

RESEARCH ETHICS

research ethics

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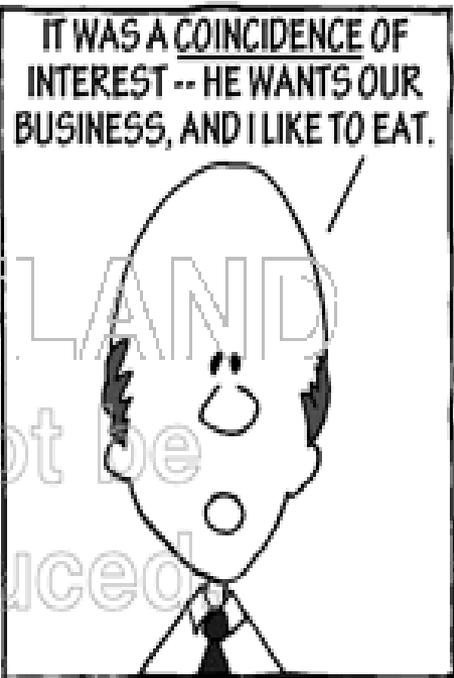
WHAT IS RESEARCH ETHICS??

□ incorporating ethical principles into research practice

□ may involve a balance between and within principles & practices

□ all stages, all those involved, from inception of research through to completion & publication of the results & beyond





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Definition

Conflict of Interest

“A conflict of interest in research exists when the individual has interests in the outcome of the research that may lead to a personal advantage and that might therefore, in actuality or appearance, compromise the integrity of the research.” National Academy of Science, *Integrity in Scientific Research*

Resource: Brainard, J. (2000). The Ties that blind? (Financing that might influence medical research). *Chronicle of Higher Education*, 47, A31.

the use of University resources

telephone numbers

**SITUATIONS CONSTITUTE A
CONFLICT
OF
INTEREST**

**e-mail or web addresses
to support or represent
an outside activity**

businesses

hobbies

political activities



Conflict of Interest Case Study: Confidentiality

Feeling Conflicted?



YOUR OPTIONS INCLUDE

NEW DISCOVERY



PATENT PROCESS



"So, I'm the only one who sees a conflict of interest here?"

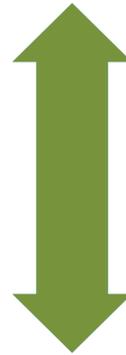
MANAGING CONFLICT OF INTEREST



Conflicts of interest must be recognized and identified, then managed, reduced, or eliminated.

DATA ACQUISITION

Testing of scientific theories through experimentation is at the heart of the scientific endeavour.



Data are acquired, recorded, and stored is thus of fundamental importance to progress in science.

Data Acquisition Case Study

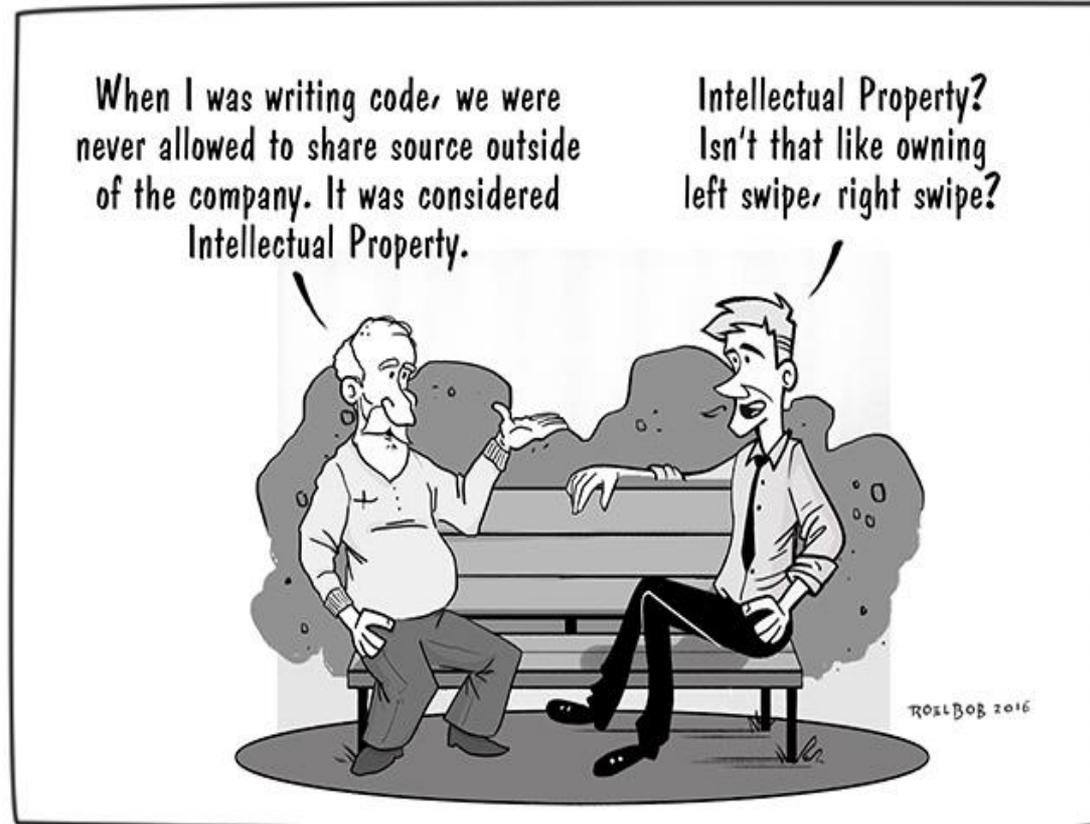


Data Handling & Record Keeping

What are some possible situations that could explain the “missing” data, and how should you proceed for each?

Intellectual Property

So, what to do?



EDUCATIONAL CONCERNS

Ethics in science are primarily learned informally through mentors and by observing the behaviour of those around us.

For many, our experiences as undergraduates and graduate students is the first time we encounter any ethical questions specifically related to science.

Issues involving data collection, authorship, and collaboration might easily be encountered the first time a student participates in a research program.

Is there a way to monitor this student's future behaviour without irreparably damaging his career?

Reporting Plagiarism

**Educational Concerns
CaseStudy**

Whistle Blowing



Is there a designated person at your institution to deal with such issues?

HEALTH & SAFETY

□ prepares for the hazards & possible emergencies that they may encounter in the course of their work, that all laws and regulations relating to safety are adhered to, and that best practices be employed when there are hazards.

□ carry out their work in a manner that does not threaten the health and safety of others, and to be forthcoming in identifying new risks & to be rapid in their response to hazardous conditions & emergencies that may arise.

Health & Safety Case Study

Hazardous Materials

- ❖ *What responsibility does the PI have in considering the new, potentially dangerous material for the research?*
- ❖ *If there is a decision to go ahead with the work, what is the PI's responsibility in terms of providing information and training?*
- ❖ *How should he or she proceed with setting up these new experiments in a manner that might ensure the safety of his students?*



Human Subjects Research

Physicists occasionally perform research involving human subjects

- **educational studies, biophysics investigations, and surveys**

Guiding principles in the Belmont Report (1979):

a. Respect for persons

- (i) Individuals should be treated as autonomous agents;
- (ii) (ii) persons with diminished autonomy are entitled to protection

b. Beneficence

- (i) Do not harm;
- (ii) (ii) maximize possible benefits and minimize possible harms

c. Justice

“An injustice occurs when some benefit to which a person is entitled is denied without good reason or when some burden is imposed unduly...”



Human Subjects Research

Case Study

**Education
Research**

- What steps do you need to take in order to ensure the privacy of the students is adequately protected?*
- Do you need Human Research Approval in order to give the talk?*

ISSUES OF BIAS

**“a mental leaning or inclination;
partiality; prejudice; bent.”**

Webster's New World Dictionary

Issues of Bias Case Study



What implications might your answer have on the search committee's attitude toward you?

In considering this scenario, how should the different students and post-docs respond to this decision by the professor?

MENTORING

❑ the act of providing resources to encourage healthy growth.

❑ involve individual relationships ranging from a casual offer of advice up to an apprentice relationship

❑ both the mentor and the mentee should have realistic and well understood goals for the timing and product of the relationship.

Mentoring Case Study

Scenario

You are a third-year graduate student working in theory. Your research professor has not provided you with a problem, and seems uninterested in the work you are doing on your own.

- What should you do?*
- What commitments were made to this student when she was accepted as a thesis student?*
- What kind of supervision should a graduate student expect from a thesis advisor?*
- Should a student expect substantive and appropriate help from an advisor, or are there different supervision styles, all of which are appropriate?*

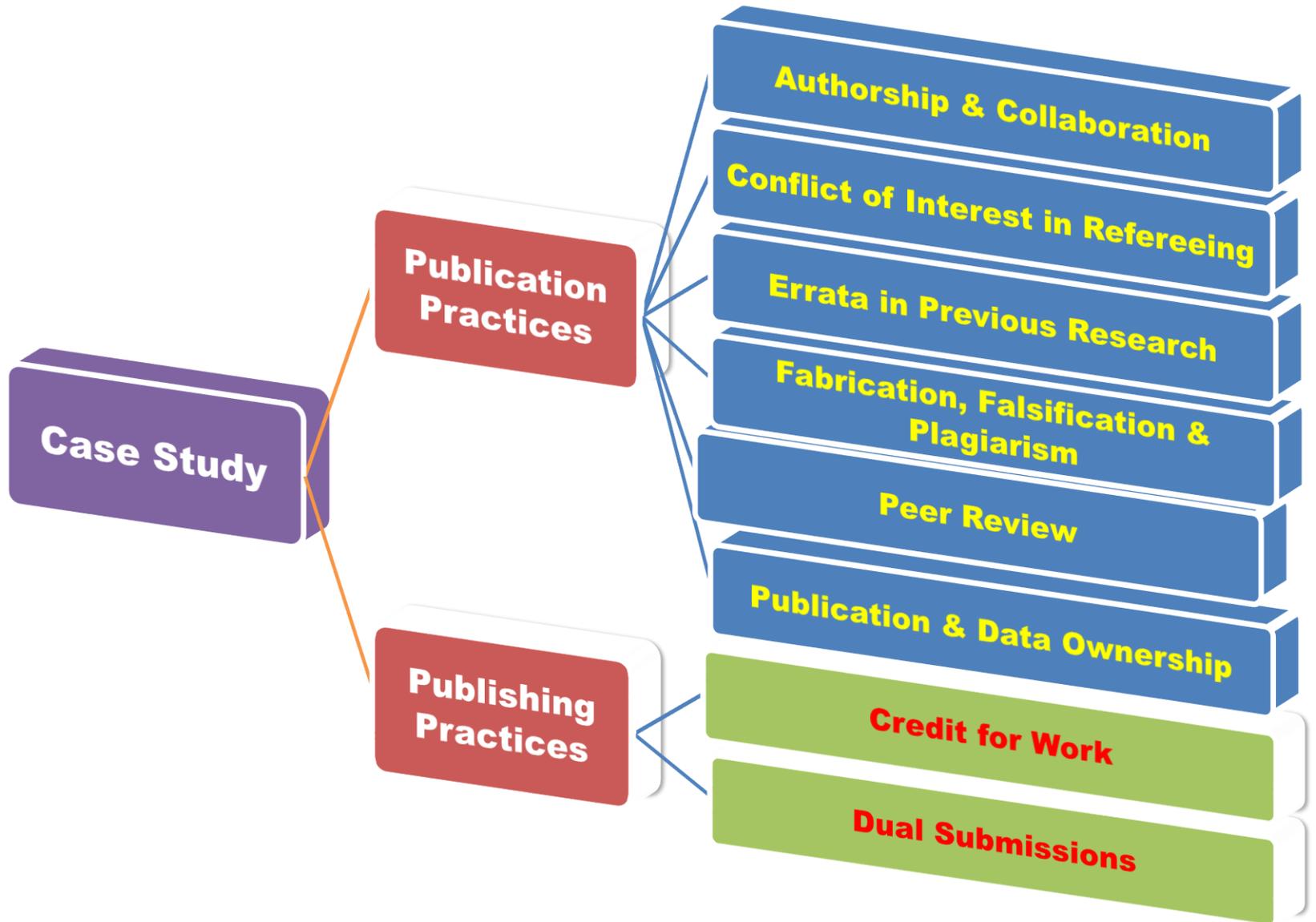
What course of action should the mentor take that might not undermine the student, and yet at the same time carry out his responsibilities?

**Responsible Mentoring,
Disabilities**

“..authorship should be limited to those who have made a significant contribution to the concept, design, execution or interpretation of the research study”

APS Guidelines for Professional Conduct

Publication Practices Case Study



Publication Practices Case Study

Authorship & Collaboration

- What factors will determine if you will be listed as an author, and if so, where your name will appear on that list?*
- If you were the editor, how would you respond to this problem?*

- What action should the journal in question have taken?*
- Should the editors notify the referee's institution?*
- What should the author have done to avoid this mess?*

Conflict of Interest in Refereeing

Errata in Previous Research

What are the optimum courses of action for the student, the advisor, and the post-doc, who, in the interim, has left to take up a new job?

Publication Practices Case Study

You are a co-author on a recent paper that was rejected. The referee made a couple of good points that called into question a section of the paper. The lead author, a fellow graduate student, is responsible for rewriting this section of the paper.

**Fabrication,
Falsification
& Plagiarism**

What should you do?

**Publication &
Data Ownership**

What should the advisor do about the manuscript and about the student's ethical lapse?



Scientists and educators have a duty to obey rules and regulations regarding the responsible conduct of research and ethical participation in the activities of their department, laboratory, or company.

Case Study

Conflict of Interest

- Should you refuse to participate in the review?*
- Why or why not?*

Financial Responsibility

- Where should one go to find out what the expectations are?*
- What should a group leader or department head do to avoid uncertainty?*

- Setting aside for a moment the specifics of SDI, under what circumstances is it appropriate to sign a petition such as this?*
- What does signing a petition say to society?*

Interface with the Public: Signing a Petition

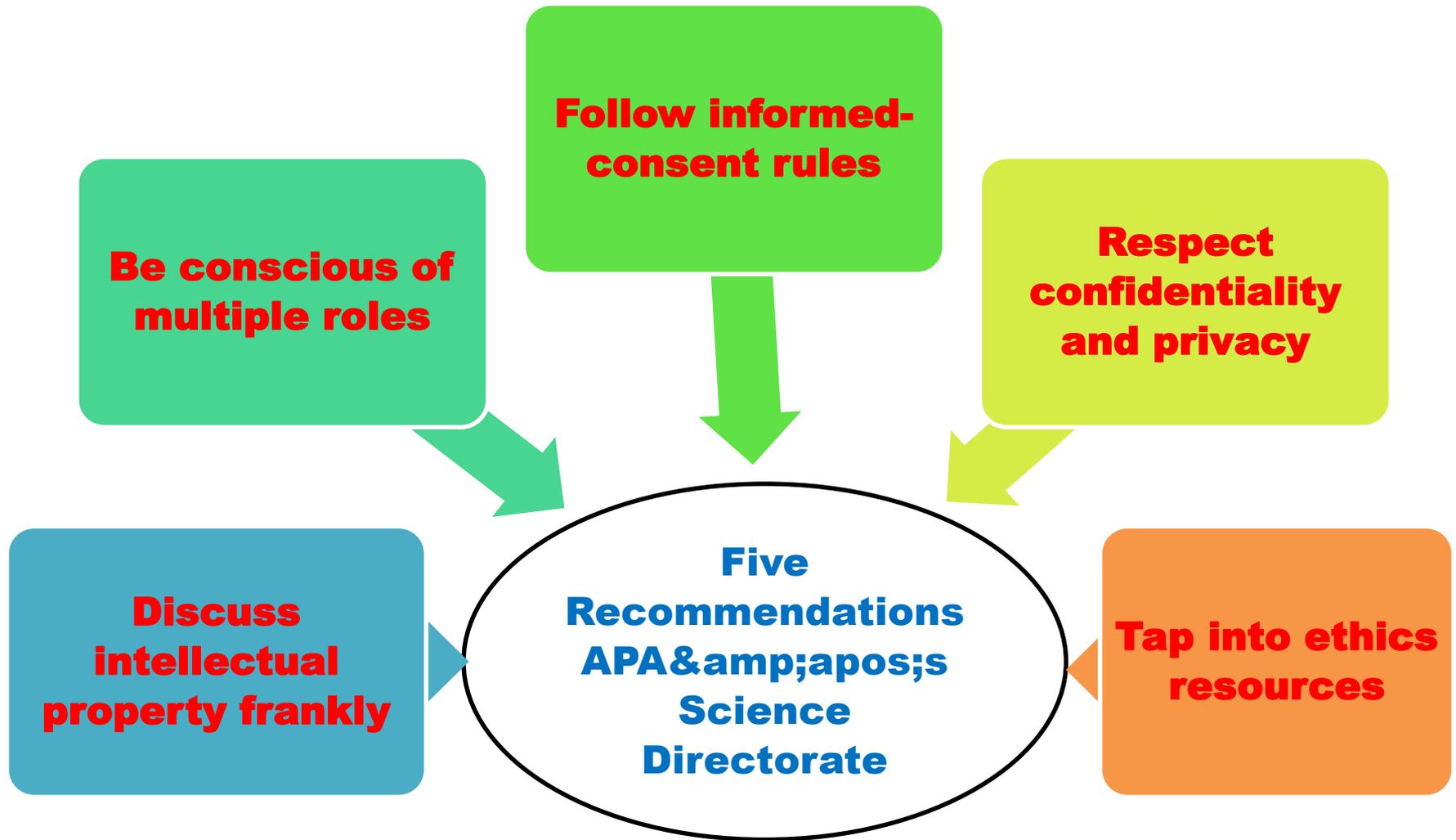
- What should the meeting chair have done?*
- If you were a faculty member at this meeting, what would you have done?*
- Are online certification tests a good way to inform faculty about all of the research rules?*
- What is the difference between this faculty member's behavior and an undergraduate who gets the answers to a test in advance and provides them to his friends?*

**Research
Management**

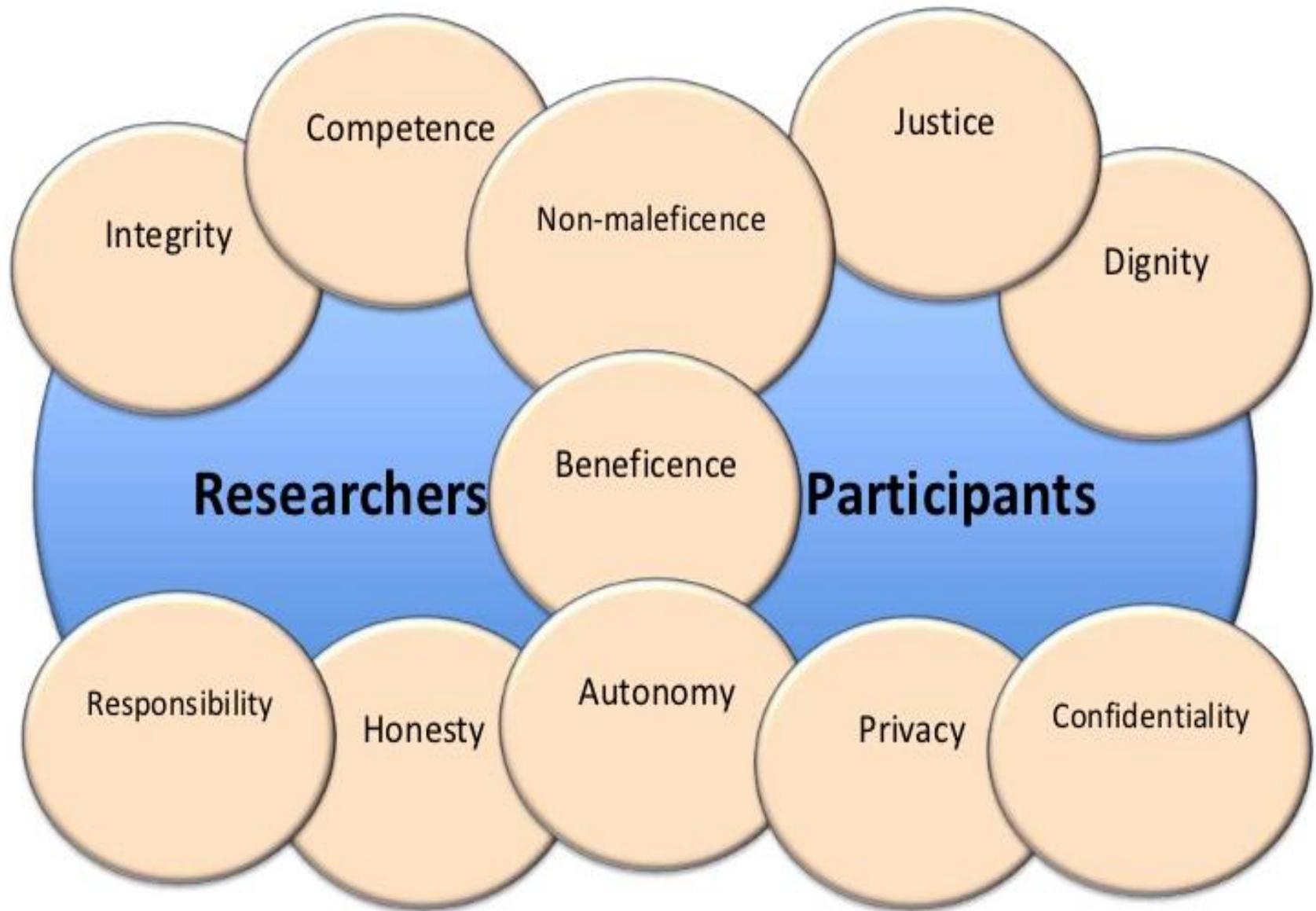
**What Is Appropriate
in Tenure Review?**

In setting criteria and standards, would it be appropriate to demand criteria that you, yourself, would not satisfy

FIVE PRINCIPLES FOR RESEARCH ETHICS



ETHICS PRINCIPLES OF RESEARCH



Q&A

THANK YOU