

# Research Integrity in Norway (RINO) – a study of scientific misconduct and questionable research practices

## Background

There is an increased attention to questions of research ethics, and research integrity in particular, in a changing scientific landscape characterized by increasing demands and competition. In addition, there is an increased recognition of *the institutional responsibility* for research integrity (See for example ALLEA, 2017; Science Europe, 2016). In Norway, a new act on research integrity emphasizes the responsibilities of research institutions for promoting research integrity and for handling allegations of research misconduct<sup>1</sup>. Yet, policies intended to promote research integrity and to prevent and control misconduct should be informed by knowledge about the prevalence of misconduct and factors that may promote or hinder integrity in research. There is a pressing need for more knowledge about current practices. There have been no cross-disciplinary and nation-wide studies on research integrity in Norway since the study *Fusk i forskning. En studie av uredelig og diskutabel forskning* (Elgesem, Jåsund, & Kaiser, 1997) was carried out by the Norwegian National Research Ethics Committees (FEK)<sup>2</sup>. The three institutions behind this project, the University of Bergen (UiB), the Norwegian National Research Ethics Committees (FEK), and the Western Norway University of Applied Sciences (HVL) have therefore decided to collaboratively take on this task.

## Research integrity and research ethics

Research integrity is commonly taken to constitute one of several aspects of research ethics (Steneck, 2006). The focus in this study is “research integrity”, referring to behaviour related to scientific principles, values and norms essential to the development of reliable scientific knowledge. Other aspects of research ethics, such as principles, values, norms and laws that regulate the relationship to research participants and other individuals or groups affected by the research, as well as principles and norms dealing with the societal responsibility of research will not be in focus in this study.- Research integrity implies adherence to the basic

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<sup>1</sup> Lov om organisering av forskningsetisk arbeid, 2017, § 5-6 (<https://lovdata.no/dokument/NL/lov/2017-04-28-23>)

<sup>2</sup> A 2013 study on scientific dishonesty included all PhD-students at the medical faculties of Norwegian universities. 65 % of the respondents had not, during the last year, heard or read about researchers who committed scientific dishonesty (Hofmann, Myhr & Holm, 2013).

rules of good scientific practice, such as they typically are expressed in ethical codes of scientific conduct (See for example, Singapore Statement on Research Integrity, 2010<sup>3</sup>, Guidelines for Research Ethics in Science and Technology, 2016<sup>4</sup>, Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology, 2016<sup>5</sup>; ALLEA, 2017). The internal norms include honesty, transparency, respect, fairness and independence. These norms are in a sense then, the foundation of science as a whole, since they constitute the conditions for the practice of developing reliable knowledge.

Breaches of research integrity are often referred to as *research misconduct*. Such breaches undermine the primary obligation of scientists – the pursuit for truth. Instances of scientific misconduct may have serious consequences for trust in science and collaboration among scientists. Not the least, all forms of scientific misconduct are harmful in that they may have devastating effects on individuals and the society as a whole. Serious breaches of research integrity – falsification, fabrication and plagiarism (FFP) - have received a lot of attention nationally and internationally over the last years. However, while FFP are very serious, empirical studies suggest that these practices are less common compared to so-called *questionable research practices* (QRP).<sup>6</sup> In a meta-analysis of several international studies, Fanelli (2009: 8) found that 2 % admitted to having fabricated or falsified in their research, while one third admitted applying questionable research practices. In the Norwegian study from 1997, 5% stated that they had practised dishonest or questionable research themselves, while 12% knew about others practising dishonest research and 14% knew about others practising questionable research (Elgesem, Jåsund, & Kaiser, 1997)).

Arguably, questionable research practices, QRPs, constitute in many ways a greater problem than FFP because they occur far more often and thus more significantly affect research ethical culture (Bouter, 2015; Martinson, Anderson, & de Vries, 2005). Bouter (2015) suggests that

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<sup>3</sup> <http://www.singaporestatement.org/statement.html>

<sup>4</sup> <https://www.etikkom.no/en/ethical-guidelines-for-research/guidelines-for-research-ethics-in-science-and-technology/>

<sup>5</sup> <https://www.etikkom.no/en/ethical-guidelines-for-research/guidelines-for-research-ethics-in-the-social-sciences--humanities-law-and-theology/>

<sup>6</sup> The very term “questionable practices” can be criticized because it refers to practices that are not only questionable, but are indeed unacceptable. In this project we stick to the traditional term of QRP with these provisions in mind for the time being.

QRP include 60 different practices, many of these are linked to methodological errors and fallacies. QRPs include (but are not limited to) publication-related misconduct (e.g. claiming undeserved authorship; denying authorship to contributors; artificially proliferating publications), biased data handling and communication (e.g. selective use of data, not revealing state of the art in applications, not making data accessible to others, appropriating data from others without consent, etc.), and other misconduct (e.g. peer review abuse, non-disclosure of a conflict of interest, unfairly holding up a rival's publication, misrepresentation of credentials;). All of these practices violate good research practice and research integrity.

The current prevalence of such practices in Norway is not known.

### Aims

This study consists of two parts. In the first part, we build our data collection on quantitative survey method and investigate the relationship between three sets of variables: the prevalence of certain practices, attitudes towards these practices and certain institutional and cultural factors. The second part provides an in depth follow up of findings from the survey as well as insights into the wider contextual setup in higher education and research institutions. We will use qualitative methods including where we shall use several appropriate techniques (interviews, focus groups, analysis of institutional measures, training material, regulations and practices relevant to research integrity).

The aim of the study is threefold:

- (1) to map out the prevalence of and attitudes to certain types of research misconduct, including questionable research practices;
- (2) to gain insights into researchers' knowledge of and attitudes to research integrity; and
- (3) to map out possible causal drivers behind misconduct and to suggest factors that may promote research integrity.

### Theoretical perspectives

In the literature, we find at least three possible explanatory determinants when analysing scientific misconduct: (1) individual psychology (e.g. personality traits, dysfunctional personality type, moral attitudes); (2) scientific culture and training (e.g. role models,

education, guidelines); and (3) systemic factors, i.e. the institutionalised system of knowledge production (e.g. competitiveness, publication pressure, reward mechanisms, career paths).

Martinson et al. (2005) complain that many analyses focus too narrowly on researchers and their misconduct (the rotten apple-approach), and fail to consider the broader research environment which often triggers the researchers' misconduct through what Bouter (2015) calls “perverse incentives”.

Our initial working hypothesis is that possible causes of scientific misconduct and other actions that violate the basic norms of research, go beyond individual psychology. The social and institutional context of research, ranging from the atmosphere within a given research group to the national governance of research systems, creates incentives and disincentives for particular actions.

For instance, extensive commissioned research and external funding of targeted research projects present challenges to the research environment that may affect efforts to promote research integrity. Furthermore, funding opportunities are often correlated to the number of articles already published, and thus posing pressures on quantity of output rather than on quality. Closely related to our working hypothesis, our main focus is on *publication-related misconduct*. This category include practices such as the following: to accept, mandate or allocate authorship based on criteria other than significant contribution to a scientific work (gift authorship), to deny or omit authorship despite significant contribution in a scientific work; to break up or segment study results into two or more publications to boost publication credits, at the expense of scientific quality (salami slicing), to create the impression of having consulted a source by copying others' citations; and to include irrelevant or unnecessary references in a publication in order to increase the citation frequency of a colleague, a research environment or a journal.

Good publication practices include rules for authorship and cooperation, and refer to basic principles such as respect (for colleagues), honesty and transparency. International guidelines for authorship (e.g. the recommendations defining the role of authors and contributors) require authors to have made active and substantial contributions to an article.<sup>7</sup> There are, however,

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<sup>7</sup> <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

differences between the various disciplines. In medicine and most of the natural sciences, it is common to have numerous co-authors, whereas in the humanities a single author is still the norm.

We (the project group) tentatively assume that pro-active measures may be essential in order to improve scientific integrity. Research institutions may face the need to ensure that the training is improved and promotes a research culture, which encourages discussions of ethical issues related to research practices. They may also critically have to address perverse incentives, such as a too high publication pressure. The role of funders is also crucial in this regard. This project is designed to flesh out more concrete recommendations in these matters, and substantiate them with empirical data from Norwegian research practices.

### Research questions in the project:

- 1) What is the extent of – and attitudes towards - research misconduct, focusing on questionable research practices?
- 2) How do research institutions deal with research misconduct?
- 3) How do research institutions work towards promoting integrity in research?
- 4) What systemic conditions contribute to promoting integrity in research?

### Methods and sample selection

The project consists of three methodological components:

#### 1. *Literature review*

Review of current literature on research integrity.

#### 2. *Quantitative study*

Questionnaires will be distributed to the scientific employees/staff at all Norwegian universities, university colleges and research institutes.

#### 3. *Qualitative study*

Qualitative methods such as semi-structured interviews and focus groups will be conducted with a sample of relevant actors in the Norwegian research environment and R&D institutions.

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### Sample selection:

Data will be collected from all Norwegian universities, university colleges and research institutes. A total of approximately 30,000 researchers will receive an electronic invitation to participate in the survey. This number more or less totals the number of all academic researchers in Norway. The sample selections in the other follow-up studies will include:

- 1) Scientific employees (including Ph.D.-candidates)
- 2) Leaders
- 3) Research administrative employees
- 4) Members from Research ethics committees and integrity offices

### Dissemination

#### 1) *Report*

A report will be made available in English and Norwegian, summarizing the findings of the study.

#### 2) *National seminar*

The results of the study will be presented at a national seminar intended for research institutions.

#### 3) *International publications*

Several co-authored papers will be submitted for publishing in acknowledged international peer-reviewed journals.

#### 4) *International conferences*

Dissemination is also planned at several conferences, primarily the APRI Conference 2018 in Taipei<sup>8</sup>, and the 6th World Conference on Research Integrity in Hongkong, 2019<sup>9</sup>

#### 5) *Video*

A short video presentation (approx. 8 min.) will be produced for online dissemination, given additional funding sources.

#### 6) *Follow-up*

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<sup>8</sup> <https://www.apri2018.org>

<sup>9</sup> <https://www.nrin.nl/agenda/wcri-2019/>

The project results will serve as a foundation for further work in building positive environments of research integrity within the different institutions.

### Timeline and work schedule (revised in January 2018)

	Autumn 2015	Spring 2016	Autumn 2016	Spring 2017	Autumn 2017	Spring 2018	Autumn 2018
Establish project	x						
Establish working group, steering group, and reference group.	x						
Have meetings, working group		x	x	x	x	x	x
Have meetings, steering group		x	x	x		x	x
Have meetings, reference group			x		x (electronic)	x	
Hire researcher			x			x	
Seek external funding	x					x	
Develop project plan	x	x	x	x	x	x	
Do literature review			x	x			

Create survey questionnaire				x	x		
Notify the Data protection official for research (NSD)				x			
Conduct survey data collection						x	
Conduct qualitative interviews							x
Do analyses						x	x
Disseminate						x	x
Report							x
Present at national seminar							x
Present at conferences						x	x
Produce video							(x)
Write international publications						x	x
Follow-up							---->



## Notification to the Norwegian Data Protection Official for Research

As personal data will be collected (manual systematization of sensitive data, sorted by name) the project is subject to notification. A notification was submitted and approved during the spring 2017. A delay notification has since been sent and approved.

## Project organisation and management

The project is a collaborative research project between the University of Bergen (UiB), the Norwegian National Research Ethics Committees (FEK), and the Western Norway University of Applied Sciences (HVL). The project has a steering group, a working group, and a reference group.

### Working group:

#### *Composition:*

Professor Matthias Kaiser (UiB) (PI = Principal investigator)

Professor Ole Bjørn Rekdal (HVL)

Director NENT Helene Ingierd (FEK)

Professor Johs Hjellbrekke (UiB)

Communication Officer Ingrid S. Torp (FEK, since 2017)

Project researcher Laura Drivdal (UiB, replacing Lise Augustson, 2016-2017)

Secretary: Senior adviser Heidi Skramstad (HVL)

#### *Mandate:*

The working group will be in charge of progress in the planning, execution, and dissemination of the project.

#### *Work:*

The PI will guide the work of the employed researcher (Laura Drivdal, replacing Lise Augustson), and all the group members will actively participate in developing the questionnaire for the quantitative study, and later the research protocol for qualitative studies, as well as carry out the analyses and interpretations of the data. The working group will further collectively participate in writing reports and papers for publication. All outreach and publications will follow standards of authorship, and mutual agreements in this regard will be sought in an early phase of the project development.

The working group reports to the steering group through the PI.

### Steering group

#### *Composition:*

Pro-Rector Margareth Hagen (UiB)

Pro-Rector Gro Anita Fonnes Flaten (HVL)

Senior Adviser Torunn Ellefsen (FEK)

Observer: Principal investigator Matthias Kaiser (UiB)

Secretary: Senior Adviser Heidi Skramstad (HVL)

#### *Mandate:*

The steering group will oversee the project and assure

- that the agreed project goals and plans are properly administrated
- that the budgets are held and managed according to the project outlines
- that the project is properly funded
- a broad and adequate dissemination of the project results
- consider the need for changes in the composition of the reference group and the working group .

### Reference group

#### *Composition:*

Jan Helge Solbakk (Medicine, UiO)

Aslaug Nyrnes (SEKKK, HVL)

Torkild Vinther (FEK)

Vidar Enebakk (FEK)

Anne Marit Blokhus (Chemistry, UiB)

Kristin Hinna (The Norwegian Association of Researchers, HVL)

Ingrid Ballo (PhD Candidate, UiB)

Svein Nordenson (SINTEF, NENT, FFA)

Ole Andreas Rognstad, (Law, UiO)

Observer: Principal investigator Matthias Kaiser (UiB)

Observer: Laura Drivdal (UiB)

Secretary: Senior Adviser Heidi Skramstad (HVL)

### *Mandate:*

The reference group will act as advisor for the working group, and

- contribute in developing study design, analysis, interpretations, and the dissemination
- discuss the theoretical framework for research ethics
- suggest strategies to the institutions on how to promote research integrity
- promote the study within their own networks.

### *Work:*

The reference group will advise the working group throughout the project. The work within the group will be based on dialogue and it will not be required for the group to reach consensus or common views. The group will not have authority in decision-making, but its voice will be heard in all relevant matters. Members are free to individually suggest topics for consideration. The group will meet once or twice annually, and communication via email or phone may be the rule (due to financial limits). Members could also be contacted individually if their field of competence is needed.

The reference group decided not to elect a chair or speaker, but act as a collective.

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