research practices. As interventions such as preregistration, publication badges, and registered reports are put into place, social network scale-up can be used longitudinally to measure the effect of those interventions on the population of QRP users. If interventions are curbing QRP use, subsequent estimates should reflect this decrease. Although the current work will only generate a prevalence estimate for American psychologists, the replication crisis is bound neither by country or by field. This work is an important first step to better understand how many scientists use questionable research practices, and further work will serve to expand geographic and academic scope.

**\*\*Data collection is in progress, and results will be presentable by February conference\*\***

## **12. Researching scientific deviance: on academics, honour and doing research today**

Jenneke Christiaens (Vrije Universiteit Brussel)

Marijke Van Buggenhout (Vrije Universiteit Brussel)

In this paper we will present the results of our (Printeger) research on the incidence of scientific misconduct. Despite the rising academic and public attention for scientific fraud, adequate knowledge on the prevalence and understanding of misconduct in science is still unsatisfactory.

We will first discuss the difficult measurement the incidence of scientific misconduct. Beyond conceptual and methodological problems, several other issues are complicating the measurement of misconduct in scientific practises, such as official procedures, dark number, reporting attitudes of researchers, .etc. Second we will shortly discuss diverse and lacking registration practices that could be observed when collecting data from institutions in partner countries.

But this paper will focus on discussing the results of our analysis and reflect on how these data deliver insight in not only the character of scientific misconduct, but as well in how scientific misconduct is dealt with in an institutional (academic) context.

## Research Misconduct – Chair: Dr. Thed van Leeuwen

### 13. Ghostbusting the Writer Academic. Ghostwriting in Germany — A Quantitative Study

Tony Franzky (University of Freiburg)

Fabian Bross (University of Stuttgart)

Fabian Dirscherl (University of Stuttgart)

Beside fabrication, falsification and plagiarism, academic ghostwriting is one of the main issues on research on academic integrity. In these cases, unmasking and verifying the real author is one of the most difficult challenges. Methods of forensic linguistics are considered as effortful and not very reliable, because of comparatively small corpora for comparison and less dependability in cases of peer-ghostwriter-longterm-maintenance. Also, strategies to supervise the progress of writing by demanding learning journals and having regular meetings do not provide an absolute security since ghostwriting agencies also offer services like coaching for oral examinations and additional research documentation.

Notably, discussions about the topic of ghostwriting are underrepresented in academic research. Being more specific: In contemporary discussion are only a few publications on this topic but focusing aspects like analyses of market access and professional environment in a nonacademic perspective (e.g. Klinghammer 2007; Shaw 1991), production strategies (Lyons 2014), nonacademic contract work as speechwriting or biography writing (Starr 2006; Pitt 1984; Einhorn 1988; Seeger 2009), legal aspects of ghostwriting in perspective of copyright and intellectual property rights (Stolz 1971; Planta 1998) or general aspects of the theoretical discussion (Mielke 1995).

As already mentioned, main parts of the monographic publications originate from a nonacademic field and thus, are only restrictedly suitable for discussion. Furthermore, empirical studies are few and far between. Therefore topics are, for example, normative values of ghostwriting (Knapp und Hulbert 2017; Rothermich 1998; Wnukiewicz-Kozłowska 2011), systematic analyses of online offers or quality of top rated ghostwriting services like Lines (2016). However, there does not seem to

exist a broad range of studies on ghostwriting services with a scientific or academic background. This is aggravated by the problem of social desirability and as a consequence a lot of classical methods of empirical social research like interviews or questionnaires fail to provide results or provide biased results. Nevertheless, for a couple of years, it is observable that writing services are also provided via internet and can equally be bought through online auctions.

Using this possibility, we attempt to close the aforementioned research gap on ghostwriting utilization: It was possible for us to extract the public available online auctions of a huge German ghostwriting online agency and analyze this data in respect of questions like the quantitative demand of ghostwriting ordered by areas of study, qualitative and quantitative extent of ghostwriting and

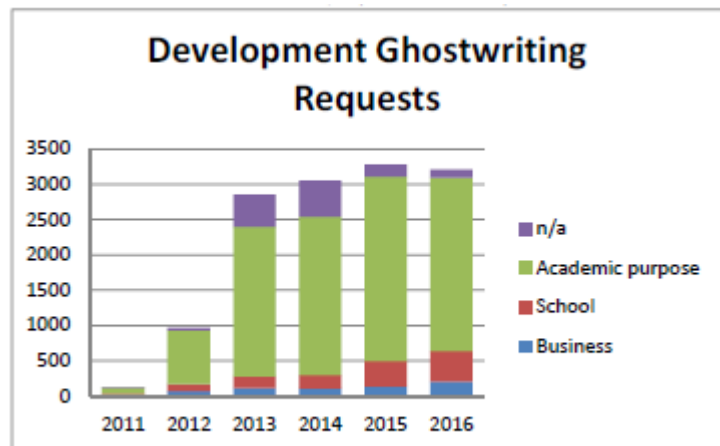


Table 1: Ghostwriting requests at the investigated platform (n=13484)

affected levels of qualification. The first data analysis shows, that the number of ghostwriting is increasing since release of the platform. On basis of these highly comprehensive and diverse datasets (about 30.000 sets), it was possible to start a quantitative analysis with underlying qualitative aspects to give evidence about ghostwriting in Germany. Especially educational background of ghostwriters, types of requests for writing jobs, periods of time for fulfilling ghostwriting jobs, scientific background and level of qualification of customers and few other aspects. The work in hand will show focus areas on ghostwriting and ghostwriters as well as ghostwriting demands and how they are fulfilled and will give a brief insight on the ghostwriting market in Germany.

Seeger, Matthew W. (2009): Ghostbusting: Exorcising the great man spirit from the speechwriting debate. In: *Communication Education* 34 (4), S. 353–358. DOI: 10.1080/03634528509378628.

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## 14. Fraud in Science. A Systematic Analysis of “Retraction Watch” Data

Jennifer Gewinner (ETH Zurich)

The total number of retractions increases and so does the number of retractions due to scientific misconduct [2]. It seems what once happened behind closed doors of universities is now dragged into the open where the media eagerly awaits the next scientific misconduct scandal. One of these media outlets is the blog “Retraction Watch”. Initiated in August 2010 it resumes until today, reporting on retracted papers and their background stories, always with the aim to find the true cause of retraction, trying to draw the line between scientific mistakes and scientific misconduct. A content analysis of retraction notices plus the background information given in the “Retraction Watch” blog is yielding a unique information set, as until now, either retraction notices have been analyzed in great numbers but without adding further explanatory information [1, 2 and 4] or only a small number of very specific cases of scientific fraud have been analyzed[3].

The data collection began on the initiation date of “Retraction Watch”, will carry on until the end of 2012, will estimate 829 blog entries and cover a time span of 29 months (i.e. from August 2010 to December 2012). The content analysis of the blog entries collects information on the following categories: name, academic title and the date of birth of the first author; title of the retracted paper; year of publication; year when retracted; discipline; reason of retraction; country; research institute; journal; impact factor journal; coauthor(s); which party initiated the retraction; sanctions and consequences as well as the publishing date of the blog entry.

Data collection is now in progress and is counting already 379 analyzed cases of retractions, marking the middle of the data collection process. Once completed, the data will be analyzed in order to explain the various causes of retraction and the detection of possible temporary trends. Already one can see that the so far collected data replicate the finding that retractions vary depending on geographic origins and the journals’ impact factors [1]. It remains to be seen whether the data can also replicate the findings where not only the retractions in number are increasing, but also the timeto- retraction span increases too [1, 2]. This increase might be a sign that journals and the scientific community are becoming more concerned with scientific misconduct, and thus reach further back in issuing retractions [1].

The unique dataset provided by the “Retraction Watch” blog will enable a deep insight into causes and underlying trends that lie behind the retractions. The data collection and data analysis will be available before the conference begins, and ready for premiering the findings which promise an indepth look into the varying causes of retractions.

The authors would be very grateful for obtaining the opportunity to present the results and to benefit from the feedback and the expertise of the conference audience, as by then this project will have reached a crucial point in the research process.

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[2] Steen, R. Grant. Retractions in scientific literature: Is the incidence of research fraud increasing? *J Med Ethics*. 2011.

[3] Stroebe, Wolfgang, Postmes, Tom and Russel Spears. Scientific Misconduct and the Myth of Self-Correction in Science. *Perspectives on Psychological Science*. 2012.

[4] Wager, Elizabeth and Peter Williams. Why and how do journals retract articles? An analysis of Medline retraction 1988-2008. *J Med Ethics*. 2011.

## **15. Perceiving and engaging in Research Misconduct”: Preliminary results of DEFORM’s on-line survey**

Georgia Koumoundourou (University of Crete)

Vassiliki Petousi (University of Crete)

Ioannis Tsaousis (University of Crete)

All sciences are anticipated to provide accurate statements about the world we live in. Consequently, researchers are expected to practice research responsibly. Unfortunately, this is not always the case. For more than 25 years, policy makers and the research community have been continually debating on how to name, study and deal with research behaviours, deviating from responsible conduct of research (Steneck, 2006). Research Misconduct (RM) has undoubtedly been proved to be harmful not only to science itself or research community, but also to the society (e.g., Bouter et al., 2016; Israel & Drenth, 2015; Leistedt & Linkowski, 2016; Martinson et al., 2005). Putting all theoretical frameworks and research findings together with their limitations and literature gaps identified, the goal of the present survey is to provide, using an international and interdisciplinary sample of researchers employed in both the academia and industry, an updated estimation of their perceived severity, their perceived prevalence and their actual involvement in an extended list of research practices deviating from research integrity. Finally, the survey aims at identifying researchers’ reactions when faced with RM in their working environment, the potential causes (both individual and situational) of the phenomenon, and the perceived impact accompanying RM. Data were collected via an online survey questionnaire developed for the purposes of this study and analyzed using both descriptive and inferential statistics. Preliminary results will be presented and theoretical as well as practical implications for both, science and society, will be discussed. This research is part of the HORIZON2020 funded program DEFORM: Determine the global and financial impact of research misconduct. Project ID: 710246.

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## 16. How Researchers Perceive research Misconduct and how they would Prevent it:

### A Qualitative Study in a Small Scientific Community

Ivan Buljan (University of Split School of Medicine, Split)

Lana Barać (University of Split School of Medicine, Split)

Ana Marušić (University of Split School of Medicine, Split)

**Introduction:** Scientific work should be practiced responsibly. However, the environment where scientific performance is measured by the number of publications, combined with constant pressure to obtain funds for research, creates the potential for occurrence of deviant behaviours. The aim of our study was to use a qualitative approach to explore the potential motivations and drivers for unethical behaviours and determine the role of institutions regarding those issues in a small scientific community setting.

**Methods:** Three focus groups were held, two with doctoral students and one with active senior researchers. Purposive sampling was used to reach participants at different stages of their scientific careers. Participants of all three focus groups were asked the same questions regarding the characteristics and behaviour of ethical/unethical scientists, ethical climate, role and responsibility of institutions; they were also asked to give suggestions for improving research integrity. Participants also discussed and expanded on the themes from the questions. The data analysis included coding of the transcripts, categorization of the initial codes and identification of themes and patterns.

**Results:** Three main topics were derived from the focus groups discussions. The first one included different forms of unethical behaviours including increasing research "waste", non-publication of negative results, authorship manipulation, data manipulation and repression of collaborators. The second topic addressed the factors influencing unethical behaviour both external (model learning, cultural context, academic institutions as large systems, motivational

factors, and decrease of productivity after achieving goals) and internal to the researchers (underestimation of the damage from misconduct, scientist's ego and lack of experience). Two different definitions of ethics in science emerged; one from the categorical perspective and other from the dimensional perspective. The third topic derived from focus groups involved possible routes for improvement, one from within the institution through the implementation of research integrity education in the curriculum and appointing research integrity bodies and quality control, and the other from outside the institution through external supervision of institutions, warranting the accountability of institutions and redefining excellence criteria.

**Conclusions:** Based on the results of our study, research misconduct in a small scientific community is perceived to be the consequence of the interaction of several social and psychological factors. Possible improvements should be systematic, aiming both for improvements in work environment and personal awareness in research ethics, and those changes should be implemented in research institutions. Further research should include approaching stakeholders other than young and experienced researcher in environments with high and low pressure for publishing, in order to gain insight about the experiences and perceptions for promoting responsible conduct of research and prevent misconduct. Furthermore, it would be necessary to quantitatively test our hypotheses that institutions with better defined regulations have fewer cases of research misconduct.

**Keywords:** Research integrity, ethics, academic institutions

## Journals – Chair: Dr. Sarah de Rijcke

### 17. Analysis of Scientific Fraud: Retracted Publications from the Scientific Literature

Theo van Leeuwen (Leiden University)

M. Luwel, L.J. van der Wurff, A. Reyes-Elizondo, & S. de Rijcke

By publishing their results in the scientific literature researchers claim ownership and make them accessible for scrutiny by other researchers. Before a journal accepts a manuscript it is reviewed by either one or more reviewers, or by editorial boards, resulting in many submissions being rejected for various reasons.

However this peer review process knows its limits. For example, if results presented in the scientific literature turn out to be not trustworthy, the publications are (partially) retracted. Generally, these papers are then removed from the common stock of knowledge. Over the last couple of years the retraction of publications became a popular subject in science studies (Grieneisen & Zhang, 2012). There are many reasons for retracting a paper, scientific misconduct being only one of them. However these cases attract a considerable, perhaps even disproportional amount of attention, and thereby undermine the public trust in science. Recent studies mainly focused on retractions of papers processed for MEDLINE or subsets of retracted papers published in journals processed for Web of Science (WoS). There is a general impression that the number of retracted papers is increasing, and scientific misconduct is becoming a more urgent subject (Steen, Casadevall & Fang, 2013).

We present a comprehensive analysis of all retracted papers published in journals processed for WoS. A detailed classification is produced of the motives for the retraction as stated in the retraction notices and of the indexing of these notices in the table of content of the online version of the journals, two subjects paid little attention to in previous work.

Next to the causes for retraction as well as the initiators of retraction, we will show the general trends of retracted literature in the WoS database. We will focus on a geographical distribution of retracted scientific literature, and contextualize that against the national global positioning of the countries involved. A final analysis focuses on the distribution of retracted literature over domains of scientific activity. Together, these analyses can show the relationship between the penetration of research metrics in the national science system, and the way that works out in the behavior of scientists in those national contexts, by concentrating on the existence of funding mechanisms based upon research performance measurement. Within the set of retracted publications we identified a considerable number (co)authored by a small number of researchers or institutes. We will concentrate on these specific cases as well.

*Grieneisen M.L. & Zhang M. (2012). A comprehensive survey of retracted articles from scholarly literature. PLOS ONE, 7, e44118.*

*Steen R.G., Casadell A. & Fang F.C. (2013). Why has the number of scientific retractions increased? PLOS ONE, 8, e68397.*

## 18. A Citation Context Analysis of Retracted Publications

Marion Schmidt (German Centre for Higher Education Research and Science Studies)

Publications are being formally retracted – that is declared invalid by way of a short notice by publishers, authors or others – as a consequence to proven failures of research integrity like fabrication, falsification, plagiarism but as well honest error.

Although retractions are not restricted to the former, they are often used as an indicator for misconduct. Empirical research on retractions has been concerned especially with prevalence of retractions, properties of retracted publications and factors for the (time to) retraction. Effects on collaboration networks as well as citation losses estimated on different levels have also been addressed so far. However, when assessing the potential damage for science and society resulting from misconduct, hitherto operationalization proposals – like the amount of funding spent for publications which have been later retracted, or subsequent dynamics of concerned subfields – tend to be quite indirect, whereas on the other side sometimes mere assumptions or anecdotal evidence are used in order to describe the relevance of this problem.

However, the role of retractions and the amount of damage resulting from retracted publications should be understood in the first place in epistemic terms. The present (research-in-progress) work addresses the question of how scientific communities deal with problematic validity, the status of retracted publications and if and how the contents of these publications are subsequently used. For this purpose a qualitative citation context analysis according to Cozzens (1985) is undertaken, conceptually supported by further theoretical approaches regarding knowledge production, knowledge reception and citing. The core of this analysis is the distinction between essential, methodical, and peripheral knowledge claims for each paper. These claims are further analyzed as to how citing authors communicate them – e.g. as part of an orienting reference list or alone-standing – and if and how citing authors indicate the validity of the cited work, or, as the case may be, relate to the retraction, mention further confirmations or controversies or even problems more general to a field, like cross-contamination of cell lines. The advantage of this more thorough qualitative analysis versus a formally simpler coding of positive, negative and neutral citations or algorithmically generated indicators is the higher potential for insights into citing motivations and the way the concerned papers are actually used for the knowledge production of the citing authors.

This material is on the one hand supplemented by an also intellectual coding of the reasons retractions based on the retraction notices. On the other hand descriptive bibliometric evidence will be used to complement the qualitative findings. I will particularly work with citation and co-citation distributions of the retracted publications, but also field and geographical information. The analysis is based on a corpus of interlinked retractions and retracted publication which I delineated previously in PubMed and Web of Science by way of matching and retrieval methods. For the citation context analysis, post-retraction citations of retracted publications with significant amounts of these are sampled in the first place.

The presentation will focus on schema and intermediary findings of the citation context analysis.

## 19. Time Trends and Risk-Factors in Publication Bias

Julia Jerke (University of Zurich)

Publication bias is present when the publication of a manuscript (directly or indirectly) depends on the therein reported results, assigning a higher chance to significant results. This bias can have two sources. First, publishers and reviewers may prefer manuscripts with novel and significant results, expecting to increase the number of citations. And second, in anticipation of journals' potential preference for significant results, researchers may then either desist to submit manuscripts reporting negative or insignificant effects or manipulate their results to be publishable. Such selection bias the published scientific literature by overly significant and hypothesis-confirming results. The caliper test is a wide-spread method for estimating the existence and extent of publication bias. This test focuses on reported test statistics, analyzing their distribution at the critical thresholds of significance. It is based on the assumption that in absence of publication bias the frequency of estimates in narrow, equal-sized intervals just above and just below the critical threshold should follow a uniform distribution. Thus, a substantial overrepresentation of estimates in the interval just above the critical threshold is assumed to be an evidence for publication bias. Previous studies applying the caliper test have shown that publication bias is a substantial problem in American and German sociology, social psychology, political science and several other disciplines. However, there are few studies examining the mechanisms of promoting and reducing publication bias. Also, it is unknown whether this is a rather new phenomenon or evolved over the last decades. Most studies on publication bias were published in recent years, so the answer to this question remains unclear. The objective of the study is twofold. First, we examine several factors potentially influencing the magnitude of publication bias such as author group size, number of citations as a proxy for originality, explicit vs. implicit hypotheses, experiment vs. field study and funding. Second, we investigate a time trend. We collected data from all volumes of the Quarterly Journal of Economics, one of the leading economics journals, published between 1960 and 2015. The sample consists of all quantitative articles reporting empirical studies. To test for publication bias we screen these articles thereby extracting z- or t-values, respectively and subsequently analyse their distribution at the common levels of significance. Spanning over a timeframe of more fifty years this study is unique in presenting the longest time trend of publication bias.

## 20. Journals' Instructions to Authors in 2017: A Cross Sectional Study across all Disciplines

Mario Malicki (University of Amsterdam)

**Objective:** To analyse instructions to authors (ItA) of scientific journals across all scientific fields regarding transparency and openness of reporting, as well as peer review practices.

**Design:** A cross-sectional study of journals' instructions to authors and journals' scopes, collected from the journals' websites, stored as text files and analysed using a combination of manual checking and data extraction using regular expression matching through Perl. As our goal was to compare differences between the major scientific areas and multidisciplinary journals, we used Scopus database to generate a random probability sample of journals belonging to the Life Sciences, Social Sciences, Physical Sciences, Health Sciences, Arts and Humanities and the category of multidisciplinary journals. Additionally, to determine the possible influence of journal prestige we divided the journals based on the SNIP (source normalized impact factor) terciles. Sample size was calculated based on the journals belonging to each category, and using an 8% margin of error. The sampling scheme with the sample sizes selected are available in Table 1.

**Results:** This study is ongoing and is expected to finish in January 2017.

Table 1.

SNIP tercile	Journals belonging to					
	Life Sciences	Social Sciences	Physical Sciences	Health Sciences	Arts and Humanities	Multidisciplinary journals
T1	47	51	54	51	44	33
T2	47	51	54	51	44	33
T3	47	51	54	51	44	33
Total	141	153	162	153	132	109
Grand Total						<b>850</b>

## Responsible Research - Chair: Dr. Luca Consoli

### **21. Interactive session: Does Competitive Research Funding Contribute to Questionable Research Practices? (Interactive Session 1)**

Stephanie Meirmans (Amsterdam Medical Center, University of Amsterdam)

Gerben ter Riet (Amsterdam Medical Center, University of Amsterdam)

(Please note: own laptop, notebook or iPad required)

Science has become hyper-competitive, with potentially disastrous consequences. Many recent studies have pointed out the struggle of, in particular, young scientists in such a system. Arguably the most competitive component is the struggle to secure funding and some think that it is this component that is the main driver of the high incidence of questionable research practices. But to which extent is this actually true? And if true, what are the main underlying mechanisms for this? Might not competitive research funding contribute to responsible research practices, too? And if so, how?

In this session, we invite you to actively take part in our quest towards investigating these issues. What is your view on the connections between competitive research funding and questionable research practices? What is the view of other participants of this conference on this issue? In this session, we will use MeetingSphere™ digital tools to create a highly interactive atmosphere of knowledge transfer and integration in order to investigate how conference participants view this topic. So come, bring your laptop or iPad, tell us what you think and comment upon the views of others! The results of this session will directly feed into our ongoing project on this topic and create avenues for asking active researchers more targeted questions around this topic in a similar setting. Ultimately, the results of our project will be presented to representatives of funding agencies as well as other relevant stakeholders.



## 22. Fostering Responsible Research: What can Journals do? (Interactive Session 2)

Dear colleagues,

As part of the PRINTEGER European Conference on Research Integrity we invite you to a **Discussion session: Future of scholarly communication** which will be facilitated using MeetingSphere software, which guarantees anonymity and also allow you to reflect on your opinions online after the discussion. So **please bring** your laptop, tablet, iPad or smartphone with you. You will be able to join the discussion using the link:

<https://eu01.meetingsphere.com/01028638/future>, which will also be provided during the session (Note: when using an iPad, download the MeetingSphere app via the [iTunes store](#)).

The topics, we would like to tackle, are:

### 1. Peer review

**Description of the problem:** Research has shown the inter-rater reliability (the recommendation agreement between reviewers and the similarity of issues raised by different reviewers) is very low. Additionally, peer review has been criticised for its inability to detect major study errors, questionable research practices or study design problems. Yet it is still regarded as a cornerstone of scientific publishing. Pre-print servers, post-publication commenting, crowd sourcing alongside machine learning open ways for modernizing the current practice of peer review.

**Question: How do you envision the future of peer review?**

### 2. Article of the future

**Description of the problem:** The replication crisis in science, alongside P-value hacking, and hypothesis generation after results are known (HARKing) are practices believed to be preventable or mitigated by prospective registration (before data collection or subject recruitment starts) of study protocols (of both experimental and observational research). Yet research has shown that many studies are still not registered, and that the outcomes mentioned in the registration often do not match those later reported.

**Question: How do you envision the structure of the scientific article in the future?**

In hopes that you will join us,

On behalf of the project members,

Mario Malicki

Postdoc at the Academic Medical Center, UVA, Amsterdam

Project website - <https://www.nrin.nl/ri-collection/ri-enterprises/research-consortia/fostering-transparent-rcr-what-can-journals-do/>

ORCID ID: <http://orcid.org/0000-0003-0698-1930>

### 23. Optimizing the Responsible Researcher

Govert Valkenburg (Leiden University)

Joeri Tjink (Vrije Universiteit Amsterdam)

The project *Optimizing the Responsible Researcher* aims to articulate received ideals of responsible research and responsible researchers, and compare these to the systems of recruitment, assessment and promotion of biomedical researchers. These systems will be studied through the lens of cultural analysis, focusing on how ideals circulate in research practices, how they become (transformed and) codified into rules and regulations, and how individual researchers in turn make sense of what these rules and regulations seem to demand from them.

We use *group-grid theory* (see Hoppe, 2007, but the tradition goes back much further) to conceptualise the two main sources of constraint people experience when making decisions: the norms and values of the social surrounding they operate in – the group dimension – and the norms and values as inscribed in rules and regulations and institutional arrangements – the grid dimension. Either or both of these two dimensions may be apparent in a decision-making situation that concerns research integrity. Different degrees of relevance of either dimension (high group/high grid, high group/low grid, etc.) lead to different expected coping strategies in individuals. Also, in case there is rift between received ideals and practice, these different degrees of group and grid dimensions suggest different strategies for policy intervention.

In our project, we use focus groups and semi-structured interviews to determine an optimal profile of a responsible researcher from a biomedical scientist perspective and compare these outcomes with document analyses of recruitment, assessment and promotion practices within several biomedical institutions in the Netherlands

In this presentation, we discuss preliminary insights from empirical research into both questions: what ideals of responsible research are held, and what kind of ideal seems to emerge *de facto* from policies regarding recruitment, assessment and promotion. Also, we discuss how we envision mapping these insights on the group-grid framework.

This project is funded by ZonMW, the Netherlands foundation for health care research and innovation.

Hoppe, R. (2007). Applied Cultural Theory: Tool for Policy Analysis. In F. Fischer, G. J. Miller, & M. S. Sidney (Eds.), *Handbook of Public Policy Analysis. Theory, Politics, and Methods* (pp. 289-308). Boca Raton, London, New York: CRC Press.

## **24. Bringing Habermas and MacIntyre together? A Perspective on Science Ethics and Scientific Misconduct**

Luca Consoli (Radboud University Nijmegen)

Virtue ethical approaches to science ethics are a promising way to avoid the conceptual and practical pitfalls of rule-based or consequences-based models. On the one hand, putting too much emphasis on rules and regulations can lead to codes that are not followed because they are perceived by the intended target (the practising scientists) as unrealistic, artificial and externally imposed. On the other hand, looking mainly at consequences can lead to 'penalty-based' approaches, where punishing bad behavior is more prominent than rewarding the practising of 'good science'. Virtue ethics offer a third way, in which the intrinsic motivation to be both a good scientist and a good person as individual are inextricably intertwined with the communal aspect of science (being part of a community of like-minded practitioners), and institutional (external) goals can be analyzed separately from the moral (internal) goals of the community.

I have argued elsewhere that a first possible step in putting forward a conceptually robust virtue-ethical approach can be achieved by stressing the importance of narratives (i.e. exemplary life stories) with respect to codes. Narratives allow a much stronger sense of moral affinity and can be therefore character-enhancing and induce good behavior.

There are pitfalls in virtue-ethical approaches as well. One possible criticism is that virtue ethics is very situational. This could not only lead to a relativistic approach, but also makes it unsuited to produce guidance in institutional contexts, where general guidelines are desirable and necessary for good functioning. In the present contribution I will take the first conceptual steps towards a possible answer to these concerns, by bringing the conceptual frameworks of two authors together (MacIntyre and Habermas) who are usually considered as incompatible, if not antithetic. Can discourse ethics provide the 'practical tools' that virtue ethics need?