



Research Integrity and The Responsible Conduct of Research: *Grand* Challenges in Science Policy?



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Sonia Vasconcelos

Science Education Program/ Medical Biochemistry Institute, Federal University of Rio de Janeiro (UFRJ), BRAZIL

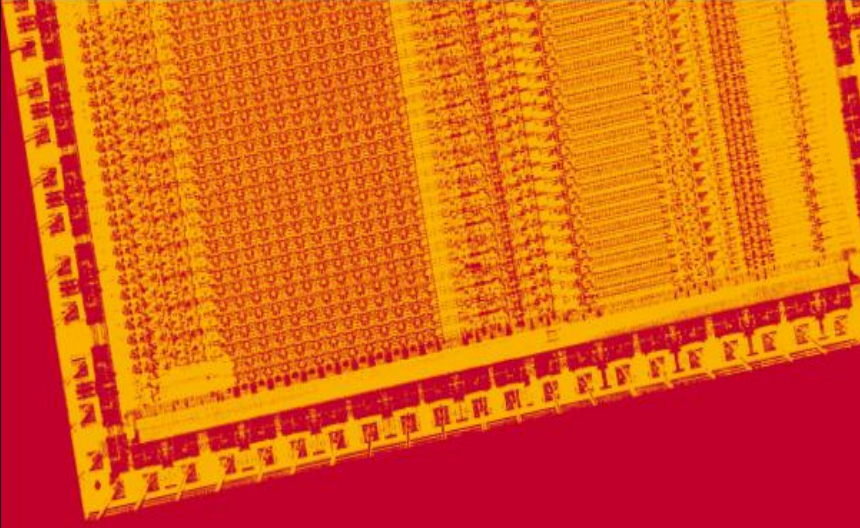


<http://aleph0.clarku.edu/~djoyce/hilbert/>

Dr. David Hilbert first applied the concept of a Grand Challenge to the field of mathematics in which he identified 23 specific challenges. The concept was revitalized by the Bill & Melinda Gates Foundation who, in 2003, identified 14 *Grand Challenges in Global Health*. In 2008, they also launched a new \$100M, five-year initiative called Grand Challenges Explorations, which is an extension of the Grand Challenges in Global Health initiative.


<http://www.grandchallenges.ca/wp-content/uploads/2011/02/thegrandchallengesapproach.pdf>

Grand Challenges



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The Grand Challenges Approach
January 2011

http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/publications/2010/4294970126.pdf

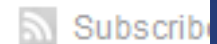
<http://www.grandchallenges.ca/wp-content/uploads/2011/02/the-grand-challenges-approach.pdf>



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21st Century Grand Challenges

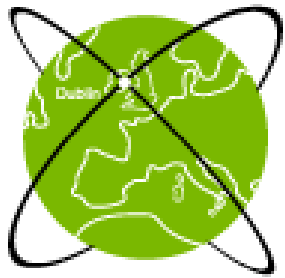


Posted by [Cristin Dorgelo](#) and [Tom Kalil](#) on April 09, 2012 at 03:43 PM EDT

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This July, the White House Office of Science and Technology Policy will convene a conference on Grand Challenges—ambitious goals on a national or global scale that capture the imagination and demand advances in innovation and breakthroughs in science and technology. Grand Challenges are an important element of President Obama's [Strategy for American Innovation](#).

An example of a past Grand Challenge was the sequencing of the entire human genome that, according to [one recent study](#), has contributed to the U.S. economy more than \$140 for every \$1 invested by the Federal government. The Department of Energy is leading the way in Clean Energy Grand Challenges with "[SunShot](#)," an initiative to make solar energy as cheap as coal, and "[EV Everywhere](#)," an initiative announced by President Obama last month to make electric vehicles as affordable and convenient to own as today's gasoline-powered vehicles. The US Agency for International Development has a series of Grand Challenges for Development, including "[Saving Lives at Birth](#)," which aims to increase access to health care for pregnant women and newborns in the developing world by at least 50 percent, and the "[All Children Reading](#)" initiative to give students in low-income countries basic reading skills by the time they leave primary school.



ESOF2012
DUBLIN

Can we use genomic tools to select healthier livestock?

Exploding myths on nuclear reactor security, harm reduction and GMOs

Making gene and cell therapy medicines a reality

Milk: Nature's perfect food?

How to motivate scientists to engage with the public

Sunday July 15, 2012 10:45am - 12:15pm @ Wicklow Hall 2B

Science works for society. Much of it is funded by society. A failure to listen to the fears and concerns of society endangers the trust people have in scientists and the success of research itself. Therefore, public engagement must become an intrinsic part of research and fully integrated into the work of universities. To meet this challenge, there needs to be a change in both the processes and culture of research organisations. Scientists and policy makers in the main do not recognise how vital public engagement is to research success. How do we make researchers themselves believe in and initiate engagement activities?

Ethics in research – why is it important to me?

Saturday July 14, 2012 10:45am - 12:15pm @ Liffey Hall 1

Research ethics is an important part of professional life of every researcher and it influences society in multiple ways. However, perception of ethics, its principles and its importance may significantly vary between individuals, disciplines, and countries. Different perceptions and lack of awareness have led to controversial debates about the benefits of science, innovation and new technologies, as well as the societal responsibility of researchers.

<http://esof2012.org/>

One challenge may stem from the fact that researchers across disciplines and around the globe do not necessarily share the same paradigms, cultures, and values. Another reason may be because research integrity practices and policies differ across disciplines and among institutions.

(Council of Canadian Academies • Report of the Expert Panel on Research Integrity, 2010)

Peer Review: meeting the challenges

Thursday July 12, 2012 8:00am - 9:30am @ Liffey Hall 1

'Stem cell research is being blocked by biased reviewers'; 'Peer review keeps scientists firmly grounded'; 'Impact factors corrupting peer review'. These are just some of the recent discussions among researchers, the media and the public about challenges to peer reviewed publishing. Peer review results in 1.3 million learned articles being published each year and is fundamental to the integration of new research findings in hundreds of fields of inquiry.

Many early career researchers want to find out about the peer review process, how to get involved in reviewing, and what to make of public discussions about fraud and misleading research claims in science and medicine.

<http://esof2012.org/>

One may ask why **the public, research integrity and ethics** would be included in a meeting discussing *grand challenges in today's science*. We could perhaps say that *coping with our time's grand challenges requires broader engagement with the public and depends on the level of accountability and trust the public has in the scientific process*. This is a reasonable assumption if we consider how research claims have impacted society and influenced public opinion and confidence in science. (Vasconcelos, Editorial, 2012)

➤ *the MMR [measles, mumps and rubella] vaccination and autism controversy. In this case, controversial research claims led to public outrage and mistrust, affecting the rates of vaccination, which fell dramatically for many years and led to disease outbreaks. (Vasconcelos, Editorial, 2012)*

Lancet accepts MMR study 'false'

By Nick Triggle
Health reporter, BBC News

The medical journal which originally published the discredited research linking autism and MMR has now issued a full retraction of the paper.

The Lancet said it now accepted claims made by the researchers were "false".

It comes after Dr Andrew Wakefield, the lead researcher in the 1998 paper, was ruled last week to have broken research rules by the General Medical Council.

The publication caused vaccination rates to plummet, resulting in a rise in measles.



Experts say MMR is completely safe

Swedes losing confidence in researchers

Karin Hermansson and Esther Crooks chart the decline

Less than half of the Swedish public has confidence in researchers, according to a survey of 3,000 Swedes carried out by the Swedish association Vetenskap & Allmänhet, VA (Public & Science).(1)



This represents a significant percentage decrease over the past two years. The survey also shows a decrease in confidence in research in general and in support for public funding of world class research.

'Increased dialogue between the research community and society is essential if we are to reverse this trend', says Camilla Modéer, secretary general of VA. 'A better knowledge

<http://www.britishsociety.org/NR/exeres/9DEAE45B-6C26-414E-8985-4D7ACF3A4C09.htm>

"... 'There was a case when one researcher stole results from another' 'Laboratory experiments on animals' 'Experiments on human embryos' 'One says this, the other says that – you just don't know who to believe' 'All these reports about food, such as mad cow disease' ..."

***A Comprehensive Approach to Research Integrity is likely to meet
Grand Challenges in Science & Society***

1. Let the public know

2. Foster responsible communication of science by researchers and journalists

3. Foster correction of the research record

4. Fund initiatives to address these issues in the research environment through innovative projects

Singapore Statement on Research Integrity

Preamble. The value and benefits of research are vitally dependent on the integrity of research. While there can be and are national and disciplinary differences in the way research is organized and conducted, there are also principles and professional responsibilities that are fundamental to the integrity of research wherever it is undertaken.

PRINCIPLES

Honesty in all aspects of research
Accountability in the conduct of research
Professional courtesy and fairness in working with others
Good stewardship of research on behalf of others

RESPONSIBILITIES

1. Integrity: Researchers should take responsibility for the trustworthiness of their research.

2. Adherence to Regulations: Researchers should be aware of and adhere to regulations and policies related to research.

3. Research Methods: Researchers should employ appropriate research methods, base conclusions on critical analysis of the evidence and report findings and interpretations fully and objectively.

4. Research Records: Researchers should keep clear, accurate records of all research in ways that will allow verification and replication of their work by others.

5. Research Findings: Researchers should share data and findings openly and promptly, as soon as they have had an opportunity to establish priority and ownership claims.

6. Authorship: Researchers should take responsibility for their contributions to all publications, funding applications, reports and other representations of their research. Lists of authors should include all those and only those who meet applicable authorship criteria.

7. Publication Acknowledgement: Researchers should acknowledge in publications the names and roles of those who made significant contributions to the research, including writers, funders, sponsors, and others, but do not meet authorship criteria.

8. Peer Review: Researchers should provide fair, prompt and rigorous evaluations and respect confidentiality when reviewing others' work.

9. Conflict of Interest: Researchers should disclose financial and other conflicts of interest that could compromise the trustworthiness of their work in research proposals, publications and public communications as well as in all review activities.

10. Public Communication: Researchers should limit professional comments to their recognized expertise when engaged in public discussions about the application and importance of research findings and clearly distinguish professional comments from opinions based on personal views.

11. Reporting Irresponsible Research Practices: Researchers should report to the appropriate authorities any suspected research misconduct, including fabrication, falsification or plagiarism, and other irresponsible research practices that undermine the trustworthiness of research, such as carelessness, improperly listing authors, failing to report conflicting data, or the use of misleading analytical methods.

12. Responding to Irresponsible Research Practices: Research institutions, as well as journals, professional organizations and agencies that have commitments to research, should have procedures for responding to allegations of misconduct and other irresponsible research practices and for protecting those who report such behavior in good faith. When misconduct or other irresponsible research practice is confirmed, appropriate actions should be taken promptly, including correcting the research record.

13. Research Environments: Research institutions should create and sustain environments that encourage integrity through education, clear policies, and reasonable standards for advancement, while fostering work environments that support research integrity.

14. Societal Considerations: Researchers and research institutions should recognize that they have an ethical obligation to weigh societal benefits against risks inherent in their work.

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What is the role of institutions in emerging countries in this context???



II BRISPE

Second Brazilian Meeting on Research Integrity,
Science and Publication Ethics

Rio de Janeiro, São Paulo, Porto Alegre (May 28 - June 1, 2012)

Joint Statement of the II Brazilian Meeting on Research Integrity, Science and
Publication Ethics (II BRISPE) - May 28 - June 1, 2012

**Declaração Conjunta sobre Integridade em Pesquisa do II Encontro Brasileiro de Integridade em
Pesquisa, Ética na Ciência e em Publicações (II BRISPE), 28 Maio-01 de Junho de 2012
(Recomendações dos Membros Participantes do Grupo de Trabalho do II BRISPE)**

**Declaracion Conjunta de la II Reunion de Brasil Sobre la Integridad de la Investigacion Cientifica, la
Ética de la Ciencia y las Publicaciones (II BRISPE) – Mayo 28 a Junio 1, 2012
(Recomendaciones de los Miembros Participantes del Grupo de Trabajo del II BRISPE)**

1. include, promote and publicize RI/RCR guidelines and materials in their websites - for example, [The Singapore Statement on Research Integrity](#), 2010 [5]; [FAPESP's Code for Good Research Practices](#), 2011 [6], and [CNPq's Directives for Research Integrity](#), 2011 [7]; and [Cooperation between Research Institutions and Journals on Research Integrity Cases: Guidance from the Committee on Publication Ethics](#) – COPE, 2012 [8];

2. include research integrity guidelines in their strategic approach to research excellence;

3. raise awareness that plagiarism in all classwork is academic violation, be it in elementary school, high school or university. Provide educational materials showing that plagiarism in academic monographs, dissertations and theses is also an illegal practice in Brazil.

4. provide educational activities on RI/RCR among students and faculty to stimulate institutional discussion about local concerns;

5. encourage students and faculty to engage in national and international meetings and/or courses on RI/RCR;

6. stimulate awareness-raising activities about the role of publication ethics and authorship in national and international collaborative works;

7. provide opportunities for students and faculty to develop international language skills, ethical writing practices, and the ability to communicate accurately and responsibly the results of science, technology and innovation to their peers and to society;

8. develop initiatives to promote accountability and public trust in science among undergraduate and graduate students.

9. publicize this document among Brazilian students, researchers and faculty.



Acknowledgments

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OBRIGADA!!!