Communication and Scientific Integrity

Franck Daninos, journalist on the magazine *la recherche* (france), rapporteur

Chair:
Frédéric SGARD, Project Administrator, Global Science Forum, OECD

Speakers:
- Pieter Drenth, Honorary President of All European Academies (Netherlands)
"Fair Communication and Scientific Integrity"

Discussants:
- Emilio Bossi, President, Swiss Academy of Medical Sciences (Switzerland)
"The Pressure of the Research System and the Impact that this Pressure may have on Integrity"
- Jeremy Theobald, Treasurer, Committee on Publications Ethics (Great Britain)
- Marie-Laure Théodule, Scientific Journalist, *La Recherche* (France)

For approximately twenty years, scientific frauds have been causing increasing concern both in the scientific community and in the general population. These frauds are no longer considered to be isolated anecdotal episodes attributable to a handful of unscrupulous individuals, but rather to express a structural and pernicious trend undermining scientific endeavour from within. The scandals caused by the German physicist Henrick Schön in 2002 or the South Korean biologist Hwang Woo-Suk in 2006 are just some of the most spectacular examples. Besides plagiarism, falsification or complete fabrication of experimental data, misconduct in practical research can take many forms - such as sensationalist and biased paper - and although it is difficult to detect, it is becoming increasingly common. The situation has reached the stage where a World Conference on Research Integrity[1] was organized in Lisbon in September 2007, the main aims of which were to define and quantify these different forms of misconduct and, of course, to try and prevent them.

The problem raised by all the speakers is that scientific misconduct fuels public suspicion and fear concerning science - its image and its players - as well as the information and promises it conveys. This tendency is all the more alarming because it is accompanied by a simultaneous increase in interest in pseudo sciences, complementary medicine, the paranormal and other false beliefs which are precisely what science is trying to reduce. The fact is that heightened awareness of the phenomenon of scientific fraud is leading to a gradual loss of confidence on the part of the public and this erosion is by definition damaging the dialogue between the research community and civil society as a whole (Pieter Drenth).

Why is this phenomenon becoming more and more widespread? It should be stressed that data concerning scientific misconduct has only been available for a short period, making it difficult to draw comparisons with the present day. Before, the subject was obviously rarely raised because a defensive scientific community was not much disposed to discuss this unflattering area of its activity. The fact remains that if the statistics presented by the World Conference on Research Integrity are to believed, then between 0.1% et 1% of international scientific publications currently present fraudulent or dishonest information – i.e. approximately 600 cases per year in the European Union and nearly 700 in the United States. Editors of primary scientific journals deplore this and reach the same conclusion (Jeremy Theobold).

Blame is often attributed to changes in the way the research sector was financed in the second half of the 20th century. It is also linked to the pressure exerted by academic and private institutions or the influence of certain personalities within their departments and research teams. This type

[1] ESF-ORI First World Conference on Research Integrity: Fostering Responsible Research, Lisbon, Portugal, 16-19 September 2007 www.esf.org

of environment leads to a culture based on evaluation and results, enshrined in the famous slogan "publish or perish". However, financing and evaluation methods are not by necessarily incompatible with honest behaviour (Emilio Bossi). We simply have to learn to live with them and we should not therefore stigmatize them unduly. A competitive spirit is inherent in carrying out research. It is, strictly speaking, inevitable on account of the limited funds available and the ambitions which every scientist cherishes. The fact is that the pressure placed on scientists leads a small number of them to treat the values of honesty and objectivity associated with science with disdain.

Several solutions can be advanced to fight against this deviancy. The general and specialist media are enjoined not to place blind faith in primary journals with reading panels, but to verify the sources and content of scientific publications with the scientists themselves and with specialists in the area concerned in particular (Marie-Laure Théodule). Teaching and consciousness raising should also play a primary role, especially with students and young researchers to whom the virtues of scientific integrity as well as the mechanisms leading to potential misconduct should be taught and explained. Well-established and recognized researchers should be reminded that originality, accuracy and certification of research are more important - and in the long term more profitable - than obtaining rapid results and having a large number of publications on one's CV. These same researchers should, moreover, be made conscious of their roles as mentors and of the influence which they exert over young scientists. Finally, it would be desirable to set up codes of practice in a more systematic way, as well as bodies responsible for seeking out and punishing fraud and scientific misconduct on an academic, national and international scale.