

**ESF-ORI First World
Conference on
RESEARCH INTEGRITY:
FOSTERING RESPONSIBLE
RESEARCH**

**To Achieve Excellence in a
Humanitarian Sense,
Scientists Must Address the
Issues of
Freedom and Responsibility
in the conduct of science at
a Global Level**

EXCELLENCE WITH A SOUL

Fostering Research Integrity in a Changing Society



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International Council for Science



**Strengthening international science
for the benefit of society**



The Universal Nature of Science

- The long-term ICSU vision is for a world where science is used for the benefit of all, excellence in science is valued and scientific knowledge is effectively linked to policy-making. In such a world universal and equitable access to high quality scientific data and information is a reality and all countries have the scientific capacity to use these and contribute to generating the new knowledge that is necessary to establish their own development pathways in a sustainable manner (ICSU Strategic Plan, 2006-2011)

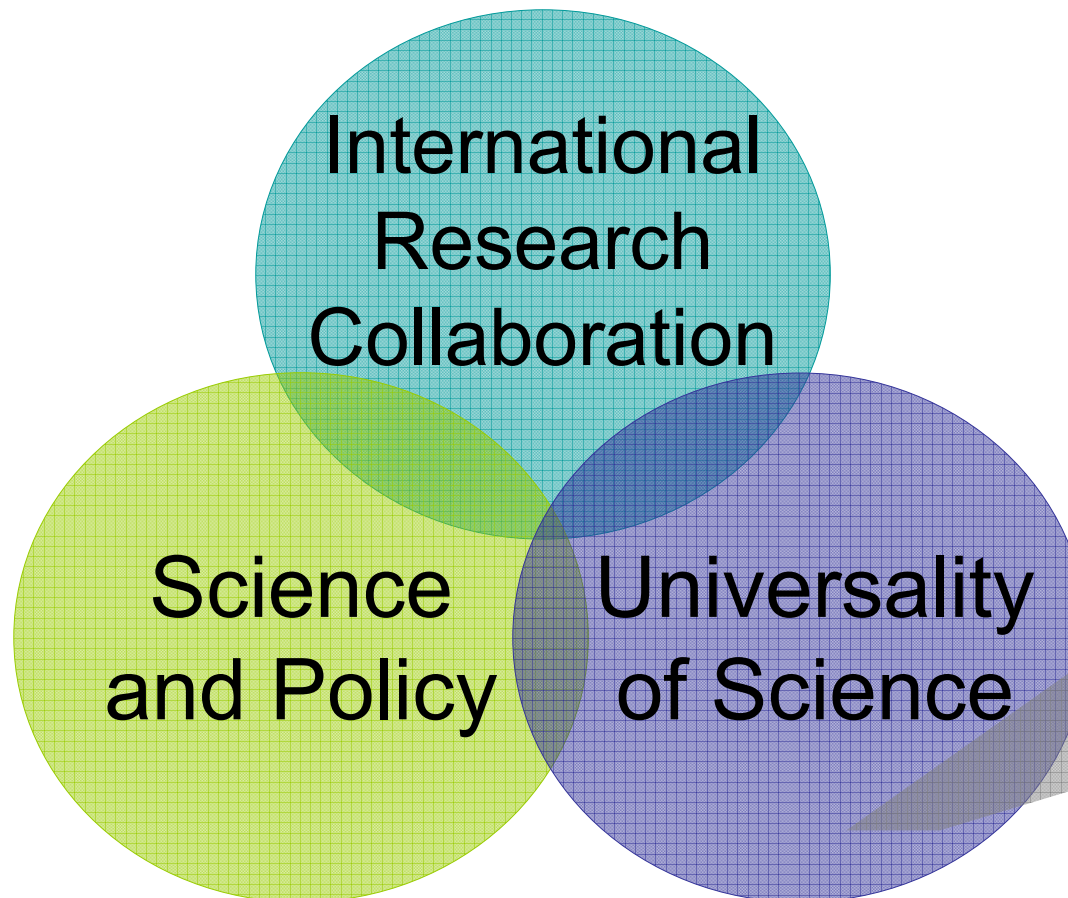


ICSU

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Three inter-related strategic themes:



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



ICSU

International Council for Science



UNIVERSALITY OF SCIENCE

The Principle of the Universality of Science
is embodied in ICSU's statutes:

**The practice of science
should be equitable
and without discrimination.**



The Principle of Universality of Science



- Ensuring that scientists can freely associate and communicate
- Providing equitable access to data and information
- Enabling equitable access to research materials and facilities
- Building scientific capacity
- Bringing nations and disciplines together

The changing context for Science in Society

- High-tech “knowledge societies” and the socio-economic divide between the rich and the poor.
- Capacity of science and technology to intervene adversely in various dimensions of human life-- including its origin, ending, and its physical and social environment.
- Information society—www and role of media
- Political context for doing science has changed— privatization and stronger governmental control, research ethic and integrity.

On the Conduct of Science

- Conduct his or her work with HONESTY AND INTEGRITY
- Methods and results are reported in an ACCURATE, ORDERLY, AND OPEN fashion
- IMPARTIAL AND FAIR in assessing both their own work and that of colleagues
- Be RESPECTFUL AND CONSIDERATE particularly where human subjects or animals are involved

Research Integrity

- Research Misconduct
 - FFP, QFP
- Allegation Procedure
 - Transparent Systems
- Self-monitoring

Research Misconduct

Definition--

➤ **FFP: Fabrication, Falsification and Plagiarism**

/ The US Office of Science and Technology Policy (OSTP) (December 2000) define research misconduct as “*fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results*”

➤ **QRP: Questionable Research Practices**

The main cause of all the questionable behavior is the increasing pressure that scientists are under as they compete to publish papers and win grants.

QRP

Table 1 | Percentage of scientists who say that they engaged in the behaviour listed within the previous three years (n = 3,247)

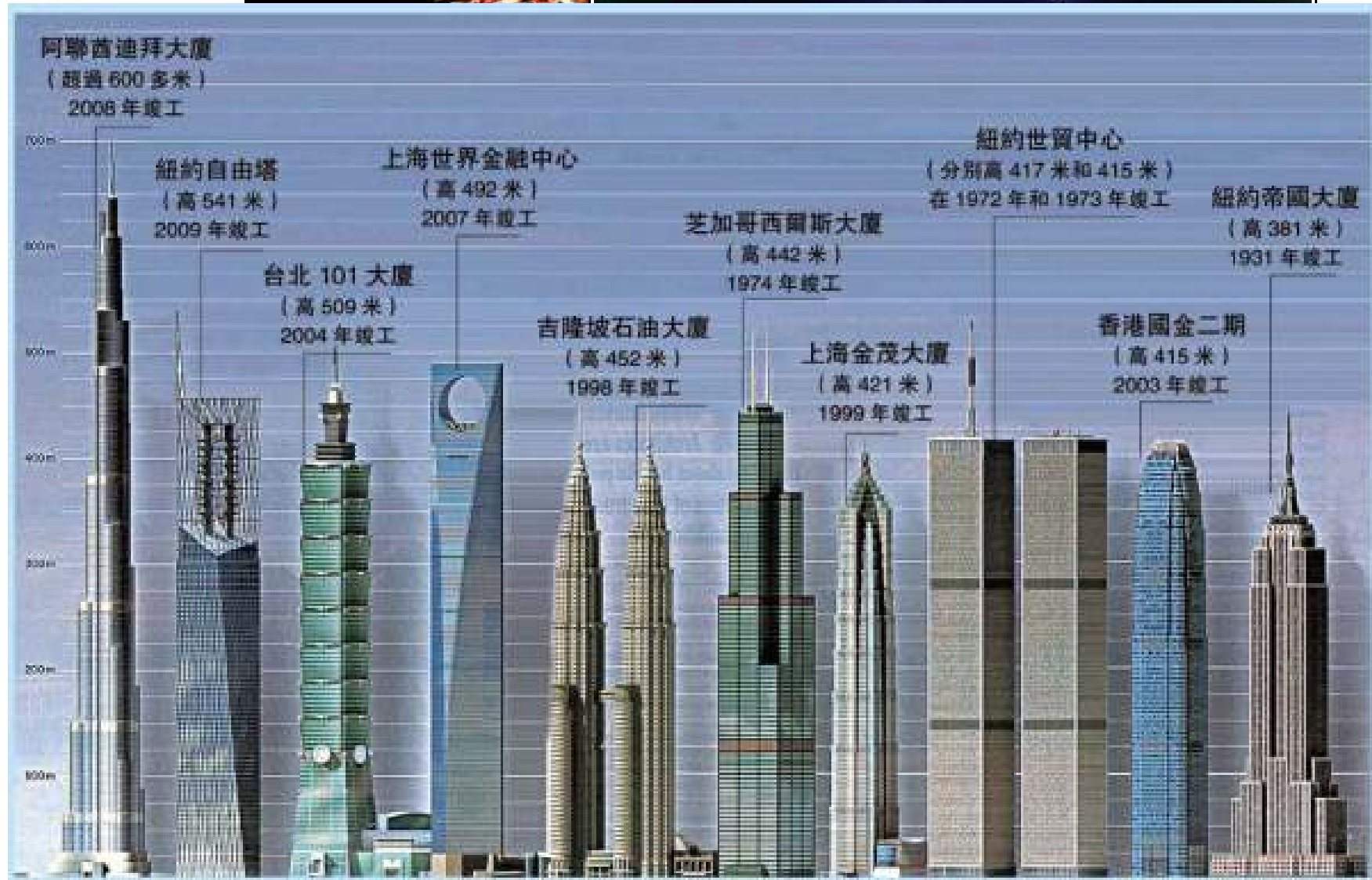
Top ten behaviours	All	Mid-career	Early-career
1. Falsifying or 'cooking' research data	0.3	0.2	0.5
2. Ignoring major aspects of human-subject requirements	0.3	0.3	0.4
3. Not properly disclosing involvement in firms whose products are based on one's own research	0.3	0.4	0.3
4. Relationships with students, research subjects or clients that may be interpreted as questionable	1.4	1.3	1.4
5. Using another's ideas without obtaining permission or giving due credit	1.4	1.7	1.0
6. Unauthorized use of confidential information in connection with one's own research	1.7	2.4	0.8 ***
7. Failing to present data that contradict one's own previous research	6.0	6.5	5.3
8. Circumventing certain minor aspects of human-subject requirements	7.6	9.0	6.0 **
9. Overlooking others' use of flawed data or questionable interpretation of data	12.5	12.2	12.8
10. Changing the design, methodology or results of a study in response to pressure from a funding source	15.5	20.6	9.5 ***
Other behaviours			
11. Publishing the same data or results in two or more publications	4.7	5.9	3.4 **
12. Inappropriately assigning authorship credit	10.0	12.3	7.4 ***
13. Withholding details of methodology or results in papers or proposals	10.8	12.4	8.9 **
14. Using inadequate or inappropriate research designs	13.5	14.6	12.2
15. Dropping observations or data points from analyses based on a gut feeling that they were inaccurate	15.3	14.3	16.5
16. Inadequate record keeping related to research projects	27.5	27.7	27.3

Note: significance of χ^2 tests of differences between mid- and early-career scientists are noted by ** ($P < 0.01$) and *** ($P < 0.001$).

Marinson, Brain C., Melissa S. Anderson, and Raymond de Vries (2005). Scientists behaving badly. *Nature*, Vol 435/9 June 2005

Pressure from Society

- Number 1 syndrome
- Large crowd but very narrow gate
- Make it or perish: A constant state of fear



TAIPEI IOT  **Petronas Tower in Kuala Lumpur, Malaysia- 452m**

Institutional Pressure

- Ranking System

Shanghai Chiao Tung University

London Times

and many others since

SCI, SSCI, Impact Factor, Top 1% citation and so on and so on....

Monetary Reward for publishing papers in top Journals

- SCI = Stupid Chinese Idea
- SSCI = Stop Speaking Citation Index

- Competition for funding
- Competition to become Research University (Extra MOE funding, 300 m/yr to be distributed among 12 universities)
- Competition for Center of Excellent Research Grant

NSF Report

- The number of journal papers produced by US scientists decreases over the last 5 yrs.
- Despite the drop in quantity, the quality of US papers remains the strongest.
- China, Korea, Singapore, Taiwan: 15.9% increase
- Japan: 3.1% increase, 5 times over US
- Europe: 2.8% increase, 4 times over US

- Increasing number of misconduct had been reported, some were quite serious and involved very prominent scientists
- Falsification