PRACTICING INTEGRITY

CENTRE FOR HIGHER EDUCATION FUTURES

Practicing Research Integrity Conference

Report with summaries of presentations and discussions

1-2 November 2018

Danish School of Education

Copenhagen, Denmark

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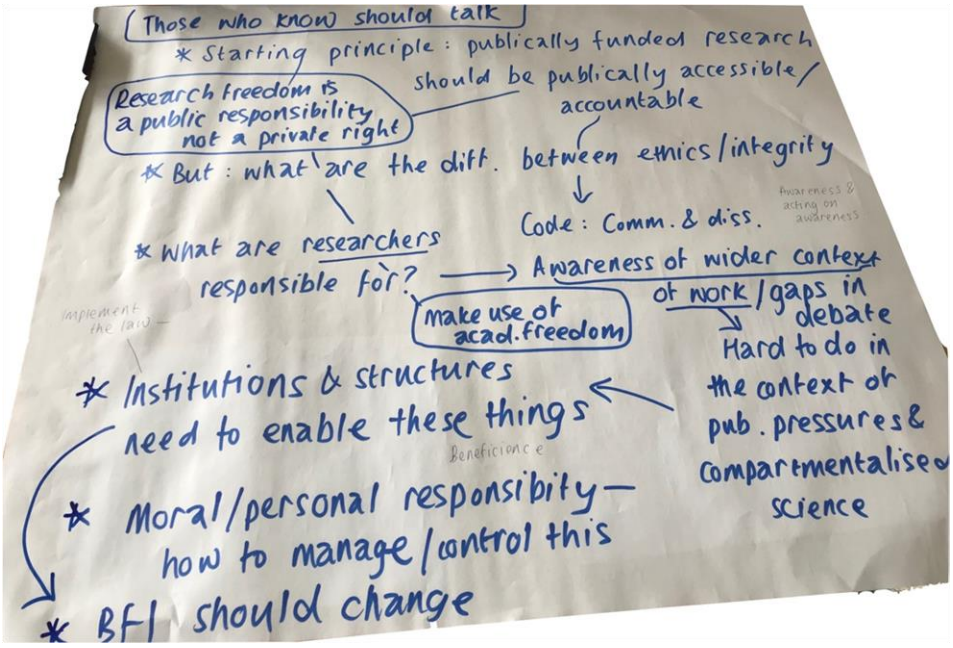

List of Participants

Anders Michael Tetens Hoff	Confederation of Danish Industry
Anette Høye	The Lundbeck Foundation
Bertil F. Dorch	The University Library of Southern Denmark
Bøgh Sørensen	Aarhus University
Camilla Østerberg Rump	University of Copenhagen
Charlotte Elverdam	Borch & Elverdam
Claus Emmeche	University of Copenhagen
Douglas-Jones	IT University of Copenhagen
Evgenios Vlachos	University of Southern Denmark
Frans Gregersen	University of Copenhagen
Frederik Voetmann Christiansen	University of Copenhagen
Göran Hermerén	Lund University
Gry Minor	The Velux Foundations
Guus Dix	Leiden University
Henriette Frahm	University College of Northern Denmark
Iryna Degtyaryova	European Council of Doctoral Candidates and Junior Researchers
Isidoros Karatzas	European Commission
Jakob Williams Oerberg	Centre for Higher Education Futures
Jens Lund	University of Copenhagen
Jesper W. Schneider	Aarhus University
Jette Kofoed	Aarhus University
Johanne Thorup Dalgaard	Independent Research Fund Denmark
Jon Reinbeck	University of Copenhagen
Juul Kristensen	Roskilde University
Karen Skytte	The Danish Confederation of Professional Associations
Kathrine Eriksen	University College Absalon
Kathrine Nielsen	Technical University of Denmark
Katrine Lindvig	University of Copenhagen
Lea Staer Eskesen	Centre for Higher Education Futures
Lise Degn	Centre for Higher Education Futures
Lise Wogensen Bach	Aarhus University
Lone Bredahl Jensen	The University of Southern Denmark
Mads Paludan Goddiksen	University of Copenhagen

Mette Eriksen	The University Library of Southern Denmark
Mikkel Willum Johansen	University of Copenhagen
Mogens Rüdiger	Aalborg University
Nicolas Schunck	The Velux Foundations
Nils Billestrup	University of Copenhagen
Rachel Fishberg	Centre for Higher Education Futures
Roza Zandi	The Danish Cancer Society
Sarah Davies	University of Copenhagen
Signe Hernvig	Aalborg University
Simone Mejding Poulsen	Centre for Higher Education Futures
Sonja Fevre	University of Copenhagen
Steffen Jöhncke	University of Copenhagen
Susan Wright	Centre for Higher Education Futures
Susanne Schultz	Technical University of Denmark
Thomas Nørgaard	Danish Agency for Science and Higher Education
Tom Børsen	Aalborg University

Advisory Board

Domain	**Name**	**Organisation**
Industry	Anders Michael Tetens Hoff	Chief consultant, Confederation of Danish Industry
Unions	Karen Skytte	Chief consultant, Danish Confederation of Professional Associations (Akademikerne)
Lawyer	Charlotte Elverdam	Lawyer, Borch & Elverdam Advokatanpartsselskab
Teacher	Frederik V Christiansen	Associate Professor and teacher, Department of Science Education, University of Copenhagen
Student	Bjarke Lindsø Andersen	Ph.D. student, Aarhus University
UC	Kathrine Krageskov Eriksen	Head of Research and Development - Ph.D., University College Sjælland
Governance	Lise Wogensen Bach	Pro-dean, Faculty of Health, Aarhus University
Academia	Frans Gregersen Claus Emmeche	Professor emeritus, Department of Nordic Studies and Linguistics, Copenhagen University Associate Professor, Department of Science Education, Copenhagen University.

Conference programme

DAY 1

09.30-10.00: Registration and coffee

10.00-10.15: A short welcome from Practicing Integrity Project Leader, Susan Wright, Danish School of Education, Aarhus University

10.15-11.15: Research integrity in Denmark – current knowledge and perspectives
Results of the three Ministry-funded projects on Research Integrity in Denmark.

- 'Practicing Integrity' by Lise Degn, Laura Louise Sarauw, Rachel Douglas-Jones, Susan Wright, Jakob Williams Ørberg
- 'Impacts of International Mobility on Danish Research Integrity' by Sarah Davies
- 'PRINT, Practices Perceptions and Patterns of Research Integrity' by Jesper W. Schneider

11.15-12.00: Plenary discussion of issues arising

- Brief introduction by plenary chair Thomas Nørgaard, The Ministry of Higher Education and Science
- Plenary discussion

12.00-13.00: Lunch

13.00-14.00: Disciplinary differences in research integrity.
Short presentations on the "conceptualization" of research integrity in different disciplines.
Speakers:

- Associate Professor Jette Kofoed, The Danish School of Education, Aarhus University
- Professor Jesper W. Schneider, The Danish Centre for Studies in Research and Research Policy, Aarhus University
- Assistant Professor Mads Paludan Goddiksen, Department of Food and Resource Economics, University of Copenhagen
- Associate Professor Camilla Østerberg Rump, Department of Science Education, University of Copenhagen

14.15-15.45: Policy connections and disconnections
Presentations of international policy and institutional developments.
Speakers:

- Professor Göran Hermerén, Lund University and ALLEA Permanent working group on science and ethics
- Post.doc. Guus Dix, Centre for Science and Technology Studies, Leiden University
- Isidoros Karatzas, Head of the Ethics and Research Integrity Sector, DG Research and Innovation, European Commission

15.45-16.00: Break

16.00-16.45: Plenary panel discussion
Discussing concepts and practices, connections and disjunctions based on the morning and afternoon sessions.
Panellists:

- Associate Professor Jette Kofoed, Danish School of Education, Aarhus University
- Professor Jesper W. Schneider, Danish Centre for Studies in Research and Research Policy, Aarhus University
- Assistant Professor Mads Paludan Goddiksen, Department of Food and Resource Economics, University of Copenhagen
- Post.doc. Guus Dix, Centre for Science and Technology Studies, Leiden University
- Isidoros Karatzas, Head of ethics sector, European Commission
- Iryna Degtyaryova, Representative from EURODOC

Chair: Professor Susan Wright, Danish School of Education, Aarhus University

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DAY 2

10.00-12.00: Integrity in practice – parallel sessions:

A. Integrating integrity – developing research cultures through organizational structures and teaching
Presenters:

- Henriette Frahm, Chief Consultant for Research and Development, UCN – University College Nordjylland

- Kathrine Bjerregaard Nielsen, Research Integrity Officer, Technical University Denmark
- Assistant Professor Mads Paludan Goddiksen, Department of Food and Research Economics, University of Copenhagen

Session chair: Lise Degn, Danish Centre for Studies in Research and Research Policy, Aarhus University

B. Responsible research and research integrity - Why does Research Integrity matter to society?
Presenters and participants:

- Associate Professor Tom Børsen, Department of Planning, Aalborg University
- Lone Bredahl Jensen, Bertil F. Dorch & Charlotte Wien, University Library of Southern Denmark
- Professor Jens Lund, Department of Food and Resource Economics, University of Copenhagen

Session chair: Jakob Williams Ørberg, Danish School of Education, Aarhus University

12.00-13.00: Lunch

13.00-14.00: Conference summary and discussion of integrity in practice
Picturation and summary of the conference: Rachel Douglas-Jones, IT University of Copenhagen
Session chair: Susan Wright, Danish School of Education, Aarhus University

14.00-15.00: Round table – where do we go from here?

- Thomas Nørgaard, Ministry of Higher Education and Science
- Susan Wright, Danish School of Education, Aarhus University
- Jesper W. Schneider, Danish Centre for Studies in Research and Research Policy, Aarhus University
- Sarah Davies, University of Copenhagen
- And members of the Practicing Integrity advisory board

Session chair: Jakob Williams Ørberg, Danish School of Education, Aarhus University

Introduction to the 'Practicing Integrity' project

'Research integrity' has become an issue of international concern, sparked by highly publicised scandals of research malpractice. These have prompted the formation of a bi-annual World Conference on Research Integrity, a plethora of international policies, codes and guidelines, and questions about how to assure the quality and standards of increasingly inter-disciplinary and international research.

Following the publication of a Danish Code of Conduct for Research Integrity (DCCRI) in 2014, the Danish Ministry for Education funded three projects to investigate how the Code is operating in practice.

Employing methods from policy ethnography, the 'Practicing Integrity' project placed DCCRI in an international policy context and further sought to understand how the Danish research community translated and enacted notions of 'research integrity' in scientific practice at universities and university colleges (UCs, which are "new" to academic research).

The project explored how academics' integrity practices were formed and balanced with organisational incentives at three levels: individually, by researchers in their day-to-day academic practice; institutionally, in the education of early career researchers; and organisationally by leaders, managers and supervisors, who operate as translators in local sense-making and sense-giving processes. This shed light on how Danish researchers navigated the principles and incentives that influence integrity in their academic practice.

The project took an ethnographic approach and was organised in four work packages:

WP1. History and context of the emergence of 'integrity' in international and national codes and regulations.

> Key question: Why and how 'integrity' arose at particular moments, and how 'integrity' relates to 'ethics', 'trust', 'responsibility'?

WP2. Translation of Danish Code into universities and university colleges

Key question: How and to what extent have integrity policies been integrated into management structures and incentives?

WP3. Formal doctoral training courses in integrity principles and practices

Key question: How are concepts and codes of integrity understood and translated into training courses in different disciplines (health, natural sciences, arts, social sciences)?

WP4. Navigating integrity in practice

Key question: How do PhDs form their conceptions of integrity and their research practices in the context of their training, organizational setting, research and funding conditions and challenges of career development?

The project has benefitted from the knowledge and critical support of an advisory board with members (listed above) from different positions and organisations with an interest in research integrity. The researchers presented plans for each WP at the first meeting and at a later meeting presented their work in progress. Both meetings generated a lively and extremely useful discussion. The meeting in October 2017 was opened to a wider range of actors in the field and took the form of a workshop focused on participants' different ideas and personal experiences of research integrity. One important finding of this workshop was that participants' experiences largely concerned issues of power relations within the academy, which is an issue rarely mentioned in codes and policies on research integrity. A report summarising all workshop findings are available on the project website.[1]

The project's results make theoretical contributions to the fields of Anthropology of Policy and Policy Translation and emphasise how organizations and their members receive politically articulated norms and make sense of them in their everyday working life. The results also contribute to the ongoing construction and negotiation of an integrity culture, by shedding light on the 'living translation' of integrity principles in universities and University Colleges. The project is using the results (not least in the final conference) to facilitate more informed organizational and managerial

[1] http://edu.au.dk/forskning/chef/projects/practicing-integrity/publications/

dialogues and illuminate the areas where practice interferes with ethical and normative standards and where incentive structures intersect and potentially collide.

The Practicing Research Integrity Conference

The final conference of the 'Practicing Integrity' project was hosted by the Centre for Higher Education Futures (CHEF) at the Danish School of Education, at Copenhagen on 1-2 November 2018.

The conference had four overall aims:

1. To present the results of 'Practicing Integrity', an ethnographic study of the development and institutional translation of international and Danish codes of research integrity, especially through practices of PhD research training across disciplines.
2. Bring into dialogue all the separate actors involved in practicing integrity, including students, educators, administrators, managers, consultants, commercial education developers and policy makers. Generate networks between these actors to maintain the dialogue and translate it into action.
3. Discuss the future development of research integrity in research training and institutional cultures in higher education institutions (universities and university colleges).
4. Locate this discussion within the foremost Danish and international research on research ethics and integrity.

Participants included international and Danish researchers on research practices and research training, policy makers working with national and international codes of research integrity, managers, administrators and 'para-academics' concerned with developing institutional policies and research cultures, and students, teachers and supervisors engaged in research training and conducting research in universities and university colleges.

This report summarises the main points from the presentations and discussions. Presenters were invited to revise the summary of their presentation and all their corrections have been included. PowerPoint presentations, information about related projects, publications, and further information are available at http://edu.au.dk/en/research/chef/projects/practicing-integrity/

Session 1: Research Integrity in Denmark – current status and future perspectives

The first session presented results from the three Ministry-funded projects on Research Integrity in Denmark, followed by a plenary discussion lead by Thomas Nørgaard from the Ministry of Higher Education and Science.

'*Practicing Integrity' by Lise Degn, Rachel Douglas-Jones, Laura Louise Sarauw, Susan Wright, Jakob Williams Ørberg*

Degn and Ørberg presented the results of the 'Practicing Integrity' project. The project first examined how research integrity arose as a concern internationally and how the concept acquired multiple meanings as it was applied to a range of problems. Second, the project studied how 'research integrity' was translated into institutional policies and processes in universities and university colleges. Third, through participatory fieldwork in four faculties from one university, the researchers investigated how research integrity was being taught in PhD training courses,, and fourth, through follow-up interviews over time, the project explored how students from those courses thought about research integrity in the light of all the other issues shaping their research practice.

There are variations in the ways that the Code of Conduct has been implemented in the institutions, but most are building infrastructures to gain legitimacy by demonstrating compliance with external demands, e.g. over data storage. University Colleges seem to be circulating a template but also using the Danish code more actively to develop research cultures, because these institutions are somewhat new in the research field. There was also great variation in concepts of research integrity in the four faculties' PhD training courses. These ranged from the idea research integrity is hard to achieve because the university system is broken by funding, promotion and other incentives that operate against good practice, to the idea that researchers are inherently 'small cheaters' and individuals have to navigate an inimical culture. One other faculty course argued that 'good science' is achievable by following standard procedures of validity and reliability, whereas another presented research as a continual process of making ethical judgements. It was unclear whether responsibility for research integrity lay with the individual or the institution, whether the problem was a 'rotten

system' or 'rotten apple', and which of the ever expanding meanings of the concept applied. PhD students found themselves in a tense situation between trying to be good researchers, positioning themselves in a system with diverse forms of accountability, and trying to avoid non-compliance when it was not clear what compliance means.

'Impacts of International Mobility on Danish Research Integrity' by Sarah Davies & Katrine Lindvig

This project focused on how science is carried out by people who move between countries and from lab to lab so that research environments become dynamic spaces with academics coming and going. The project explored how researchers understood research integrity in their own terms and how they experienced different research cultures. The results show that science is not an abstract process, but is encultured in specific environments. Research cultures do not differ by nation; instead, there are local norms in specific labs, with the principal investigator strongly shaping the lab's research culture. There are numerous axes on which labs vary: they may have different material resources, salaries, and habits of work-life balance; the steepness of their hierarchies or degrees of collaboration differ; and there are overt differences in authorship norms, who is listed as first author and who is given credit.

Not all of the researchers interviewed had heard of the Danish Code of Research Integrity, and nor, largely, had they undergone any training in research conduct (most of these courses are for PhD students). Penkowa acted as a mythical figure, used to explain the need for the Code, and whereas they felt it might be useful at a system level, it was often seen as an annoying incursion of bureaucracy into research practices. Researchers described research as a complex and uncertain process so that it was always difficult to know the right way to behave in a particular circumstance. In a context of grey areas and uncertainties, misconduct on an individual level could happen by accident or because of poor conditions as much as through deliberately unethical behaviours. It was easier for researchers to talk about systematic causes of misconduct: precarious employment, gender inequalities, and incentives to publish as fast as possible or perish were framed as triggers for unethical behaviours. Codes were therefore seen as more relevant at a system level, to ensure that incentives endorsed research integrity. When policy makers were invited to respond to the interviews, it was not possible to align the different aspects of the research system; rather,

responsibility for research integrity was passed around the system like the mathematical roulette curves of a Spirograph.

'PRINT, Practices Perceptions and Patterns of Research Integrity' by Jesper W. Schneider

The aim of this project was to define and typologise 'Questionable Research Practices' (QRP) and map their prevalence in Denmark. Jasper Schneider described QRP as located in a grey zone between 'responsible research conduct' and 'misconduct' or on a scale extending from ideal research at one end, through sloppy research, unconscious QRPs and conscious QRPs to Falsification, Fabrication and Plagiarism (FFP) at the other extreme. QRPs can be found in study design, data collection, data analysis, reporting, collaboration, and much more. The project would explain the mechanisms, institutional norms and standards that influence QRPs and how they relate to individuals, institutions, norms, and standards. While research practices in this grey zone may not be categorised as misconduct, they can harmful, especially because they lead to biases which have a negative influence on truth (validity), on trust between researchers (fairness), and on public trust in science (credibility). At worse, this is a waste of resources and harmful to society and nature.

The research is exploring problems of bias in research literature, and is finding over 100 QRPs in study design, data collection, analysis, reporting and collaboration.

Main points from the plenary discussion

Thomas Nørgaard provided a context for the three projects. The Danish Code for Research Integrity was devised in 2014 in response to the international focus on the issue. The Code was never meant to be a set of rules; it was intended as a tool to support and improve Research Integrity in Denmark and for Danish researchers to refer to as an assurance that they knew about good research practice. While devising the Code, those involved realised that they needed better knowledge about actual research practices and the state of affairs regarding research integrity in Danish universities. Hence the three commissioned projects. In 2019, a working group is revising the Danish Code and they will seek to learn from the three projects what needs to be changed and also how to broaden knowledge of the Code.

Thomas asked participants how the state of research integrity in Denmark compared internationally. Responses included the following:

- On an international ranking of integrity, Denmark is second best, after the Netherlands. The pressures to be sloppy or cheat in Denmark are not as high as in some other countries where researchers compete tooth and claw. There are still problems with research integrity in Denmark that need addressing.
- A Code on Research Integrity is a good starting point for change because it catalyses a dialogue, but it cannot stand on its own, and the problem is that it has not been translated into practice. Some disciplines think that they do not have a huge problem – they know there are some problems in medicine and in specific problem environments elsewhere, 'but not here'.
- From an EU perspective, the Code needs ownership by disciplines and a fine detail of implementation. The Code has to connect with guidelines about research practice that are owned by the community.
- Attention needs to be paid to the structural conditions under which researchers work. Researchers' daily decisions are made under conditions of economic competition, publish or perish, and hierarchies with decisions made at the top of the system and precarity at the bottom. These problematic conditions are well known, but they quickly move out of the focus of discussion of research integrity again. It is the daily decisions that people make under those conditions that should be the focus of attention. Denmark does not have the structural conditions for living up to the Code: the structural incentives are to NOT behave well. Research Integrity is not the smart thing to do for getting a job and a research career.
- Denmark is not at the level of the Netherlands where there is a Research Integrity network between universities and much more support from university management. The Dutch experience shows the Code is not effective alone, and it has to be supported by other initiatives.
- There is a danger of codifying for its own sake – 'You produce a Code to have a Code. And you don't do anything with it' – meanwhile research practice continues undisturbed. There need to be initiatives to bring the Code to life so that it is actively discussed between the

layers or scales in an institution or the sector – Who owns the problem? Where does responsibility lie?

- Responsibility is also unclear. One view is that 'science starts and ends with the researcher'. Alternatively, everyone in the field of university research, administration and policy owns pieces of the problem and the solution. There needs to be an active discussion between people located in these different layers and scales.
- Among higher up stakeholders there is a narrative that science has to be difficult – of course there are gender inequalities and only the strong researchers compete successfully for funding, and they travel, sacrifice their family, friends and relations and make science their life. In this discourse considerations of research integrity disappear.
- There is a problem if a code of conduct is treated as a set of requirements that are meant to be relevant across all disciplines. It causes stress for PhD students when faced with different problem narratives, about whether people or systems are flawed, and whether the Code conveys requirements the individual should meet, or establishes guidelines for a good research environment, over which the PhD student has little power.
- The Code is flawed as a set of rules, but it provides a good trigger for personal and collective reflection. An angry reaction to it can provoke discussion, for example about differences in authorship practices. Although, it is difficult to translate the code because nobody knows what Research Integrity means and how it relates to ethics and accountability.
- The Danish code is void of ethics. Those devising the Code thought of Research integrity as ensuring the structural integrity of solid science, as one talks of the structural integrity of a building. Thus, there can be unethical science of high integrity – a researcher can cut off someone's arm but follow the code for research integrity.

Session 2: Teaching research integrity – disciplinary and institutional differences

The second session consisted of short presentations on the conceptualization of research integrity in different disciplines.

Associate professor Jette Kofoed, The Danish School of Education, Aarhus University

Jette Kofoed spoke about the course on research integrity for PhD students in the Arts Faculty. This is a mandatory two-day course, with an optional third day for those who write a paper relating the issues to their own project.[2] Jette Kofoed and colleagues who are responsible for the Arts-based doctoral course actively work with research ethics and ethics in general in their own research. The course is founded on the premise that it is impossible to disentangle ethics and research integrity. The interdisciplinary team of teachers presents the Danish Code, The European Code of Conduct, and the Singapore and Vancouver statements, The Montreal Statement, the local AU rules and GDPR and they discuss the political backgrounds to the different statements and Code of Conduct and try to give the students tools to think about the implications for their own discipline and research project. They also set up facilitated spaces to discuss research ethics in the students' own Ph.D. projects and relate these to how the team of teachers deal with complicated issues of ethics in their own research. The foundational 'take' of the course is to introduce the students to rules and regulations and at the same time create a safe space where they can share and think about ethics as an always implicated aspect of Arts-based research. The multitude of disciplines within Arts allows for a very interdisciplinary setup. Jette Kofoed drew attention to two issues that have arisen.

1. In certain research projects, ethics appears to be an obvious issue, for example in fieldwork where human relations and vulnerable groups are involved. Then the obvious issue of ethics becomes how to take care of research subjects, going well beyond informed consent and doing no harm. But often projects have more 'hidden ethics', or the ethical issues might seem hard to find. Such projects raise issues like how to make a choice of theory that does not violate readings of the data, or who does the research represent, and how? How to present humans in the past, and how does that differ from representations in the present? Do archaeologists need to leave traces for future scholars, what are the ethics in their analysis of data and choice of stories? Following Puig de la Casa, the team of teachers tries to unpack these matters of care and ethics in a way that allows students to develop them in their own practice and across practices. This is enabled by the safe space which gets created when 'not knowing exactly' makes it possible to share ideas.

[2] The course has subsequently been slightly altered and the optional third day is no longer a part of the course

2. The ethics of the course itself. They are concerned to develop a shared space in the course for thinking about ethics, to develop a meticulous language for discussing the variety of ethical issues faced by different Arts disciplines. They teach ethics as a continuous process of making judgements throughout a project and are therefore concerned not to leave doctoral students alone in facing these complicated ethical issues. The course is not just something to tick off, but needs to result in a community of mutually engaged researchers.

Professor Jesper W. Schneider, The Danish Centre for Studies in Research and Research Policy, Aarhus University

Jesper Schneider runs the research integrity course for PhD students in the social sciences faculty. The students range from law to experimental psychology. This started as one-day course, and then increased to two days. The leadership agreed to it becoming mandatory but refused to allocate ECTS. Now it is one day again. The leadership perceives integrity as inseparable from ethics and only wrong in medicine. For RCR, a breach of research integrity is a deviation from accepted practices of research planning and conduct, data management, publishing, authorship, and dealing with collaboration and conflicts of interest. But social science disciplines have different models of knowledge production, ranging from positivism to pluralism. For example, economists do not see a problem in using significance tests and p-hacking, whereas law would not use them. They review recent cases where research models have been breached, for example in a questionnaire design, or in pushing PhD students to torture their data until they gained interesting results. This raises broader issues touching on ethics, such as honesty, transparency and accountability.

Assistant Professor Mads Paludan Goddiksen, Department of Food and Resource Economics, University of Copenhagen

Mads Paludan Goddiksen teaches a course on research integrity to natural science and health students each year. The students write an essay on the research integrity issues that they encounter. From a study of 700 essays, Mads Goddiksen and colleagues have identified one issue as the most common and two as the most harmful.

The most predominant issue concerns authorship and especially gift authorship. Some absent supervisors require their names to be included; those who lend a facility or lab space demand authorship in return; some who do routine work want to be included without making a substantial contribution; and then there are those who actually write or edit the article. When is authorship deserved? Medical journals adopt the Vancouver recommendations, although there are gaps with practice, but natural sciences have no shared standards. Some particle physics articles have 2000 authors.

The most harmful practices are p-hacking in data analysis, which harms the reliability of the research, and lack of transparency about methods and data, which harms the reproducibility of research. Some journals require access to raw data and some universities make it publicly available, but for some labs, revealing data and methods gives away their edge in research competition. That approach is not to the advantage of science.

Instead of focusing on deviations from good practice, Mads Goddiksen considered that courses should focus on what is good science practice. He envisaged a flourishing research environment (drawing on Aristotle's flourishing life) where scientists could live out their potential and engage in research relevant to the community. His ideals were a striving for reproducible and reliable results, high levels of trust inside and outside the academy, smooth and quick progress of research, and fair competition for positions and research grants. Rather than focusing on participants' compliance with relevant codes and regulations to avoid deviations from good practice, Mads Goddiksen recommended starting the other way around: What is it that we *want*?

Associate Professor Camilla Østerberg Rump, Department of Science Education, University of Copenhagen

Camilla Østerberg Rump teaches science education mainly to teachers in the teaching and learning in higher education programs, including a course in PhD supervision. Most PhD students in the science faculty are supervised by 2 or more academics from different disciplines so as to maximise the expertise and resources available to the student. This means supervisors propose different methods from their diverse fields and have different ideas about what constitutes good and reliable

research. Camilla has studied the paradigmatic clashes and integrity dilemmas that students face. Some students try to do science by design, and avoid doing something braver and more experimental; others try to navigate between the supervisors, but there is a risk of choosing one supervisor's perspective because it will generate the answers s/he wants to hear, or eclecticism. In contrast, being a good researcher involves formulating your own approach and taking conscious decisions about what methods to use and why. But such research integrity involves students in disciplinary battles about what constitutes good and reliable research and opens questions about whether the problem and responsibility is individual or systemic.

Following this presentation, participants discussed lack of transparency about different disciplines' ideas of research integrity. It was pointed out that it can be risky for the researcher to be more transparent in sharing methods and results, and put the researcher in a vulnerable position in the current very individualised and competitive system.

Session 3: Policy connections and disconnections

Presentations of international policy and institutional developments

Professor Göran Hermerén, Lund University and ALLEA Permanent working group on science and ethics

ALLEA is an association of 59 Academies of Science across Europe and Göran Hermerén reported on the recent revision of its Code of Conduct. The Code was originally published in 2011 and the European Commission contacted ALLEA to ask if they would revise and update the Code so that it could be used in contracts for European Framework funding. The revision was carried out between April 2016 and January 2017 and involved consultation with 22 stakeholder bodies across Europe. The earlier text was circulated to identify gaps or changes needed, a proposed new text was then sent out, and finalised in a face-to-face meeting. The revised Code was launched in Brussels in March 2017, translated by the European Commission into the languages of all member states, and Clause 34 of the Model Grant Agreement now requires researchers to follow the Code of Conduct.

The Code needed revision because there have been spectacular cases of fraud, which indicated that self-reliance was no longer working. The number of journals had grown 6-fold in three years but a study of more than 2000 retracted publications in life sciences showed that a majority of them had been retracted due to misconduct. In the grey zone of Questionable Research Practices, it is sometimes hard to tell if research was sloppy or if there was an intent to deceive. In addition, the EU was focused on open science, and increasing collaboration across disciplines and with industry meant the meeting of different cultures. The EU had also found that training and mentorship were of patchy quality. The Code of Conduct aims to create a supportive culture for research integrity: it provides a framework for research integrity, but does not regulate details. It is a tool for discussion, about how to use it in different fields, and for agreement over principles in collaborations between public and private research. Specifically, it states that all authors should be responsible for the whole publication unless stated otherwise. The idea is that this framework would be supplemented by national Codes. Universities need to promote education and training in research ethics as well as dialogues between stakeholders about supervision and the role of mentors s*o* as to make value conflicts obvious and address them.

In discussion following this presentation, the representative of EURODOC suggested fusing the ALLEA Code of Conduct with the Code for Researchers. She also asked if ALLEA's members acted as ambassadors for the ALLEA code. The Swedish academy had sent the ALLEA code to all members, but other Academies had not yet been so active.

Post.doc. Guus Dix, Centre for Science and Technology Studies, Leiden University

Guus Dix has studied the history of the concept of 'incentive' as an instrument of power and is now researching the 'incentivising state'. In particular, he is exploring the term RRI (Responsible Research and Innovation), which is used in the European Union's Framework Programmes to describe scientific research and technological developments that take into account effects and potential impacts on the environment and society. RRI did not arise from scholarly interest but is a top-down initiative to use funding to align science with economic interests. He asks how policy makers know they can intervene to steer research and how they choose their interventions. He focuses on what biomedicine looks like as an object of top-down steering, in the light of researchers' bottom-up

views on the ideals of science and the problems they encounter. He has two case studies in contrasting research centres. Centre 1 is based on policy makers' 'excellence' paradigm. The centre's excellence is measured through rankings and individuals are successful if, for example, they are featured in the ERC Gallery. Resources are allocated to teams and departments according to excellence measures on a 5-year plan. Compensation to individuals is also based on performance measures, with a bonus for top ranked publications, and career progression comes from the output of publications and PhDs. This Centre's management amplifies the tools of government by using external measures for internal allocation of resources. Its incentives stimulate meeting certain measures of excellence, not the social relevance of research. Their strategic use puts a substantial change of focus towards the social responsibility of science out of reach.

The dean of Centre 2 considers that the external incentives applied to science are as perverse as those in banking. His aim is to 'fix the incentives to fix science'. The centre has developed instruments that value research that is responsive to society. 'Impact' for example is defined by impact on the patient, not a journal's impact factor. Research is organised in big units focused on leadership and citizenship, and on the process of research, not just outputs. Individual career progression is not based on scientific output alone but on the relevance of the science for the world outside, with evidence from a portfolio of teaching, clinical work or social outreach. By developing instruments to re-evaluate the purpose of science, this system gave units and individuals the freedom to decide what they found important to research, and got rid of the fear about one organisation making changes when the whole field with its funding criteria, journal rankings etc. remained unchanged. The presentation ended with the argument that there is asymmetrical awareness: researchers are aware of policy initiatives, but if policy makers were more aware of the issues encountered in day-to-day work in science, they would be less likely to see them as fraudulent.

Questions following this presentation included:

- Centre 2 has an effective system of internal evaluation, but how are its researchers evaluated if they seek a job elsewhere? Is it difficult for other centres to collaborate with this one if it does not conform to external measures of excellence?

- How does the Dean of Centre 2 translate the internal measures of socially valuable science into the external measures of excellence that the centre would rely on for funding and its continued viability?
- Is there a different understanding of QRP at the two centres?
- How do the parallel domains of research integrity and RRI operate?

Isidoros Karatzas, Head of the Ethics and Research Integrity Sector, DG Research and Innovation, European Commission

Isidoros Karatzas started his presentation with 'Trust comes on foot and leaves on horseback'. Research integrity and research ethics are 'two pillars of the same house' and academic and industrial researchers must contribute to the discussions related to the promotion of ethics and integrity. Research Integrity is also a question of definition. There are many such definitions – but it can be taken, for simplification, to mean: 'doing the right thing when nobody is watching'. If research integrity is an idealised pyramid, policy and codes are at the apex, while research institutions, integrity officers and researchers are the four corners of the pyramid's base. In reality, this idealised pyramid does not exist (yet). The main weight is on researchers as they have to deal with all the issues raised by either research ethics and/or research integrity frameworks. The research community is under considerable pressure: disciplinary silos and power structures mean the community is struggling; often the willingness and skills to address misconduct are absent; science output doubles every 9 years and there is a push for publications and the highest impact possible. This makes research integrity part of the challenge of proper research governance. Research Integrity Officers and Research Integrity structures have to be vigilant, and need to be properly supported by the institution, especially as procedural challenges and court cases are expensive and can damage an individual's career and effect the reputation of the institution. Isidoros Karatzas ended by emphasising that it was important for all points of the pyramid to be in dialogue with each other.

Questions in response to this presentation included:

- Could the European code replace the national? No, the ALLEA code provides a general and European-wide framework, which is flexible to allow for national specificities to emerge. The ALEA European Code needs to be supplemented by more specific texts addressing specific issues in different disciplines. There is a prevailing attitude that pushes national codes: this is good because it means that policy makers are engaging the national research community.
- What is the relationship between integrity and ethics? Integrity and ethics form the double helix of the governance of research. They are two support pillars without which research cannot build excellence.
- In an attempt to overcome the binary between ethics and integrity, one participant asked, is ethics philosophical, theoretical and concerned with what the research is aiming to do, and is research integrity operational, about the way the research is carried out? Not all agreed with this. One strong objection was that this binary between ethics/philosophy and integrity/practical methods was exactly the compartmentalisation that needed to be challenged and overcome. Ethics and research integrity are so entangled with methodologies that the issue is not to tick off boxes on forms and issue pieces of paper, but to create the space and time for doctoral students to reflect on these issues. And it is important for universities and faculties not to leave PhD students on their own, but to take the responsibility of caring for students as they deal with the complexities, pressures and demands of modern-day research.
- The challenge research institutions face now and in the future is to generate dialogue within the research pyramid. How do we create the space and knowledge areas for all to be involved in discussion and to draft the codes and operational procedures for a new type of research institution?

Plenary panel discussion

Arising from the day's papers and discussions of concepts and practices, connections and disjunctions, the chair, Susan Wright, led a discussion which raised five main issues.

1. *'Integrity' is continually moving and morphing. '*Integrity' is an enormous policy area, spanning from the global network involved in the bi-annual World Conference on Research Integrity, to the EU and ALLEA's policy strategies, national codes in which not only ministries but national associations of rectors, unions and industry have an interest, through to the management and administration of universities and university colleges, the leaders of research groups, labs and projects, the teachers of integrity courses, supervisors and, not least, the next generation of PhD students and early stage researchers. Added to this organisational span, 'integrity' has a history in which it has accumulated meanings and associations with other key words. There is now a plethora of words in circulation: research integrity, RRI, RCR (responsible conduct of research), ethics, QRP, trust, compliance, accountability (etc.) These words shift in their meanings and their relations to each other in different policy spaces and over time. The EU sees ethics and research integrity as two pillars of the same house. The Danish code focused only on research integrity not ethics and treated research integrity like a structure in the same way as a building has a structure, so that you can do research integrity without being ethical. Ethics comes under a different part of the ministry; and some universities also have separate organisational structures for 'integrity' and committees for 'research ethics'. The teachers of the Arts PhD course subsume integrity under ethics as a continuous process of reflection and decision throughout a research project. Some other disciplines see good science as a question of following accepted protocols. Some students are heard to say 'I have ethics' when they can wave a piece of paper from a course or a committee approving their research plans, instead of seeing ethics as a disposition embedded in the person of the researcher, which involves taking a reflexive approach to every aspect of the research. The terms have been moving and morphing historically and throughout the day.

2. *Incentive structures are inimical to research integrity.* There had been repeated references to the structural conditions of research (competition for external funding, rankings, publish or perish, journal impacts, performance indicators based on 'excellence') with the argument that these incentivised unethical behaviours and ran counter to research ethics. Within government, how can the different national departments that deal with different aspects of

the research system (and the EU) coordinate their thinking so that the incentives match the ideals? They need to assess the work of each department in terms of its impact on research integrity.

Within the administrative parts of the universities, there is a clear consensus that performance-based management and funding is good and necessary. But the problem is that many of these structures are contradictory to the aspirations of research quality and endeavours towards establishing cultures of research integrity.

Whereas researchers often point to structures or external incentive systems as corrupting the way research is done, the PRINT project's focus-group interviews also showed that researchers, especially within STEM sciences are keen on keeping certain reward structures (e.g. focusing on publishing and not giving teaching a more prominent role in career decisions).

3. *Researchers' agency.* Within this structure, there had been questions about researchers' agency to shape their own research environment – with Guus Dix providing an example of a manager who had set up a centre with incentives based on alternative values, notably the social value of science. In particular, how can PhD students be taught to analyse their organisational context so as to find the spaces for creating the kind of work environment (e.g. one of collective critical encouragement rather than individualised cutthroat competition) – without making them feel responsible for a dysfunctional system.

   Courses on Research Integrity need to create space and room for the students to learn to apply theory and reflexivity in practice. Universities and faculties have a responsibility to take care of the doctoral students and then, as next order of business, take care of the supervisors as well when trying to deal with dysfunctional research environments.

4. *Informal power relations*. The 'Practicing Integrity' project previously ran a workshop that revealed that most participants' experiences of lack of research integrity concerned the informal power relations that prevail within academia. These ranged from sexual misconduct, to senior professors stealing research results and publishing them in their own name, bullying and dismissal. Neither the ALLEA nor the Danish Codes considered this central

issue of how power relations affect research/ers in regard to gender and professional hierarchies, and how to deal with such issues as an academic community. The Code and the Research Integrity staff should be a resource to go to in such circumstances.

The project on internationally mobile researchers also found that interviewees did not differentiate between sexual misconduct, misuses of power, the behaviours that are covered by the code, sloppy management, or QRPs. People did not frame these things as belonging to different domains; they were all problematic aspects of research. There was also great difficulty to know how we, as an academic community, can deal with these issues.

The central question is how can PhDs and other colleagues think of themselves as creating research cultures that enable them to flourish – when it not only involves external incentives and structures, but relations with senior professors and principal investigators?

The EU representative responded to this question by referring to universities as democratic institutions, which provoked a ripple of dissent with widespread comments that Danish universities could no longer be considered democratic structures, and space for participation is being closed down more and more. One step would be to incorporate Ph.D. students into the governance structures.

One senior professor pointed out that we need to get senior researchers to address the gendered power structures at the university, ethics and integrity, with repercussions for misbehaviour. 'We know the histories and tell the stories when we are drunk, but we need to tell them when we are sober'.

Other observations were that there is a fine line between on the one hand, promoting doctoral students' agency and on the other hand, responsibilising them for changing a system that is hard to change. One misstep could be detrimental to their careers and lives, so they should not be given the responsibility for being agents in a space that seniors cannot reform. The whole model of research funding is also one of senior people making plans and finding junior colleagues who will be subservient to their plans and execute them. So, it is a system of creating small subordinations, until you rise to a position where you can get a grant and do the same.

Susan Wright concluded the discussion of this point: Clearly senior researchers' roles in sustaining inimical structures and informal power relations need opening up, and junior

colleagues cannot be given responsibility for changing the behaviour of senior researchers. But if PhD courses teach early stage researchers to be compliant individuals within an organisational structure that is outside their remit and all they have to do, is do as they are told, then that creates a certain kind of academic. And this is not the kind of academic who, when they become senior researchers themselves, are going to form more participatory organisations and research communities in which their junior colleagues can flourish.

5. *Dialogue between all the actors in the pyramid.* If, according to the EU's pyramid, responsibility is distributed and fragmented. Then a crucial question is how to create a dialogue between the diverse top-down and bottom-up perspectives.

   It was agreed that this conference had brought together people from across these diverse locations in the research integrity field for the first time, that the dialogue was extremely valuable, and that one outcome of the Ministry's project would be to continue such forums for dialogue between the very diverse actors involved from the top to the bottom of the pyramid.

Day 2

Session 4: Integrity in practice – parallel sessions

A. Integrating integrity – developing research cultures through organizational structures and teaching

The aim of this session was to consider how research integrity can be implemented in organisational processes. The presentations were about actual processes from different institutions that have tried to translate the Code of Conduct into their local context and the challenges that they have met in the process.

Henriette Frahm, Chief Consultant for Research and Development, UCN – University College Nordjylland

University Colleges are often facing parallel and similar challenges to universities and Henriette Frahm presented how UCN has tried to implement the Danish Code of Conduct. In the last five years when UCs have had a remit for research-based knowledge production they have focused on capacity-building. Now, from 2018, they are focusing on research impact and research culture by referring to the Danish Code of Conduct.

They have followed these action points:

- Looked to other university colleges and imitated their structures to some extent
- Created a course with a curriculum addressing research integrity for all research-active colleagues, leaders and people with a research-support function
- Created a confidential counsellor position

UCN has come to realise that it is not enough to just hold one course; the code needs to be addressed on a daily basis, and there need to be open dialogue and discussions to make a difference.

Kathrine Bjerregaard Nielsen, Research Integrity Officer (ROI), Technical University Denmark

Kathrine had recently taken up the position of ROI. She spoke about how DTU works to integrate integrity into the university structure, especially because they have a slightly different way of approaching integrity than other institutions in Denmark.

The Code of Conduct is both broad and vague and they needed to bring it closer to DTU and the researchers. Therefore, a group of stakeholders came together to get everyone involved to read through the Code and establish how the issues it raised applied to DTU's context. Next, a structure around integrity training was developed, involving lectures and workshops on related topics.

During the process, the primary challenge has been to persuade researchers to participate and make the courses relevant, relatable and applicable. The primary solution has been to make sure that the courses are of high quality, but also to allow researchers from different fields to discuss with each other. Another problem has been that a huge part of integrity issues are not necessarily related to scientific disputes but are more personal. To be able to separate those cases is key.

The following discussion mostly concerned her work as 'research integrity officer'. Kathrine described her job, first, as being available to discuss issues informally before anything becomes escalated. Authorship issues often involve personal problems, and there is a need to tease apart how much is interpersonal tension and how much is questionable research practice or misconduct. If a discussion between Katherine and the person raising an informal issue results in the two of them figuring out that it is just a personal issue, then it can be taken to the head of department to deal with. But when something is formally reported, it completely destroys the work environment. In order to distinguish between this informal role and her other role as handling a formal case, Kathrine make clear that she generally prefers not to take anything forward without the person's permission. As a rule, at DTU, they do not allow for anonymous reports, and want a case to be raised by a named person (although not publicly), in order better to determine whether the report is due to interpersonal issues or actual misconduct. In a case where a person does not want to make a report but there is reasonable suspicion of misconduct, DTU must report it as an institution. In such a situation, it may be more difficult to determine the reasonability of the suspicion, since the 'witness' may not wish to be party to the case.

Her second role is as a 'translator': Policy or regulations from EU come in a completely nonsensical format for the researches. Her job, with the help of legal consultants, is to translate the regulations and make sure they are turned into actions at departmental level. There is a high degree of translation between people who seemingly speak in the same language, but not really. One example can be between researchers from different disciplines, another can be between researchers and management. It might be good that research institutions are branding themselves as 'high integrity' but that does not resonate with researchers. Researchers do not want to hear that they have to do something because it looks good; she translates an initiative into how it can improve their research.

Mads Paludan Goddiksen, Assistant Professor, Department of Food and Research Economics, University of Copenhagen

This presentation focused on how to teach research integrity as just part of a whole training programme of becoming a good researcher. A course can introduce the concepts of integrity, ethics and being a good researcher and thereby 'plant a seed', but that seed has to grow through the rest of the PhD training programme. To make that seed flourish requires the right research environment

when students go back to their research groups and also motivating the students to keep learning after the course has ended.

One important aspect of teaching research integrity is to provide hope. Hope makes it possible to make progress in terms of research integrity, rather than just showing the students bad cases and a picture of science as fundamentally flawed. If we believe progress is possible, then we have to convey that to students; then they will go back to their labs and be willing to learn more. There are different ways of approaching the subject, and they promote different teaching goals, from describing misconduct to trying to create a certain culture. What is needed is a reconceptualization of research integrity and more discussions about who the good researcher is, not only a methodologically skilled person, but also someone who acts with integrity in academia in general. Furthermore, we need to institutionalise this kind of thinking, for example through our evaluation systems.

Points raised in response to Mads Goddiksen's presentation were

- We should be broadening the academic virtues to be not just about how to be a good researcher, but also a good academic. Being a researcher is a way of life, but this gets forgotten because science is becoming a profession nowadays.
- Research integrity courses have to recognize that the young researchers are pressured from many sides. We have to focus on what we still <u>can</u> do, despite structural pressures and structural limits.

Summary of the points raised in the session 'Integrating integrity'

- University Colleges have an overwhelmingly positive response to research integrity.
- DTU shows the importance of having someone to talk to about research practice who is outside the structure.
- Is the object of courses to teach people not to be bad, or to teach people to be good researchers? It is easier to drive motivation by fear, but the aim is to positively foster the good researcher.

- Research integrity needs to be in focus at all levels of the organisation – it is clearly integrated in teaching, but especially important to be in focus at the top.
- Dilemma: If management drives research integrity, academics may see it as an instrument of control and decouple from it. But if management does not own research integrity, then why should academics care?
- Clash of values between research integrity and research productivity – this needs discussion in the Ministry.
- 'We're in the middle of going somewhere. But we're not sure where'. A few years ago, the focus was on teaching quality and that changed notions of quality. The focus on research integrity has implications for the good researcher's awareness of the values of science in society and of the importance of taking an active role in public discussion and the democratic process.

B. Responsible research and research integrity - Why does RI matter to society?

This session ran in parallel to the session described above, and research integrity and research more generally were discussed in relation to academics' greater responsibility to society.

Tom Børsen, Associate Professor, Department of Planning, Aalborg University

In this presentation Tom Børsen investigated the relationship between ethics and different modes of university science education. He pointed out that philosophy of science courses at BA level are mainly about epistemology and methods, but should include research integrity. At AAU, they established work on techno-anthropology, which explores how technical innovations affect individuals and society. This is based on an assumption that science and social values co-produce each other. They are particularly concerned with how science can facilitate political decision making. They reviewed 400 papers on how researchers should behave regarding good conduct in giving political advice. They identified 33 norms and synthesised these in the acronym TRUST.

	Norm	Misconduct
T	Transparency	Hiding interests and intentions
R	Robustness	Not involving the community in extended peer review
U	Uncertainty management	Overselling results and not explaining the uncertainties
S	Sustainability	Short-term perspective
T	Trans-disciplinary	One-dimensional approach

He called this an ethos for Post-Normal Science, which is an idea from the early 1990s that science has moved beyond Kuhn's view of science as puzzles to be solved. For example, climate change is not a puzzle that can be solved; it relies on bringing together different kinds of knowledge production in a broader picture of a multi-faceted issue with multiple stakeholders. He saw academic science moving towards this kind of knowledge production on social and policy issues.

Lone Bredahl Jensen, Bertil F. Dorch & Charlotte Wien, University Library of Southern Denmark

Bertil Dorch is an astrophysicist and director of the University Library of Southern Denmark, SDU. He presented the results from a project that asked early stage researchers to develop a publication strategy. This is a component of a compulsory Responsible Conduct of Research (RCR) course for approximately 200 PhD students per year, which has been running since 2014. The RCR course covers the Vancouver protocol, Danish law and RCR code, data management, scholarly communication, peer reviewing and more. For the module on scholarly communication, students write a mandatory essay in the form of a publication strategy. The module has the practical aim of trying to ensure they and their supervisors do not end up on 'retraction watch', but it is also an opportunity to reflect on the pressures to publish and, using Kolb's experiential learning, to consider how and where they want to publish. This includes peer reviewed journals and also public outreach, conference outputs and citizen science. Students are encouraged to use the publication strategy as a tool to see how they want to relate to the world, and to discuss the lack of alignment between formal and external demands for peer reviewed articles and initiatives associated with social

outreach and citizen science. Over time, the researchers have compared the PhD students' original publication strategies with their actual resulting publication record several years after graduation. Deviations are to be expected but the project's important finding is that only 3 out of 25 publication strategies were abandoned. They conclude that reflection on publication strategies can be a useful tool for early career academics.

Jens Lund, Professor, Department of Food and Resource Economics, University of Copenhagen

Jens Lund presented his personal story about disseminating knowledge on climate change to the greater public as a way of fulfilling his responsibility as a scientist to society. He coordinated a statement on Denmark's responsibilities regarding climate change that was signed by 300 academics and featured on the front page of Politiken (11 May 2018). This action was motivated by frustration over scientists' lack of engagement in the climate debate and concern over a number of important scientific questions that were not making it into public debate. In particular the different specialised pieces of knowledge were not being put together in an overall picture of the climate crisis. The piece addressed the environmental history and the relation between Danish consumption patterns and growth economics and emissions, in a context of uncertainties, risk and high political stakes. He saw this interdisciplinary construction of the big picture aimed at making scientific knowledge available for public debate as an example of post-normal science. He justified this view using Børsen's TRUST acronym (above):

	Norm	**Politiken article**
T	Transparency	They made clear their aims and values
R	Robustness	20 academics vetted the draft.
U	Uncertainty management	The article pointed out that any attempt to produce a big picture will have gaps, and be open to discussion in the light of the risks and the high political stakes in the climate crisis.
S	Sustainability	Long-term concern: how to suck much more CO2 out of the atmosphere than is being emitted.

T	Trans-disciplinary	A stellar example with signatories from many disciplines including forestry, ecology, economics, politics, sociology, cultural science and environmental history

Jens Lund recounted how the article got both a lot of praise but also a lot of backlash from the science community, and he raised a number of questions for discussion about the role of scientists in society:

- Should academics sign a manifesto with university credentials or as individuals? The Vancouver statement (§10) says academics should limit public comments to their own area of expertise and any use of their analytical skills on wider issues should be done in a personal capacity. Jens is trained in forest management, with approaches from philosophy and sociology, yet this article was motivated by concern to put together information across disciplines to provide the large-scale analysis that is lacking in public debate. Was he overstepping the boundaries of an academic researcher? Is it the role of science to push public debate? Where is the boundary between science communication and advocacy?
  One early stage researcher thought that signing the article violated the ethos of a scientist. One senior professor considered that research freedom is a public responsibility (not a personal privilege) and it was precisely the moral responsibility of academics to use their knowledge and analytical skills to enhance informed public debate.
- Is it just the work of senior scholars to take the lead in contested activities? Two junior colleagues on short-term contracts were involved in the article. Was it a responsible way to nurture juniors by involving them in engaged and citizen science? Or should they only invest in doing the work (peer reviewed journal articles) that would secure their academic careers?
  One response was that this was training in trans-disciplinary, post-normal science – crucial approaches for addressing climate change – and a lesson in how to interact with the public. Assessments for academic positions should not just be based on research outputs and teaching but also on experience of social engagement and public discussion. But institutional structures and the BFI make it difficult to enact publicly responsible research.
  Another response was to pose the question, who is the beneficiary of research integrity? Surely not just the research institution.

- In that case, does the concept of research integrity need to be expanded? Is there a need for a new text in the Danish Code (cf Point 7) about the role and engagement of scientists in society? Or should there be a separate document?

Conference summary and discussion of integrity in practice

Rachel Douglas-Jones (IT-University of Copenhagen) had been capturing the main points raised by participants throughout the conference in the form of pictures and diagrams. These were depicted in four posters covering

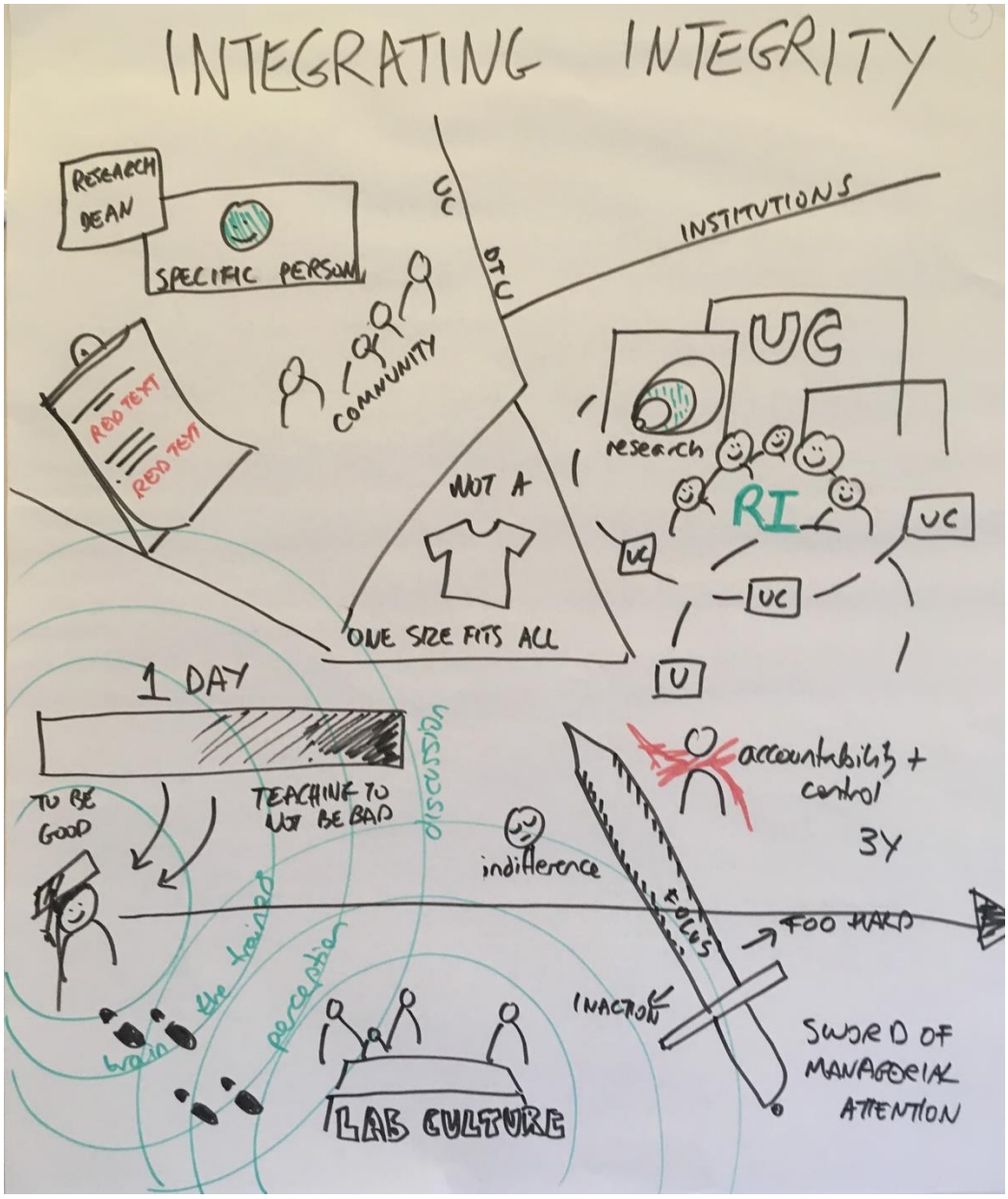
1. The ways higher education institutions integrated research integrity into their practices
2. The ways research integrity was translated into PhD training
3. The figure of the trained researcher wanting to act with integrity
4. Integrity in Practice – the Role of Science in Society

The posters were put on the wall and Rachel Douglas-Jones talked the conference participants through the way that the issues had been developed in the course of the conference. This recapitulation of the conference's discussions provided a much applauded and constructive segue into the participants' final reflections in the concluding plenary.

1. Institutions: Integrating Integrity into Institutional Practices

At the centre of Rachel's picture is the point that came over strongly in the presentations and discussion that there is not just one single way of integrating 'integrity' into the practices and procedures of higher education institutions - 'Not one-size-fits-all'. Different institutions are doing it differently.

On the top right, the university colleges (UCs) are gathered together around the issue of research integrity as they contemplate the expansion of their research remit (the picture of ever widening



ellipses). They have a positive attitude (happy faces) and are holding these discussions apart from the universities, whose separate circle is not in dialogue with UCs.

On the top left is DTU's version of the code, which they annotated with red text to ground it in specific people and examples. They have established a framework of linked positions from the academic community, to an integrity officer who is the first port of call for any problems, and up to a Dean to deal with any formal cases.

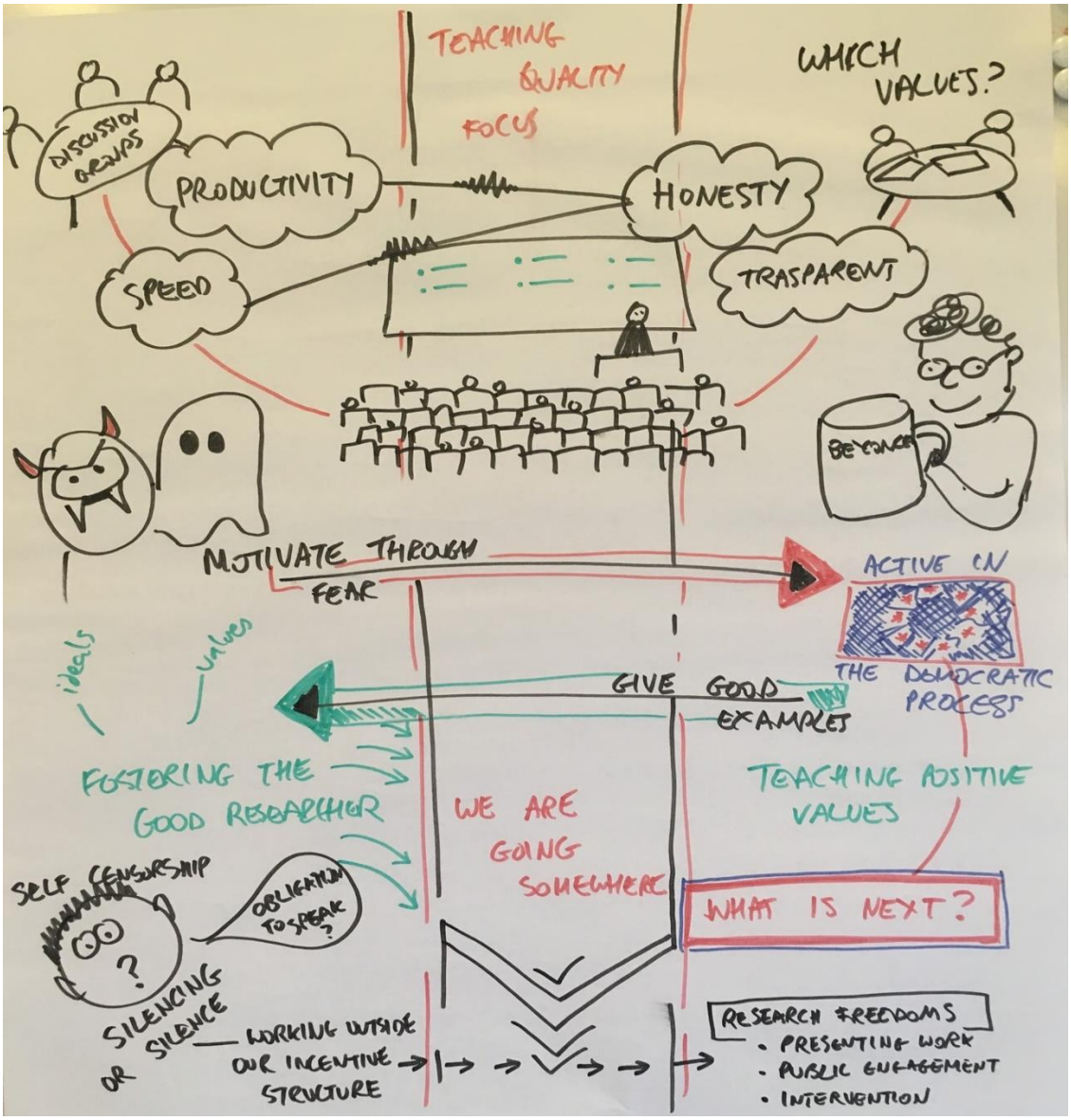
On the bottom left are those universities that focus their integrity activities on one day of training for PhD students at the start of their studies (hence the arrow of their training stretching across the poster). Above that student's head is the spectrum they encounter in that day of training, from how to be good at one extreme and how not to be bad at the other. The idea is that this person will walk back into their lab (hence the footprints) and start conversations, which will change the lab's culture. This puts a big responsibility on the shoulders of students, although there are more feint activities also circling around the training (training the trainers and changing perceptions).

On the bottom right is the sword of management. The blade represents the double-sided focus of managerial attention, swinging between inaction on one side and excessive action on the other side. If it is wielded 'too hard', it cuts off the head of the researcher in the name of accountability and control.

2. Translation of Research Integrity into PhD Training

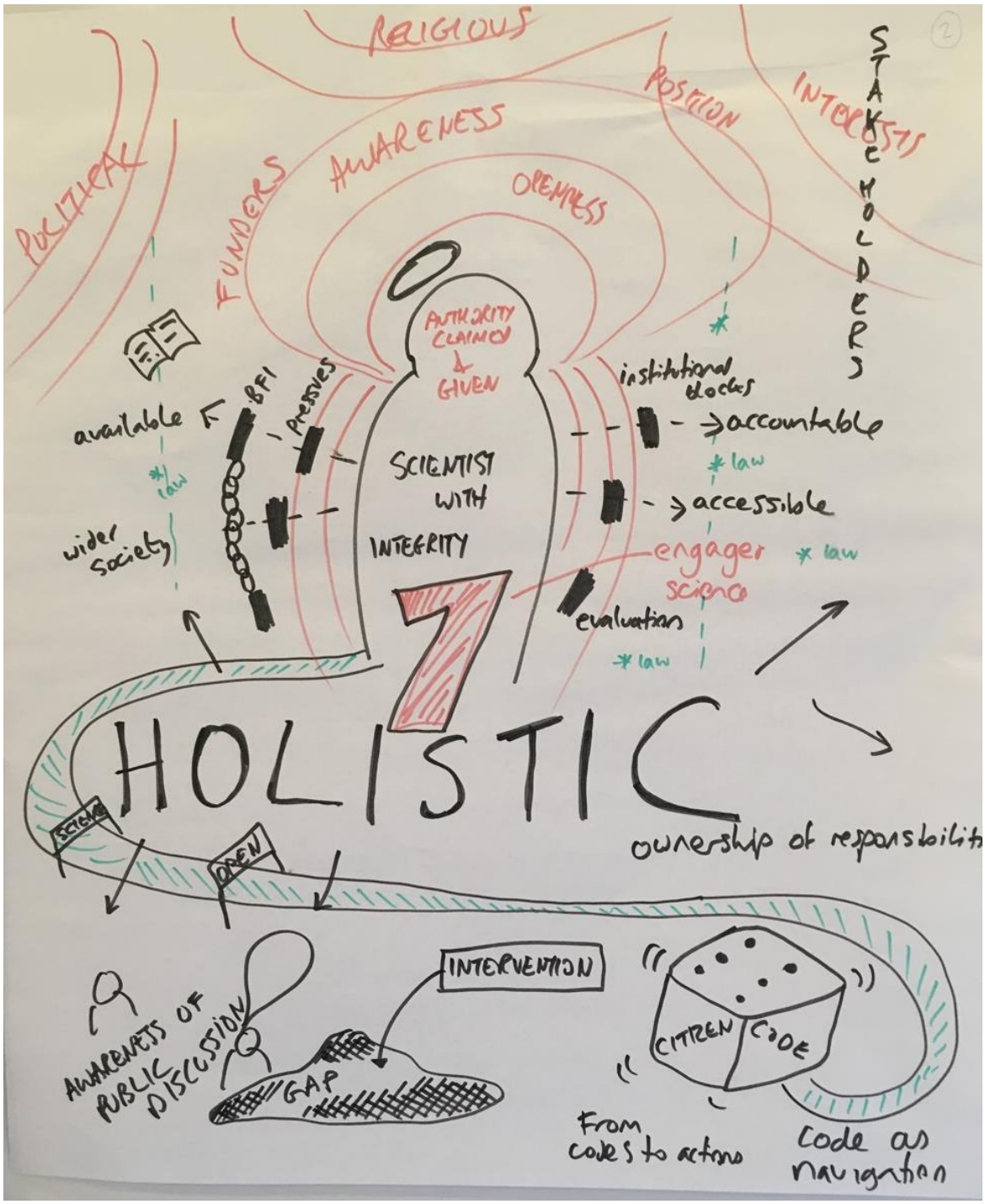
This poster has an arrow going from the classroom at the top to the researcher who has received the training at the bottom, catching a phrase used at the conference, 'We're going somewhere. But not sure where'. The top section depicts what is going on in the classroom. A PowerPoint behind the teacher asks what we are talking about when teaching research integrity and where should the focus or emphasis lie. Should it be honesty and transparency? But that is in tension with productivity and speed. Meanwhile the students in their discussion groups are trying to work out which values to follow, or how to deal with the tensions between them.

The middle section of the poster focuses on the different ways of teaching research integrity that were identified by the project. One technique is to motivate by fear (with a devil and a ghost) with the aim of producing a star researcher (with the Beyonce-cup). A contrary approach is to foster the good researcher by teaching positive values and giving good examples like taking an active part in democratic processes.



The bottom section of the poster depicts the PhD student who has received this training. S/he is confused. Is s/he obliged to speak when s/he sees bad research practice, or should s/he self-censor and stay silent? But does not research feedom (as a public privilege not an individual right) carry an obligation to speak? S/he's worried about how to work within the incentive structure, not least because this seems to be opposed to research freedom. Research freedom entails some obligations for researchers to present their work, enter into public engagement and make interventions, e.g. in public debates. This tension is experienced not least because the obligations associated with research freedom do not count in the incentive structures.

3. The Trained Researcher Wanting to Act with Integrity



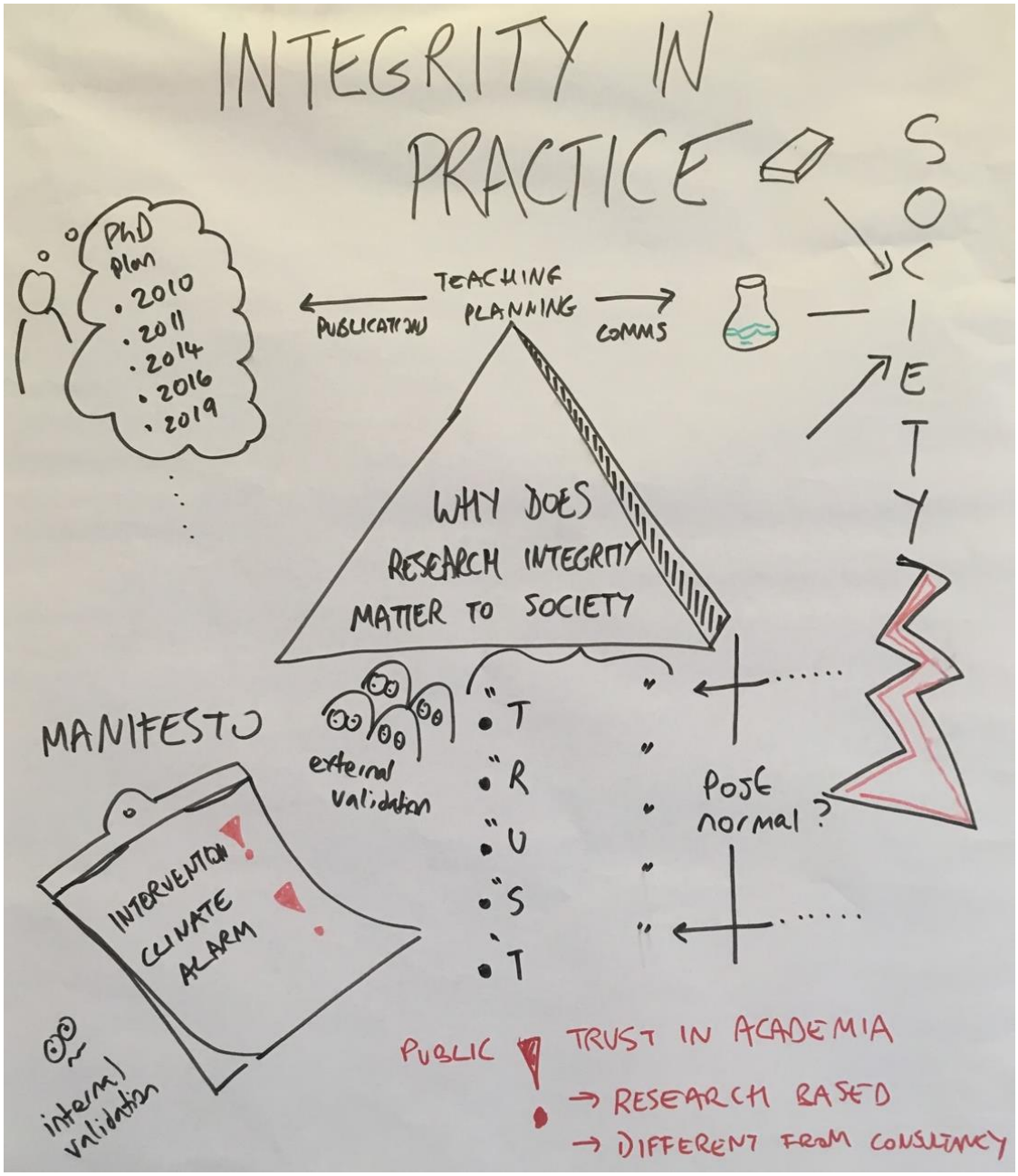
In the centre of the third poster is the researcher acting with integrity (although there is a question whether that is a status that is claimed or is attributed). Because of the tensions around this figure, the integral researcher's halo inevitably slips. Above the figure are further halos, depicting the things the researcher should be acting with a knowledge of: e.g. policies about openness, and a reflexive

awareness of his own positionality. They also depict the stakeholders within which the research/er is positioned: funders and political and religious interests. Close up against the figure are chains and blocks constraining the researcher's capacity to act in public debate. Some of these come from various laws that are sprinkled around in the background. Most evident are the pressure to perform in the BFI (research output indicator), institutional blockages (such as limits about where to publish) and evaluation systems, along with pressures (and desires) to be accessible and accountable to wider society. The researcher is trapped in this bubble of demands.

The bottom of the poster shows that the Code on Research Integrity was meant to be a navigation tool for how act – 'From codes to actions'. Travelling up the path to becoming a holistic researcher who acts with integrity is presented as a game of dice with hoops along the way as the Danish Code says nothing about how to act as a public intellectual. The researcher is aware of public debates and knows s/he has material on which to base an intervention, but there is a gap that stops her/him from acting. The route leads back to the figure in the centre of the poster who is aware of the public responsibilities of a researcher but is tensely hedged in by accountability demands and blockages.

4. Integrity in Practice – the Role of Science in Society

One of the reasons for developing Codes of Research Integrity is to ensure public confidence in science and this poster addressed the question, Why does research integrity matter to society? The top of the poster sets out the tension between demands for academic publications (with a reference to the course at SDU that asks PhD students to make a publication plan), as against communicating the results of scientific experiments or the contents of books to society. On the bottom left is a reference to the statement on the climate crisis that was published in a national newspaper and signed by 300 Danish academics. Some colleagues thought that academics should use their knowledge to point to gaps in public debate, whereas others thought such public intervention was wrong. Hence the question who assesses the value of knowledge – is it the external validation of 'Joe Public' or, on the other side, the internal validation of peers.



At the bottom on the right is ‘post-normal science’, a term that one paper used to describe topics such as the climate crisis that are so big and complex that they call on knowledge from a vast array of disciplines. Thus, a lead author cannot assess the quality of the research contributed from all the other fields, just as the 300 people signing the climate crisis manifesto were not expert in all the aspects of the issue covered in the text.

In the centre is TRUST, an acronym that was used in two presentations and stands for Transparency, Robustness, Uncertainty management and Sustainability, each with their associated misconducts. What is at stake (the exclamation mark) is public trust in academia and the key characteristic (and the difference from consultancy) is that public declarations are meant to be based on independent research.

Round table – where do we go from here?

Session chair: Susan Wright, Aarhus University

In the very last session, all participants were invited to share their responses to Rachel Douglas-Jones' picturation and their thoughts and comments on the conference. The focus was on where to go from here.

Main points from the discussion were:

- **Reflexivity:** was a central concept in many discussions during the two days. It refers to the capacity of a researcher to reflect on his/her organisational situation, power relations and every aspect of research so as to decide how to act, rather than just comply with a code or follow a standardised research method. The concept was central to discussions about what kind of researcher we want to promote through our cultures and practices, and what kind of culture we want to create and help flourish and grow.
- **Responsibilities:** of the universities and UCs to create and promote research cultures that support research integrity through student and supervisor training and incentive structures. Discussions circled around the interaction between the macro level (policy/structure) and the micro level (the individual researcher). It is important for PhD students to reflexively analyse how they can act on their research environment and institution to create spaces where they can become good researchers and their research can flourish; but it is also important not to make early stage researchers feel responsible for organisational structures and systems that incentivise poor research, but which senior researchers find hard to change, and even endorse.

- **Incentives:** Considering the macro-level and systemic issues that trigger poor research practice, it is essential to review the contemporary conditions of academia, what kinds of behaviour are incentivised, especially for those trying to build a career. In thinking about what next, it is important that those who operate at this level of policy and funding look at what is being encouraged and change incentive structures. For example, in evaluation systems, what kinds of researchers are valued and what kinds of behaviour are rewarded – publishing a lot or public engagement? At the same time, the individual researcher is not without agency. On Day 1 there were encouraging discussions about practices that people have been nurturing, with small-scale gatherings, sharing practices and being hopeful. The academic literature points to the ethics of care as a way of being, with words like kindness and generosity. Much of the discussion has touched on what is a good researcher and how do we promote and enable that kind of researcher. Maybe small-scale interventions of kindness and generosity may help prevent people from wandering into poor research practice, or make people's lives easier.
- **Sustaining the focus on research integrity:** It has been a positive to be here with a small community committed to research integrity in Denmark. But there are concerns about the future. The topic has been blossoming for a while, the EU has funded research and in Denmark we got funding for the three projects. But then what? Only the Netherlands seems to have made a long-term commitment with the creating of networks, funding for establishing a thorough knowledge base, and an infrastructure to disseminate that knowledge into research communities throughout the country. What will happen next in Denmark? It takes time to build up the work, but then what? From experiences as a teacher, there are still a lot of challenges about the way research integrity is perceived and handled within the university. Does it fade away until we get a new scandal? The EU's SWAF programme is ending now and it is meant to be integrated into the framework programme but if it is not a headline anymore, there is a danger it will disappear. Being involved in an explorative and diverse network is strong way to keep the subject in mind.
- **Comment from EURODOC:** For EURODOC, research integrity is very important. The EURODOC representative's report on this conference will give EURODOC a deep and wide overview of what is going on in Denmark as a good case for the other EU countries that are

not so experienced. Denmark has an infrastructure, with bodies operating according to state regulations established by the Danish government, there is an identified unit in the ministry, and in institutions there are RI officers and a cycle of activities. In addition to the infrastructure, there are deep and calm discussions about creating an academic culture. The EU and national initiatives also create a new group of professionals as mediators and translators between administrators and researchers within the university, so a new job market is opening up for researchers who do not want to participate in ongoing research competition and could contribute to the development of science in this way instead.

- **Comment from EU**: Denmark was ahead of the curve in developing a Code and how to avoid getting to a case where they have to process someone legally. But in Denmark as in other countries, we still don't know the best way to teach or introduce early stage researchers to this process. It is heart-warming to see this research and the initiatives from graduate students, with networking as part of the thinking. At a European level there is a network of officials and people responsible for integrity structures, but we are missing information about researchers. We are trying to build a network of researchers because it is a promise in the legislative text that we will develop a community on research integrity. It is heart-warming to see your project building such a network.
- **Comments from the ministry:** It has been very interesting to see how the Code of Conduct is perceived by the users. It sounds like there is a gap - the code is used so far, but it does not reach all the way down to the end-users. In the upcoming revision of the Code, this is something to think about.
- **Networking:** The UCs have established networks across their sector and are meeting and keeping a continued focus on the issue of research integrity**.** This approach to networking needs to be widened. There is knowledge sharing between concerned officials who need that knowledge to do their work but the funding of this project demonstrates the power of research to create a much wider conversation and explorative network.
- **Future action:** This conference is the first time that people who are differently positioned in the research integrity field have come into dialogue and seen how they think of research integrity differently. They have realised how they do not usually have access to other people's perspectives. In bringing people together, the conference has given a deep insight

into the Danish context, in state regulations, research integrity infrastructure and research culture. This has been inspirational. It was agreed that it would be valuable to create a network to keep that dialogue going.