RESEARCH INTEGRITY NATIONAL FORUM

RESPONSIBLE RESEARCH AND INNOVATION: FOSTERING A CLIMATE OF EXCELLENCE FOR IRISH RESEARCH

REPORT OF INAUGURAL SEMINAR 3RD FEBRUARY 2017

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RESEARCH INTEGRITY NATIONAL FORUM

ABOUT THE NATIONAL RESEARCH INTEGRITY FORUM

The National Forum on Research Integrity ('the National Forum') has its origins in the publication of the "National Policy Statement on Ensuring Research Integrity in Ireland"[1]. It was established in June 2015 with representation from research performing organisations, research funders and other stakeholders. Its aim is to ensure continual development and adoption of good practice towards a strengthened approach to research integrity in Ireland.

The Forum is coordinated by the Irish Universities Association supported by the Technological Higher Education Association and is chaired by Professor Anita Maguire, Vice President for Research & Innovation at University College Cork (UCC).

1 | http://www.iua.ie/wp-content/uploads/2014/06/National-Policy-Statement-on-Ensuring-Research-Integrity-in-Ireland-2014.pdf

KEY RESPONSIBILITIES OF THE FORUM

01

To support the implementation of research integrity policies and processes in a harmonised manner across the research performers.

02

To support national research funders in implementing harmonised research integrity statements in grant conditions and associated audit processes.

03

To agree a process and format for the public dissemination of the outcome of research integrity investigations having regard to existing regulations relating to misconduct and discipline in the research-performing organisations, and the Terms and Conditions of grants awarded by the research funding organisations.

04

To support the development and roll-out of research integrity training programmes for staff and students in the research performers.

05

To monitor international developments and policy in the area of research integrity, and make appropriate recommendations for adjustments in research integrity policy and practice in Ireland.

06

To communicate the importance of research integrity to the Irish research community and to the general public.

More information on the members and role of the Forum can be found at
http://www.iua.ie/research-innovation/research-integrity/

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INAUGURAL SEMINAR

The Forum was pleased to host its inaugural seminar in the Royal Irish Academy on 3rd February 2017. The seminar aimed to explore the topic of Responsible Research and Innovation (RRI) from a national and international viewpoint, focusing on how to establish and maintain a culture of responsible conduct of research.

This report gives an overview of the topics discussed, including the opportunities and challenges presented by Open Science, the dilemmas faced by researchers in conducting research in a highly competitive environment, and exploration of the issues arising from collaborative research when the research culture differs between disciplines, sectors and countries.

WELCOME AND OPENING ADDRESS

PROFESSOR ANITA R. MAGUIRE, VICE PRESIDENT FOR RESEARCH & INNOVATION, UNIVERSITY COLLEGE CORK (UCC) AND CHAIR, NATIONAL FORUM ON RESEARCH INTEGRITY.

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Professor Maguire welcomed the delegates to this inaugural seminar hosted by the National Forum on Research Integrity. She noted the mix of people and organisations in attendance, expressing that this reflects the importance of responsible conduct of research (RCR) and the highest standards of research performance across the entire Irish research system. In particular she welcomed the international speakers and the researchers presenting a range of research integrity dilemmas encountered during their own research. She welcomed the opportunity to learn from international perspectives in order to support a culture of Responsible Research and Innovation in Ireland.

In setting the context for the event, Prof. Maguire noted the rapid development of the Irish research system and its increasing international reputation since ca. 2000. Much progress has been made, but challenges remain, including embedding and sustaining a culture of RCR, supporting researchers to resolve their integrity dilemmas, and issues

with collaborative research between institutions, sectors and across borders. There are currently two "big issues" for Ireland in the area of RCR. The first is the Open Science agenda, with the new open data requirements presenting a significant challenge in terms of infrastructure and the required human capital supports. The second is the provision of research integrity training within the research performing organisations. In this regard, she thanked Ned Costello, CEO of the Irish Universities Association (IUA), for his offer of part-funding to support the roll-out of an online RCR training programme.

Prof. Maguire thanked the organising committee and the sponsors for their essential support in running this event. She acknowledged the continuing support of the IUA in the operation of the National Forum on Research Integrity,[2] and highlighted the work done by Dr Jennifer Brennan from IUA in supporting and helping her to drive the work of the Forum.

2 | http://www.iua.ie/research-innovation/research-integrity/

SESSION ONE INTERNATIONAL PERSPECTIVE

CHAIR: DR MAURA HINEY, HEAD OF POST-AWARD AND EVALUATION, HEALTH RESEARCH BOARD, CHAIR OF THE SCIENCE EUROPE RI WORKING GROUP AND THE DRAFTING GROUP FOR THE REVISED EUROPEAN CODE OF CONDUCT

KEYNOTE 1

NICHOLAS H. STENECK, PH.D., PROFESSOR EMERITUS OF HISTORY, UNIVERSITY OF MICHIGAN, EPIGEUM IMPACT LEAD ADVISOR AND RESEARCH INTEGRITY AUTHOR

CREATING A CLIMATE OF RESEARCH INTEGRITY – EVIDENCE FOR WHAT WORKS AND WAYS TO MEASURE IMPACT

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Prof. Steneck opened by commending the unified nature of Ireland's approach to research integrity. Although this is easier in a small country like Ireland, he highlighted that discussion and events such as this only happen in a willing and cooperative environment.

He began by outlining the evolution of the definition of research misconduct in the USA, from its initial labelling as 'fraud' in the 1980s to the definition of 'fabrication, falsification and plagiarism' (FFP) currently used worldwide. Early efforts to prevent misconduct were led by the National Science Foundation (NSF) and the Office of Research Integrity (ORI), but accountability in the US system is relatively low overall due to the large number of funding agencies who are not reporting misconduct cases. Currently, it is estimated that the number of cases investigated in the US constitutes only one hundredth of the suspected cases at that time. This is on a par with worldwide reporting levels.

In the 1990s, the emphasis shifted from dealing with misconduct to preventing it. As an example of this, the National Institutes of Health (NIH) and the NSF added a requirement to complete research integrity training to their grant conditions. Training is now widely available in the US with the majority of researchers having to undertake it to progress their research. But significant questions remain unanswered: the extent to which training has made a difference; which type is the most effective (online, room-based, with/without mentors etc.); and ultimately if it is worth the time and cost. Some research has shown that training can stress the competitive environment such that misconduct can increase, not decrease.

The focus of research integrity is now shifting globally. There is a broadly accepted worldwide definition of responsible conduct of research, and global discussions are ongoing via the World Conferences on Research Integrity. Codes of Conduct and guidelines for good research practice are in place in many countries, including Australia, Canada and the UK, where the *Concordat to Support Research Integrity*[3] was published in 2012. The *National Policy Statement on Ensuring Research Integrity in Ireland*[4] was published in 2014. The European Commission is taking an increasing interest and active role in this area and the Federation of All European Academies (ALLEA) will shortly publish a revised version of the ESF/ALLEA *European Code of Conduct for Research Integrity*[5].

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3 | http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/research-concordat.aspx

4 | http://www.iua.ie/wp-content/uploads/2014/06/National-Policy-Statement-on-Ensuring-Research-Integrity-in-Ireland-2014.pdf

5 | http://archives.esf.org/coordinating-research/mo-fora/research-integrity.html

This new focus has shifted from fraud, cheating, crime and misconduct towards behaviour that is guided by principles and creating a positive climate that influences everyday practice. This thinking assumes that improving the research environment and culture will discourage misconduct, and is reflected in the language used in the UK Concordat, the Irish *National Policy Statement and the European Code of Conduct for Research Integrity*[6].

Prof. Steneck questions whether this new approach is actually working well, citing evidence of significant numbers of predatory journals, suspected plagiarised articles, retractions for FFP, wasted clinical research funds, researchers who suspect but who do not report misconduct, researchers who do not keep proper research records and researchers who have admitted serious conduct in the last five years. In relation to the latter, Prof. Steneck highlighted the statistic that 1% of researchers admitted serious misconduct in the last five years and contextualised it by simply stating that for every 1,000 researchers in a given institution, 10 can be expected to be guilty of serious misconduct and should be investigated.

Questions remain around what is research integrity, how to measure integrity in research, how much the working climate (i.e. local culture, environment, values, practices etc.) actually influences behaviour, whether climate can be changed and how progress can be measured? Prof. Steneck highlighted a lack of tools for measuring research integrity as a factor that limits the use of current research integrity reports in measuring progress. He outlined SOuRCe (Survey of Organizational Research Climate): Research Climate Measure,[7] Epigeum Impact (which Prof. Steneck is helping to design),[8] and the Amsterdam Agenda[9] as potential solutions to this problem.

Prof. Steneck summed up by asking the questions: what can we do about research integrity and how do we measure it? He said that RCR problems are not g oing away and are actually getting more complex. He expressed a fear for future public research funding if the public were to believe that significant research misconduct exists.

He closed by saying that we all need to act to prevent such a scenario by developing quantitative ways to show that progress is being made.

6 | http://www.allea.org/allea-publishes-revised-edition-european-code-conduct-research-integrity/#

7 | http://ethicscenter.csl.illinois.edu/source/

8 | https://www.epigeum.com/collaboration/impact-groups/

9 | http://www.wcri2017.org/program/amsterdam-agenda

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KEYNOTE 2

JAMES PARRY, CHIEF EXECUTIVE OF THE UK RESEARCH INTEGRITY OFFICE (UKRIO)

RESEARCH CULTURE AND CONCORDATS: LESSONS LEARNED BY UKRIO

Mr. Parry opened by stating his belief that the Irish system is not far behind the UK, and in many ways, other countries could learn from our approach. He particularly commended how we have brought relevant stakeholders together in the Irish National Forum on Research Integrity (National Forum) and mentioned how this kind of collaborative effort has not happened in the UK to date.

In 2012, the UK put in place a national statement on research integrity known as The Concordat to Support Research Integrity ('the Concordat'). It was developed in conjunction with the UK government, Universities UK (UUK), and research funders. The Concordat includes elements of regulation and self-regulation. It has five commitments that deal with research standards, research conduct, the research environment, processes for dealing with alleged research misconduct, strengthening research integrity and measuring progress. Early impressions indicate that the Concordat is generally seen as a positive development; while it sets out what institutions should be doing already, institutions and researchers still have the autonomy to apply it as they see fit.

The focus of implementing the Concordat remains to change the culture on the ground versus a 'tick-box' approach to satisfying funding conditions. Positive feedback from a 2016 UUK review of the Concordat[10] includes that:

+ The Concordat is a proportionate approach, greatly preferable to regulation… but culture change is not yet achieved;

+ It raises awareness amongst senior managers of research ethics, integrity, and governance;

+ Researchers are aware of research integrity even if they are not aware of, or have not read, the Concordat;

+ It is useful as a teaching tool, albeit a generic one;

+ It is useful for gap analysis;

+ It is useful to get everyone on board across different departments and disciplines in institutions.

10 | http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/concordat-research-integrity-progress-report.aspx

Perceived challenges were presented, namely:

+ A lack of clarity as to what compliance means from an institution point of view rather than a funder point of view, and what the consequences of non-compliance are;

+ Implementation can be a burden for institutions in terms of increased workload;

+ While the Concordat can be a useful lever for change as it pertains to funding councils, it can also lead to pressure on senior institution leaders to rush through initiatives to justify continued funding; stakeholder engagement needs to improve;

+ As it is not mandatory to publish annual statements on instances of misconduct, very few institutions actually do.

Mr. Parry affirmed how ongoing support for institutions is essential, and wondered how resourcing be improved where one to two people are tasked with looking after research integrity for an entire institution? He gave the example of feedback from Universities UK members showing how they have valued the mix of 'hard' and 'soft' supports UKRIO has provided to its members. To this end, UKRIO has developed a self-assessment tool to improve how the Concordat can best support research integrity in institutions. This

is designed to be a tool to effect change rather than something that just facilitates contractual compliance.

Some key learnings from UKRIO's experience of research integrity efforts over the past ten years were outlined:

+ When discussing RCR and training researchers, focusing solely on major cases of research misconduct is counterproductive. While it is important that such cases are examined, discussion should also include questionable research practice and sloppiness, which may be more pervasive than major misconduct.

+ A 'there is no problem' belief often prevails among researchers where they believe that someone else looks after research integrity, or that it is something separate rather than inherent to research practice.

+ Desired standards of research practice may be obvious to outline but can be difficult to achieve in practice: researchers often gain their knowledge about behavioural standards from what colleagues and supervisors show or tell them, versus what they are being taught.

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+ Researchers can be slow to ask for help to address challenges they face, often in the belief that if they admit they do not know how to proceed in a certain research area, that they will be frowned on by colleagues to the detriment of actually getting the support they need.

+ Institutions need to avoid being heavy-handed or micro-managing – avoiding bureaucracy, delays, straight-jacketing or stifling innovation or cross-disciplinary research.

Mr. Parry next explored leadership culture and values, pointing to the Nuffield Council on Bioethics report[11] on the culture of scientific research in the UK, whose findings have clear relevance beyond STEM and beyond the UK. This report showed the key actions specific to researchers, employers, and funders which are necessary to support good research practice under the headings of dissemination, funding, assessment, careers, and research governance and integrity. He encouraged continued efforts to build on existing initiatives, with a particular emphasis on introducing incentives to promote a positive research culture versus solely offering disincentives to prevent misconduct, citing the suggestion to integrate rewards into academic

promotion processes as one positive example. The research community has a huge role to play to address research integrity culture especially when researchers sit on academic promotion boards, review panels, are Principal Investigators and so on.

Mr. Parry closed by stating that challenges remain and need to be addressed, most notably the need to show how research integrity is relevant to all researchers when research integrity staff are often time- and resource-poor and considering the underlying belief of some that researchers "know all this stuff already". Tensions remain between the promotion of good research practice and compliance with research integrity initiatives, versus the real research culture that is often driven by colleagues through the behaviours they encourage peers and more junior researchers to adopt.

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11 | http://nuffieldbioethics.org/wp-content/uploads/Nuffield_research_culture_full_report_web.pdf

MR. ISIDOROS KARATZAS, HEAD OF THE ETHICS AND RESEARCH INTEGRITY SECTOR, DG RTD, EU

THERE IS NO EXCELLENCE WITHOUT RESEARCH INTEGRITY

The session Chair, Dr Maura Hiney, apologised on behalf of Mr. Karatzas, who was unable to attend. She presented his slides to outline the European Commission's perspectives on RCR. The EU has widened its view of research integrity from one that initially focused on ethics to one that serves to improve RCR in Europe. This is reflected in the text of the Horizon 2020 model grant agreement, which includes a reference to the 'highest standards of research integrity'. The Commission is grappling with several issues in the area of research integrity, including:

+ The lack of a clear picture of the integrity/ misconduct environment in Europe, which is hampered by many factors including a diverse legal system in the EU with a diverse set of structures;

+ A lack of cooperation from some key players on occasion;

+ Some denial in the form of false confidence that "all is well".

Future efforts will move from the sole focus on cases of misconduct towards an examination of the conditions under which research misconduct prevails, i.e. research climate.

In support of their agenda, the Commission has put €35 million into several projects under Horizon 2020 "Science with and for Society" which seek to generate evidence and tools on promoting research cultures and climate (PRINTEGER)[12], measuring misconduct (DEFORM),[13] creating and enhancing trustworthy, responsible and equitable partnerships in international research (TRUST),[14] and creating a European research integrity network of networks (ENERI).[15] Future projects will likely focus on researching the issues around ethics of technologies with high socio-economic impact and human rights relevance, and research integrity as it pertains to policy positions based on evidence gathered from non-medical research. As with UK and US initiatives, the focus on culture change will continue.

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12 | http://cordis.europa.eu/project/rcn/197299_en.html

13 | http://cordis.europa.eu/project/rcn/203532_en.html

14 | http://cordis.europa.eu/project/rcn/197442_en.html

15 | http://cordis.europa.eu/project/rcn/204323_en.html

SESSION ONE
PANEL DISCUSSION

PROFESSOR NICHOLAS STENECK, PROFESSOR EMERITUS OF HISTORY, UNIVERSITY OF MICHIGAN

MR PARRY, CHIEF EXECUTIVE OF THE UK RESEARCH INTEGRITY OFFICE

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The audience were given the opportunity to pose questions to the speakers. In responding to a query about whether the life sciences model of regulatory compliance could be applied to research institutions for the purpose of improving the culture of research integrity, Prof. Steneck indicated that this would be a worthy exercise in principle, but will encounter resistance within the research community. Mr. Parry commented that it might be challenging to implement. By way of analogy he compared resources at the disposal of financial auditing teams to ensure financial compliance to those available to research integrity teams aiming to secure 'research compliance', albeit conceding that resourcing of research integrity teams is improving. He pointed out a key difference in institutional research environments and life science environments by cautioning against the risk of extrapolating a negative finding in one research team to a reflection on the whole of an institution. He stated that this approach underpins the life science regulatory compliance approach but may not be appropriate for the research environment.

A second query was raised about whether behaviours can be changed and if the change in culture can be measured at the institution level in an environment where academic leadership changes regularly and researchers work more for themselves than for their institutions. Prof. Steneck stated his belief that local cultures are not significantly different from one discipline, institution or country to another. He referred to the accepted norms in handling research with animal subjects as an example of an approach being consistent across cultures, institutions, and countries. Mr. Parry suggested that social scientists can play a role in monitoring culture changes, and emphasised that institutions need to take a more proactive approach to support researchers to help prevent misconduct occurring and to address any issues or concerns that they may have.

Next, questioning moved to the topic of "virtue ethics". Should we emphasise compliance and regulation versus the character and integrity of researchers? The panel suggested that an individual's work can be more objectively measured than an individual's traits. The focus

should be put on areas such as training, support and quality of management versus simply trying to change an individual's behaviour in isolation. Following on from this topic, the panel's views on and examples of incentives that institutions could use to encourage the desired research integrity culture and approach were sought. Prof. Steneck suggested giving awards to the best research integrity mentors using evidence-based criteria. Other methods suggested were remuneration and including research integrity activities in promotions etc. An audience member commented that it would be much more constructive for the National Forum to focus on instilling the appropriate research values, behaviours and culture rather than on compliance. In response, the panel suggested that lessons can be learned from what has already been done in other countries, and that it will be useful to have some mechanisms to monitor a change in research culture if feasible.

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SESSION TWO
NATIONAL PERSPECTIVE

CHAIR: JAMES PARRY, CHIEF EXECUTIVE OF THE UK
RESEARCH INTEGRITY OFFICE

PROFESSOR ANITA R. MAGUIRE, VICE PRESIDENT FOR RESEARCH & INNOVATION, UCC AND CHAIR, NATIONAL FORUM ON RESEARCH INTEGRITY

OPTIMISING RESPONSIBLE CONDUCT OF RESEARCH IN IRELAND

Professor Maguire began by referencing the journey Irish research has been on from ca. 2000 to now. Prior to 2000, investment in research was very low. Over the last 20 years considerable investment in infrastructure, programmes and support has been put in place. Whereas in the late 1990s annual funding for basic research through Enterprise Ireland was around €830k per annum and for health research at around €1 million, a series of investments followed from the setting up of state bodies and/or initiatives to build the research infrastructure in Ireland to the level it is at now. Investment continues to grow but with it there is an expectation that research will deliver economic return leading to enterprise-academia partnerships. Today, a research investment target of 2.5% of Gross National Product (GNP) for 2020 exists. These levels of investment have resulted in research quality in Ireland (as measured using citations) now being higher than the EU28 average. The establishment of the National Forum was an important part in ensuring that the right policy landscape was present to support the developments in research in Ireland at that time.

The dialogue around research integrity in Ireland began in 2010 via the Royal Irish Academy (RIA) publication entitled *'Ensuring Integrity in Irish Research'*[16] which reflected the combined thinking of the IUA, Health Research Board (HRB), the Higher Education Authority (HEA), the Royal Irish Academy (RIA) and Science Foundation Ireland (SFI). Subsequently, the IUA coordinated efforts among the research community and national funders that led to the publication of the 'National Policy Statement on Ensuring Research Integrity in Ireland' in 2014. This coordination of effort eventually resulted in the formation of the Irish National Forum on Research Integrity in June 2015. Since December 2015 the National Forum reports to the government on compliance with its responsibility for research integrity as stated in the Irish government's *'Innovation 2020'*[17] research and innovation strategy.

16 | http://www.interacademies.net/File.aspx?id=14686
17 | https://www.djei.ie/en/Publications/Innovation-2020.html

The National Forum's main responsibilities are to:

+ Support research integrity policy and process implementation;

+ Support national research funders in implementing research integrity statements in application processes, grant terms and conditions and audit processes;

+ Publicise research integrity efforts, including misconduct investigation outcomes, and to begin the process of measuring progress;

+ Roll out training programmes to the research community in an effort to ensure all stakeholders work together via a common minimum starting point in terms of shared understanding;

+ Keep up to date with international developments and policy, and adjust Irish policy as needs be;

+ Communicate the importance of research integrity to the research community, to government and to the general public.

Challenges to date include:

+ The need to manage differing expectations and engagement levels;

+ The need to deal with the lack of clarity between the traditional and well-established understanding of research ethics and how this differs to research integrity;

+ Clarifying the research integrity officer role in institutions (i.e. senior vs. junior, administrator vs. academic etc.);

+ Helping stakeholders to understand that the role of the National Forum is a facilitative role only, and not, for example, a place to discuss individual research misconduct cases.

To address the above challenges, clear Terms of Reference have been devised and research funding (RFO) and research performing organisations (RPO) implementation subgroups have been set up. The subgroups have helped to generate open discussion, to resolve difficult issues and to share ideas. Position papers have been drafted and have been used to stimulate dialogue at a local level within institutions with iterative refinement ongoing. Since the establishment of the National Forum, many RPOs have joined the UKRIO.

Innovation 2020 is acting as a driver of change. It includes a statement on the need for research integrity training to be provided to all researchers from undergraduates up to Professorial levels. The National Forum is currently negotiating provision of online training for RPOs, and is seeking a mechanism to fund this via a significantly discounted offer from an online training provider. Such training will underpin existing programmes for RPOs with existing programmes, and allow for the establishment of new programmes. The National Forum would like to see uptake of training by established academics incentivised by way of, for example, links to appraisals, academic promotions etc.

For misconduct cases, the National Forum has established a process whereby each RPO will report in confidence to the IUA on an annual basis. This report will include the number of research misconduct investigations concluded in that calendar year, the number of upheld allegations and an overview of the type of misconduct identified. A consolidated report will be published annually on the National Forum's webpage.[1]

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1 | http://www.iua.ie/wp-content/uploads/2014/06/
National-Policy-Statement-on-Ensuring-Research-
Integrity-in-Ireland-2014.pdf

RESEARCH INTEGRITY IS BEST ENSURED, IN SO FAR AS POSSIBLE, WHEN INDIVIDUAL RESEARCHERS, INSTITUTIONS AND FUNDING BODIES WORK TOGETHER TO CREATE EFFECTIVE PROCESSES.

In future, the National Forum will continue to support the RCR agenda in Ireland via: organising regular events like the one reported on here to continue the national debate on RCR; working with funders to find a balance between the 'carrot' and 'stick' approach to improving RCR in Ireland; supporting the Research Integrity Officers in the RPOs; sharing 'institutional learning' on handling of misconduct investigations particularly when they involve tricky situations like investigating former employees and transnational and/or trans-sectoral collaborations. An immediate task will be to monitor the revisions to the 'European Code of Conduct for Research Integrity' and make appropriate amendments to the 'National Policy Statement'.

INTEGRITY DILEMMAS

FOUR SPEAKERS DISCUSSED FOUR DIFFERENT RESEARCH INTEGRITY ISSUES COMMONLY ENCOUNTERED BY RESEARCHERS.

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AUTHORSHIP

Prof. Alan Donnelly from the University of Limerick (UL) spoke of dilemmas regarding authorship. He recently hosted a meeting to find out how others address authorship issues in UL. He specifically mentioned guest authorship risks, particularly in national and EU collaborations where teams of researchers are present and one tends to trust that all are actively working on the project. Citing a recent personal experience, he highlighted a case where a collaborator asked that two colleagues be included as co-authors because they were potential 'gate-keepers' and could help to develop the research. The decision was made that the collaborators' colleagues should not be included unless they were involved in research planning, data collection, data processing and paper writing. The collaborator agreed that the proposed co-authors would not be involved in all of these steps and the colleagues were therefore excluded. Prof. Donnelly stated the need to be firm when guest authorship situations arise and acknowledged that while research 'gate-keepers' are important, it doesn't justify including them as authors.

STATISTICS IN DATA ANALYSIS

Prof. John Browne from University College Cork spoke of challenges regarding the use of statistics in data analysis. Some researchers have a tendency, unbeknownst to themselves, to misrepresent and/or "chase" p-value, where a researcher can play around with lots of variables, outliers, coefficients etc. until they gets the result they want, which he termed as 'p-hacking'. He said there are four reasons for this temptation: to benefit your own career; to get promoted/hired/funded; the availability of 'big data'/software that can facilitate data interpretations and poor training around what a p-value is and its significance. Prof. Browne offered potential solutions, as proposed in a recent article in 'Nature Human Behaviour' on reproducible science:[18] funders being willing to fund research other than research that may lead to breakthroughs or solve particular problems and where greater temptation may occur as a result; funders rewarding a commitment to open science; declaring conflicts of interest; employing 'blind' analysts; research integrity training; accepting independent oversight by methodologists; reporting protocols.

18 | M.R. Munafo et al "A manifesto for reproducible science" Nature Human Behaviour 0021 (2017). Available at http://www.nature.com/articles/s41562-016-0021.

INCENTIVES FOR TRAINING

Dr Ruth Dooley from the National University of Ireland, Galway, spoke about a research integrity training programme put in place at the CÚRAM Centre for Medical Device Research. This training is mandatory for postgraduate and post-doctoral researchers in CÚRAM. It is a blended programme with a combination of an interactive Epigeum on-line module coupled with two workshops delivered by Professors. Case studies relevant to the participants' disciplines are used for maximum relevance. Success is indicated by post-doctoral researchers talking openly about the programme and actively encouraging postgraduates to participate in the programme. Future actions to enhance the initiative include the development of digital badges to avoid a noted tendency for some post-doctoral researchers to dropout and to avoid the loss of participants from the programme due to Principal Investigator skepticism.

PROPORTIONATE RESPONSE TO MISCONDUCT

Prof. Enda McGlynn from Dublin City University discussed the proportionate response to postgraduate research student misconduct from the perspective of his role as Head of School. It is important for a Head of School to have familiarity with the definitions of research misconduct in institutional codes and national policy and to map any misconduct allegation onto such definitions. A particular challenge is how misconduct can occur before, during or after the postgraduate viva voce and how the policies do not always reflect this reality. Where investigations are necessary, Prof. McGlynn's advice is to write a report to contextualise the incident, outline its scale, outline how deliberate it was (as opposed to careless – particularly as regards plagiarism), the extent to which the misconduct has harmed the research, provide objective evidence, seek verifiers, detail its timing and declare if the postgrad intends to contest the misconduct. The local Research Integrity Officer may look to the Head of School for a suggestion on sanction type or level. He also stressed the importance of balancing the individual's rights versus the protection of institutional reputation. Essentially, it is best to seek a proportionate response in a way that ensures that the worst breaches face the worst sanctions. The ultimate aim is to improve research practice and prevent misconduct from occurring in the first place. He closed by suggesting greater uses of technology, such as anti-plagiarism software, to complement training and education initiatives.

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MUCH PROGRESS HAS BEEN MADE, BUT CHALLENGES REMAIN, INCLUDING EMBEDDING AND SUSTAINING A CULTURE OF RCR, SUPPORTING RESEARCHERS TO RESOLVE THEIR INTEGRITY DILEMMAS, AND ISSUES WITH COLLABORATIVE RESEARCH BETWEEN INSTITUTIONS, SECTORS AND ACROSS BORDERS.

SESSION TWO
PANEL DISCUSSION

PROFESSOR ANITA MAGUIRE, CHAIR, NATIONAL FORUM

DR GRAHAM LOVE, OUTGOING CHIEF EXECUTIVE, HEALTH RESEARCH BOARD, AND INCOMING CHIEF EXECUTIVE, HIGHER EDUCATION AUTHORITY

DR GEMMA IRVINE, HEAD OF POLICY AND STRATEGIC PLANNING, HIGHER EDUCATION AUTHORITY

Dr Love opened with a comment on the importance of open science because it exposes data and creates a link between data and the tools connected to making it openly available. He highlighted the importance of supporting open science by providing appropriate training.

Dr Irvine opened by stating her support for the work of the National Forum, especially the focus on research climate and its measurement, and the harmonised approach to research integrity policies and processes. She referenced earlier 'carrots and sticks' conversations and how the HEA rightly needs to engage in both forms of encouragement to promote research integrity awareness. The HEA sees research integrity as being a part of institutional integrity and governance. She outlined the steps they are taking to support research integrity in Ireland, in particular the inclusion of research integrity in institutional strategic dialogue conversations, institutional performance frameworks and the National Framework for Doctoral Education. Dr Irvine endorsed the 'Whole of Education' approach it shares with the Department of Education and Skills, i.e., undergraduates up to the most senior researchers.

Prof. Maguire reinforced these comments and added that infrastructure – both technology and people - are needed for researchers to engage with open science. She said that effective data management could be a challenge of significant scale but that if it is tackled successfully it has the potential to bring an improved research integrity culture with it. She hopes that the relatively small system in Ireland will allow for this issue to be successfully addressed in the coming years.

The first question from the audience queried whether the challenge in getting "negative results" published could have a potential relationship to deliberate misconduct. Could instances of misconduct be reduced if journals are willing to publish negative results, and if so, how could this be achieved? In response, the panel emphasised a role for open publication of research data, which would allow the publication of solid rigorous results, including negative ones, which add to research in the public domain. They also stated that a culture change amongst researchers, institutions and journal publishers would be required.

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Dr Maura Hiney (HRB) opened a debate about metrics and assessment criteria, stating that it has been suggested that funding agencies have the power to intervene in terms of cultural behaviour change, e.g. by using a broader set of metrics other than funding and publications etc. to measure the quality of a researcher's track record. She asked the audience's opinion on how the research community would respond to such a change, which would incentivise and reward open science. Speaking from the floor, Dr Marion Boland from SFI informed the audience that they will soon be changing their application requirements to ask for the applicant's five best achievements rather than their five most impactful publications. The aim is to seek evidence of broader impact beyond just publication impact, including mentoring, training and best practice, although these are more difficult to measure. She acknowledged that this will be a challenge both for funders and for the research community. The panel commented that the research community will adapt their behaviours as necessary and that the role of funders in driving this behaviour change should not be underestimated. However, the changes being introduced would need to be carefully thought out to ensure the required behaviour change leads to the desired research outcomes, especially in relation to research quality. The panel members agreed that it is essential to get feedback from the research community on any proposed changes.

Regarding metrics, Dr Love stated that we need to be careful to not just "blow with the wind" with regard to the metrics we use or introduce and we need to think about the consequences these may bring. Mr. Parry emphasised that it is very important to consider all research disciplines, not just STEM, when developing any metrics or new measures. Looking at the UK system, more work needs to be done to align funder requirements and expectations with the messages researchers are getting about advancing their own career and raising the profile of their institution. Good communication regarding changes will be essential. Prof. Maguire stated that a balanced approach is needed when developing new metrics or putting in place new measures, and we need to be careful to ensure that they don't negatively impact on the overall aims of producing high impact research and the best long-term outcomes for the research community.

An audience member commented that much of the discussion today has been premised on STEM and quantitative research. Qualitative research has different issues specifically with regard to replicability. Research in disadvantaged communities, prison communities, and disabled communities were provided as examples of research environments where research can be hard to replicate. Prof. Maguire responded that the National Forum is aware that dialogue about research can tend to focus on STEM and that they are keeping in mind that different issues apply to different research areas. Dr Irvine agreed that there is a need to have discipline-specific elements when discussing policy issues such as RCR, and that communities need to be brought together to aid mutual understanding of each other's needs.

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A question about expanding the role of ethics committees to managing research integrity issues for their institution was put to the panel. Prof. Maguire responded to say that the National Forum had discussed this topic at length. The view of the members of the National Forum, as outlined in their position paper, is that while ethics committees have an important role to play in promoting responsible conduct of research, it would not be appropriate to place the responsibility for investigating misconduct allegations on their shoulders.

Looking back to the panel discussion in the morning session, the panel were asked for their opinion on a proposed "quality assurance" approach to assessing and resourcing research quality within institutions? Dr Love responded that there is a tension between the 'carrot' and the 'stick'. Whilst some of the 'stick' will be needed, we will also need the 'carrot' in the

form of training which can nudge people in the right direction in terms of culture change. He remarked that he would be happy to open a dialogue with the National Forum and other funders about seed-funding the introduction of research integrity training within the RPOs. Dr Irvine commented that there is a balance to be reached in the sense of introducing 'stick' and 'carrot' approaches and not over-burdening institutions with too much paperwork. The gathering of baseline data on misconduct investigations by the National Forum will be useful to inform discussions on the best approach. Mr. Parry emphasised that culture change is long term work and will require different approaches, even differing between different research environments. The PhDs of today will be the eminent researchers of tomorrow, so any changes made now will help to improve tomorrow's research culture.

SEMINAR ROUNDUP

PROFESSOR ANITA MAGUIRE, CHAIR, NATIONAL FORUM

Professor Maguire summarised the day's events. She praised the level of engagement from the floor, the guest and panel speakers, and all present who are interested in what she termed "wise change". Echoing comments from Prof. Steneck and Mr. Parry, Prof. Maguire stated how many tend to think of Ireland as being behind international progress in the area of research integrity but that it is good to see that Ireland is ahead in many areas. She reiterated the essential need for training in the context of providing information to the next generation of researchers. Appropriate measures are necessary to track progress and to show improvements in research integrity culture.

As a research community, there is a responsibility on everyone to get RCR right and to reassure those who fund research that we have put the appropriate RCR systems in place. In summarising the key themes from the event, Prof. Maguire echoed lessons learned from other speakers and jurisdictions: namely how important it is to focus on poor practices rather than just focusing on 'big fraud'; the need for meaningful versus tick-box change; the need for a balanced (i.e. not too heavy handed) approach from external agencies in the context of looking for long term positive culture change; and the need for incentives to encourage sought-after behaviours.

Ultimately, Prof. Maguire stressed the desire to see a change in behaviour which, she acknowledged, is not always an easy thing to achieve. She encouraged an approach that is gradual and constant. She closed the proceedings by cautioning against introducing time-consuming compliance processes that will detract RPOs from the more important task of embedding a research culture which above all emphasises RCR and supports researchers to engage fully with the new "open science" agenda.

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APPENDIX 1
SEMINAR PROGRAMME

RESPONSIBLE RESEARCH AND INNOVATION:
FOSTERING A CLIMATE OF EXCELLENCE
FOR IRISH RESEARCH
ROYAL IRISH ACADEMY,
3 FEB 2017, 11:00-16:00

11am Welcome from Prof Anita Maguire, Chair, National Forum on Research Integrity

11am-1pm INTERNATIONAL PERSPECTIVE

CHAIR: Dr Maura Hiney, Head of Post-award and Evaluation, Health Research Board and Chair of Science Europe RI Working Group

KEYNOTE 1: Professor Nick Steneck

Creating a climate of research integrity – evidence for what works and ways to measure impact

KEYNOTE 2: James Parry

Implementation and impact of the UK Concordat – lessons for Ireland

KEYNOTE 3: Dr Maura Hiney on behalf of Mr. Isidoros Karatzas, Head of the Ethics and Research Integrity Sector, DG RTD, EU

There is no Excellence without Research Integrity

PANEL DISCUSSION:

Challenges to creating and sustaining a culture of research integrity – lessons from the US and the UK

2pm – 4pm NATIONAL PERSPECTIVE

CHAIR: James Parry, Chief Executive, UK Research Integrity Office

KEYNOTE 4: Professor Anita Maguire

Irelands journey towards a harmonised approach to research integrity promotion and protection

INTEGRITY DILEMMAS

1. Authorship: Prof Alan Donnelly (UL)
2. Data analysis: Prof John Browne (UCC)
3. Research integrity training: Dr Ruth Dooley (CÚRAM, NUIG)
4. Proportionate response to misconduct: Prof Enda McGlynn (DCU)

PANEL DISCUSSION:

Challenges to creating and sustaining a culture of research integrity in Ireland:

+ Prof Anita Maguire, Chair, National Forum on Research Integrity
+ Dr Graham Love, Chief Executive, Health Research Board
+ Dr Gemma Irvine, Head of Policy and Strategic Planning, Higher Education Authority

SEMINAR ROUNDUP: Professor Anita Maguire

THE FORUM WOULD ALSO LIKE TO THANK THE EVENT
ORGANISING COMMITTEE AND RAPPORTEURS.

Maura Hiney HRB (Chair), Jennifer
Brennan IUA (Co Chair), Sharon
Bailey UCD, Marion Boland SFI,
Fiona Brennan DCU, Louise
Burgoyne UCC, John Maguire RIA,
Brian McDonald IUA, Nikki O'Connor
HEA, Lia O'Sullivan IUA.

THE NATIONAL FORUM ON RESEARCH INTEGRITY WOULD
LIKE TO THANK THOSE WHO SPONSORED THIS EVENT:

Agriculture and Food
Development Authority

Environmental Protection Agency

Health Research Board

Irish Research Council

Irish Universities Association

Science Foundation Ireland

Royal Irish Academy

APPENDIX 2 KEYNOTE SPEAKERS BIOS

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PROFESSOR NICK STENECK

Nicholas H. Steneck is Professor Emeritus of the History of Science, University of Michigan and an independent research integrity consultant. As a consultant to the US Office of Research Integrity (2000-2010), he helped establish ORI's Research on Research Integrity Program and began the effort that led to the World Conferences on Research Integrity (Lisbon 2007, Singapore 2010, Montreal 2013, Rio 2015, Amsterdam 2017). He was instrumental in the drafting the Singapore Statement on Research Integrity (2010). His research integrity publications include the widely used ORI Introduction to the Responsible Conduct of Research. Professor Steneck currently is lead advisor on research integrity course development and assessment for the online education company, Epigeum (owned by Oxford University Press). In 2016 he was recognized as a Distinguished Friend of Oxford University for his years of advice on Oxford's research integrity policies and programs.
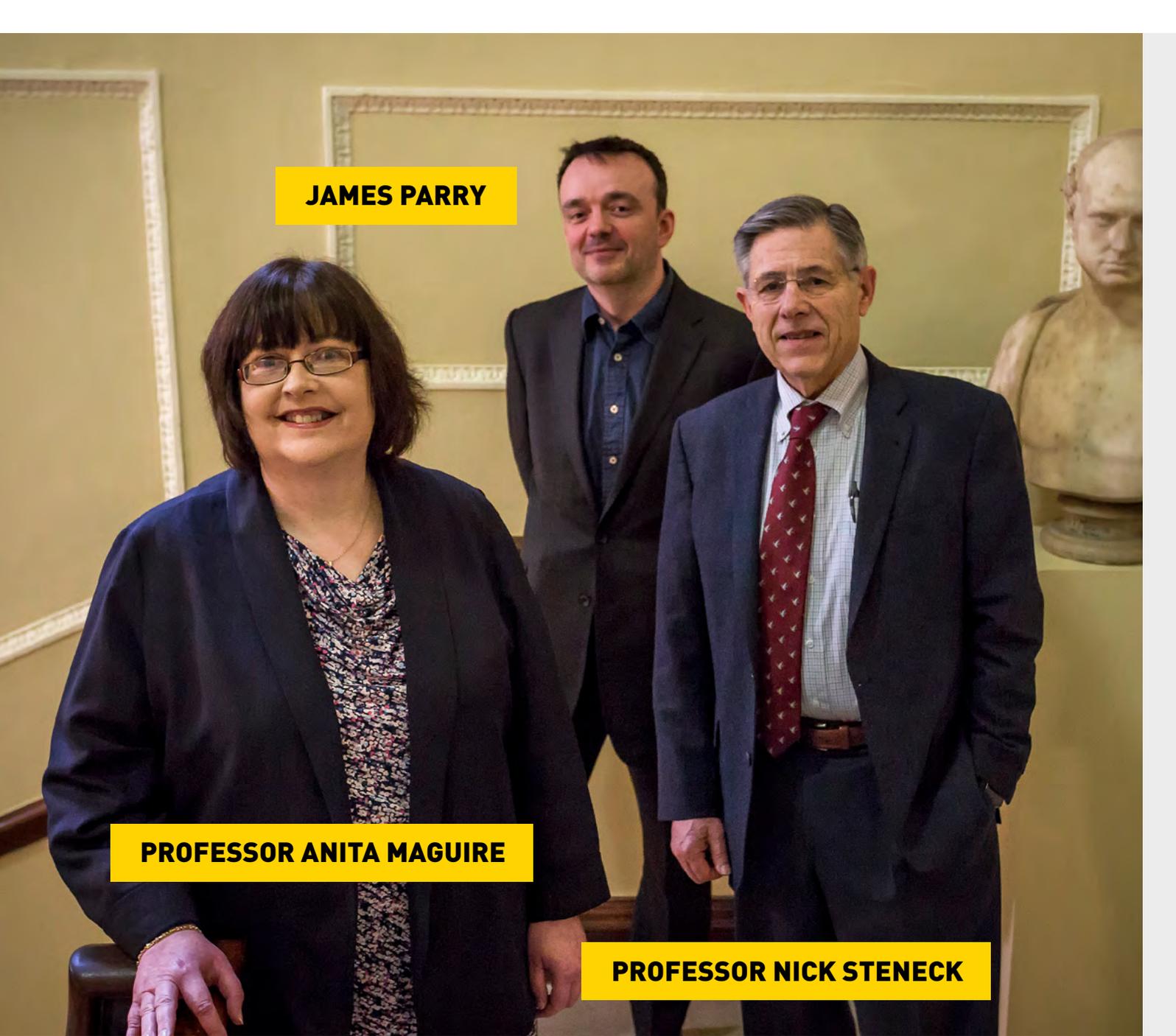
JAMES PARRY

James is Chief Executive of the UK Research Integrity Office. Joining UKRIO in 2006, he took up his current role in 2008, overseeing UKRIO's transition to a registered charity supported by more than 60 universities.

He leads UKRIO's advisory service, responding to queries and concerns about research practice from researchers and the public. He helped develop UKRIO's Code of Practice for Research and other publications, used by many leading research organisations.

James works with UKRIO's subscribers to provide them with tailored support on research practice. He regularly speaks on how to sustain and enhance research integrity; recent audiences have included the Royal Society and the Nuffield Council on Bioethics.

Prior to joining UKRIO James was an archaeologist and a university administrator.

JAMES PARRY

PROFESSOR ANITA MAGUIRE

PROFESSOR NICK STENECK

PROFESSOR ANITA MAGUIRE

Professor Anita Maguire is Chair of the National Forum on Research Integrity and Vice President for Research and Innovation in UCC. Over the past twenty years at UCC she has led an active research team focusing on synthetic organic and pharmaceutical chemistry, which interacts extensively with the pharmaceutical sector in Ireland and internationally. She is very committed to postgraduate education, ensuring that research students gain the skills required to underpin their future careers.

She is Director of the interdisciplinary research centre, the Analytical and Biological Chemistry Research Facility established under PRTLI3, and has served as Head of the Department of Chemistry (2005-7) and Head of the School of Pharmacy (since 2009).

She is actively engaged nationally in strategic policy development in relation to research, STI policy, the academic industry interface and strategic development of the pharmaceutical industry.

http://www.iua.ie/research-innovation/research-integrity/

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