Research Environments and Research Integrity: An Educational Scenario by the EnTIRE project

Background

Doctoral and postdoctoral researchers (n = 100) working in the Faculty of Biomedical and Applied Health Sciences at the University of Lumen in the Netherlands between 2017 and 2020 were invited to answer a questionnaire about their knowledge, attitudes and actions related to authorship misconduct. The questionnaire was designed and implemented by a team of four Assistant Professors in the Faculty of Biomedical and Applied Health Sciences.

The results of the questionnaire showed that the majority of early-career researchers in the Faculty of Biomedical and Applied Health Sciences had attitudes that were not consistently in line with the ethical norms governing authorship practices. In addition, the majority of doctoral and postdoctoral researchers were aware of repeated authorship misconduct committed by at least three of the Faculty's most senior academics. A smaller yet significant number of the researchers reported feeling pressurized to commit authorship misconduct and, of those who felt pressurized, the majority admitted to having personally committed such misconduct.

Issue 1

Half of the respondents were uncertain about whether the Faculty had written guidelines for research integrity. Of the remaining respondents, 25% believed that the Faculty did not have such guidelines. At the same time, the majority of early-career researchers did not believe that the Faculty adequately promoted research integrity.

Although there is no explicit mention of research integrity on the Faculty's webpage or intranet, the University's website refers to its own code of conduct as well as the European Code of Conduct for Research Integrity produced by ALLEA. Furthermore, it

references a university-wide "Academic Integrity Complaints Procedure" as well as a Research Integrity Committee, details of which, however, cannot be found on the university's public webpage.

1. Questions for Research Integrity Officers and Research Administrators

1. In light of the results of the questionnaire, which person(s) or groups could be responsible for the early-career researchers' general lack of knowledge concerning the university's research integrity guidelines, codes of conduct and complaints procedures? What are the reasons for your answer?

2. In what ways could the University of Lumen make its research integrity standards, guidelines and processes more visible to its early-career researchers? What initiatives could be facilitated within the Faculty of Biomedical and Applied Health Sciences in order to engage doctoral and postdoctoral researchers with the university's research integrity standards, guidelines and processes?

3. Thinking about the ways in which your institution currently engages early-career researchers with its research integrity standards, guidelines and processes, what could be done to improve such engagement at both the university and faculty/department levels?

Issue 2

The results of the questionnaire showed that the majority of doctoral and postdoctoral researchers in the Faculty were aware of cases of authorship misconduct. In particular, despite the fact that they did not provide any identifying information, a significant number of participants claimed that authorship misconduct had been committed on several occasions by at least three of the Faculty's most senior academics.

After analyzing the results, the Assistant Professors who facilitated the questionnaire decided to provide all the participants with an additional survey. For those early-career researchers that initially reported being aware

of potential cases of authorship misconduct, they were asked to provide their reasons for not reporting these cases to the university's Research Integrity Committee. For those that claimed not to have witnessed authorship misconduct, they were asked whether they would report such cases if and when they witnessed authorship misconduct being committed by a senior academic. When a participant claimed that they would not partake in "whistleblowing", they were asked to provide their reasons.

A minority of the doctoral and postdoctoral researchers in the Faculty claimed that they would not report potential cases of authorship because they were not aware of the Faculty's policies or procedures regarding research misconduct. However, for the majority of participants who claimed that they would not engage in whistleblowing activities, the reasons provided were subsumed under one of two categories: 1) academic seniority; 2) negative consequences.

In terms of academic seniority, a common reason was the belief that reporting would not lead to any genuine or desirable changes because the participants believed that powerful, senior academics were protected by their research networks and institutional structures. Furthermore, seniority was not only perceived to affect the reporting of alleged misbehavior, it was also acknowledged to contribute to such behavior with a significant number of early-career researchers in the Faculty reporting feeling pressured to commit authorship misconduct.

In terms of negative consequences, the majority of participants claimed that because they were only temporarily employed or funded by the university, they did not feel that reporting misconduct would be in their best interests. For example, some feared retaliation. Others feared the effects whistleblowing would have on their career development and employment opportunities. Others still were concerned that it would hamper their relationships with permanent academic members of staff.

2a. Questions for Researchers

1. Is whistleblowing the only means for monitoring research misconduct? What other reasonable means could be employed to draw attention to misconduct?

2. Why would under-reporting of research misconduct cases in a particular institution potentially contribute to a rise in that institution's misconduct rates?

3. If you witnessed a colleague committing research misconduct, would their professional or employment status, power or reputation affect whether you reported the incident or not? What are the reasons for your answer? What protections, assurances and/or incentives would need to be provided for you to feel comfortable in reporting research misconduct?

2b. Questions for Research Integrity Officers and Research Administrators

1. Why would using whistleblowers as the sole monitors of misconduct likely be a key factor for significant under-reporting of research misconduct cases?

2. Is whistleblowing the only means for monitoring research misconduct? What other reasonable means could be employed to draw attention to misconduct?

3. Why would under-reporting of research misconduct cases in a particular institution potentially contribute to a rise in that institution's misconduct rates?

4. In what ways do your own institution's reporting procedures empower less powerful members of the research community (i.e. doctoral and postdoctoral researchers) to report scientific misbehavior? What rewards and support does your institution offer to those who appropriately bring violations of research integrity to your attention?

5. In what ways could your institution's research integrity training courses and guidelines be revised in order to protect researchers from the potential negative consequences of reporting misconduct as well as provide assurances that reporting will be taken seriously?

Issue 3

The results of the first questionnaire showed that a significant number of doctoral and postdoctoral researchers in the Faculty had reported feeling pressured to commit authorship misconduct. Of those who felt pressured, the majority admitted to having personally committed such misconduct.

Following the dissemination of the results of the questionnaire to all staff within the Faculty of Biomedical and Applied Health Sciences, the Dean of the Faculty called a meeting with all the early-career researchers who took part in the questionnaire. The Assistant Professors who designed and facilitated the questionnaire were also in attendance.

According to the Assistant Professors, the Dean gave a 30-minute talk, with no room for interaction or discussion, aimed at "discouraging our early-career researchers from behaving badly". The Dean framed his talk according to the "rotten-apple argument", claiming that the authorship misconduct that had occurred in the Faculty was a product of the individual behavior and characteristics of those doctoral and postdoctoral researchers involved. Thus, according to the Dean, the postdoctoral and doctoral researchers that had committed and/or felt pressurized to commit authorship misconduct were individually responsible.

Following the meeting with the Dean, a significant number of postdoctoral and doctoral researchers in the Faculty, having discussed the Dean's talk amongst themselves, arranged an informal chat with the Assistant Professors who designed the questionnaire. The early-career researchers argued that the Dean had misrepresented the problem. Although they acknowledged that it was likely that some of their colleagues and peers may have committed authorship misconduct in light of their own personal aspirations and ambitions, they argued that the high incidence of pressure toward authorship misconduct indicated that this was an environmental problem more than an integrity problem with individual early-career researchers. When the Assistant Professors asked the early-career researches in attendance why they believed it to be an environmental issue, several reasons were provided, with many of the attendees sharing the same reasons:

1) They claimed that insecurity linked to short-term contracts and scarce

opportunities for professional advancement meant that they perceived the incentives to *succeed* in academia as outweighing the incentives to comply with the norms of authorship practices;

2) They claimed that they had been pressurized to generate more and more scholarly outputs. Indeed, one postdoctoral researcher informed the group that her line manager had continuously reminded her that she could be replaced if she didn't meet expectations. Not only did this pressure force her to commit authorship misconduct, but it meant that she did not feel safe enough to be open or transparent about her mistakes. Others claimed that pressure not only came from within the Faculty, but also as a result of the culture of "publish or perish" that governed academia;

3) Because they had witnessed repeated authorship misconduct committed by at least three of the Faculty's most senior academics, the early-career researchers not only argued that the university's research integrity standards were unfairly applied, they perceived that senior academics were benefitting significantly from wrongdoing.

3a. Questions for Researchers

1. In attempting to address the related problems of authorship misconduct and the pressure to commit authorship misconduct, was the "person-centered" approach adopted by the Dean of the Faculty a sufficient response? What are your reasons?

2. Do individual faculties, departments and research communities have responsibilities to self-regulate the quality of the research being produced in these contexts? What initiatives could your faculty, department or research community facilitate to prevent opportunities for misconduct?

3. Thinking about the reasons why the postdoctoral and doctoral researchers in this scenario felt pressured to commit research misconduct, how might the aforementioned environmental factors (1 to 3 above) affect the ways in which you might support a potential doctoral student or postdoctoral researcher in your faculty or department?

3b. Questions for Research Integrity Officers and Research Administrators

1. "Rather than appealing to individuals to take responsibility and relying on sanctions to keep them in line, research integrity policies should pay more attention to power imbalances, group pressure and performance pressure within individual universities and their departments". Discuss.

2. How could individual faculties and departments within your institution self-regulate the quality of the research being produced in these contexts in order to prevent opportunities for research misconduct?

3. Rather than relying on whistleblowers, how could your research integrity office assume a more active role in identifying potential cases of research misconduct? What initiatives could your office facilitate to monitor those psychological and organizational features of individual faculties and departments that normalize misbehavior?

4. What could your institution's research integrity office do to assure early-career researchers, including doctoral students, that its research integrity policies and procedures are applied fairly, regardless of a researcher's seniority or reputation? How could your office support early-career researchers to not give in to cultural pressures to commit research misconduct?

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Resources

The scenario, its issues and questions have been informed by the ideas and arguments put forward in the following publications:

Bonn, N.A., and W. Pinxten. 2020. Rethinking success, integrity, and culture in research (Part 2) — A multi-actor qualitative study on problems of science. *BioRxiv* 2020.02.12.945899. doi: 10.1101/2020.02.12.945899.

DuBois, J.M., Anderson, E.E., Chibnall, J., Carroll, K., Gibb, T., Ogbuka, C., and T. Rubbelke. 2013. Understanding research misconduct: a comparative analysis of 120 cases of professional wrongdoing. *Accountability in research* 20(5-6): 320-38. doi: 10.1080/08989621.2013.822248.

Hofmann, B., and S. Holm. 2019. Research integrity: environment, experience, or ethos? *Research Ethics* 15(3–4): 1-13. doi: 10.1177/1747016119880844.

Horbach, S.P.J.M., Breit, E., Halffman, W. et al. 2020. On the willingness to report and the consequences of reporting research misconduct: The role of power relations. *Science and Engineering Ethics*. doi: 10.1007/s11948-020-00202-8.

Horbach, S.P.J.M., Breit, E. and S. Mamelund. 2019. Organisational responses to alleged scientific misconduct: Sensemaking, sensegiving, and sensehiding, *Science and Public Policy* 46(3): 415-29. doi: 10.1093/scipol/scy068.

Redman, B.K. and A.L. Caplan. 2017. Improving research misconduct policies. *EMBO rep* 18: 511-14. doi: 10.15252/embr.201744110.