Practicing Integrity

Exploring Research Integrity in Denmark

#researchintegrity

Edited by Rachel Douglas-Jones and Susan Wright

Practicing integrity

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CENTRE FOR HIGHER EDUCATION FUTURES

Contents

Introduction

The Life of the Danish Code of Conduct for Research Integrity

How do researchers bring research integrity to life? This was the question that we, the authors of this booklet, pursued between 2017 and 2019. Following the publication of the *Danish Code of Conduct for Research Integrity* in 2014, the Danish Ministry for Education funded three projects to investigate how the Code is operating in practice. This booklet arises from the ethnographic results of one of these projects, *Practicing Integrity*.

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Practicing Integrity was based at Aarhus University's Centre for Higher Education Futures (CHEF),[1] which is researching universities' internationally transforming mandates and thinking critically about the future organization of higher education institutions. For this two-year project, CHEF worked with the ETHOSLab at the IT University of Copenhagen and benefitted from its expertise in analyzing digital policy spaces.

Our research project asked why the policy focus on research integrity had emerged and how new demands and norms of codes of conduct for research integrity are ingrained in academic practice in universities and university colleges

organisationally (by leaders, managers, supervisors)
institutionally (in the education of early career researchers)
individually (in navigating the day-to-day incentives and pressures of academic research)

Across these different scales, we participated in training courses, interviewed practitioners, and convened events with our Advisory Board, trainers, other researchers and policy makers. Research integrity exists as policy, but to follow policy into the spaces where it is enacted required talking with other researchers, teachers and students, managers and leaders. Their voices are central to the stories we tell here.

The Emerging Field of Research on Research Integrity

Over the last decade, an increasing number of organisations and networks have been dedicated to supporting institutions in promoting research integrity. There has been a proliferation of documentation, training courses and procedures formalizing research integrity.

Research Integrity is a broad term, and has been defined variously in different stages and places. The activities that fall under research integrity span from plagiarism and publication ethics to advice on everyday life in research. Some definitions of the term are focused on individual conduct: 'a commitment to intellectual honesty and personal responsibility for one's actions', and 'an aspect of moral character' (National Academies of Science, USA 2002).[2] Others foreground scientific ideals, the creation of a culture of good conduct, and institutional responsibilities.

The collaborative work being undertaken under the banner of research integrity focuses on identifying and investigating problems in research practices, creating means of addressing research integrity, and deciding processes for handling allegations of misconduct. Cases concerning research integrity range from serious complaints of falsification, fabrication and plagiarism (FFP) to the 'everyday' questionable research practices (QRP), which some argue have an equally compromising effect on research. Spanning the courtroom to the classroom, the field is growing.

Research Integrity in Denmark

Denmark was an early adopter of processes to handle misconduct in research, Committees on Scientific Dishonesty (*Udvalgene vedrørende Videnskabelig Uredelighed*) were created in the early 1990s, which later became the Danish Committee on Research Misconduct (*NVU*). Today, Denmark distinguishes between matters that are dealt with by this national committee and issues that universities may handle.

Matters of research misconduct, defined as Falsification, Fabrication and Plagiarism (FFP) are reported to the Danish Committee on Research Misconduct (NVU) by the research institution. This national independent committee has a High Court judge as a chairperson and 8–10 recognized researchers representing different disciplines.[3]

Questionable Research Practices (QRP), defined as the violation of generally accepted standards for responsible research practices, are managed internally within institutions, which are required to publish guidelines for how cases will be processed. Many also set up "Practice Committees", which are required to provide annual reports and are the first assessors of institutional cases. They decide whether a case concerns Falsification, Fabrication and Plagiarism needing assessment by the Danish Committee on Research Misconduct or whether it should be dealt with by the university.

Policy work promoting *research integrity* nationally is the responsibility of the Danish Agency for Science and Higher Education. The Agency

> *"provide[s] the research community with a framework to promote commonly agreed principles and standards. The Code of Conduct aims to support a* ***common understanding*** *and common culture of research integrity in Denmark." (UFM 2014:4, emphasis added)*

A key aspect of the Danish code is that it states on several occasions that it "will only gain full impact when **researchers adhere** to the document and when public and private **research institutions integrate** the document in their institutional framework" (UFM2014: 5, emphasis added).

As such, institutions are asked to integrate the Danish Code into their organisation. The form that this integration has taken is one focus of our research.

About this booklet

Our project's workshops and conference revealed that there is considerable interest in research integrity among not only students, teachers and researchers, but administrators, managers and policy makers. As a follow-up to the project, we have initiated a group 'Higher Education Policy and Practice' (HEPP)[4] under the auspices of the Danish Network for Educational Development in Higher Education. This group creates a basis for continuing discussions and new collaborations between all these different participants in the field of research integrity.

This booklet is designed to be both informative and useful. It contributes to the formation of the HEPP, not only by accessibly sharing findings from our research, but also by posing questions that can be taken up in different institutions across the country. Each section asks questions that people teaching and administering research integrity can ask – of themselves and their students and colleagues. We pose them here for institutional discussion, and invite members of the HEPP to use these questions as starting points for conversations across different parts of university life.

The Chapters

Each chapter of this booklet provides a summary of our research: from how institutions have responded to new requirements, to what happens in the classrooms where research integrity is taught and what use doctoral candidates make of this training in their everyday lives as researchers. The chapters cover both policy and practice, following the Danish Code of Research Integrity into management and classrooms. These efforts in Denmark are contextualized within the World Conferences on Research Integrity, demonstrating research integrity's international scope.

Each chapter ends with a set of questions, intended for discussion in groups. Questions in Chapter 1, Chapter 2 and Chapter 3 are aimed at those administering research integrity; Questions in Chapter 4, Chapter 5 and Chapter 6 are aimed at those researching and teaching research integrity, and questions in Chapters 7 and 8 allow for conversations between students, faculty and administrators.

Notes

1 The Centre for Higher Education Futures, CHEF http://edu.au.dk/en/research/chef/
2 National Academy of Sciences (NAS, USA). 2002. Integrity in Scientific Research: Creating an Environment that Promotes Responsible Conduct. Washington, DC: NAS.
3 European Network of Research Integrity Offices, ENRIO http://www.enrio.eu/news-activities/members/denmark/
4 https://dun-net.dk/sigs-special-interest-groups/hepp-higher-education-policy-and-practice/

Gephi Visualization of the #researchintegrity dataset, using the ForceAtlas2 layout algorithm. Prior to label application

Research Integrity: A Policy History

How was research integrity turned into a subject to be addressed by policy? Since 1989, research integrity has appeared in many different policy documents – as listed in the next section. Through these documents, it is possible to see the different institutions and actors that have taken part in problematizing research integrity and suggesting solutions.

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In our analysis, there are four primary reasons policy makers pay attention to research integrity today:

1. Notorious scandals of research misconduct in USA and Europe meant integrity became of paramount importance for public trust in science, scientists and their institutions. This tied the conduct of research to public funding of science.
2. Increases in international collaboration have required greater explication of local norms of science and shared professional standards of research merit and practice.
3. Scientific methods have changed, with new opportunities for open data sets and transparency. A 'reproducibility crisis' in science has focused attention on integrity in scientific methods.
4. There was concern that the incentives and pressures of new governance systems might lead academics to engage in not only severe breaches (such as fraud or falsification) but more everyday questionable research practices 'QRPs'.

Not only has research integrity become a new area for policy makers; it has seen the growth of new professionals ranging from academic experts operating on a global scale, to university administrators specializing in the legal and educational domains, support workers acting as a local contact point for researchers to share concerns, and networks of teachers of new research integrity courses.

If policy is a 'window through which to see processes of political transformation' (Wright 2006: 22), then research integrity policies are influential in re-shaping what research is, and who has a stake in how it is done. Our review tracing the policy of research integrity (Douglas-Jones and Wright 2017) shows that its history can be divided into four phases.

Phase 1. USA 1970s: Falsification, Fabrication and Plagiarism (FFP)

Between 1974 and 1981, twelve cases of research misconduct were heard by the Investigations and Oversight Subcommittee of the House Science and Technology Committee in the United States. These cases came from medical and clinical research and caught the attention of the U.S. Congress and U.S. public.

Records from the time show that the mood was deeply adversarial, with talk of betrayal and deceit. Scientists saw 'integrity' as a way to keep responsibility for scientific conduct in their own hands, rather than ceding it to politicians. The National Academies of Sciences (NAS) produced publications in 1989, 1992, 1993, and 2002, by which time integrity was framed as necessary to maintaining public support of science.

Phase 2. "Integrity Outreach"

From 2000, the Research on Research Integrity (RRI) programme met regularly in the United States, but it was not until 2007 that a collaboration with the U.S. Office for Research Integrity and the European Science foundation was set up. The key actors, Nicholas H. Steneck and Tony Mayer, described this collaboration as a 'modest effort to expand a U.S. Office of Research Integrity outreach programme to Europe' (Mayer and Steneck 2011: v)

After the 2007 collaboration, the European Science Foundation and the U.S. Office of Research Integrity issued a joint *Science Policy Briefing*. The document emphasizes a 'global responsibility to foster common standards', and argues that increased globalisation of research presents new challenges for promoting integrity.

Phase 3. Global Developments

In the fields of Research Ethics and Bioethics, adjacent to research integrity, there exist a series of texts thought of as foundational. These texts travel widely, are cited and used as templates for further, localised development. Within (predominantly biomedical) research ethics, there is the *Belmont Report* (1979) in the U.S., the Declaration of Helsinki (World Medical Association 2013 [1965]) and the UNESCO *Declaration on Bioethics and Human Rights* (2005). What equivalents exist for this younger field of research integrity?

The *Singapore Statement on Research Integrity* (2010), created at the second World Conference on Research Integrity has emerged as an equivalent 'foundational document on a global scale' (Science Europe Roadmap 2013: 21). The World Conference series has itself been influential, providing a space for professionals, industry and researchers to convene.

Phase 4. European Initiatives

In 2011 the European Science Foundation (ESF) and European Federation of Academies of Sciences and Humanities (ALLEA) issued the *European Code of Conduct for Research Integrity*. This offered European researchers a foundational text, although, the aim of the initiative was not to create identical programmes in each European country. As the Commission noted in 2017 when the Code was revised, they support the take-up of the Code at *national* level, seeing it as a 'model for researchers and organisations and researchers across Europe' (EC 2017).

The revised 2017 version of the ALLEA code was used by the EU's Horizon2020 research strategy and all projects were required to abide by it. The European Commission provided a range of funds to support the development of research integrity initiatives under the H2020 programme.

Questions for Discussion: Research Integrity in your Institution

- How does our university handle questions of integrity in international collaborations?
- Is it desirable or possible to aim for standardization and a global agreement on research integrity? Why? / Why not?
- How does integrity re-establish public trust in research following a scandal?
- Maura Hiney, chair of the Working Group on Integrity under the ALLEA Permanent Working Group on Science and Ethics has said that “like research ethics which came before, has been more absorbed, Research Integrity also needs to become absorbed into the thinking of researchers and the institutions that employ them as an integral way of practicing their business” (cited in Zöller 2018). Do you agree? How might that happen?

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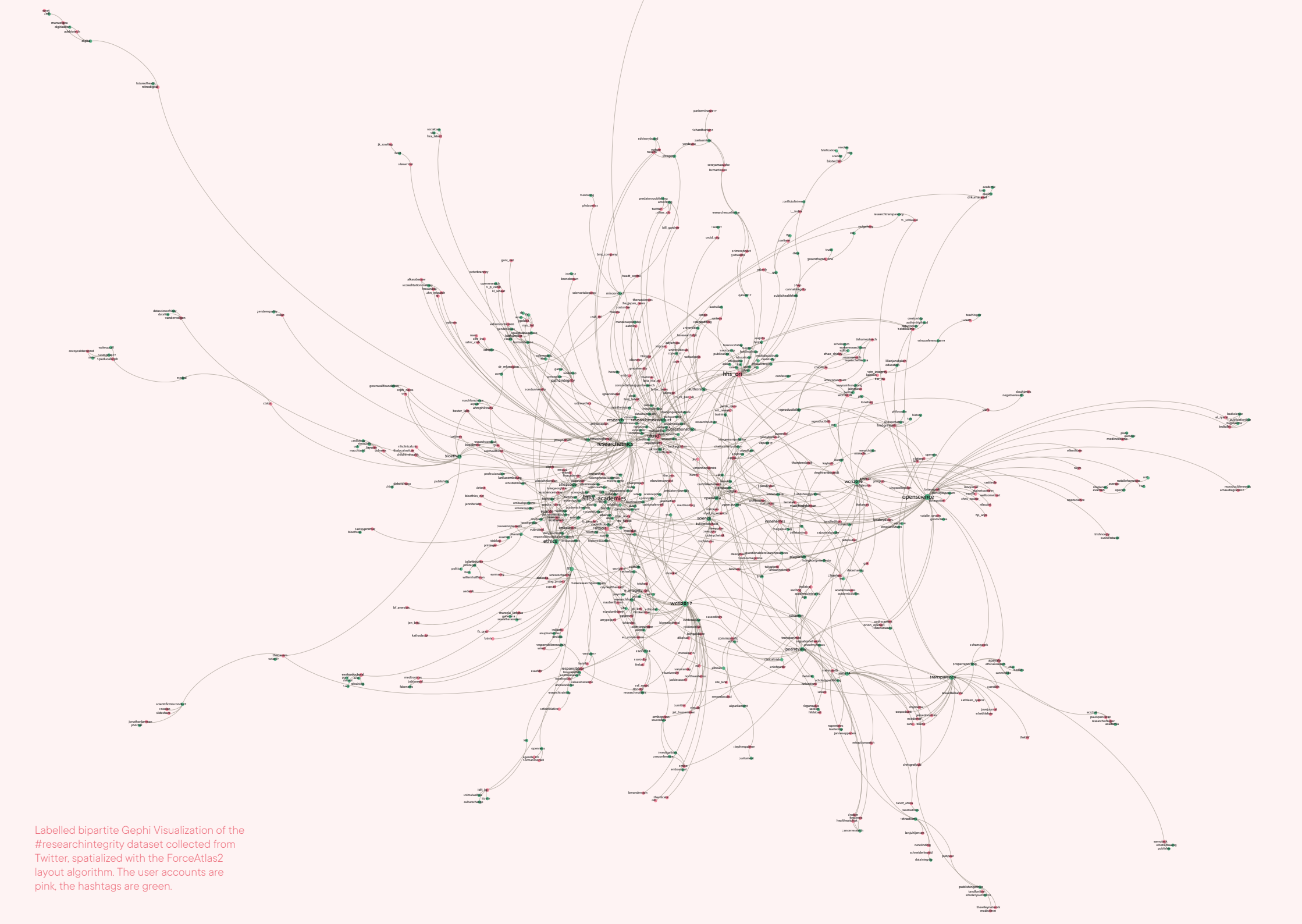

Labelled bipartite Gephi Visualization of the #researchintegrity dataset collected from Twitter, spatialized with the ForceAtlas2 layout algorithm. The user accounts are pink, the hashtags are green.

#researchintegrity

What does it mean to follow Research Integrity online? In February 2017, using the Twitter Capture and Analysis Toolset (TCAT) we began to collect and store all the Tweets using the hashtag #researchintegrity. By following research integrity into digital spaces, we aimed to record the international conversations happening digitally and map any controversies. By June 2019, we had collected and stored 4054 tweets written by 1775 distinct users of Twitter.[1] The figures suggested that there are many different users but few tweet about research integrity *all the time* – they are usually prompted to do so by certain events.

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The relatively small number of tweets meant we could both use Gephi software to make graphs and visualize the material and we could read them and analyse them qualitatively. We asked questions about who uses the research integrity 'Twitter space' – and is it characterized by accusation, dilemma or confession? Does the growing industry in trainings and online devices use it as a sales space? In the light of the our ethnographies of training courses (chapter 5) we asked who is made responsible for research integrity in these tweets and are there tensions between institutional and individual responsibility?

Who is Tweeting?

The users were primarily those with accounts for funding mechanisms or research projects on research integrity in Europe, such as the EU's research funding programme Horizon 2020, along with projects it has funded. For example the Embassy of Science and Research on Research Integrity Tools made active Public Facing use of social media. Representatives of such projects were often found at the World Conference on Research Integrity, with Twitter being seen there as a space of outreach to researchers.

Policy Actors

Official professional European organisations concerned with advocacy and making policy on research integrity in Europe are prominent in Twitter space. There is a cluster including Science Europe, ALLEA (All European Academies of Sciences and Humanities) and @Moedas, which is the account for Carlos Moedas, the former European Commissioner for Research, Science & Innovation (2014–2019). These organisations take the lead on research integrity in Europe. Alongside policy publications and physical presence at events, these organisations clearly treat digital presence as an important component in raising the profile of research integrity.

Institutional Connections

The *Practicing Integrity* project pointed to variations that occur when policies are taken up by different institutions (Chapter 4). The Gephi graph shows the United Kingdom as a distinct cluster reflecting national collaboration between institutions and colleagues. The UK cluster makes visible the role of government, including the UK's Science and Technology Committee, a cross party committee of members of parliament that scrutinizes the UK government, and international publishing institutions such as the British Medical Journal and the Committee on Publication Ethics. Their presence in the dataset means that research integrity reaches the highest levels of professional and government concern. For example, parliament's Science and Technology Committee used the hashtag to call for public responses to their 2017 Inquiry into 'fraud, misconduct and mistakes in research and the publication of research results' (Science and Technology Committee 2017).

The U.S. is also primarily present in the dataset through government voices. The Office of Research Integrity (ORI) is relatively quiet considering their significant role in bringing research integrity to Europe, and their support of the World Conferences on Research Integrity. The U.S. National Academies of Science, which produced landmark documents on research integrity, are separate from the ORI – indicating that the two institutions do not mention each other, at least not when using the #researchintegrity hashtag.

Publishers

The publishing industry's financial sponsorship of the World Conference on Research Integrity demonstrates their concern with the topic. The above figure shows a cluster around editors, representatives of publishing houses and institutional impact service consultants. Hindawi, an open access publishing house, employs Matt Hodgkinson as Research Integrity officer and he actively links up the hashtag with academic researchers and organisations such as the Council on Publication Ethics (COPE). Similarly Elizabeth Bik, founder of Microbiomdigest and long-standing critic both of predatory publishing and image manipulation in science, links individual academics and academic journals to #researchintegrity through her account. Retraction Watch, which started in 2010, keeps track of journal retractions, and has links with the Centre for Open Science and the Centre for Scientific Integrity to "reduce waste in science and allow scholars to study the scientific literature in order to promote scientific integrity" (Centre for Open Science 2015).

Absences

Notably absent from this Twitter space are Universities, but their online focus is significantly broader. As a space, #researchintegrity on Twitter is predominantly solution oriented, full of initiatives. A few accounts attempt to invite discussion about dilemmas (e.g. the Embassy of Good Science @EmbassySci), but few take a confessional tone. Thus it is difficult to see tensions between institutional pressures and an individual sense of responsibility (or responsibilization) through the hashtag itself.

Questions for Discussion: Working with Academics who are on Twitter

- Do you see the #researchintegrity hashtag as a community, or a disparate set of interests? Does it help you better understand the breadth of meanings of 'research integrity'?
- Do you think researchers who Tweet at your institution would find content on research integrity relevant? How would you engage them, or direct their attention to relevant accounts?
- What risks do you perceive in starting conversations about research integrity online?
- Do you think the Embassy of Good Science has a role to play in prompting discussions about research integrity online?

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Notes

1 Due to technical issues, the server in the ETHOS Lab at the IT University of Copenhagen was down from 4th of July 2017 to the 14th of September 2017 and between the 18th of April and the 5th of June 2018, as well as the week of 27 October 2018.

Coding the World Conferences on Research Integrity

The biennial World Conferences on Research Integrity began in Lisbon in 2007 and have come to shape the international conversation about Research Integrity. The Conferences have published documents – such as the Singapore Statement, which set out shared international principles and responsibilities for research integrity and the Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations. The World Conferences on Research Integrity have professionalized and institutionalized the field and draw hundreds of delegates to discuss challenges and issues in research integrity around the world. Researchers on the *Practicing Integrity* project attended the Fifth and Sixth World Conferences on Research Integrity in Amsterdam (2017) and Hong Kong (2019).

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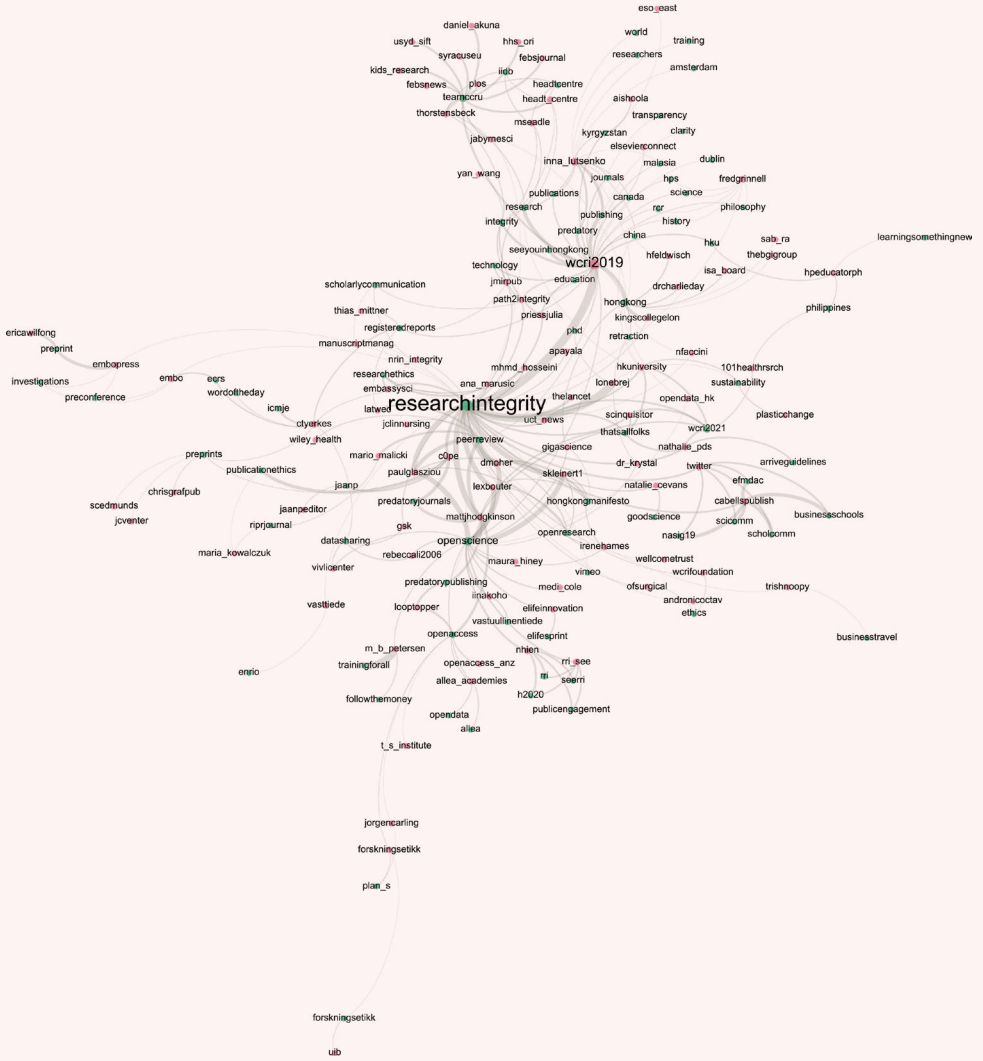
Asking Questions of World Conferences

Conferences are excellent sites to study the gathering of people and ideas and gain rapid insight into this global phenomenon and its leading issues of concern. Shortly after the Fifth World Conference in Amsterdam and during the Sixth World Conference in Hong Kong we collected tweets using the #WCRI2017 and #WCRI2019 hashtags in order to identify main themes emerging from the discussions. We also focused on those who tweeted more than 10 times during the conference to identify what kinds of people and organisations engaged with those hashtags. Combined with ethnographic presence at conferences, these modes of seeing the digital traces of a conference offer qualitative researchers new ways in to the social worlds of policy concepts such as research integrity.



Gephi Visualisation of the #WCRI2019 hashtag on Twitter, spatialized using ForceAtlas2.

Interests

Since the World Conferences receive funding from both governments and academic publishers, tweets reflected an intersection of corporate and academic interests.

Collective concerns

The #WCRI2019 twitter space was dominated by six main groups with distinct interests and concerns.

1. Most prominently, a group we called ‘concerned scientists’ who were mainly researchers concerned about reproducibility in science.
2. A rapidly growing group included employees of universities and journals who teach or administer research integrity and who manage research integrity initiatives.
3. A distinct group had developed a research interest in research integrity, although they may not be teaching it themselves.
4. Universities and organisations with an interest or set of initiatives concerning research integrity.
5. Publishers, ranging from the international to the relatively niche.
6. Activists concerned with safeguarding epistemics, particularly research practices and the publication mechanisms through which research passes.

The mix of people using the WCRI hashtag showed it was a massively international gathering. However, there was relatively little interaction between conference participants: like #researchintegrity, this hashtag was not used for a conversation.

Geography

The top tweeters were from the Philippines, Germany, Kyrgyzstan, Kenya, New Zealand, Denmark, USA, Australia, Norway, Hong Kong, UK, Croatia and South Africa – a truly global conference.

Absences

World Conference hashtags do a good job of demonstrating the breadth of interests at the foremost global forum for Research Integrity. But they do not illustrate the shifting emphases, and cannot capture the subtlety of misunderstandings that happen as practitioners, publishing representatives, and academics discuss new norms and initiatives within research integrity. For that, one must attend the conference!

Questions for Discussion: Keeping up with Research Integrity Initiatives

- Would you follow Tweets from the World Conference on Research Integrity if you could not attend?
- How do you find out about research on research integrity?
- In what parts of your institution would research on research integrity happen?
- Which areas of research integrity do you think are most important to focus on for your organization?
- Do you think European or World initiatives are relevant to the issues that researchers in your institution face? Why? Why not?

Institutions

The Organisational Translation of Research Integrity Policies

The Danish Code of Research Integrity asks universities and university colleges to make the code part of their own institutions. It states on several occasions that the code *'will only gain full impact when researchers adhere to the document and when public and private research institutions integrate the document in their institutional framework'* (Ministry of Higher Education and Science 2014).

Lise Degn

The individual research institutions across Denmark thus play a key role in implementing the code and translating its general guidelines into local practices:

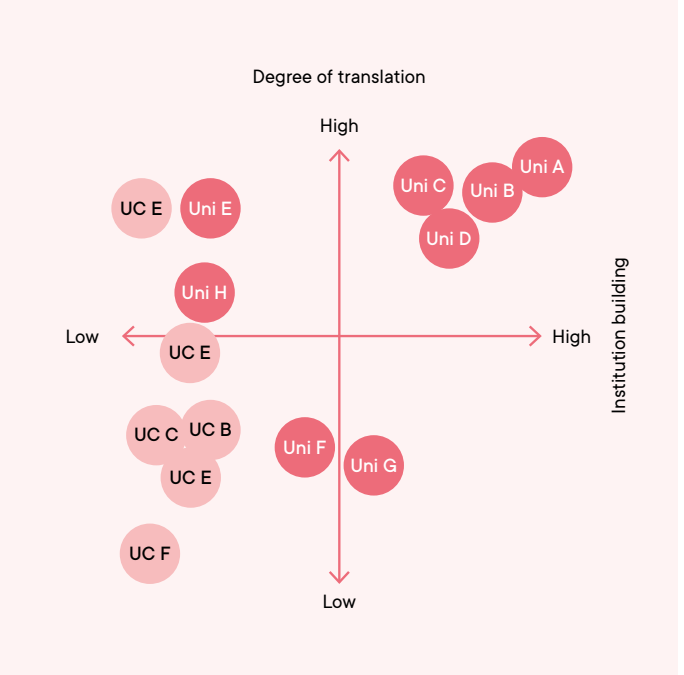
> *Thus, the standards are meant to be further developed by institutions in accordance with specific practices predominant within the individual field of research.[...] It is recommended that further specification, policies and procedures are developed at the institutional level. It is specifically recommended that institutions take responsibility for continually informing their research staff about policies and procedures that are in place at the institution (Ministry of Higher Education and Science 2014).*

How does this process play out? How do research institutions go about the task of translating and transforming general norms and guidelines into institutional procedures that are intended to shape day-to-day academic practice?

Methods for Exploring Institutional Translation

In our research, we explored how the eight Danish universities and seven university colleges were working to integrate the national code of conduct into their institutions.

- We collected the official policies, regulations and guidelines on research integrity that were available to employees in the fifteen institutions.
- We interviewed key academic and administrative staff who had been involved in the formulation and dissemination of these documents.
- We found that institutional translation is very much a 'work in progress', particularly for the university colleges. Some institutions see the organizational translation process as a formality, rather than something that impacts academic environments. This decoupling between academic 'needs' and demands for formality could lead to 'ceremonial implementation' of the code of research integrity.



The figure gives a visual representation showing how the translation of the Danish code into local versions played out.

The vertical axis shows how much an institution has adapted the code to their local context. The horizontal axis shows how much institutional infrastructure has been made around research integrity, e.g. permanent practice committees, dedicated training courses, and named contact persons.

Key Findings

Key findings include that even with the intense policy interest and the scandals in the Danish system, most department heads considered research integrity a 'nonproblem'. Research integrity was considered important, but as something which was most relevant and problematic for other departments, not their own.

Department heads saw institutional policies as important to demonstrate institutional awareness, but as less useful in a practical sense. National codes and institutional policies are rarely used actively by department leaders to make sense of the issue of research integrity. Integrity infrastructure (courses, advisors etc.) on the other hand were seen as more useful in day-to-day management.

Questions for Discussion: Translation in our Institution

- Do we have an overview of how research integrity is handled at our institution?
- Can we map who is involved – both people and offices?
- What kind of translation work have we done with the Danish Code?
- Were the right people involved in the translation?
- How have the policies and procedures been communicated?
- Does our institution treat research integrity as a process or a policy?
- How do we share responsibility for research integrity?
- What kind of training do we have at our institution, for students, staff and those who train teachers?
- Are codes useful in the everyday work of building and maintaining high integrity research cultures?
- Is research integrity a problem for us, or is it mostly a problem for others?

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In the Classroom

Early career researchers are often the focus of training in research integrity. PhD students, in their role as trainees are widely seen as capable of effecting change in their institutions. Discussions about training in research integrity are well attended at the World Conferences on Research Integrity, with participants paying close attention to techniques and styles of pedagogy.

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In the project, we aimed to explore how research integrity was manifested in courses for early career researchers. To keep the context constant, we chose four courses from different faculties of one university in Denmark, and joined the classes as participant observers. This meant that we participated in the class and engaged with both the students and teachers throughout a course. We also interviewed course managers, teachers and students. We read course materials, studied local policies and collected powerpoints and meta-presentations about the courses. We focused on the detail of how of ideas about research integrity were being taught.

We analysed these experiences, our field notes and interview transcripts using the concept of 'problem narrative'. A problem narrative is the way that research integrity is established as a problem to be addressed in the classroom. Different problem narratives give rise to different curriculums, teaching styles and intended learning outcomes. The courses also varied significantly between the four faculties in terms of design, pedagogy and whether they were compulsory, their length and whether ECTS were allocated. This variety reflected continuing negotiations between local course developers and teachers, faculty leadership and PhD school leaders.

Problem Narratives

At all four faculties, the teachers were confronted with the increased national and institutional concern about research integrity. They faced a highly complex task and carried massive responsibility in a context of variable institutional support. The analysis revealed marked differences between the problem narratives that underpinned the four courses.

1. Health

Prior to the course on research integrity in the Health faculty, participants were invited to fill in an anonymous online survey. They were asked whether they had lied or cheated in the past month. They were also asked if they considered themselves an honest, trustworthy person. Opening the course, the facilitator used the discrepancy in the answers (yes, they had lied, but yes, they considered themselves trustworthy) to point to participants' lack of awareness of their own roles as potential contributors to 'grey zone' practices. While the course was given high priority within the medical faculty, problems of research integrity were seen to reside in the individual, in their unconscious contributions to malpractice. In this course, the problem narrative was that "We are all unconscious small cheaters".

2. Social Science

The training in the social sciences faculty considered research integrity a problem of 'the system'. As they reviewed the meaning and context of research integrity, course leaders drew students' attention to a 'flawed system' of problematic incentives and valuation criteria, including the absence of institutional support for training. Invited speakers gave accounts of the integrity issues they have encountered, including the retraction of a paper. It was assumed within the course that many students would go on to engage in 'questionable research practices', simply to 'survive in the system'. The problem narrative of this course was therefore equipping students to navigate a "broken system of research", and realizing that issues of research integrity are systemic.

3. Humanities

The course in the humanities combined ethics and integrity, emphasizing the novelty of the integrity discourse in contrast to more established work on research ethics. Trainers reminded Humanities students that much of the literature about questionable research practices refers to standardized research designs that are not relevant to the kind of research humanities scholars undertake (see also Merimans 2018). This means that researchers are required to rely to a greater degree on individual and collective reflexivity to steer through the ethical implications of their work. In contrast with the social sciences training, the course did not focus on broader systemic issues or research incentives. Rather it stayed closer to dilemmas faced by all humanities scholars in their daily research practice. The problem narrative framed by trainers was that collective opportunities for reflexivity about ethical issues and research integrity were insufficiently developed in the humanities.

4. Natural Sciences

The Natural Sciences course focused on research integrity as part of the "societal responsibility" that they as researchers had to follow accepted research standards and procedures. It was framed as something that researchers could achieve, a "state of being" through transparency and reflexivity in all aspects of the research process. Students were given practical tasks like mapping their own research process and reflection on "the basic principles" of honesty, trustworthiness, openness and transparency. Students discussed initiatives to strengthen transparency, including Open Access, open archives and online lab books. While researchers felt the "natural state" of good science was one of integrity, the problem narrative was that responsibility for good science should be upheld and enhanced by following standard procedures.

Key Findings

Even if the problem narratives in the four faculties were remarkably different, the solution offered by the courses seemed surprisingly similar:

- While participants were informed about the institutional support that was available, all the courses (explicitly and implicitly) highlighted the responsibility of individuals and research groups for acting with integrity in their own local practice.
- All the courses used casework and group discussions to focus on everyday dilemmas in the belief that through "reflexivity", participants would be empowered to act responsibly, even when surrounded by "small cheaters" and dealing with "structural pressures" from an increasingly competitive research environment.
- There were great variations in the ways PhD students might find support beyond the end of the course to work out how to exercise reflexivity and act with individual responsibility in very complex research hierarchies.

Questions for Those Involved in Education Programmes

- What kind of problem narratives do our training programmes present to students?
- Are you aware of different problem narratives across the faculties in this university / university college?
- What are the consequences of the different framings of research integrity in our courses?
- Are our students expected to make changes happen institutionally? Are they expected to be proactive?
- Do the courses in our institution address structural pressures and issues of power and hierarchical relations?
- What follow-up do students receive?
- How are supervisors involved, if at all?
- Do our training programmes use the Danish Code of Research Integrity? How?

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PhD Students' Experiences

What happens after students participate in research integrity trainings?

Laura Louise Sarauw, Jakob Williams Ørberg, Lise Degn

We wanted to know how the early career researchers thought about what they had been taught, especially in the light of other policies, incentive structures and assessment systems shaping their research practice. Not many training initiatives have the resources to follow up on students, beyond perhaps a survey.

We asked between two and fourdoctoral-student participants from each of the courses if they would be willing to take part in interviews and email correspondence afterwards.

We asked questions that followed upon the training the particular student had attended.

- What did they think about the course itself?
- How did they encounter performance incentives and assessment criteria in their setting?
- What were the working conditions like in their research environment?
- How did they see scientific virtues, disciplinary cultures and (unequal) power relations playing out in their everyday life?
- Regardless of discipline, the doctoral students in our interviews generally experienced tensions between trying to be good researchers by positioning themselves in a competitive system with diverse forms of performance measurement, and trying to avoid non-compliance.

Key findings

Doctoral students did not perceive of themselves as capable of returning to their research environments and acting as 'agents of change'. They often located themselves at the bottom of a well-established hierarchical structure in relation to their supervisor or research team. The vision of changing university culture by means of research training for early career researchers – a vision found in international, national and institutional policies and strategies – is made difficult to realise by established structures and power relations.

Doctoral Students' Experiences

1. Disciplinary ideas about good research influenced doctoral students' practice and their interpretation of policy and codes. Students in the medical faculty considered integrity and disciplinary expertise as separate issues, so that they thought non-compliance with the integrity codes and guidelines would not influence their research results as long as they kept themselves away from Falsification, Fabrication and Plagiarism (FFP). In contrast, some humanities students saw integrity and ethics as not just a methodological issue but as integral to their whole research practice and identity.
2. Doctoral students we interviewed shared the sense that they were individually responsible for keeping themselves in compliance with the guidelines. Interviewees from all four courses were encouraged to be reflexive about their own research practice in order to avoid non-compliance. However, they were also left alone with the task of deciding between the ever-expanding meanings of integrity. Some saw this as stressful, others took it as an opportunity to define their own version of 'wrong' and 'right' conduct of research.
3. Many interviewees felt unsupported in navigating the tense situation between trying to be good researchers and positioning themselves in a competitive research system. Diverse forms of accountability, ways of measuring publication output and rankings, and evaluations of their CVs for career advancement often ran counter to principles of research integrity. Interviewees expressed frustration and even apathy in the face of university incentive structures. While courses and mentoring created awareness of the importance of research integrity and inspired some active engagement with research integrity norms and codes in early career researcher work, they largely did not prepare doctoral candidates for a future of active, reflexive academic citizenship.

Questions for Discussion with Academic Staff: How do our students experience research integrity?

- How do we follow up with our students after research integrity training courses?
- Do we expect students to change the research cultures they return to? Why? How?
- Do our supervisors and research leaders know about research integrity, and do they support students attending the courses?
- How are conversations about research integrity handled in our different schools or departments?
- Where in our university and nationally do we discuss contradictory incentive structures?
- How do we support students with continuing and active reflexive citizenship?
- What resources exist in our institution to help students “navigate” tensions between pressures to publish, pressures for long hours, pressures to get results and the incentives for fast work these lead to?

Questions for Discussions with Students: Experiences with Research Integrity

- Have you been required to take a research integrity course, or is it optional?
- Do you feel pressure to be a force for change in your department?
- What is the attitude of your supervisor to research integrity?
- Do you know who you would go to if you had a question about research integrity?
- What kind of contradictory incentives do you experience? How do you deal with them?

Understanding Pressures on Early Career Scholars

The structural conditions of knowledge production in the early twenty first century are felt keenly by researchers.

Sue Wright, Rachel Douglas-Jones, Laura Louise Sarauw, Lise Degn and Jakob Williams Ørberg

At the closing conference of *Practicing Integrity*, Göran Hermerén of Lund University and ALLEA Permanent Working Group on Science and Ethics asked "Do we expect researchers to be able to comply with all the rules and live up to all expectations of performance?" The "rules" Göran is referring to are those concerning good research, codified in the Danish Code of Research Integrity, and documents like it across Europe. With our international delegates, we discussed the questions that Early Career Scholars, such as those undergoing training in Research Integrity, ask themselves. The questions overleaf arose from discussion in the conference room, and have been added to from our ethnographic material.

Do I fit into research?

Am I going to get a job?

How do I publish faster?

You need more publications

Should I move abroad to get a job?

Am I willing to sacrifice my weekends?

Do I want to live in a new country without my family or friends

Am I strong enough to be in academia?

"Publish or perish!"

I have to increase my H index!

Do replication studies!

Get grants!

Supervise students!

Care for your family!

Get the results or you won't get your next position!

Publish only in high impact factor journals!

Questions for Discussion: Conversations between Students, Academic Staff and Administrators

- How many of these pressures are you already aware of?
- What additional pressures, beyond those listed, do researchers communicate to you?
- Are there pressures specific to your institution?
- How might you find out what pressures students are under, without adding to them?

Closing conference

”*A code cannot stand alone*”

A quote from the Practicing Integrity Closing Conference
Centre for Higher Education Futures (CHEF)

Living the Code – Remaining Problems

Research integrity is a topic of discussion and space of action across many research fields. In our comparative work across faculties exploring the life of the Danish Code of Research Integrity and in our workshops and final conference, we found a need for greater discussion about the meanings of research integrity, responsibility for its implementation, and for linking up diverse initiatives.

Susan Wright

Research Integrity and compliance - lack of clear definition

In its short history, 'research integrity' has accumulated a range of meanings, each differently defining the problem and the appropriate site and mode of intervention. 'Research integrity' has unclear relations with a plethora of other terms: RRI (Responsible Research and Innovation), RCR (Responsible Conduct of Research), ethics, QRP (Questionable Research Practices), trust, compliance, accountability. These words shift in their meanings and their relations to each other in different policy spaces and over time. For example, research integrity sometimes means following standardised scientific methods without regard to ethics. These morphing meanings make it difficult for PhD students to know what 'research integrity' means and whether they are in compliance.

Connections across the research integrity policy area

Responsibility for developing research integrity is distributed and fragmented: from the global network and biennial World Conference on Research Integrity to the EU and ALLEA, national ministries and interest groups, the management of universities and university colleges, leaders of research groups, labs and projects, teachers of integrity courses, supervisors and, not least, the next generation of PhD students. Across these different sites, the definition and development of research integrity varies and dialogue between them is weak, leading to dislocated practices. There is especially a need to make links between the top-down and bottom-up discourse and practices.

Power

Gendered and hierarchical relations were central to interviewees' stories of research dis-integrity, but this issue of power is missing from the Code. Interviewees grouped together all problematic aspects of research - from sexual misconduct and misuses of power (senior professors stealing and publishing others' research, bullying and dismissal) to sloppy management, scientific malpractices covered by the Code, and QRPs. The Code and research integrity staff can be a resource in such circumstances but there are serious doubts that research communities can deal with abuses of power in Denmark's current governance structures.

Teaching Research Integrity

Courses created awareness among early stage researchers but also promulgated dramatically different disciplinary ideas about good research, different characterisations of human nature, and different ways of thinking about the responsibility and power (lessness) of individual actors to change inimical research systems and incentive structures. There needs to be more discussion among teachers about the various ways courses may naturalise bad conduct, or induce uncertainty and stress about what constitutes 'compliance', or make PhD students responsible for cultural change beyond their capacity to act.

Incentive structures inimical to research integrity

Government and university managements and some senior researchers endorse performance-based funding, management and reward structures that include competitive external funding, publish or perish, rankings and journal impacts. These incentive structures often contradict researchers' endeavours to establish cultures of research integrity. It is beyond the capacity of researchers to shape these incentives and structures into a coherent system of research governance focused on integrity not only for the benefit science but also for society.

Responsibility and agency

Universities and University Colleges are responsible for student and supervisor training and incentive structures that will embed research integrity in research cultures. PhD students also have agency and whereas their role in research hierarchies often induces compliant subordination, they need to learn how to analyse and act on their research environment and institution to create spaces where they can become good researchers and their research can flourish. Yet, one misstep can be detrimental to their careers and lives, so it is also important not to make early stage researchers feel responsible for dysfunctional organisations and systems that incentivise poor research, but which senior researchers find hard to change, and even endorse.

Academic voice

Academics' voices are not part of the narrative construction of 'the problem'. There is a strong international network of people involved in the World Conferences and who develop national codes. In Denmark there are signs of a network among RCR administrators, who are sharing documents and experiences. There is not a network among academics who are responsible for PhD schools, teaching 'integrity' courses or supervising PhD students. Our project has also mainly managed to engage with and mobilise 'para-academics'.

Conclusion

Progress

Denmark has made important steps towards creating a culture of research integrity but there is concern that attention may fade away, until hit by the next scandal.

Work to be done

There is still considerable work to be done nationally and in Universities and University Colleges to translate the Danish Code into institutional procedures and locally appropriate systems for sharing knowledge and providing support. From teachers' perspectives, there are many challenges about the way research integrity is perceived and handled within the university.

DUN Special Interest Group

The outcome of *Practicing Integrity* has been to initiate a new special interest group 'Higher Education in Policy and Practice (HEPP) under the auspices of the Danish Education Network (DUN). The aim is to sustain the focus on Research Integrity. HEPP will provide a forum to foster networking among academics and practitioners, so that they can have a stronger voice in debates within the integrity field, and continue this work together.

Biographies of the Authors

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Viktoria Hofbauer holds a MA in Educational Anthropology from Aarhus University and works at the IT University of Copenhagen as an Academic Officer of Development and Strategy. During 2017 she worked on Research Integrity policy documents and Twitter analysis of the World Conference on Research Integrity hashtag #WCRI17.

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Laura Louise Sarauw holds a PhD in Pedagogy from the University of Copenhagen and her academic work focuses on the interpretation and implementation of educational policies. She was a Research Assistant responsible for documentary analysis and ethnographic fieldwork in this project, whilst also working as an external lecturer at the Danish School of Education, Aarhus University.

Jakob Williams Ørberg holds a PhD in Educational Anthropology from Aarhus University. He played a major role in formulating this project as well as conducting ethnographic research. He was formerly centre manager of the Centre for Higher Education Futures (CHEF), Aarhus University. His doctoral and postdoctoral work has focused on European and South Asian higher education life, reform and development in the context of the presumed rise of a global knowledge economy.

Susan Wright is Professor of Educational Anthropology at Aarhus University and Director of the Centre for Higher Education Futures. She was Principal Investigator for this project and responsible for managing the research team. Over 30 years, her research has focused on university reform in Europe and Asia with new forms of governance, audit culture, performance management, and new approaches to doctoral and higher education. She is currently turning attention to translating such critical studies into action towards new mandates and ways of organizing universities in post-pandemic Europe.

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Timeline

2019

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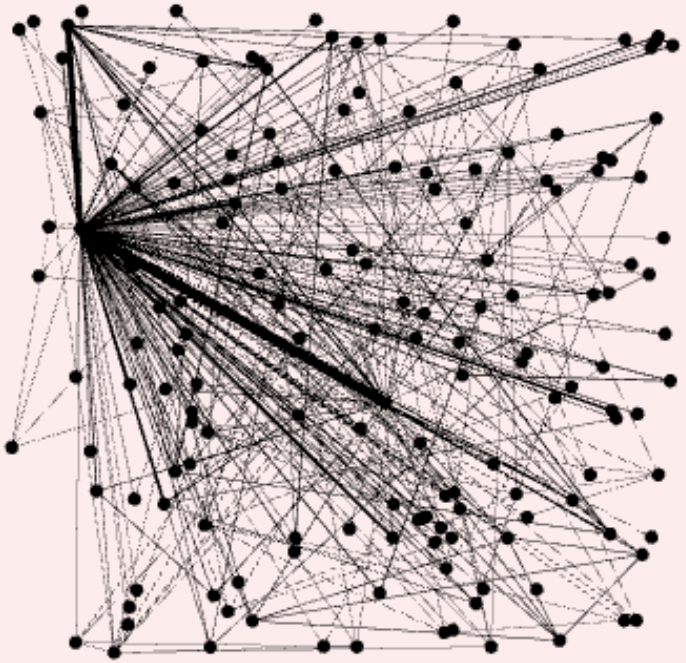
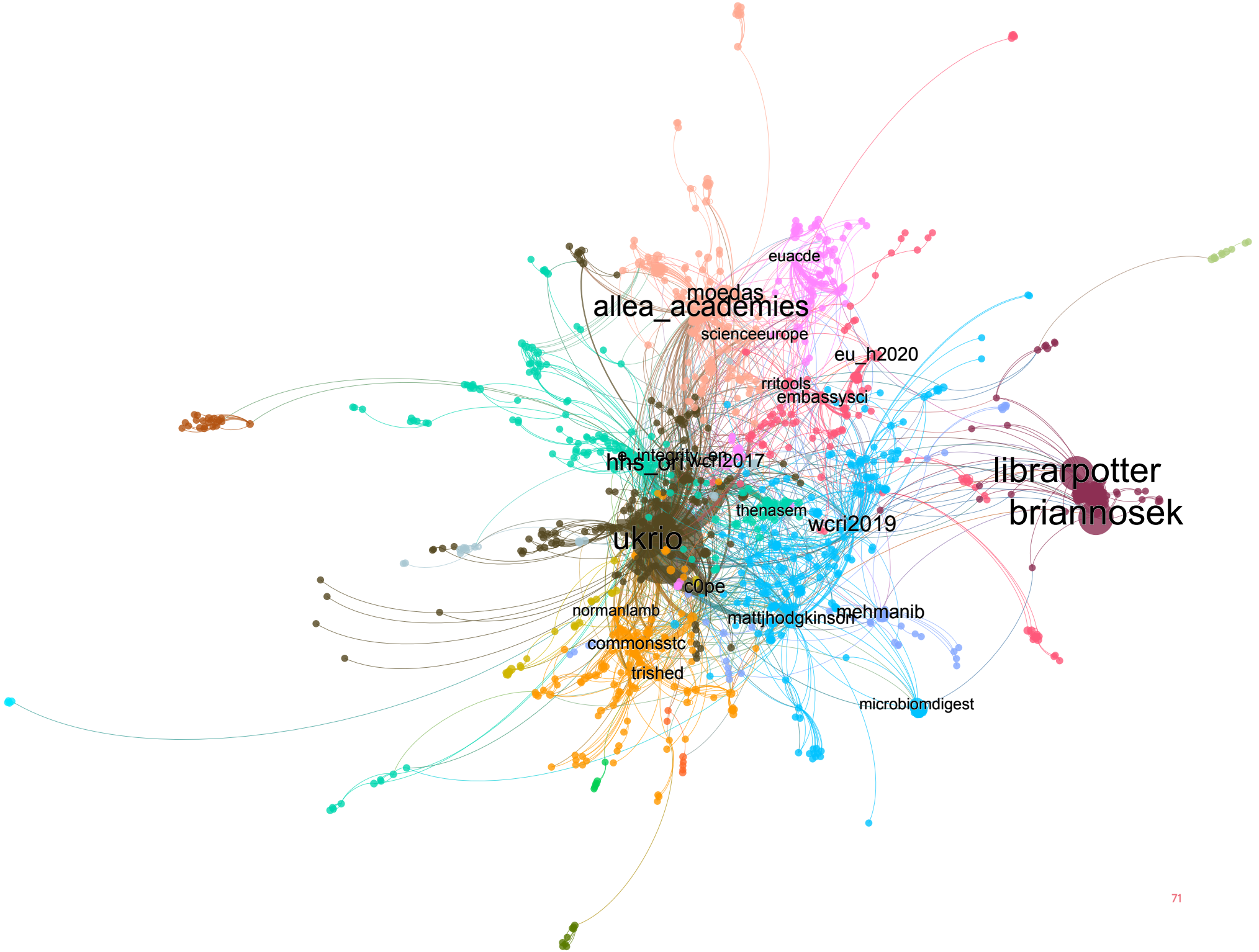


A co-hashtag visualisation of the #WCRI2019 dataset in the software program Gephi, prior to the application of ForceAtlas2 to spatialize the network.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Research Integrity is part of all conduct of research. It is part of lab work and archival work, publishing and supervising, analysis and replication, peer review, career decisions and university cultures. In 2014, the Danish Code of Research Integrity was published, articulating common principles and standards for the responsible conduct of research.

Practicing Integrity emphasizes the everyday nature of research integrity in university settings. This booklet highlights what universities in Denmark are already doing to integrate research integrity into their institutiojns, and examines different issues arising in trainings for PhD students across disciplines. This local research is complemented by a study of the international milieu of research integrity initiatives and activity.

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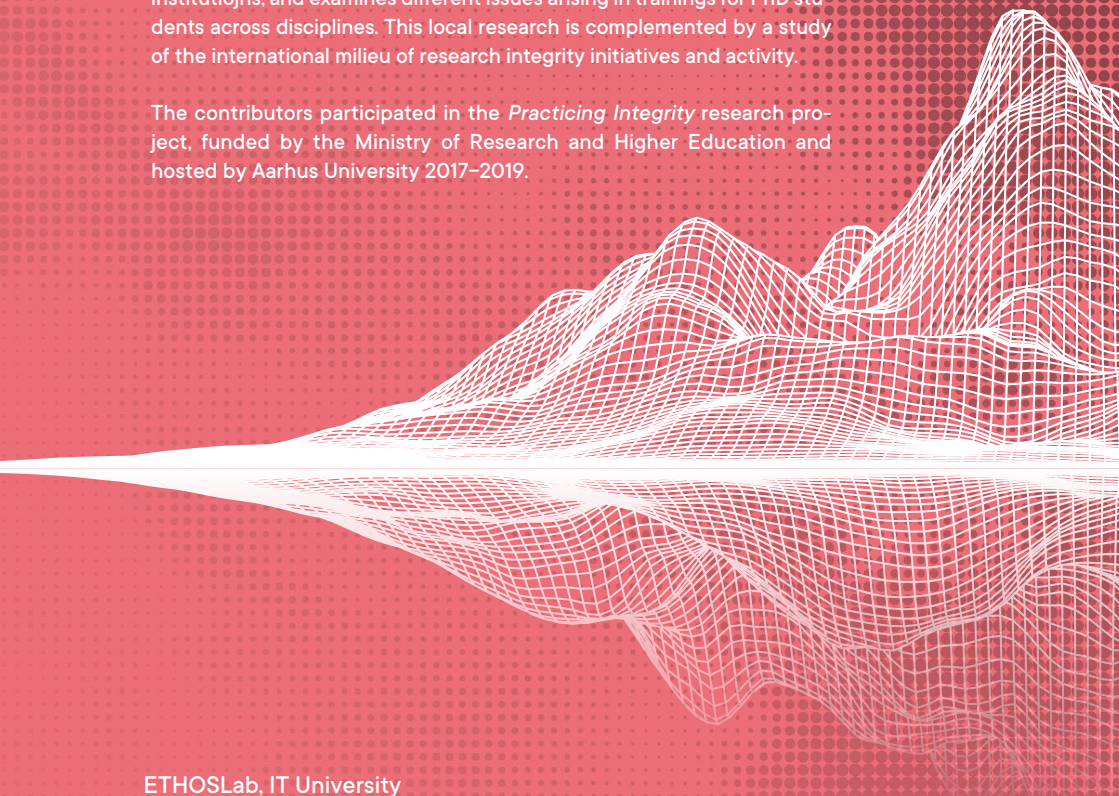

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