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FOR ENGINEERING AND SCIENCE

## Six Domains of Research Ethics

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### Body

Concerns about the ethics of any particular research product or project can be divided into three categories: (A) Is it true? (B) Is it fair? (C) Is it wise?

**“Is it true?”** concerns the relationship of the research results to the physical world. If data are made up (fabricated) or fixed up (falsified), they are not true. To a degree, this question could be re-stated as “Is it good science?”

**“Is it fair?”** concerns social relationships within the world of research. In this category belong issues such as relationships among researchers, between researchers and human subjects, between researchers and animal subjects, and between researchers, their sponsoring institutions, funding agencies, and the government.

“Is it wise?” concerns the relationship between the research agenda and the broader social and physical world, present and future. Will the research improve the human condition or damage it? Or, less grandly, which of the many possible lines of research would we be better off pursuing?

These three questions provide a handy pocket-size guide to the responsible conduct of research, capturing the heart of the issue in a concise formulation. I have found that the most logical and intuitive way of elaborating on these three questions is to

expand them into six domains, as follows. The lists are intended to be sorted in a rough way from the basic to the complex; numbers are provided for ease of reference and are not intended to convey a sense of precision about the arrangement of items.

### **Is it true?**

1. Scientific integrity - The relationship between research and the truth.

- 1.1. basic competence
- 1.2. data manipulation
- 1.3. statistical methods
- 1.4. falsification
- 1.5. fabrication

### **Is it fair?**

2. Collegiality - Relationships among researchers.

- 2.1. authorship
- 2.2. data sharing and timely publishing
- 2.3. plagiarism
- 2.4. peer review
- 2.5. confidentiality
- 2.6. candor
- 2.7. mentorship

3. Protection of human subjects - Relationships between researchers and human subjects.

- 3.1. the Belmont Report (1979) - protection from harms: respect for persons (autonomy); beneficence (plus non-maleficence); justice
- 3.2. post-Belmont - access to treatments
- 3.3. informed consent
- 3.4. assent
- 3.5. confidentiality and anonymity
- 3.6. deceit

3.7. debriefing

3.8. research risks and benefits

4. Animal welfare – Relationships between researchers and animal subjects.

4.1. the 3 R's (replacement, reduction, refinement)

4.2. pain and suffering

4.3. enrichment

4.4. animal "rights"

5. Institutional integrity – Relationships between researchers, their sponsoring institutions, funding agencies, and the government.

5.1. conflict of interest

5.2. conflict of commitment

5.3. regulatory compliance

5.4. data retention

5.5. institutional oversight

5.6. institutional demands and support

### **Is it wise?**

6. Social responsibility – The relationship between research and the common good.

6.1. research priorities

6.2. fiscal responsibility

6.3. public service

6.4. public education

6.5. advocacy by researchers

6.6. environmental impact

6.7. forbidden knowledge

The six domains are not hermetically sealed. Many items could be placed into more than one category. Taking perhaps the most obvious example, most of the items under the 3 (the protection of human subjects) and 4 (animal welfare) also fall under 5.3, "regulatory compliance." But a concern for protecting human subjects or animal welfare is not precisely synonymous with a concern for regulatory compliance. Following the rules is not exactly the same as being ethical; the two often overlap and are generally intended to overlap. Sometimes, however, following rules serve no moral value other than the value of following rules. Furthermore, sometimes morality demands more than rules do, and sometimes morality actually

demands actions that run counter to the rules.

## **Notes**

For full article see Pimple, Kenneth D. 2002. "[Six Domains of Research Ethics: A heuristic framework for the responsible conduct of research.](#)" *Science and Engineering Ethics*. 8: 1910205.

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