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Researchers as Professionals, Professionals as Researchers: A Context for Laboratory Research Ethics

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The practice of laboratory research does not fit neatly into the sphere of what is commonly understood as professional ethics. Professions are often regarded as synonymous with those occupations that have enforceable codes of conduct. There are also differences between laboratory research and professional work on a more conceptual level. The researcher tests new hypotheses; the professional acts on accepted knowledge and standards of practice. Research is intended to advance knowledge; professions are intended to contribute to the welfare of individuals (Schrader-Frechette, 1994, p. 3).[1]

But there are important similarities in the public duty of laboratory researchers and of professionals that create similar moral responsibilities for both sets of practitioners. It is also the case that any defensible system of research ethics will have the same theoretical backing as any defensible system of professional ethics. Both systems find their explanation and justification in a broader system of general morality. In addition, many professions, such as journalism and law, have important research dimensions. The moral obligations for the researcher in the science or engineering lab have implications for the professional working *qua* researcher.

Here I discuss the notion of public duty and the broad moral system that provides a foundation for both professional and research ethics. I also discuss morally relevant similarities and differences between scientific research and research that is conducted within the context of a profession.

Research Ethics and Public Duty

Laboratory research ethics refers to the actions of scientists and engineers when engaged in the pursuit of new knowledge or testing of hypotheses. These researchers, like all people, have other roles that can create conflicts of interest or commitment, but within their work, they have definable responsibilities not unlike professionals. According to Goldman, "professionals are viewed as morally committed to pursuing the dominant value that defines the goal of their professional practice, whether that goal is health, legal rights and liberty, academic knowledge, or salvation (Goldman, 1986, p. 48)." A dominant value unique to the conduct of scientific research is identifiable.

Central to the practice of laboratory research is the development of knowledge. Therefore, the rules essential for the development of knowledge to take place are the central values of the practice. Hempel describes these as the "rules of confirmation which would specify what kind of evidence is confirmatory, what kind disconfirmatory for a given hypothesis . . . [and] rules of acceptance: these would specify how strong the evidential support for a given hypothesis has to be if the hypothesis is to be accepted into the system of scientific knowledge . . . . (Hempel, 1994, p. 21)."

Individuals engaged in research have, thus, a stewardship responsibility to interpret these rules within the context of their own work, to uphold essential rules of research, and to ensure that their own work complies to the rules. How the rules of confirmation and acceptance are articulated vary among scientific and engineering disciplines, but it is essential to the continuation of scientific research that individual practitioners recognize and respect those rules. Individual practitioners have a responsibility to conform to the conventions of their research disciplines, particularly as those conventions can be shown to reflect the essential rules.

Researchers also have an obligation to justify harm caused to society or individuals through their work. Shrader-Frechette defines "two broad categories of ethical problems [that] arise in connection with scientific research: those related to processes and those related to products (1994, p. 4)." Harms relating to research products include high doses of radioactivity for those downwind of atomic bomb testing or toxicity affecting water supplies. Harms relating to research process include

deception of research subjects or non-disclosure of important relevant information to them. Shrader-Frechette argues,

> Because scientific and technological research involves potential risks as well as benefits, people should have the right to exercise free informed consent regarding such research and technical activities. After all, consent (either implicit or explicit) is a precondition of most just laws and policies and indeed a general precondition of governmental power over citizens. One may thus argue that researchers have the duty to secure public consent to the imposition of research-related risks, just as doctors must obtain patients' consent before performing risky medical procedures (1994, p. 5).

The harms that can be caused through scientific and technological research are familiar to readers of the trade or lay press. Research subjects or bystanders can be caused pain or death by the risks involved in the research. As Shrader-Frechette notes, these risks can be present in the process of the research or as a product of it. Subjects or bystanders can be deprived of pleasure or opportunity by not being given the opportunity to consent to research that may affect them, or by negative effects of research on the environment. They may be hurt if information developed through their participation in research is not kept confidential. They may be hurt through deceptive practices in the way researchers collect, process or report information. They may be hurt if researchers allow them to hold beliefs or expectations for the outcomes of research that are not realistic. They may be hurt if researchers fail to meet regulatory guidelines for the conduct of research.

Research subjects and bystanders can also be hurt if researchers fail to do their job, that is, if researchers fail to do their work in a way that upholds the essential standards of confirmation and acceptance. This harm comes about because the creation of new scientific and technical knowledge is of great importance to society. Researchers have been entrusted with meeting this important societal function. In many countries, research is subject to minimal regulation (Schrader-Frechette, 1994, p. 3); even within a system in which science is regulated by federal agencies and the institution in which it is practiced, researchers conventionally have a high degree of autonomy in how they conduct their research and how they maintain their laboratories. And, as graduate

students learn to see the world *qua* scientist through the laboratories in which they are trained, the lab directors have teaching and mentoring obligations to the future researchers.

As I will discuss later, the context in which ethical problems in laboratory research arise look a little different from the issues that arise in the research dimensions of other professions, but the kinds of harms that can be caused remain consistent. As both professional ethics and research ethics are applications of a more general common morality, the similarities in harms should not be surprising.

A General System of Morality[2]

While it is true that the common moral system does not provide a unique solution to every moral problem, such a system provides a method for distinguishing between actions that are morally prohibited and those that are morally allowed. There may well be agreement on what is morally allowed or what is morally prohibited, even if there is not agreement on the single best solution.

The existence of a common morality in which to ground a system of professional or research ethics is shown by the widespread agreement on most moral matters. Every rational person agrees that such actions as killing, causing pain or disability, and depriving of freedom or pleasure are immoral unless one has an adequate justification for doing them. People disagree about whether killing animals or embryos needs to be justified but they agree that killing moral agents needs justification. Similarly, people disagree about what counts as an adequate moral justification for some particular act of killing or deceiving and on some features of an adequate justification, but what counts as an adequate justification for one person must be an adequate justification for anyone else when all of the morally relevant features of the two situations are the same.

Although it is difficult to provide an explicit, clear, and comprehensive account of morality, most cases are clear enough that everyone knows whether or not some particular act is morally acceptable. No one engages in a moral discussion of questions like "Is it morally acceptable to deceive patients in order to get them to participate in an experimental treatment that one happens to be curious about?" because everyone knows

that such deception is not justified. We recognize the competent individual's right to consent to experimental procedures.

Morality as a Public System

A public system is a system that has the following two characteristics: (1) All persons whose behavior is to be guided and judged by that system know what behavior the system prohibits, requires, encourages, and allows; and (2) It is not irrational for any of these persons to accept being guided and judged by that system. Morality is a public system that applies to all moral agents; all people are subject to morality simply by virtue of being rational persons who are responsible for their actions.

Although morality is a public system that is known by all those who are held responsible for their actions, it is not a simple system. A useful analogy is the grammatical system used by all competent speakers of a language. Almost no competent speaker can explicitly describe this system, yet they all know it in the sense that they use it when speaking and in interpreting the speech of others. If presented with an explicit account of the grammatical system, competent speakers have the final word on its accuracy. It would be a mistake to accept any description of a grammatical system that rules out speaking in a way that they know is commonly regarded as acceptable or allows speaking in a way that they know is commonly regarded as completely unacceptable. In an analogous way, a common system of morality is adequate insofar as it describes how people generally act in regard to one another and prescribes how people think that others should act in regards to them.

Morality is an informal public system, i.e., a system that has no authoritative judges or procedures for determining the correct answer. It is like most games, including sports, which are also informal public systems. When people get together to play a game of cards, or backyard basketball, there must be overwhelming agreement on most aspects of the game for it even to get started. But, disagreements can arise which have no agreed upon way to be resolved. These unresolvable disagreements are either resolved in an *ad hoc* fashion, (e.g., flipping a coin or asking a passerby) or are not resolved at all, e.g., the game is disbanded.

Morality, like all informal public systems, presupposes overwhelming agreement on most matters that are likely to arise. However, like all informal public systems, it has no established procedures or authorities

that can resolve every moral disagreement. When there is no unique right answer within morality and a decision has to be made, the decision is often made in an *ad hoc* fashion, e.g., people may ask a friend for advice. If the moral disagreement is on some important social issue, e.g., abortion, the problem is transferred from the moral system to the political or legal system. Abortion is an example of an unresolved moral question; but, since it has to be decided whether or not abortions are to be allowed and in what circumstances, the question is transferred to the legal and political system. The question then gets resolved on a practical level, but the practical solution does not resolve the moral question, as is shown by the continuing moral debate on the matter.

Rationality and Morality

To justify morality is to show that morality is the kind of public system that all rational persons would favor as a guide for everyone to follow. Everyone admits that if a certain way of acting has been shown to be irrational, no one ought to act in that way. But just because an action is rationally allowed does not mean that everyone agrees that one ought to act in that way. On the contrary, it is often quite rational to act immorally. However, it doesn't follow that anyone would say that people ought to act irrationally. An adequate moral theory must provide an account of rationality that explains why it has this kind of force.[3]

Rationality is very intimately related to harms and benefits. Unless one has an adequate reason for doing so, it would be irrational to avoid any benefit or not to avoid any harm for oneself or those for whom one cares.

The basic definition is as follows: To act *irrationally* is to act in a way that one knows (justifiably believes), or should know, will significantly increase the probability that oneself, or those one cares for, will suffer death, pain, disability, loss of freedom or loss of pleasure; and one does not have an adequate reason for so acting.[4]

The close relationship between irrationality and harm is made explicit by this definition, for this list also defines what counts as a basic harm or an evil. Everything that anyone counts as a harm or an evil, e.g., thwarted desires, maladies, and punishments, necessarily involves at least a significant increase in the probability of death, pain, disability, loss of freedom or a loss of pleasure. However, complete agreement on what

the basic harms are, is compatible with considerable disagreement on the ranking of these harms. Especially since all of the harms except death have degrees, there can be no agreement that any one of these harms is always worse than the others. Some people rank dying several months earlier as worse than a specified amount of pain and suffering, while other people rank that same amount of pain and suffering as worse. Thus, it is rationally allowed for most terminally ill patients either to refuse death-delaying treatments or to consent to them.

A decision that involves an increase in the probability of oneself suffering some harm will be irrational unless one has an adequate reason for that decision.

A *reason* is a conscious belief that one's action will help anyone, not merely oneself or those one cares about, avoid one of the harms, or gain some good (viz., ability, freedom, or pleasure), and this belief is not seen to be inconsistent with one's other beliefs by almost everyone with similar knowledge and intelligence.[5] A reason is adequate if any significant group of otherwise rational people regard the harm avoided or benefit gained as at least as important as the harm suffered.

Common Morality as a Justified Moral System

The goal of common morality is to lessen the amount of harm suffered by those protected by it. It includes (1) *rules* prohibiting acting in ways that cause, or significantly increase the probability of causing, any of the five harms that all rational persons want to avoid; and (2) *ideals* encouraging the prevention of any of these harms. Common morality provides a framework for dealing with moral problems in a way that will be acceptable to all who are involved.

Some moral rules prohibit directly causing harms that are irrational to want for oneself. Examples are "Do not kill" and "Do not deprive of pleasure." Other moral rules prohibit actions which usually cause harm when performed in particular cases, and which always result in harm when they are generally performed. Examples are "Do not deceive" and "Do not fail to do your duty" (The term 'duty' is used in its everyday sense to refer to what is required by one's roles in society, such as being a parent or being a member of a profession).

In scientific research, what counts as deceptive is determined in large part by the conventions and practices of the field or area of research. If

it is a standard scientific practice to smooth curves depicting data or not to report unsuccessful experiments, then doing so is not deceptive, even if some people, especially those who are not expected to read the reports, are deceived. However, when a practice results in many people being deceived, especially if it is known that they will read the results, it is a deceptive practice even if it is a common practice within the field or area, e.g., releasing to the public press a premature and overly optimistic account of a "cure." This creates false hope for many of those suffering from the related malady. Recognition that one's action is deceptive is important, for then one realizes that without an adequate justification, one is acting immorally.

Almost everyone agrees that the moral rules have justified exceptions; most agree that even killing is justified in self-defense. Further, there is widespread agreement on several features that all justified exceptions have. All justified violations of the rules are such that:

1) *if they are justified for any person, they are justified for every person when all of the morally relevant features are the same;*
2) *it has to be rational to favor everyone being allowed to violate the rule in these circumstances*, and
3) *it is rational to favor that violation even if everyone knows that this kind of violation is allowed.*

That two moral rules can conflict, e.g., doing one's duty may require causing pain, makes it clear that it would be a mistake to conclude that one should always avoid breaking a moral rule. Sometimes breaking one of these rules is so strongly justified that it would be immoral not to break the rule. A researcher who, with the rational informed consent of a competent subject, tests an experimental drug in the hopes of slowing the progression of AIDS, may cause pain or even a hastened death, but is not doing anything that is immoral. In fact, refusing to do the necessary clinical studies to advance knowledge about treatment of AIDS, would itself be a violation of one's duty as a researcher.

In contrast with the moral *rules*, which prohibit doing those kinds of actions which cause people to suffer some harm or increase the risk of their suffering some harm, moral *ideals* encourage one to do those kinds of actions which lessen the amount of harm suffered or decrease the risk of people suffering harm. As long as one is not violating a moral rule, common morality encourages but does not require following moral ideals.

One way to define professions or other occupations important to society is to identify the moral ideals that are implicit in the work. The amount of public funds spent on research, for example, is justified by the instrumental good that such research will provide as well as by the intrinsic good of gaining knowledge. Some researchers, for example, work to prevent pain, death and disability through the development of new medical knowledge. Other researchers are guided by the ideal of preventing loss of freedom and expanding opportunities by the creation of technological advances for society and individuals.

Sometimes acting on a moral ideal, e.g., stopping to help an accident victim, may involve breaking a moral rule, e.g., breaking a promise to meet someone at the movies, and yet everyone would publicly allow breaking the rule. Therefore, to say that someone has broken a moral rule is not, by itself, to say that anything morally unacceptable has been done; it is only to say that some justification is needed.[6]

Public policies make expectations for all parties clear. If the government had a policy to inform all citizens of potential research that had possible negative environmental impact, citizens would have an opportunity to participate in the discussion of whether the benefits of the proposed research outweigh the risks to them. Or if the government had a public policy to not inform citizens about potential impacts prior to beginning study, those affected would again have the ability to know about what kinds of information would not be disclosed.

A public policy is an informal public system and, like morality itself, allows for cases in which people can disagree about what should be done. Discussing all the details of a public policy is quite likely to result in better decisions, for more people will now be aware of the complexities of the issue. Indeed, many may become aware for the first time that what they have been doing is not the same as what others have been doing. They also may become aware of consequences that had previously escaped their attention.

Common Morality, Research Ethics and Professional Ethics

The basic moral requirement of laboratory researchers is that they avoid unjustifiable violations of moral rules. They are also obliged to pursue moral ideals as those ideals are incorporated into the understanding of what it means to be a scientist or engineer engaged in research.

But research also happens outside the laboratory. Research happens in the newsroom, in the law library, and in dozens of other professional settings. Yet, the research products and processes differ on their face from the research conducted with the development of knowledge as its goal. Journalistic research is intended to provide a continual report on a changing world rather than reproducible results.[7] The motivation for legal research by those working in litigation is not "truth," but legal precedent that benefits one's client.

This does not imply that the rules that govern research products and process are all relative to each profession. Each professional has the moral obligation to avoid unjustifiable violations of moral rules. What differs are the conventions that govern each practice and the social function of each profession.

The social function of scientific research is to develop knowledge and, if conducted with public funds, to develop knowledge with the instrumental good of contributing to public welfare. The social function of journalism, on the other hand, is to provide citizens with information that they need for self-governance.[8] While scientific knowledge and information that citizens need for self-governance may well overlap, they may also exist as separate categories. Citizens may need to know about the development of genetic knowledge so that they can develop public policies on how such knowledge should be used. Journalists have a responsibility to report this kind of scientific knowledge. However, journalists also have the responsibility to report a great deal of other information that would not fit scientific rules of confirmability and acceptance such as the aggressive stance a particular senator might take toward the development and broad use of genetic testing, given that this senator is also a major stockholder in a biotech firm likely to benefit from widespread acceptance of genetic testing.

Now, it may be the case that the senator's interest in the firm would be entirely irrelevant to his interest in promoting genetic testing. It may be that he has friends who might have made alternative decisions concerning their own childbearing if they had had access to genetic testing for Huntington's Disease. Nevertheless, the journalistic value pursued in reporting the information is the journalist's best attempt to provide citizens with all relevant information so that they can reach their own conclusions. (Journalistic standards also require that the senator be given an opportunity to explain how his financial interest is not a conflict

of interest.). The guiding value in the research that discovered the Huntington's Disease gene and the diagnostic test was that the discovery be certain and the test have an acceptable false positive and false negative rate.

Conventions governing research differ as well. The proof of a particular hypothesis will be repeated by a lab until the research team is satisfied that their conclusions are reproducible. This is the evidentiary requirement for scientific research. The information regarding the senator's relationship with the biotech firm will be confirmed through documents, which may themselves be in error. While the journalist will strive to be as accurate as possible when filing a story, the journalistic reality is that there is no final deadline. If the document turns out to be outdated, that information will be reported in a second-day story; if the senator cannot be reached for comment for the current news broadcast, his response will headline the news in the next. The journalistic conventions relate to the reporting of evolving truth, with new information that may emerge with each new issue of the newspaper or each new special report of the network.

With differences in conventions and social function, there are similarities in ethical limitations on journalistic and scientific research. For example, it would be equally wrong for the scientist and the journalist to intentionally or negligently report inaccurate information about the existence and testing of the Huntington's Disease gene. Doing so would lead to unjustified harm of others. It would be deceptive for scientists to withhold information about a research subject's status when the research subject had reasonable expectations of being told, just as it would be deceptive for journalists to withhold information from the public about the senator's financial interest in the growth of biotechnology. While what specifically counts as deception may differ between science and journalism, both scientists and journalists have a duty to disclose certain kinds of information.

The rules of common morality thus hold in professional and research contexts, but with a difference in interpretation based on social function. While both journalists and scientists learn things and tell others about what they have learned, the context in which this learning is developed and shared changes the standards of practice that guide their work.

Notes

1. Complete references for works cited can be found in the comprehensive bibliography at the end of this issue.

2. For extensive explanation and application of this system see Gert (1988); Gert *et al.* (1996); Gert (1992).

3. I am aware that the terms 'rational' and 'irrational' are sometimes used in a way that a person might favor acting irrationally, e.g. when 'irrational' means 'spontaneous.' However, I think that philosophers as diverse as Plato, Hobbes, and Kant agree that no one ever ought to act irrationally. I am attempting to provide the descriptive content of the concept of rationality which is compatible with its fundamental normative character.

4. When I talk about increasing the probability of death, I mean increasing the probability of dying earlier than one would if the action had not been performed, for nothing can increase the probability of death itself.

5. A belief that is seen to be inconsistent with one's other beliefs by almost everyone with similar knowledge and intelligence is an irrational belief. Psychiatrists regard such beliefs as delusional. Irrational beliefs cannot serve as reasons.

6. Material starting with the section entitled "A General System of Morality" up to this point has been reviewed by and used with the consent of Bernard Gert.

7. See Elliott (1995).

8. This description of the social function of journalism has been developed extensively elsewhere. See, for example, Elliott (1986), and Elliott (1995).