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Tough competition lures researchers to grey area

Responsible research activity and science communications were tackled at the Supporting Solid Science seminar organised by the Committee for Public Information in Finland and the Finnish Advisory Board on Research Integrity from 11 to 12 September 2012.

American professor Nicholas Steneck thanked Finland and the other Nordic countries for their active action in promoting research integrity and preventing misconduct.
Photo: Helena Hurme

"Roughly one per cent of the members of the researcher community is guilty of actual misconduct or some other violation of good scientific practices," stated American Nicholas Steneck, the grand old man of research integrity, in his speech at the Supporting Solid Science seminar.

Professor Emeritus of History Steneck, who works as an advisor of the office that handles questions on research integrity at the United States federal level, has followed this subject since the 1980s, and according to him, the number of those who are completely innocent is relatively small.

"Up to half of researchers have probably sometime worked in a questionable way when it comes to research integrity, have been in a so-called grey area."

Steneck bases his position on research data collected on students and researchers: 60 per cent of college students admit to having cheated and up to 85 per cent actually find cheating to be prerequisite to doing well in studying, one third of graduate students say that they have picked out research data to improve their chances of getting a grant and 40 per cent of researchers state that they do not keep proper records of the materials and documents pertaining to their research.

"They always say in Europe that it is not the same here as it is in the United States. Sure, the situation is different but it is difficult to say if it is better or worse because there is little researched data and the monitoring of research integrity misconduct varies a great deal from country to country," Steneck said.

Quality overruled by quantity in publishing

Steneck divides the research process into three phases, design, conduct and publishing, each one having its own risks and temptations to deviate from good scientific practices.

Design can be poorly executed or the research design can be biasedly made out, the data in the conduct itself may be fabricated or falsified, and there is a danger of, for example, plagiarism, self-plagiarism or the misrepresentation of authorship in publishing.

According to Professor Ben Martin, editor of the British publication *Research Policy*, ethical misconduct especially associated with scientific publication have increased considerably over the past years. He highlights, for example, a blatant case in which a European researcher published 30 to 40 scientific articles in the top journals of the field within a few years, based on one and the same set of research materials. The articles were not cross-referenced, and there was variation in both the methodology and the theory, and thus also in the results.

According to Martin, it is especially alarming that researchers who have increased the number of their publications in a questionable way can even get by in academic arenas. He also stated that the main reason for the exaggerated number of publications is the culture of competition which nowadays dominates the scientific world.

"If the researcher community does not quickly intervene in such matters, and with forceful measures, the problem will get worse and the general attitude will become more tolerant when it comes to questionable practices," Martin professed at the seminar.

According to him, in addition to the number of publications, it is crucial to start emphasising the criteria of quality, for example, there should be a request for the most important publications when applying for a grant or a position, not for the greatest amount possible. In addition to the academic world, there should also be a stronger emphasis on quality amongst funders because the current emphasis on quantity reflects, in Martin's opinion, primarily a battle for research funding.

In addition to the dishonesty of researchers, Ben Martin also finds objectionable practices in the editorial policy of scientific publications.

"Editors of publications must be prepared to act and impose sanctions to researchers that are advancing by dishonest means: to place them, for example, under a publication ban for a certain time and notify questionable actions to research facilities as well as editors of other publications. Now, too many are ready to leave the problem for others to resolve," Martin determined.

He also says that many publications aim at raising their own journal impact factor by questionable means.

"One condition of publishing an article may be that the researcher shall add past articles of the publication in question to the references. One should not agree to these types of requests."

Martin's opinions on the ethical problems of scientific publishing can be read in greater detail in the article in *Research Policy* which will be issued later this autumn. (www.journals.elsevier.com/research-policy)

The dilemma of young researchers

Nicholas Steneck agrees with Ben Martin that tough competition for funding drives researchers to difficult circumstances. He especially believes that post doctoral students who are starting their careers often face practically impossible choices – although they would like to do the right thing, they are not given the opportunity to do so.

"In my courses on research integrity, I often come across the fact that when applying for funding, young researchers are not able to predict oncoming problems. For example, a young researcher working with animal testing said that when he applied for funding, he was asked about what benefits his research has to offer society. The researcher said that he is doing basic research and cannot predict the benefits – but the research organisation expects him to come up with something," Steneck described.

Professor, *Research Policy* editor Ben Martin and ENRIO Chair Nicole Föger reflected on ways to improve the "quantity over quality" problem that has found its way to scientific publication at the *It's all about ethics!* panel discussion.
Photo: Helena Hurme

Austrian Nicole Föger, the Chair of ENRIO, the European Network of Research Integrity Offices, said that she continually comes across the conflicting position of young researchers. They do not work independently. Instead, the older researchers use them as "slaves" when they are trying to reel in as much funding as possible for their research projects.

"This is simply poor leadership. It is important for students and young researchers to get educated on research integrity, but the real challenge is to get supervisors involved in workshops and trainings," Föger determined.

Establishing common regulations

The one main requirement of education and knowledge is that there are common regulations and guidelines defined. The monitoring of research integrity in the United States has a longer history than in Europe where one of the oldest national organisations that monitors research integrity and prevents misconduct is the Finnish Advisory Board on Research Integrity, an organisation that is celebrating its 20th anniversary this year.

National systems are quite different from one another, but one attempt to standardise procedures is the *European Code of Conduct for Research Integrity*, compiled by the European Science Foundation (ESF) and its member organisations and published in 2010.

"European countries are quite different when it comes to their research activities, but questions concerning research integrity could be a common theme," said Professor Marja Makarow, the new Vice

President for Research at the Academy of Finland. Makarow knows the EU spectrum of science well because she worked for five years as the CEO of ESF.

According to Makarow, the European Code of Conduct covers all fields of science and creates a basis for all institutional arrangements in different countries. In the Code, attempts have also been made to set up standards concerning research integrity, and hopefully they will become not only European but also worldwide guiding principles in the future.

The Code has been covered in greater detail in the report *Fostering Research Integrity in Europe*, and it provides recommendations on future procedures.

"The objective is to harmonise existing national regulations and codes to correspond to this common Code, to get funding bodies and research organisations to acquire the new Code, to monitor the implementation of the Code and to support national actors in participating in international conferences dealing with research integrity," Marja Makarow summed up.

Genuine research challenged by pseudo-research

Professor Arto Mustajoki pointed out that researchers end up considering ethical questions more frequently outside of their actual research work – for example, when facing the media. It is a continuous tug of war how science that aims at precision and attention to detail bends to the simplified fashion of media, but Mustajoki also drew attention to how a researcher can or wants to present himself or herself as an expert.

"If the interviewee is truly the best possible expert in the field, the situation is clear. But often, the commentator may turn out to be the second or third best alternative, and then the researcher winds up wondering how to present the subject and what kinds of reactions his or her colleagues may have. In the Finnish researcher community, it is not acceptable to climb the ladder of success on another's merits," Mustajoki said.

From a journalist's perspective, science journalist and Professor of Journalism Deborah Blum contemplated the transference of scientific information to society. Blum broadened the image of challenges concerning the relationship between researcher and journalist by searching for the reasons for the falsification of scientific information, which has become common in media, and the out-and-out rejection of research results.

Blum pointed out that it is often a question of something else than science directly: beliefs, politics – and money. According to Blum, a researcher may "sell his soul to the devil" – thus becoming, for example, a mouthpiece for a large company – to get money for his main research activities.

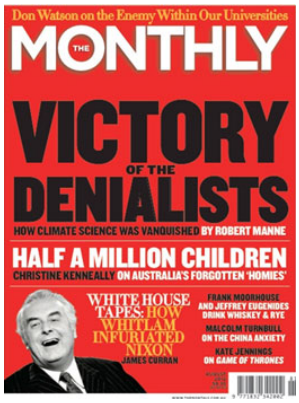
More wild examples on turning a blind eye to research data can be seen in public discussion concerning climate change. According to Blum, there is a great deal of pseudo-research disguised in the form of scientific publication alongside genuine scientific information, whose main message is that there is no climate change.

There are even "scientific" anti-climate change conferences that are organised in the United States, and the oil and natural gas industry is behind these organising bodies.

"Science journalists are required to have increasingly better judgement because not all researchers are automatically on the 'good side'," Blum determined.

According to her, the journalistic ideal of objectivity, that is, listening to the arguments of different parties, often makes reporting difficult.

Deborah Blum stated that journalists have an increasingly greater job in figuring out who is a real researcher and who is not. Shown here are a conference poster of climate change deniers and the cover of a magazine on the subject.



"The science journalist is nowadays in a difficult position. The objective is to tell a large audience about science, and, on the one hand, try to make it appealing, and on the other hand try to be truthful. If we stick to the truth, we wind up writing a great deal about fraud occurring in science as well, and thus we may instead cause harm to the reliability of scientific information."

As a science writer herself, Blum is nowadays committed to blogging.

"It is completely open because the texts have direct links to the sources of the information. At the same time, the readers themselves have the opportunity to comment on and evaluate the reliability of the information."

Blum's blog, Elemental, can be found at www.wired.com/wiredscience/elemental.

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The presentations at the seminar available online
in ppt form at www.tjnk.fi and www.tenk.fi

Seminar speakers

- Science journalist and Professor of Journalism Deborah Blum, University of Wisconsin–Madison
- Coordinator Nicole Föger, Austrian Agency for Research Integrity, ENRIO Chair
- Vice President for Research at the Academy of Finland, Professor Marja Makarow
- Professor, *Research Policy* editor Ben Martin, University of Sussex
- Professor Arto Mustajoki, University of Helsinki
- Director General Jussi Nuorteva, National Archives of Finland
- Professor Emeritus Nicholas Steneck, University of Michigan

The Committee for Public Information in Finland (TJNK) and Finnish Advisory Board on Research Integrity (TENK) jubilee seminar Supporting Solid Science was held in Helsinki from 11 to 12 September 2012. TJNK, founded in 1972, follows achievements in science, art and technology in Finland and abroad as well as the development of other national and international information. TENK, which began its activities in 1992, handles ethical questions concerning scientific research and promotes research integrity. These organisations are expert bodies under the Ministry of Education and Culture in Finland.