



**ICSU Committee on Freedom and Responsibility in the conduct of Scienceⁱ
(CFRS)**

Statementⁱⁱ on promoting the integrity of science and the scientific record

The first World Conference on Research Integrity: Fostering Responsible Research, took place in Lisbon, Portugal in September 2007ⁱⁱⁱ. Much of the focus was on scientific publications and mechanisms for monitoring and addressing scientific misconduct. There was general agreement that science is, at least in the longer term, self-correcting, and that errors in the scientific record – either inadvertent or deliberate – will eventually be exposed. At the same time, it was recognised that the processes for identifying and correcting such errors are inefficient, with negative consequences for the integrity of science as a whole. A number of relatively straightforward actions were identified that, if widely adopted, could help to improve this situation.

National oversight mechanisms

One of the major challenges in considering research integrity is the absence of quantitative information on the extent of errors in the scientific literature and of deliberate misconduct. This in turn relates to the absence of clearly identified bodies with responsibility for monitoring research integrity and collecting and collating relevant data. ICSU recently surveyed its national members^{iv} to determine which institutions are responsible for fostering scientific integrity and handling allegations of scientific misconduct. Whilst some countries do have designated Offices of Research Integrity or Scientific Ombudsmen, in many countries this national oversight and advisory function is either absent or distributed amongst several poorly coordinated bodies.

Recommendation 1: CFRS recommends the establishment of clear and transparent national monitoring and advisory mechanisms for Research Integrity:

- to provide oversight for research integrity issues at a national level
- to facilitate collection of data on the incidence of reports of errors in the scientific record and of scientific misconduct
- to provide oversight and advice for institutions
- to provide an avenue for appeal in individual cases of alleged misconduct
- to formulate and revise codes of conduct
- to facilitate international compatibility of standards for scientific conduct
- to facilitate the investigation of concerns about errors in the literature, particularly when they involve international collaboration

The survey of ICSU National members indicated that the main responsibility for handling issues of scientific misconduct falls upon the universities or employers. A clearly defined national monitoring and advisory mechanism would help the universities fulfil their role and provide the necessary oversight to ensure that allegations of research misconduct are handled consistently and appropriately. Scientific academies can play a valuable role either in serving as national oversight structures themselves or by providing independent advice and assistance to the appropriate national structures.

Scientific Publishing

The nature of science means that spurious results will occur and be published from time to time, without any misconduct by the authors of the publication. When other researchers find that such results cannot be reproduced, it is important that they are able to rebut the initial findings to correct the scientific record. Errors in the scientific record should be corrected rapidly, whether they are inadvertent, because of accident or neglect, or are deliberate, as a result of scientific misconduct. In this way, the self-correcting ability of science will be accelerated.

Recommendation 2: CFRS recommends strengthening practices by journals to improve detection and facilitate correction of published errors.

-Journal editors are encouraged to exchange information and coordinate their activities in relation to scientific integrity. Issues are likely to vary from one field of science to another but some initiatives already exist that might be adopted and adapted more widely^v.

-Common protocols should be put in place so that reports of concern can be handled consistently and efficiently.

-Publishers are encouraged to work with journal editors and to consider research integrity issues within their own professional associations.

-Journals' guidelines to authors and reviewers should be made more comprehensive.

-The threshold for publication of rebuttals and corrections should be lowered.

-Journals are encouraged to publish annual reports that summarize how many reports of concern were received, and what the outcome was.

-When articles are corrected or retracted, links should be put in place so that those who look up the article are alerted.

ICSU member organizations that publish scientific journals are encouraged to join with relevant professional bodies or adopt their own codes of practice so that reports of possible published errors or scientific misconduct can be managed fairly, efficiently, and consistently.

Deliberate misconduct

When errors are because of scientific misconduct, such as the falsification or fabrication of results, it is important not only to correct the scientific record, but also to impose some kind of penalty or sanction, in order to preserve confidence in the scientific enterprise as a whole. Similarly, while plagiarism is a form of misconduct that might not necessarily introduce scientific errors into the literature, if it is not discouraged, it can undermine confidence in the practice of science.

Dealing with cases of scientific misconduct can be a complex process involving several different organisations – journal editors and publishers, research institutions, research funders and collaborating organisations, working at different scales – local, national and international.

Recommendation 3: CFRS recommends that responsible institutions, at the local, national and international level, work closely with scientific editors and publishers to identify and investigate cases of deliberate scientific misconduct.

-Journal editors and publishers have a primary role to play in identifying falsification, fraud and plagiarism and notifying relevant authorities, as well as publishing corrections or retracting papers when appropriate.

- Universities, research institutes and funders have a central role in verifying and investigating reported cases.

- Institutions with a national responsibility for research integrity have a role in monitoring and advising local institutions and coordinating with responsible authorities in other countries.

It is important that clear and transparent processes to deal efficiently with cases of scientific misconduct are developed in all countries. Such processes should be seen as an integral part of the self-correction and self-regulatory mechanisms on which the integrity of science ultimately depends.

ⁱ See http://www.icsu.org/5_abouticsu/STRUCT_Comm_Poli.html#CFRS for the membership and terms of reference for CFRS.

ⁱⁱ This statement is the responsibility of the Committee on Freedom and Responsibility in the conduct of Science (CFRS) which is a policy committee of the International Council for Science (ICSU). It does not necessarily reflect the views of individual ICSU Member organizations.

ⁱⁱⁱ ICSU was one of the co-sponsors of this meeting - together with the US Office of Research Integrity and the European Science Foundation. See http://www.icsu.org/5_abouticsu/PDF/WC_final_report.pdf for a report of the conference.

^{iv} 19 ICSU National Members, mainly Science Academies, responded to an on-line survey in March 2008 on structures, mechanisms and responsibilities for dealing with research misconduct. While this was a small sample of the total ICSU membership (133 countries) it included responses from all regions.

^v The Council of Science Editors published a comprehensive white paper on Promoting Integrity in Scientific Journals in 2006 (http://www.councilscienceeditors.org/editorial_policies/white_paper.cfm). Another example is in the life sciences area, where the UK-based Committee on Publication Ethics brings together a number of major journal editors and publishers to focus on the integrity of the scientific record. See <http://www.publicationethics.org.uk/>.