

ETHICS IN SCIENTIFIC RESEARCH

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What constitutes ethics in research -1

- 1. It is the ethics of planning, conduct, and reporting of research honestly.**
- 2. It would also include protection of human and animal subjects.**
- 3. Norms for conduct of research is designed to distinguish between acceptable and unacceptable behavior.**
- 4. For example, prohibitions against fabricating, falsifying, or misrepresenting research data and need to promote truth, avoiding errors**
- 5. Research often involves collaborative work, requiring trust, accountability, mutual respect, and fairness. (authorship, copyrights, patenting)**

What constitutes ethics in research - 2

- 6. Most researchers want to receive credit for their contributions, and do not want to have their ideas stolen or disclosed prematurely**
- 7. Most ethical norms help to ensure accountability to the public in research. (Preventing research misconduct, conflicts of interest, animal care & protection of human subjects)**
- 8. Ethical norms in research also help to build public support (funds) for research.**
- 9. Many of the norms of research also promote moral and social values (social responsibility, human rights, animal welfare, compliance with the law, and health and safety).**

Key elements of ethical research - 1

- **Honesty**: Honesty in reporting data, results, methods and procedures, and publication status avoiding fabrication, falsifying, or misrepresentation of data. Avoid deceiving colleagues, granting agencies, or the public.
- **Objectivity**: Strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research where objectivity is expected or required. Avoid or minimize bias or self-deception. Disclose personal or financial interests that may affect research.
- **Integrity**: Keep your promises and agreements; act with sincerity; strive for consistency of thought and action.

Key elements of ethical research - 2

- **Care**: Avoid careless errors and negligence; carefully and critically examine your own work and of your peers. Keep good records of all research data, research design, and correspondence with agencies or journals.
- **Openness**: Share data, results, ideas, tools, resources. Be open to criticism and new ideas.
- **Respect for Intellectual Property**: Honor patents, copyrights, and intellectual property. Do not (others') unpublished data, methods, or results without permission. Give credit where credit is due. Never plagiarize.
- **Confidentiality**: Protect confidential communications (manuscripts submitted for publications & grant applications), personnel records, trade or military secrets, and patient records.
- **Responsible Publication**: Publish to advance research and scholarship, not to advance just your own career. Avoid duplicate publication

Key elements of ethical research - 3

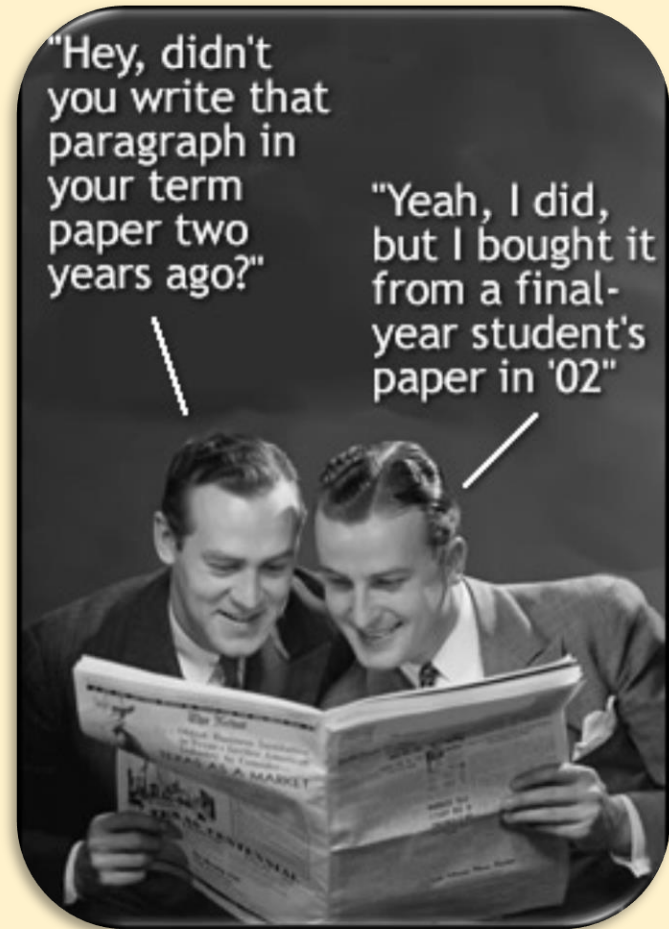
- **Responsible Mentoring**: Help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.
- **Respect for colleagues**: Respect your colleagues and treat them fairly.
- **Social Responsibility**: Strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.
- **Non-Discrimination**: Avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.
- **Competence**: Maintain and improve your own professional competence and expertise through lifelong education and learning; take steps to promote competence in science as a whole.

Key elements of ethical research - 4

- **Legality**: Know and obey relevant laws and institutional and governmental policies.
- **Animal Care**: Show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments.
- **Human Subjects Protection**: When conducting research on human subjects, minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly.

TRUST IN RESEARCH

- Academic research system is developed on trust
- Researchers trust that the others reported research are sound
- Society trust that the research by academics is presented honestly
- **ETHICAL RESEARCH CONDUCT ONLY CAN RETAIN THIS TRUST**



Deviations from acceptable research practices - 1

- 1. Submitting the same paper to two journals without telling the editors**
- 2. Not informing a collaborator of intent to file a patent (to be the sole inventor)**
- 3. Including a colleague as an author on a paper in return for a favor, even though the colleague did not make a serious contribution to the paper**
- 4. Discussing with your colleagues confidential data from a paper that you are reviewing for a journal**
- 5. Trimming outliers from a data set without discussing your reasons**
- 6. Using an inappropriate statistical technique to enhance the significance of your research**

Deviations from acceptable research practices - 2

- 7. Bypassing the peer review process and releasing results to press without giving peers adequate information to review your work**
- 8. Conducting a review of the literature leaving out contributions of other people in the field or prior work**
- 9. Stretching the truth on a grant application to convince reviewers that your project will make a significant contribution to the field**
- 10. Stretching the truth on a job application or curriculum vitae**
- 11. Giving the same research project to two graduate students**
- 12. Overworking, neglecting, or exploiting graduate or post-doctoral students**

Deviations from acceptable research practices - 3

- 13. Failing to keep good research records**
- 14. Failing to maintain research data for a reasonable period of time**
- 15. Making derogatory comments and personal attacks on an author during review of submission**
- 16. Promising a student a better grade for sexual favors**
- 17. Using a racist word in the laboratory**
- 18. Not reporting an adverse event in a human research experiment**
- 19. Wasting animals in research**

How to maximise your publications– **UNETHICALLY!**

- **SALAMI-SLICING**

breaking up work into large number of small papers.



- **TILING**

publishing sequence of substantially overlapping papers.



- **DOUBLE-PUBLISHING**

publishing same work twice



Deviations from acceptable research practices - 4

- 20. Exposing students and staff to biological risks in violation of your institution's biosafety rules**
- 21. Rejecting a manuscript for publication without even reading it**
- 22. Sabotaging someone's work**
- 23. Stealing supplies, books, or data**
- 24. Rigging an experiment so you know how it will turn out**
- 25. Making unauthorized copies of data, papers, or computer programs**
- 26. Owning stocks in a company that sponsors your research and not disclosing this financial interest**
- 27. Deliberately overestimating the clinical significance of a new drug to gain economic benefits**

Mechanisms to avoid/ detect fraud

- 1. Peer review of articles (misinformation, incorrect methodology, unacceptable interpretations, plagiarism, duplicate publications)**
- 2. Replication (Repeating the experiments under the same conditions by somebody else)**
- 3. Examining trends in data and comparing results of different experiments**

Bodies addressing ethics in research in Sri Lanka

- 1. Ethical Conducts Committee of the Sri Lanka Association for the Advancement of Science**
- 2. Ethical Conduct Committee of the Institute of Chemistry – Ceylon**
- 3. Ethical clearance committees for use of animal and human subjects in the Medical and Veterinary Faculties of the Universities in Sri Lanka.**
- 4. University Councils (if reported)**

Material for further reading

1. Shamoo A and Resnik D. 2009. *Responsible Conduct of Research, 2nd ed.* (New York: Oxford University Press).
2. David B. Resnik, What is Ethics in Research & Why is it Important?, May 1, 2011 National Inst of health environmental sciences,
<http://www.niehs.nih.gov/research/resources/bioethics/whatis/> [cited on 9th Nov 2015]

THANK YOU