TEACHING RESEARCH ETHICS: CHANGING THE CULTURE OF SCIENCE

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From 1995-2006, I was Project Director of a collaborative effort of the Association for Practical and Professional Ethics for a project, Graduate Research Ethics Education (GREE) funded by the National Science Foundation (Grants # SES-9817880 and SBR 9241897) to teach research ethics to graduate students and postdoctoral fellows in the physical and natural sciences, social sciences and engineering. In this essay I want to share some reflections on the nature of research ethics education drawn, in part, on that experience. For the purposes of this essay, I assume that readers could include ethicists with little background in scientific research as well as scientists with little background in ethics or ethics education. The first section is a brief sketch of the historical context for teaching research ethics. The second section includes my own account of the ethical tasks of researchers. The third section discusses the implications of those ethical tasks for the pedagogical objectives for research ethics education. The fourth section summarizes what we did and what we learned from the NSF project. Following my essay is a reprint of one of the cases and the commentaries on it, which were a product of the GREE project and which illustrate some of the issues I have raised.

I. HISTORICAL CONTEXT

By way of introduction, I want to provide a very brief overview of the development of research ethics and the context for the development of teaching research ethics. The growth and development of interest in research ethics extends over the past 50 years and has often been spurred by public concern about various events and issues in scientific research. I want to briefly catalogue those concerns.
Human Subjects

In the 20th century, the concern about research ethics first gained worldwide attention in the Nuremberg Trials with revelations of Nazi doctors’ experiments on Holocaust victims. That incident resulted in the development of the Nuremberg Code for Research on Human Subjects, which called for a prohibition on experimentation on human subjects without their knowledge or consent.

That awareness and concern for research on human subjects was heightened in the United States by revelations of a series of human experiments that were conducted in this country without the subjects’ knowledge or consent. The first of these was the Tuskegee Syphilis Experiment, conducted on a population of African-American men in Macon County, Georgia. That experiment began in 1932, well before the Nazi experiments, and continued until 1971, long after the Nuremberg Code was established. The 1950s and 1960s saw disclosures of other experiments involving research on vulnerable human populations. For example, nontherapeutic studies of hepatitis were conducted using institutionalized mentally retarded children at Willow Brook State School in New York. More recently, we have learned of human radiation experiments conducted in the 1950s on U.S. soldiers and civilians.

Attention to these early cases led to the creation of the National Commission for the Protection of Human Subjects in 1974 and its issuance in 1979 of the influential Belmont Report, which is a statement of ethical principles and guidelines for research on human subjects. That document, in turn, shaped subsequent federal guidelines on government-funded research on human subjects not only in the natural and biological sciences but also the social sciences.

Research on Animals

Public awareness of ethical concerns dealing with scientific research has expanded beyond research on human subjects to include research on non-humans. Considerable public attention has been given to alleged abuse of animals in research, the proper use of animals in research or any use of animals in research. That has led to the development and refinement of federal guidelines and institutional policies on the use of animals in research. Not all animals are covered by such guidelines, however, and many species remain completely unprotected.

Scientists now generally agree that wherever possible, animals in research should be replaced with nonanimal alternatives such as computer models or cell lines; the number of animals used in research should
be reduced as much as practicable; and experiments should be refined to reduce the pain and suffering of animal subjects wherever possible. Discussion continues about appropriate guidelines on experimentation with animals.

Research Ethics and the Practice of Science

Some public concerns have to do with the impact of ethical/unethical behavior of scientists and engineers on the very practice of science and engineering. One area involves conducting and reporting research. Over the past thirty years, we have witnessed a steady drumbeat of cases of fabrication of data and fraud in research reporting. In some instances, work of other scientists based on fabricated data has been wasted. In others, use of results based on fabricated data has resulted in injury or threat of injury to the general public. Some scientists, trying to call a halt to fraud and fabrication, have stepped forward, blown the whistle, and paid with significant damage to or loss of their careers.

Not surprisingly, both the awareness of fraud and fabrication and the treatment of whistle blowers raised questions in the public's mind about the credibility of work in science and the level of public support deserved by science.

I have mentioned a few areas of concern in research ethics, but the field involves a wide range of topics including the web of relationships in laboratories and research communities, relationships of faculty with each other, relationships of faculty and mentors with graduate students, and relationships among graduate students and postdoctoral fellows. It involves conflicts of interest, conflicts of commitments of faculty, and issues of institutional responsibility for education in ethical research.

Increased Pressure on Researchers

Some of the causal factors that may have accelerated ethical breaches in research have to do with increasing pressures on researchers to obtain funding and to publish or perish. More recently businesses have exerted pressure to control the publication of research they have funded.

Ethics and the Culture of Science

Scientists themselves are increasingly concerned about issues in research ethics. That trend can, I think, be partly explained by a shift in the intellectual framework over the past 50-75 rears. In the 1920s, an intellectual position known as logical positivism developed. It claimed to justify a sharp distinction between facts and values and encouraged the
notion that scientists’ and engineers’ work was value free and therefore scientists did not have to worry about ethical issues in their disciplines.

In my view, that intellectual framework also helped to create and support a scientific culture over the past seventy-five years that led many scientists to be indifferent, skeptical and even antagonistic toward the role of ethics in research and, consequently, toward the need for ethics education for scientists.

Logical positivism, in various forms, was shown to be indefensible 50 years ago (at least to the satisfaction of many philosophers). Consequently, logical positivism’s influence in philosophy has waned considerably, but even today it seems to have residual effects in other disciplines, including both the natural and social sciences (in my view, especially in the social sciences.) Nevertheless, an awareness of the deficiency of its extreme forms has filtered down to other disciplines, and its support has gradually crumbled. Over the past 20-30 years, the scientific community’s growing awareness of the deficiencies of logical positivism, has, I believe, led to more openness and added legitimacy to the discussion of ethical issues in science and engineering.

The combination of concern about ethical lapses in science and the collapse of logical positivism as an intellectual bulwark against taking seriously the ethical issues in science have now opened the area for discussion. The federal government is now pressing scientists either to conduct research in an ethical manner or risk sanctions, and new federal regulations now require ethics education in federally funded science research.

II. ETHICAL TASKS OF RESEARCHERS

In addition to the general context of research ethics, it is important to be clear about the ethical tasks faced by researchers and the kind of ethical deliberation in which they must engage. That is essential in determining the kind of pedagogical objectives one ought to pursue in ethics education for researchers.

Scientists and engineers are practitioners engaged in a kind of practical activity. During the course of that activity they routinely have to solve problems involved in carrying out research. Thus they may have to address such general problems as “How should I design this research study?” or more specific problems such as, “How can I discover the DNA profile of this Native American tribe?” “How can I find out if the nature of syphilis differs by race?”
There is often a moral component to that problem solving activity whether the researcher recognizes it or not. In pursuing the research activity, for example, a researcher may consider whether or not to deceive a subject in order to pry out his/her most deeply held thoughts and feelings on a very sensitive subject or whether to lurk on the Internet and observe a subject’s behavior without the subject being aware of the researcher’s presence.

The researcher’s decision making process, both its moral and non-moral components, involves making a decision within the context of the objectives, standards, and the current empirical knowledge of that particular science practice. Because it is a practical activity, that decision making also involves making decisions within the constraints of limited time and imperfect knowledge. This focus on decision making for action, incidentally, distinguishes it from the philosopher’s sometimes activity of deliberation on an ethical issue in no particular context and with no pressing need to solve a particular problem.

The nature of the researcher’s practical activity has pedagogical implications for teaching research ethics. Ethical theories, as such, do not provide determinate decision making procedures. That is why ethics education for researchers is not well served in a course in research ethics by simply canvassing the standard moral theories. (That is no more effective than a basketball coach who addresses his team at the beginning of a year by rolling out a basketball and directing them to get handy with it since they have some games scheduled.)

Ethical Tasks of Research Practitioners

As researchers engage in research activity, they will inevitably encounter practical ethical issues related to their research that they will need to address in order to be able to perform their research. Practical ethics for researchers involves at least four distinct kinds of ethical tasks: (1) the recognition of moral problems; (2) solution of moral problems; (3) judging moral actions; and (4) engaging in preventive ethics.

Recognition of Moral Problems

Experience does not come stamped with the ethical components clearly identified. Not surprisingly, the history of scientific and engineering research includes many examples of researchers’ failure to recognize the ethical dimensions of scientific research at all or to recognize more specific ethical issues in particular research projects.
The researcher’s capacity for moral recognition must function at several levels. Researchers must realize that there is a moral component to scientific research. They must also be able to recognize that a particular situation involves ethical issues and when the situation is ethically problematic. At minimum, the researcher should have a “gut instinct” that something is wrong in a particular case, even if he or she cannot instantly articulate precisely what the ethical issue is. Finally, researchers need to be able, perhaps after reflection and consultation, to identify in specific detail the precise nature of the ethical issue at hand in a particular research project. Thus the researcher needs to have his or her moral radar turned on, have an early warning system and a more precisely tuned “local” moral radar.

The sources of moral blindness in researchers may be varied. To begin with, researchers must be able to recognize that there are moral dimensions to the scientific research enterprise. A particular epistemological paradigm, such as logical positivism, can contribute to moral blindness at this level. Secondly, a researcher may be in the grip of inadequate moral theory. Thus, one could argue that a close reading of the correspondence of the researchers in the Tuskegee Syphilis experiment reveals that the researchers were so in the grip of utilitarian theory that they could not recognize the moral weight of the respect for persons due their subjects. Sometimes the moral blindness is due to a lack of awareness of an appropriate moral concept. Thus, the ethical treatment of animals in research was long delayed by a lack of awareness of the notion of moral respect for sentient creatures. A fourth source of blindness can result from researchers employing moral concepts that are inadequate or in need of being modified or reformed. The current notion of informed consent may work well in medical research but less well in observational research or in research involving indigenous groups. The concept of privacy may need rethinking when it involves research on subjects in the “public” sphere. Finally, compliance education can lead researchers to think that as long as they are in compliance with all the standard rules for ethical research, then they have exhausted the moral considerations regarding their research project. Even worse, sometimes the rules are themselves misguided. Sometime that is a result of the research community’s blindness to certain moral issues. Capacity for moral recognition must go beyond compliance education to enable researchers to recognize, when appropriate, the moral inadequacy of current regulations.
Solving Practical Moral Problems: The Moral Agent’s Perspective

Once a researcher recognizes that there is an ethical issue involved in the design or execution of his or her research project, he/she faces the question, “What should I do about it?” The researcher is now faced with the task of solving a moral problem from the perspective of a moral agent.

Stuart Hampshire\(^2\) distinguishes the perspective of the “moral agent” from that of the “moral judge” or “critic” or “spectator.” The ethical task of the moral agent differs from that of the moral judge. The objective is different; the mode of deliberation is different. The moral agent must fashion a solution in order to solve a moral problem with the research and get on with the research. The activity focuses on developing a judgment to guide future action as opposed to merely making a retrospective judgment of actions already taken. By contrast, the task of the moral judge, Hampshire argues, does not involving devising a solution to a practical problem but is an act of classifying moral acts or conduct for the purpose of blame or praise.

The task of the researcher, qua moral agent, is to come up with a solution that allows him/her to conduct the research in an ethical manner. “Reasonable Moral Pluralism”\(^3\) is a central feature of practical activity which the researcher must be prepared to deal with in determining what to do. As a matter of practical ethics, there may be conflicts between competing moral considerations, such as “respect for persons” and the value of the research, with no clear priority of the values or moral principles involved. It may be that not all the values can be satisfied simultaneously. The researcher may have to decide what to do in the face of legitimate competing moral considerations. To make matters worse, there may be competing legitimate legal, prudential, social and technical considerations as well. (Illustrations of researchers who have engaged in such a practical reasoning process include archaeologists who work on Native American archaeological sites in the context of the Native American Graves Protection and Repatriation Act; researchers seeking to do biomedical or health research on Native American groups who have their own Institutional Review Boards and legal authority to control all research done on their lands; researchers who engage in collaborative research with Native American communities in a relatively new approach called action research.)

Because of this plurality of legitimate competing moral and non-moral considerations, a justified solution may involve compromise, arbitration, negotiation, or reconciliation processes as well as reasoning
about the moral considerations. The researcher must use moral imagination to identify a range of alternative solutions to the problem. Some proposed solutions, upon reflection, will be unacceptable. Some may be acceptable, and some might be quite good in meeting as many of the legitimate considerations and constraints as possible. It is important to realize that there may be no uniquely best or determinate solution. It is also important for researchers to realize that there may be some research that, all things considered, cannot be morally justified and should not be done.

Although there is a kind of moral reasoning involved in arriving at a solution regarding what to do, it is not a simple deductive process from principles; it may involve analogical and inductive reasoning or casuistic reasoning. Neither is it a linear process. What the researcher assumes to be the relevant facts, the relevant moral concepts or principles may change as the researcher thinks about possible action steps. It is also the case that the agent's reasoning process involves a temporal dimension. In the course of dealing with the problem and even after the agent acts on a proposed course of action, new facts may emerge or the action may have unanticipated consequences that pose new challenges for the researcher.

Judging Moral Actions

A third kind of ethical task for the researcher is reasoning to morally evaluate past research behavior, rather than reasoning to find a solution to an unresolved ethical problem. Such a task lacks both the unique moral agent perspective and the temporal dimension of the problem solving focus. It is the task of what Hampshire calls the “moral judge” or “spectator” or “critic.” It is the kind of task required when the researcher is called to evaluate charges of research misconduct against a fellow researcher or a program. It involves an attempt to determine if a particular action or practice falls under a specified standard (“Did the researcher commit fraud?”) or in some cases, attempting to determine which standard ought to apply to a case (“Should this research protocol have required informed consent or did it qualify for a waiver?”). In either case, it is a kind of moral classification problem rather than a problem solving task. Awareness of research rules and guidelines is a necessary condition for this sort of task. Compliance education which focuses on teaching codes and regulations addresses this sort of task. I would argue that the reasoning task that researchers more frequently engage in is that of moral problem solving rather than moral judging and, if they are to themselves avoid being the subject of such judging, the education for the ethical
problem solving task may be the more important challenge in research ethics education.

Preventive Ethics

As researchers learn, sometimes painfully, it is often easier to take steps to avoid landing in an ethical difficulty that it is to deal with an ethical problem after it develops. (This approach is often referred to as preventive ethics.) Thus, it may be better for an ethnographer to find a way to take subjects of observation into his or her confidence at the beginning of the research project than to deal with the ethical issues created by a failure to do so. Here the reasoning is neither an effort at ethical classification of a past action, nor an effort to resolve an actual current problem, but is aimed at crafting a policy or practice that avoids such problems in the future. This task may not have the immediacy or specificity of an actual moral problem but may require devising a strategy to be employed by a moral agent or research organization. Thus, one way to avoid some ethical issues with graduate students regarding a question of who owns the data in a lab is for the lab to make it a practice to discuss lab practices and expectations regarding data management and ownership at the beginning of a graduate student’s career at that lab rather than address that issue as the student is ready to leave and take data with them. Discussion of ethical cases, especially ones with stages, is a good way to raise awareness of the need for thinking about preventive ethics.

III. RELATION OF ETHICAL TASKS TO PEDAGOGICAL OBJECTIVES IN RESEARCH ETHICS

These four ethical tasks have implications for pedagogical objectives in research ethics. It is illuminating to consider pedagogical objectives for research ethics in the context of a more general discussion of pedagogical objectives for ethics education. Daniel Callahan provided a seminal discussion of such objectives in an essay, “Goals in The Teaching of Ethics.”4 The essay is part of a collection that grew out of a systematic study of the teaching of ethics in higher education conducted by leading scholars and teachers of ethics education across disciplines and sponsored by the Hastings Center.

Callahan argues that ethics education ought not to be focused on acquiring factual information or the mastery of a body of literature. (Note the contrast with much of compliance education.) Rather, it should focus on the development of several distinct capacities/dispositions.
These include: 1) stimulating the moral imagination; 2) recognizing ethical issues; 3) eliciting a sense of moral obligation; 4) developing analytical skills; and 5) tolerating or reducing disagreement and ambiguity. In what follows I will suggest ways in which these objectives can connect to the ethical tasks of researchers. Although I will use Callahan’s categories, I will adapt them to my own purposes and make no claim to a careful or representative exposition of his own account of these objectives. I will comment on the first four of these objectives.

**Pedagogical Objective: Stimulating Moral Imagination**

Adam Smith, in the *Theory of Moral Sentiments*, argued that we are not only rational creatures but also empathetic creatures. We have a capacity to imagine ourselves in another’s place. That capacity, coupled with our emotional capacities for sympathy, fellow feeling, and moral outrage allow us to identify with the other and allow us to imagine what it is like to be on the receiving end of unethical treatment and come to recognize our equality with others as moral beings, to take the moral point of view. This is the motive force, as Callahan puts it, of a “drive to get straight on ethics.” Hence, he argues, ethics education needs to stimulate the moral imagination.

This capacity is important to nurture in researchers in particular, since it undercuts a culture of emotional detachment that tends to exist in research. It allows the researcher to more vividly imagine what it would be like to be on the receiving end of the researcher’s activity. That allows the researcher to weigh more carefully and accurately the moral consequences of alternative actions the researcher is considering in a research design or as solutions to a moral problem one has encountered in research activity.

Taking the moral point of view also helps researchers to understand that as researchers they are still moral agents. As I noted above, earlier generations of scientists, influenced by logical positivism, would have said that science is value free; the scientist’s only responsibility is to do good science. Today, researchers are still sometimes socialized into the view that there is a disconnect between their activity and the web of broader moral relations and that qua researchers, scientists are not moral agents; that they need not concern themselves with the moral implications of their work.

A related view, not strictly the view that research science is amoral, is the view that the value of research activity is privileged and automatically trumps other more general moral considerations (e.g., the value of
knowledge is the highest good and overrides considerations of the subject’s welfare, whether human or other animals). Thus, a researcher may argue that if, in the course of their work with early teens, they observe subjects engage in life-threatening behavior, then, unlike the person on the street, they have no obligation to act on that information. Doing so would interfere with the research program and impair the validity of the study. Their first obligation is to the research.

The recognition that researchers also have a wider range of moral responsibilities beyond those of the research allows them to recognize that there can be a conflict between moral responsibilities in research and values of the research on the one hand and wider moral responsibilities on the other, and that the wider moral responsibilities are not automatically overridden by responsibilities of the research.

There is a different sense of moral imagination that is worth mentioning. Sometimes when faced with an ethical issue, what is required is to think outside the box and come up with imaginative solutions regarding what action to take. This is not so much moral imagination but imagination in the service of moral action. Whistle-blowers, for example, sometimes find themselves in a difficult situation because they can conceive of only limited alternative actions, blowing the whistle on the corporation or going along as an accomplice. It sometimes takes moral imagination in this sense to conceive of other morally defensible alternative actions. A cultivated habit of asking oneself if there are other reasonable alternative actions can lead to more imaginative and positive action steps. The Seven Step exercise in analysis mentioned below is intended to cultivate that habit.

**Pedagogical Objective: Recognizing Ethical Issues**

One task of practitioners is to recognize the moral dimensions of their practice and consequently, one task of ethics education is to prepare researchers for moral recognition at both the general level and at a more detailed level. Capacity for moral recognition also helps with the researcher’s task of making decisions for action as well as judging moral actions.

Callahan argues that there is a fine line distinguishing moral imagination and recognition of ethical issues. The difference is cognitive. As we argued earlier, a researcher might have an uneasy feeling that there is something not quite right in their research project, or that of a colleague, but not be able to articulate it. There are really two tasks for the researcher here that require pedagogical attention. The first is the
researcher’s need to be able to do a kind of ethical assay of all the ethical issues raised by a situation (e.g., the design of this ethnographic project involves deceiving subjects, invading their privacy, inflicting insight on them, and poisoning the well in terms of the possibility of future research in this community or geographical/cultural area). The second is clarification of particular ethical issues (e.g., is obtaining informed consent from individuals adequate when the subject of research is an ethnic group with distinctive decision making procedures?).

The process of moral recognition in such cases is a cognitive one in the sense that it is in part a classification process, placing the action or issue within the moral landscape. For example, the failure to reveal to subjects that one is actually a researcher studying them and their behavior is a form of deception. The pedagogical challenge is to provide the researcher with a sense of that moral landscape. Unless one has an awareness of the moral landscape, that recognition will not occur, at least not in an especially useful manner.

Capacity for moral recognition can be promoted by exposure to general moral theories and middle level principles for research ethics such as those contained in the Belmont Report, as well as historical accounts of research ethics (e.g., James Jones, Bad Blood: The Tuskegee Syphilis Experiment or Robert N. Proctor, Racial Hygiene: Medicine under the Nazis.) Viewing video accounts by scientists who have struggled with ethical issues in their research or dealt with research misconduct may also be helpful. Writing case studies and writing commentaries on the cases can also aid in the development of a capacity for recognition of ethical issues. A common phenomenon observed by teachers of ethics is that students, when first exposed to a systematic discussion of ethics, including ethical theories and major ethical concepts and distinctions, suddenly see ethical issues everywhere. Compliance education, which typically makes the researcher aware of basic rules governing research ethics, can also help. However, as indicated above, compliance education can cut both ways.

The outcome of the development of moral recognition should be a shift in the investigator’s dispositional thinking from, “How can I investigate this phenomenon?” to “How can I investigate this phenomenon in an ethical manner?”

**Pedagogical Objective: Reasoning about Ethical Issues**

Callahan conceives the development of reasoning capacity as the development of analytic skills, including clarification of concepts, analysis
of the meaning, consequences and coherence and consistency of moral rules and moral principles. He takes this objective to be essentially the development of logical skills reasoning. The analytic skills Callahan identifies have a role to play in but are not sufficient.

I take a broader view of moral reasoning in this case and the pedagogical challenge in teaching it. As indicated above, two tasks of the researcher that involve ethical reasoning are solving practical moral problems and judging ethical actions. I have already articulated some of the capacities to be developed in each of those categories.

The kind of reasoning process involved in solving a practical problem can perhaps be illustrated by the “Seven Step Moral Reasoning Model” originally developed by Patricia H. Werhane for the Arthur Anderson Project on Integrating Ethics into the Business School Curriculum. (For an exposition of this approach as applied to research ethics see, Judith P. Swazey and Stephanie Bird “Teaching and Learning Ethics.”

1. What are the relevant facts?
2. What are the ethical issues?
3. Who are the primary stakeholders?
4. What are the possible alternative actions of the moral agent?
5. What are the ethical issues and implications raised by each alternative?
6. What are the practical constraints on each alternative?
7. All things considered, what action/actions should be taken (would be morally justified by the agent)?

As indicated above, this is not a linear reasoning process. Deliberation at any one stage may force the agent to revisit previous stages. Having researchers actually work through this process with cases can be an effective way of teaching this reasoning approach.

For the GREE project, discussed below, we believed that the activities of having participants write and discuss cases as well as write commentaries about cases were effective ways of nurturing participant’s capacities to reason and make practical moral judgments in research activity. In working on the resolution of such problems we thought it more effective to let ethical theory lurk in the background and bring it to bear only as necessary. For case analysis to be effective in teaching reasoning to solve practical problems, it was crucial and intentional that the cases be cast in terms of the need for a specific agent to make a specific decision regarding a particular action step in a research setting. One often sees cases without that feature and for some purposes that case format
may be appropriate, but not for our purposes. We also, for the reasons articulated above, encouraged participants, where appropriate, to cast the case in stages as the case developed over time. In our experience, scientists and engineers were initially surprised and then pleased to discover, as they grappled with cases, that the discipline of ethics could bring to bear such a rich literature in concepts, skill in conceptual analysis, as well as the level of rigor in reasoning to justify conclusions. They recognized it as the equivalence of good evidence in science.

Pedagogical Objective: Disposition to Responsible Ethical Behavior

Can ethics education increase the disposition of researchers to ethical behavior in their research? There are no guarantees in ethics education. However, a few considerations may be appropriate. Many researchers, like others, have a desire to do the right thing in their professional life as well as their personal life. But a desire does not yet rise to the level of a disposition.

The historic culture of science with its view of science as an amoral activity creates a barrier to such an ethical disposition by researchers. A larger barrier may be the enormous pressure on scientists to get grants to carry on their research. Taking time to explore the ethical dimensions of their research can be seen at a minimum as an unwarranted cost of “time away from the bench.” (Indeed, a number of our GREE participants indicated that was the reaction of their advisor or lab supervisor when the participant raised the idea of applying to attend the GREE workshop.)

Can research ethics education reinforce that desire to do the right thing and raise it to the level of a disposition? If one is successful in meeting the pedagogical objectives outlined above, the researchers will be clearer that they do indeed function as moral agents in the research setting and that research activity does indeed have a moral component embedded in it. He or she will be clearer that, qua researcher, he or she has moral responsibilities to others in research and moral obligations above and beyond those within their research activity which may at times override considerations of research activity. This awareness by itself does not rise to the level of a disposition to act ethically.

However, if education succeeds in helping researchers to think through the ethical issues they now see in their research activity and to develop some skill in ethical decision making, then researchers will have more confidence in doing that thinking and less resistance to doing it. It
will also give the researchers more confidence in their ethical analysis and judgment and more capacity to resist those who urge unethical behavior. Having once developed the capacity to recognize ethical issues and think through the ethical issues raised, it will be difficult to ignore those capacities. (One can't go home again, so to speak.) The more one engages in ethical reflection, the more habitual it becomes. That reflection reinforces a habit of looking for the ethical elements in a research situation and trying to determine the right thing to do. Habituation, by actually trying to do the right thing repeatedly, also reinforces the desire to do the right thing. All of this increases the likelihood of developing a disposition to ethical behavior.

Finally, there may be instances in which, as a researcher, acting ethically actually results in doing better science at the individual level. There is even more likelihood that acting ethically is good for the enterprise of science as a whole. If, as a scientist, one identifies with the practice of science, then that will reinforce even more the disposition to act ethically.

IV. GRADUATE RESEARCH ETHICS EDUCATION PROJECT (GREE)

It is in this context that our work began with graduate students and post-doctoral fellows in science and engineering

Project Goal

From the beginning our intention was to make some contribution to changing the culture of science, particularly in how research ethics is perceived, practiced and taught in the science and engineering community. As ethicists and teachers of research ethics, it was our conviction that this was best done by teaching scientists and engineers not merely a code of ethics or a set of compliance rules to be followed, but by teaching them an understanding of the nature of ethics and ethical reasoning, set in the historical context of research ethics and with the understanding of the centrality of ethics to doing science and engineering.

We recognized the power of the mentoring tradition in the sciences. Graduate students have the strongest identification with and motivation to learn from their advisers or mentors. The socialization forces on graduate students to fit into their professions are enormous, and students understandably look to their faculty advisers and mentors for guidance. Most current faculty in science have learned research ethics through mentoring relations, but those mentors have generally not been trained in ethics or ethics education. Not all faculty recognize the legitimacy of eth-
ics education in science. Those who do are likely to be novices in ethics education and tend to provide a provincial view of research ethics—the view from my lab/bench/discipline. When approached from that perspective, it is sometimes difficult to be self-critical about research practices in one’s own bailiwick. Sometimes the ethical perspective is better gained from a broader interdisciplinary view, where one can learn from the experience of other practices or disciplines. It is also the case that, unlike earlier generations of researchers, the practice of the physical and natural science now often involves large laboratories with much less contact between lab supervisor or advisers or mentors and graduate students; hence, mentoring may be less effective.

Our strategy was to work with young researchers in graduate school or postdoctoral students at the beginning of their careers, before they were permanently socialized into a perspective which discounted or disregarded the significance of research ethics and its role in science. We believed that by developing in these participants a habit of taking the ethical questions as a normal component of their research, we could not only influence their own behavior but also make them much more conscious teachers of research ethics to the generations of students they would have in their own laboratories over the course of their careers, producing a multiplier effect.

We hoped to build a small community of young scholars who had an understanding of research ethics, would be committed to practicing research ethics themselves throughout their own career, and would pass that commitment on to their generations of students and colleagues as well as play a role in the dissemination of the practice of research ethics throughout their profession. Thus we hoped to have a leavening influence on the participants, their students and colleagues, on research ethics education in various departments and universities or in industry and ultimately on the culture of science. Consequently we wanted to try an intervention to provide ethics education in research where it often did not exist.

Faculty

We consciously selected a team of faculty including scientists and engineers as well as ethicists with expertise in research ethics and ethics education. It was our belief that it was desirable to have a combination of ethicists and scientists; that ethicists may not have sufficient understanding of the culture of science in different disciplines and that scientists may not have adequate expertise in ethics and ethics education. It was
also our belief that, given the emphasis on mentoring in science, the presence of scientists would give more credibility to the enterprise. It was also our belief that it was important that more than one area of science ought to be represented in the faculty, since the practice and the issues in research ethics raised have a somewhat different appearance from the perspective of different disciplines. We followed this same principle in the selection of faculty for the program for the social sciences.

The faculty for the first six cohorts included Vivian Weil, Michael Pritchard, Brian Schrag, Deborah Johnson, (all in Philosophy and Research Ethics but additional background in the sciences and engineering), Karen Muskavitch (Biology), and Aarne Vesilind (Engineering). The faculty for the seventh cohort included Vivian Weil, Michael Pritchard, Brian Schrag, Barry Bull, (Education), Chip Colwell-Chanthanaphonh (Center for Desert Archaeology), Peter Finn (Psychology), Frederika Kaestle (Anthropology), Ulica Segerstrale, (Sociology), and Stuart Offenbach (Psychology, conducted program evaluation surveys and longitudinal survey).

These faculty members were supplemented by guest lecturers from various areas of science. In all seven cohorts, the faculty developed the curriculum, selected readings, selected participants, made presentations, assisted with development of participant cases and participated in the collaboration project.

Selection of Participants

We attempted to select young scientists and engineers from a variety of fields who showed some promise of leadership in their own fields as well as an interest in research ethics. We required each participant to write an essay saying why she or he wished to participate and each was required to be nominated by a faculty advisor or mentor or other department faculty member. We worried from the beginning about participants returning to unreceptive departments with no support for their newfound enthusiasm for research ethics.

That worry turned out to be well founded. We later learned that several participants came to the program over the strenuous objections of their faculty advisors, who argued that the program would be a waste of time and would do nothing to advance their careers. Several others returned home to quite a hostile reception when they attempted to share what they had learned.

from all over the United States to apply for participation in the program. We wanted students who had actually had experience at the bench or in field research and hence had begun to experience first-hand some of the ethical issues that may arise in research. Participants were required to have completed at least two years of graduate work or be postdoctoral fellows. In the first six cohorts, the applicants were almost entirely limited to the natural and physical sciences and engineering. Each year we selected a cohort of 15-18 participants from universities all over the country from an annual applicant pool of 40-70. Over the seven cohorts of participants, we have worked with 114 participants from 59 different universities. In the first six cohorts virtually every branch of science was represented as well as 16 engineers from various areas of engineering. The final cohort, a pilot project to do the same for graduate students and postdoctoral fellows in the social sciences, included participants from 9 different disciplines or sub-disciplines in the social sciences.

It was our conviction that the challenges of teaching research ethics in the social sciences were sufficiently different that, in the first six cohorts, participants from the social sciences were, with a few exceptions, not included. In the seventh cohort, we tried a pilot program in which we did focus on participants in the social sciences and our experience convinced us that there are significant differences and challenges in teaching research ethics to researchers in those fields, as I will indicate below. In the seventh cohort, we had 18 participants from 11 different universities; the disciplines included sociology, psychology, archaeology, anthropology, education, and information science.

**Specific Teaching Objectives**

Our specific teaching objectives for these workshops were conceived in the context of the goals articulated in the Hastings Center Report (1977) on objectives for ethics in higher education and included efforts to: a) develop in participants a capacity to recognize moral issues in research, a capacity for moral reasoning about those ethical issues, a capacity for moral imagination, and a disposition to act in morally responsible ways in research; b) develop a multidisciplinary perspective on issues of research ethics; c) introduce participants to an understanding of ethics and provide a historical perspective on misconduct in science; d) enhance their effectiveness as teachers of research ethics and e) create a network of young scientists and engineers who will, over their careers, act as a catalyst to help create a scientific and engineering culture in
which ethical considerations are simply considered a part of doing good research.

These are objectives not likely to be achieved in many of the minimalist programs developed by universities to meet NIH/PHS training requirements, for example attending a lecture on compliance or completing a short set of questions on a web site.

Pre-workshop Activities

One provision of the project was to provide participants with a working library in research ethics. Each participant received a library of 15-20 books and a number of articles related to research ethics. After being selected in early spring, the participants were asked to do a substantial amount of reading in preparation for a workshop in early summer. Readings focused on the history of research ethics, ethical theory and particular issues in research ethics.

Participants were also asked to write an initial draft of a case involving some incident in research that raised ethical issues they found especially troubling, interesting or puzzling. Participants were given materials on how to write up the case. Many drew from their own first hand experience in the lab and described an incident they had observed or experienced themselves. Those cases were sent to us in advance for review and suggested changes before participants arrived at the workshop. The idea was to use the case writing to get participants to begin to reflect on their own experience and articulate that in light of their readings in research ethics.

Workshop Activities

Participants attended a very intensive four and one-half day workshop that ran each day from 8 a.m. to 9 p.m. We deliberated about the minimum length for the workshop and concluded that if we lengthened it, we ran the risk of not getting any bench scientists to apply since their advisers or lab supervisors probably would not approve a longer stay away from the bench. Our poll of participants confirmed that concern. Pedagogically, a longer and less hurried format might have been preferable, but we had to be practical.

The workshop included lectures and discussions of issues relevant to research ethics; discussions of cases and the teaching of cases and research ethics teaching. We consciously chose to not spend time systematically lecturing on ethical theory but rather introduced ethical theory or concepts as they arose naturally in the discussions. Different styles of
teaching ethics were consciously modeled during the workshop. An even-
ing discussion series of videos, focused on various aspects of research
ethics, provided participants with an opportunity to discuss and synthe-
size what they were learning as well as making them aware of pedagogical
tools they might be able to use in their own teaching.

Participants met in small groups early in the workshop to discuss
their own cases and see how they might be modified or improved. This
was another way participants came to realize how differently individual
disciplines viewed the same research ethics issues and how distinct were
some of the issues facing specific disciplines. Participants were then
couraged to refine their cases during the workshop. On the last day, all
the participants and faculty assembled to review all the cases. Each case
was discussed to improve it as a pedagogical tool. The substantive issues
raised by the case were also discussed. This exercise was another oppor-
tunity for participants to learn from the perspectives of those in other
disciplines.

Developing Case Studies

After each workshop, participants worked on-line for several
months to further refine their cases, based on the feedback from the
workshop. The cases were then posted on a list serve, and participants
and faculty were asked to provide further feedback to each participant.
The e-mail conversations among participants usually generated several
hundred exchanges between participants during the summer and fall.
After submitting a final case, participants were then asked to write an eth-
ical commentary on the issues their case raised. Each faculty member in
the workshop was also asked to write commentaries so that each pub-
lished case was accompanied by two commentaries. The faculty com-
mentaries frequently allowed the introduction of appropriate ethical
considerations or theories or pedagogy in more detail.

We had several pedagogical objectives in having the students
develop cases in research ethics and write commentaries on the cases: (1)
To help them recognize ethical issues in their research experience; (2) To
help them to reason about those issues and bring to bear appropriate eth-
ical principles and considerations in that reasoning, along with historical
perspective which they had gained during the workshop; (3) To encour-
age the use of moral imagination in finding ethical solutions to the issues
they encountered; (4) To think about the role of preventive ethics in
research; (5) To help participants begin to think of the pedagogical objec-
tives they might pursue in teaching such cases; (6) To encourage them to think about cases in which someone did the right thing.

Those cases and commentaries, together with faculty commentaries, were printed in Cases and Commentaries in Research Ethics: Volumes 1-7. All seven volumes are described and made available on the Association for Practical and Professional Ethics web site http://www.indiana.edu/~appe/. The first six volumes have been made available for posting on the Online Ethics Center at the National Academy of Engineering at http://www.onlineethics.org/.

Taking GREE Home

Participants were also asked to engage in some project at their home institution to share what they had learned. The format varied with each individual. Some led a brown bag discussion with their laboratory colleagues. Some offered a seminar for their departments. Some taught a session in a faculty member’s course. Some developed and taught a course of their own. Some taught a session in a faculty member’s course. Some taught a course of their own. Some played a role in planning a research ethics education program for their department or a larger, campus wide effort. Some participants assisted faculty in revising practices in their lab or department. We asked faculty to send us a letter indicating the participants’ impact on the local campus. It was clear that they had much more impact than we initially anticipated.

Planning and Teaching Research Ethics for the Social Sciences

A request for an extension of the project was granted allowed for a planning conference in 2004 to consider how to extend to the social sciences the approach we used to teach research ethics to graduate students in the physical and biological sciences. A group of social scientists were invited to the Indiana University Bloomington campus to discuss with three of the ethicists from the project (Vivian Weil, Michael Pritchard and Brian Schrag) some of the research ethics issues they faced in the social sciences and how the teaching needs for research ethics of graduate students and postdoctoral fellows in the social sciences may differ from those in the physical and natural sciences. It became clear that in the social sciences, there would be more concern with the ethical concepts of ethical relativism, ethnic group consent, privacy, and issues dealing with surveillance research, use of data bases and dealing with IRBs.
Seventh and Final GREE Workshop

This workshop was carried out June 1-5, 2005. This time the workshop focused on ethical issues in research more relevant to the concerns of social scientists as identified in our 2004 planning meeting with social scientists and included faculty from the social sciences. Eighteen participants were selected from a strong pool of 30 national applicants. Disciplines represented in the selected group included Sociology, Psychology, Social Psychology, Education, Anthropology, Child and Family Development, and Information Science. Participants included 11 females and seven males. Two of the participants were Native American, one was African American. This was the first cohort in which some participants were from the same institutional departments as some of the faculty on the project staff.

Findings

Introduction

We believe that, in the course of this project, we have learned a number of things about teaching research ethics to graduate students and postdoctoral fellows in the physical and natural sciences and to a lesser degree in the social sciences.

We have made every effort to track and maintain contact with the participants from all seven cohorts, a challenge given the highly mobile nature of participants at this stage of their careers. Of the 114 participants, 23 remain in graduate school or medical schools or residencies, 13 are in postdoctoral positions, 28 are in faculty teaching positions, 11 are in research positions, six are in research in the private sector, six are in government positions related to science and seven have gone into other professions including law and medicine. At this point we have lost contact with 21 participants.

These findings draw on our observations during and at the end of this project as well as evaluations and feedback from participants in a variety of forms. We collected evaluations from participants immediately after each workshop and asked for a statement from participants as well as a letter from advisors commenting on their advisee’s home presentation. One participant provided me with a nine-page page reflection on his experience and two other shared letters addressed to others reflecting on their GREE experience. There have been hundreds of informal e-mail messages from participants over the years regarding the GREE experience. We did an evaluation of the project at the end of the first grant and
have just completed a longitudinal survey of all seven cohorts in the form of a telephone interview regarding their GREE experience. This included 35 of the 86 participants in the seven cohorts with whom we are in contact and who remain active in science. Of that 35, 15 were in faculty teaching positions, five were in faculty research positions, four were in the private sector, one was in government, three were in postdoctoral programs and the remaining seven in graduate school.

1. The Value of an Interdisciplinary Faculty Team

We found the collaboration between those trained in science and those trained in ethics and ethics education to be essential. By and large, science faculty do not have training or experience in teaching ethics and ethics faculty do not have the detailed knowledge of the culture of the sciences. Over the seven cohorts, the faculty taught each other a great deal. For example, the ethicists and sometimes the scientists were surprised to learn about the variability of research practices and culture between labs, between disciplines, between universities. The scientists were sometimes surprised to learn about competing views on the nature of ethics and the teaching of ethics and the difference between compliance education and ethics education. The presence of both ethicists and scientists in the teaching forum served as a check and balance on the perspectives offered. There is a danger of provincialism if research ethics programs are done by either ethicists or scientists alone. A team approach provides some protection from that provincialism of perspective. Since it is not uncommon for the teaching of a research ethics course to be assigned to a single individual who may have expertise in science or ethics but not both, we believe our experience suggests it is worth the extra expense and effort to use an interdisciplinary teaching team in any program to teach research ethics to graduate students and postdoctoral fellows.

2. The Value of the Interdisciplinary Nature of the Participant Group

Our longitudinal survey of the participants in the seven cohorts revealed an almost unanimous agreement of the value of the interdisciplinary experience. Years after they participated, almost all participants identified this as the experience that stood out most for them. Having such an interdisciplinary group of participants produced extremely rich discussion on many issues in research ethics, which cut across disciplines. This discussion included questions such as “What counts as raw data?” “Who owns the graduate student’s data?” and many questions of author-
ship practices; supervisors’ practices in dealing with graduate students and postdoctoral fellows; and institutional practices for educating graduate students about ethical conduct of research.

Although responses to such questions may vary with individual disciplines, the discussion was very effective in broadening participants’ perspective on research ethics. As participants learned about research practices from other laboratories and other disciplines, they came to realize the strengths and weaknesses in the approaches of their own laboratories and disciplines. That enhanced their capacity to be self-aware and self-critical of their own lab or practice, much as traveling in a foreign country enhances understanding of one’s own culture. For example, students trained in the medical sciences who had received some bioethics education in their medical training were surprised at the narrowness and limitations of their own ethics education as they listened to the ethical challenges of other researchers. The value of this interdisciplinary experience is not one that students are likely to receive at their own universities if all their research ethics education is done within the department or school.

We would raise a cautionary note regarding interdisciplinary courses, given our experience. At the beginning of the project, we had debated including equal participation from the social sciences and as well as the natural and biological sciences and elected not to so. There were however, a relatively few participants from engineering and the social sciences in the first six years of cohorts. In our longitudinal survey, we found some acknowledgment from those particular participants that they had experienced some difficulty relating to the experience of other participants. As one engineering participant noted in the longitudinal interview: “I was the only engineer in my [cohort]…I did not have that experience of bonding with my crew and saw that had to do with the disciplines. They all had a lot in common with their research.”

After observing the seventh cohort, which included only social science participants, we realized that the gap between the research experience, methods and focus of problems of those in the social sciences and those in the natural and physical sciences is sufficiently different that the pedagogical value of an interdisciplinary mix may be diminished if these two groups are taught together. For example, ethical issues of relations in the lab, especially student-advisor relationships and entanglements with industry, were very important in the cohorts of physical and biological sciences. Those issues were much less interesting to the social scientists. Having a cohort composed entirely of social scientists allowed us to
devote much more time to issues such as ethical relativism, the problem of working with IRBs perceived as dealing with social science research from a bioethics perspective, or the theoretical and practical issues involved in group consent, or surveillance research.

Thus, it is possible to attempt to be too interdisciplinary and attempt to create a one-size-fits-all research ethics course for graduate students in all the disciplines. The net result can be a course that does not address the issues in a context relevant to some in the audience or fails to appeal to the research experiences that are recognized as familiar to some of the participants. Either one ends up appealing to the experiences of those in select fields, or one simply addresses issues such as IRB review or authorship common to all fields but leaves out the depth of detail that engages the participants for their own field. A failure to address research concerns of participants in their discipline can “inoculate” them against the value of research ethics. As one of our participants noted, in one institution he attended after the GREE project, he found graduate students in ecology dismissing research ethics as irrelevant after they had participated in a required course in research ethics at their institution that focused on biomedical research and placed all other issues in the biomedical context.

We believe the strength of our interdisciplinary approach worked in part because we limited the fields to those which had at least some common ground. Universities developing research ethics education programs on their own campus may wish to consider separate programs for the natural and biological sciences on the one hand and the social sciences on the other.

3. The Mixed Value of an Off-Campus Course

One of the “empowering” elements of the workshop as reported by participants was the freedom for participants to discuss ethical issues they experienced in their own research group or department or discipline or university. Being outside their own domain freed them to say things and raise issues many would have been reluctant to do on their own campus. Partly this was a result of being able to discuss concerns they had without fear of reprisal from a faculty member or department, and to learn that others had similar concerns and how they had handled them. Partly it was because of the opportunity to compare practices and policies at their own universities with those at other universities. In some cases, they discovered with pride that their own university was something
of a leader in enlightened practice; in other cases they found ideas for policies they could take back to their own university.

Our participants did have to return to their home campuses and our project, by itself, could not do much to enhance their local campus support for research ethics or where needed, long term institutional change in the research education process.

Some participants noted that coming back to a campus which had no ethics program was isolating and alienating. Several of the participants (especially in the early years) participated in GREE over the explicit and sometimes hostile objections of a mentor or advisor who objected on the grounds that the project was either irrelevant or a waste of time or both. Some GREE participants received a hostile reception by their department or faculty when they returned home to share something of what they had learned. However, in general, faculty were supportive and appreciative of the training. Some actually collaborated with their GREE participant to institute changes in their departmental program.

An alternative to our off campus model is an NSF project (Grant # SES-0115480) conceived by Michael Pritchard at Western Michigan, which draws on our experience, and is, in a sense, a second-generation ethics education initiative that extends the work we were able to do in our project. It is designed to be located on a single campus but combines interdisciplinary components that reach beyond individual departments and allows interdisciplinary dialogue within the institution. The team pairing of graduate students and faculty within the departments creates the possibility of a forum for safe and nonthreatening dialogue and the opportunity to develop collegial student-faculty relations within departments. Both features provide an opportunity for departments in the same institution to identify, modify and improve efforts in research ethics education and research practices. The structure of the project also institutionalizes feedback and dialogue with the administration. All of these features enhance the possibility of long-term institutional change and renewal of research ethics education and the conduct of responsible research. As such, this project could turn out to be a model for institutional change and renewal in a way that our project could not.

4. The Value of the Graduate Student Perspective

Working with graduate students and post doctoral fellows has helped us to see how different their perspectives are, compared to faculty, on many of these issues; it has given us a glimpse of issues often not talked about or admitted by faulty in discussions of research ethics. Grad-
Graduate students are much more attuned to problems of relationships in the laboratory between students, advisers and faculty; problems among faculty; and problems among graduate students. Faculties need to be listening more to their graduate students' concerns in these areas. Our work has underscored the need for safe forums for graduate students to have regular discussion of such problems with faculty and has revealed the relative lack of forums in many settings. It has also enabled us to see a wide variety of department or laboratory approaches for ethics education, relations with mentors, and faculty conflicts of interest, and to assess the strengths and weaknesses of those approaches. Some of our participants were very happy with their departments' practices, and some were very angry. What we saw has underscored the value of preventive ethics in these settings. Some problems appear over and over because institutional arrangements have not been created to address these issues. Because of this difference in perspective, institutions should not assume that a research ethics course geared to faculty will be adequate to meet the need of graduate students. Some of those concerns are reflected in the monograph, prepared by GREE participants, How to Survive in Graduate School and Start Your Career in Science/Engineering: A Handbook for Graduate Research Education.6

5. Preventive Ethics

We were particularly struck by the impact on participants of the concept of preventive ethics. As they struggled with many difficult cases, particularly those involving mentor relations, other laboratory relations and relations in the research community, they grasped the value of avoiding an ethical difficulty when possible, rather than trying to resolve it after the fact. As one of the early participants noted, reflecting on the GREE experience: “I began to understand not only the ethical dilemmas that being a practicing scientist presents but also steps that could be taken to minimize these situations. I became a fan of preventive ethics.”

As we listened to participants share experiences in their graduate programs and discuss their own cases, we noted that many of the ethical difficulties that arise in research departments or laboratories could be avoided if departments self-consciously set out clear expectations for graduate students at the beginning of their programs and provided vehicles for regular and open discussion of those expectations.

One participant helped us appreciate one preventive mechanism for helping maintain a healthy balance in the power relations between faculty and students, thereby avoiding many of the ethical issues that can arise in
that relationship. That is the mechanism of having portable national fel-
lows for students. If some outside agency such as NSF controls the
funding for a graduate student's career, that student is much less vulnerable
to a faculty member's unethical behavior. If the department environ-
ment is unethical or if the student is treated unethically, the student can
take their funding and move to another institution.

6. Value of Case Studies

Cases were initially prepared before the workshop, reworked during
the workshop with two feedback sessions, and polished over the summer
and fall with feedback via e-mail from peers and faculty. The extensive
revision and collaboration process was intended, in part, to develop an
extended conversation among participants and faculty on research ethics
issues and teaching research ethics and to create a community of col-
leagues who trust each other enough to raise these issues and discuss
them frankly.

Developing and discussing case studies drawn from their own expe-
rience, and writing commentaries on their own cases proved to be a very
effective pedagogical tool for helping participants learn to recognize eth-
ical issues. The intellectual difference between writing one's own case and
reading and discussing one written by someone else, is significant. Expe-
rience does not come with “ethics problem” stamped on it. To move
from raw experience with its amorphous and confusing mixture of
impressions, emotional reactions and relevant and irrelevant facts to the
recognition of an ethical issue is itself a significant intellectual activity.
Considerable reflection is often required to determine that a problem is
indeed an ethical issue and to identify and enumerate the ethical compo-
nents of the situation. Many participants had the experience of beginning
with a gut instinct that something was wrong and eventually being able to
articulate the ethical issues. Others found they began with one notion of
the ethical issue in a situation and came to see either that it was not an
ethical issue or not the one they thought it was, or that there were other
ethical issues they had not recognized or considered.

Writing commentaries on their own cases particularly challenged
participants to reason about the cases, to articulate concepts and relevant
differences between their cases and standard cases they had studied or
discussed, to discern where relevant concepts and principles applied. The
work with case studies and their discussion is a mode of indirectly teach-
ing reasoning about practical ethics. The focus on crafting ethically justi-
fiable solutions to problems challenged them to develop their capacity to
put themselves in the place of the recipients of their proposed actions and thereby developed their moral imagination.

Discussion also spurred reflection on teaching objectives and techniques as they thought about how to teach the cases. Cases proved to be a pedagogical tool with which participants were comfortable and one they could use in a wide variety of situations when they tried their hand at teaching research ethics on their own campuses. Participants and faculty can use cases to initiate discussions of ethics without having to assume the intimidating position of ethics expert or having to deliver a scholarly lecture on ethical theory.

Feedback from students indicated that the use of cases for discussion in their labs and departments provided a nontthreatening means for faculty and students to raise and discuss issues in a case that were in fact impeding work in their own lab. It allowed students and faculty together to discuss a case that indirectly addressed issues in their own labs, yet because it came from an independent source, faculty were not put in the position of defending the behavior, and students were not seen as criticizing the local practice directly. It also provided a vehicle for students to raise questions about local policy they may not have felt free to raise otherwise.

We were surprised that participants came up with a new range of cases year after year. Topics included perhaps the predictable issues of authorship, data ownership, collegial relations, experimentation on humans and animals, and deception in research, but also the less familiar issues such as compliance with laws in archeological research, use of credit ratings to track down experimental subjects, use and abuse of research data in developing environmental policy, the impact of industry funding on integrity in research, ethical guidelines for research in other countries, the responsible use of engineering modeling in forensic engineering, and expert testimony.

In the sixth cohort, we experimented with encouraging participants to write up cases in which someone did the exemplary thing. Case writing tends to focus on problematic behavior. The motivation for writing such cases may often be the author’s moral outrage at someone’s behavior. Morally outrageous behavior can also be pedagogically effective in gaining and holding the reader’s attention. In that sense, the cases are easy to teach. The downside of such cases is that focusing only on “bad behavior” may give students a skewed perception of scientific practice and may lead to cynicism about the behavior of others as well as their own. Regu-
lar use of cases of “bad behavior” may also condition students to assume that the behavior of agents in cases is always unjustified.

We gave participants the option of writing up cases that might display exemplary behavior. Many had difficulty doing that. They found it easier to write about bad behavior. Others wrote up cases that reflected standard practice in their area, which they assumed was therefore exemplary. Further discussion and analysis led them to conclude they had in fact a case of morally unjustified behavior.

A good format for exemplary cases turned out to be one in which they described the character’s behavior without identifying it as exemplary and asked the readers to discuss whether the agent’s behavior or some alternative was ethically more defensible. This exercise requires readers to go through the same ethical analysis and justification of alternatives that they would in other cases and hence recognize the moral justifiability of the agent’s behavior. We expect that this format will help with the teaching difficulty of the lack of drama in cases of exemplary behavior compared to those involving unethical behavior.

We initially thought that we should not list the authors of the published cases since many of them drew on their own experience or situations in their home institutions. The wisdom of that insight was quickly reinforced by a couple of unfortunate incidents involving discussion of participants’ cases on their home campuses. The development and discussion of these cases in our own workshop often allowed participants to engage in a full airing of ethical concerns that they were not really free to discuss on their own campuses. As noted, that is one advantage of ethical training that takes place outside the home department or institution.

7. Cohort Seven: Research Ethics in the Social Sciences

This last cohort was taught with an attempt to see if the approach and pattern of teaching we used in the physical and biological sciences could be effectively extended to the social sciences; to determine what issues were of most concern to social sciences and if the issues that needed to be addressed were sufficiently different that there would be any benefit in segregating the participants in the social sciences in their own workshop.

Based on our planning conference with social scientists in 2004, and the collaborating faculty in 2005, it was clear that the readings needed to be substantially different. The readings related to fundamental ethical issues remained the same but were supplemented with readings on ethical relativism, and substantial readings in archaeological and anthropo-
logical research ethics as well as readings on informed consent, in research on groups, participatory research and research on children, and the use of statistics and data bases.

The participants were clearly struggling in their own research in dealing with the IRB review process in a way we did not see with former groups. One participant had been caught in the cross-fire between those in the discipline of history who denied the authority of IRBs over their research and oral historians who accepted it. Others felt their IRBs did not appreciate the difference between the kinds of human subjects research done by social scientists and its special needs in informed consent compared to that done in the biological sciences. Others were struggling with the issue of informed consent, particularly with ethnic groups or those from another culture and the idea of participatory research. Still others were dealing with the ethics of surveillance research, the ethics of deception research and the use of large social science data bases (in education). These issues are at the core of research in these disciplines and are quite unlike those of concern to previous cohorts. It was clear that had we tried to include in a research ethics workshop an equal number of social scientists and physical and natural scientists, we would not have been able to provide the depth of discussion for either group that we were able to do by segmenting them. While addressing the substantive issues for one group, the other group would be disengaged (as the experience cited earlier of ecology students forced sit through a human subjects training course), illustrates.

That said, the general approach to the workshop of advanced readings, varied presentations, small and large group discussions of cases and a requirement that the participants take GREE home worked equally well with the social scientists. We eliminated the evening video series of scientists talking about ethics in research, in order to give participants more time to interact formally. That was, on balance beneficial, but something was lost in not hearing scientists talk about their professional responsibilities.
NOTES


6 Available through the Association for Practical and Professional Ethics.