

# PERSPECTIVES

## On the Professions

A periodical of the Center  
for the Study of Ethics in  
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### "Ethics Across the Curriculum: The Second Decade"

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One day in 1987, two young faculty from IIT's Department of Mechanical and Aerospace Engineering dropped by the Center to discuss including some "ethics" in their courses. They supposed we, the Center staff (two philosophers), knew how to do that. They may even have expected us to hand them a packet. Our response was not what they expected.

We were not totally unprepared. The Center was just completing publication of a series of "modules" (chapterlength pamphlets) on various issues of engineering ethics-risk, loyalty, conflict of interest, and so on. The modules were designed for insert into any course where those issues arose. Using one module might take two or three days. Our two engineers took one look at the modules and rolled their eyes. "How," one asked, "could I find room for that assignment in Thermodynamics?" What they had in mind was much more modest, a few minutes here or there in a crowded syllabus.

#### Thermodynamics?

Non-engineers may not appreciate

the full import of the reference to Thermodynamics. Certainly, we did not for some time. The engineering curriculum is divided into "analytic courses" ("engineering science") and "synthetic courses" ("engineering design"). Analytic courses consist largely of applying formulas to relatively abstract problems. They differ only in detail from courses in physics or chemistry. Only in synthetic courses, usually reserved for the senior year, are engineering students routinely asked to think much about context, to be inventive, or to choose from several reasonably good solutions. Thermodynamics is one of the more analytic of the analytic courses. If we could get ethics into Thermodynamics, we could--we came to see -- get ethics into almost any course. "Thermodynamics" soon became our short-hand for all those courses--from Calculus I to Molecular Biophysics--that seemed too divorced from practice to have room for ethics.

Our first impulse was to say, "Impossible." But experience had taught us not to be so quick. Little more than a decade before, the very idea of philosophers teaching engineering ethics had seemed, well, impossible. By the late 1980's, however, IIT had a popular course in engineering ethics. We therefore undertook to see what other universities might be doing to include small amounts

of ethics in technical courses. We also began to ask around to see whether anyone else at IIT had an interest.

Our inquiries at other universities quickly gave us a rubric for our questions, "ethics across the curriculum." It also gave us an approach. Several universities--including Cornell, Marquette, and Nebraska--had (or, at least, were planning) seminars to teach non-philosophy faculty enough ethics so that they could teach--or, at least, use--ethics in their own disciplines. These seminars were in "remedial moral theory" (as we came to call it).

#### Sack Lunch Anyone?

Our inquiries around campus uncovered half a dozen other faculty--in business, psychology, computer science, and social science, as well as two more philosophers--who had been thinking along the same lines as our two engineers or, at least, expressed an interested in doing so. We began meeting regularly over a "sack lunch".

During the first meeting, the Center staff sketched a syllabus for a seminar like that at the other universities then experimenting with ethics across the curriculum. The response was a loud no. There seemed to be at least three objections. One concerned credentials: "We would not feel comfortable teaching moral theory

to our students." A second objection concerned relevance: "What," they asked in effect, "does moral theory have to do with Thermodynamics?" The third objection was practical: "How do I get enough time in Thermodynamics to say anything useful about moral theory?"

Ethics across the curriculum at IIT thus began with a complete failure. Many months were to pass before our sack-lunch group understood what was really needed. We had to learn a good deal about each others' disciplines. There were surprises on all sides. Two stick in my mind. On the one hand, the philosophers discovered that some things they took for granted, such as writing cases or leading discussion, were new to the engineers and scientists. What the philosophers had thought too obvious for comment in fact deserved a prominent place in any ethics across-the-curriculum seminar. On the other hand, philosophers and nonphilosophers alike came to appreciate that moral theory, the very expertise that originally seemed to justify philosophers teaching non-philosophers how to integrate ethics into technical courses, actually had little part to play in integrating ethics into technical courses.

### **Ethics, Ethics, and Ethics**

Over the next year we rewrote the seminar syllabus three times. As we did, we became ever more careful to distinguish between three senses of "ethics:" first, ethics as ordinary morality (don't lie, don't cheat, keep your promises., and so on); second, ethics as moral theory (the attempt to understand morality as a rational undertaking); and, third, ethics as (morally permissible) standards of conduct governing

members of a group-engineering ethics, business ethics, research ethics, and so on.

We found this tripartite distinction useful because it allowed us to understand why engineers, scientists, and business faculty could, and should, "teach ethics". None of us had any special expertise in teaching morality (ethics in the first sense). Only the philosophers were likely to know enough moral theory (ethics in the second sense). But the engineers, scientists, and business faculty--not the philosophers--were the ones most likely to know much about the special rules of conduct governing their respective professions--ethics in the third sense.

Once we had the sketch of a syllabus we were all happy with, we sought funding for a series of workshops, one each summer for three years for IIT faculty, followed by a similar "external" workshop for a select group of faculty from other universities. The National Science Foundation (NSF) agreed to support the experiment.

That first NSF grant ended in 1994. After assessing the impact of the external workshop, we asked NSF to support several more. NSF agreed to two more. We offered one last summer and will offer the other this summer.

### **What Happened in Class?**

This issue of *Perspectives* is meant to complement an earlier issue (February 1994) devoted to ethics across the curriculum. That issue focused on what veterans of one or another of our *internal* workshops were doing to integrate ethics. The focus here is on what veterans of our *external* workshops have been doing at

their universities-and what the Center is now doing to continue what the internal workshops began. The first two pieces, both by veterans of last year's workshop, are about integrating ethics into individual courses. In the first, Naomi Robinson describes experiments with a biology course. She tried to insert ethics as part of doing what she would do any way. For example, on the first day of class, she introduced the idea of professional codes as part of her usual lecture on lab safety. Her conclusion is common among faculty who try to integrate ethics into technical courses: ethics can be a no-cost improvement. So, for example, not only did Robinson's brief discussion of professional codes not squeeze out anything important from her first day, it seems to have made her lecture on lab safety more effective.

Faculty often argue that the best approach to introducing students to professional ethics is to begin with "student ethics". In our second piece, Eldon Case reports his experiment with that approach in an introduction to the engineering profession. Case's conclusion. is that the better approach seems to be to introduce professional ethics first and then work back to "student ethics" (as Robinson in fact did).

With our third piece, we widen the focus somewhat. Marilyn Dyrud reports on her efforts to transfer what she learned at our first external workshop to her university's faculty. What she reports is as much a reprise of our sack lunches as of the workshops. Those who "gave" the seminar may have benefited as much as those who "took" it. And many of the benefits, though contributing to education, were not ordinary

learning.

In our last piece, Vivian Weil reports on IIT's latest experiment with ethics across the curriculum. IIT revised its curriculum two years ago. Each student is now required to take one "interprofessional project" (IPRO) a year after his or her first year. Each IPRO, which replaces a traditional course, is supposed to be a "hands-on, real-world, problem-solving experience" requiring collaboration among members of more than one profession. How do you integrate ethics into an IPRO? That was a question faculty put to us. Weil reports on our first attempt to provide an answer. The sack lunch is again an important ingredient. -MD

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### **"Teaching Ethics in a Biology Class"**

Naomi Robinson, Texas Wesleyan University

How could I teach students to be ethical? I focused on that question during the eleven summer days of CSEP's 1997 Ethics Across the Curriculum workshop. Returning to my university, I decided to integrate ethics throughout the semester in one of my classes.

Because my subject is biology, I chose a biology course, Structure and Function of the Cell. But whether you teach engineering or English, I hope the following entries from the diary I kept while I experimented with teaching ethics will spark ideas in you for incorporating ethics into your classes. I would like to know the results. My e-mail is

nrobinso@flash.net.

### **Ethics Module 1, First Day of Class**

I had two goals. The first was to introduce the concept of a code of ethics. I wanted the students to recognize that no matter what profession they entered, they would be expected to satisfy an ethical standard. I wanted them to appreciate that ethical behavior is an integral part of being a professional.

I began by asking students what interested them in biology and what their career goals were. Then I announced that although many of them were to become doctors, physical therapists, dentists, and so on, as long as they were in this class they would be treated as biologists-in-training and have to follow the biologists' (un-written) ethical code. When they became members of other professions, they would be guided by other ethical codes. Thus I introduced the concept of codes of ethics.

My second goal was to prompt students to relate a behavior - adherence to lab safety - to an ethical code. Often, students do not take safety lectures seriously, preferring to assume risk for themselves. I wanted students to consider the risk to others--to see that lab safety was not an individual but a social (and ethical) issue. So, for example, when discussing the rule prohibiting food in the lab, I stressed the risk such food posed to the safety and health of coworkers. I stressed safety and health of coworkers as well in regards to chemical disposal and the use of hoods.

I believe that focusing on ethics in this way was more successful than a simple lab safety lecture. This

semester, unlike previous semesters, I had no complaints about restriction of food or about other safety requirements and only had to remind students about the rules a few times. The students seemed to internalize the rules more successfully because they could assign a purpose to them larger than a teacher's preference.

### **Ethics Module 2, Week Five**

My main goal was to discuss research ethics and the importance of giving credit to other researchers. It is not uncommon for scientists to have an opportunity to enhance their own career by not giving credit to other researchers. I wanted students to realize that according to the biologists' code of ethics, there is a firm standard of behavior: always give others the credit they are due. I wanted to present the students with different scenarios under which they might have to decide whether to give credit and how much credit is due. Discussing these scenarios, I wanted to teach them to differentiate between relevant and irrelevant factors when determining the proper course of action.

I started by telling a story that I heard at a dinner party about a meeting at a large oil company where management decided not to hire any students from a certain top research lab because the principal investigator was unethical. Management had made that decision because they did not feel they could trust students from a lab where proper behavior was not modeled. Bad ethics could translate into bad research or other behavior not to the benefit of the company. So, I told my students that I didn't want it said that Wesleyan trained unethical scientists and, therefore, we were

going to discuss research ethics using three cases.

The first case was far removed from the students' own experience. The question concerned the Nobel Prize that Otto Hahn, a chemist, was awarded in 1944 for the discovery of nuclear fission. Should he have sought to share the prize with Lisa Meitner, a physicist, whose collaboration provided ideas essential to the discovery? I started with this case because students would not feel threatened or obliged to defend their own behavior. The case was a safe way to determine which facts were relevant when deciding when credit should be given.

The second case we discussed is a common scenario in research, involving giving credit on posters. (At many conferences, interesting research not important enough to present as a formal talk is presented as a poster--as at a science fair.) The students might well find themselves in this situation. However once again, the situation was removed from their present experience; therefore, this case was also not threatening.

Finally, we discussed a case regarding lab time in class. I allow students to work in groups but require each to do all the experiments and his or her own write-up. What if two overworked students agreed to divide up the experiments, each doing half and sharing the data with the other?

The students enjoyed this case. However, because they could relate to the story, they found themselves defending unethical behavior with such excuses as "we are only human." So I referred to the moral concepts that

they had listed during discussion of the first two cases and asked them to apply those concepts to this new case. I had the students list factors that *might* in real life affect their decision (such as fatigue); then I asked them to list factors that *should* affect their decision (as detailed by them in the previous cases). I was able to integrate the ideas we had discussed in the two earlier cases with this case. We then discussed whether "being human" was an excuse for not behaving ethically. I am not sure if the discussion was convincing, though, or if many or even most students still feel that "being human" excuses all sorts of behavior.

In order to assess whether the students had absorbed the tools we had used to dissect these three cases, I gave them another case for homework with questions to answer. From the students' answers, I felt that most of them could, at least in the abstract, identify relevant factors and use them in making an ethical decision.

### **Ethics Module 3, Week Nine**

I had two purposes during this session. First, I wanted to give the students more tools to use in ethical reasoning--for example, ways to analyze situations based on the "greatest good" (consequences) or on universal moral rules. Second, I wanted the students to appreciate the impact scientific knowledge is having on social and political decision-making. I wanted students to use scientific knowledge to answer a *social* question.

The social question we discussed was regulation of smoking; the scientific knowledge involved a carcinogen, a specific compound in cigarette smoke known to cause

mutations in a gene that suppresses tumors. I asked my class:

Benzo(a)pyrene is a chemical in smoke that causes mutations in the tumor suppressor gene p53. Second-hand smoke can cause cancer. Does this biological reality--that benzo(a)pyrene causes mutations in p53--change the ethical debate in which individual freedom of choice must be balanced against the ethic of not doing harm to others?

I was careful to reiterate that I was not criticizing smokers in the class. However, this was one case in which we understood the biology of the cause and did not have to rely on correlations, which are weak evidence. I noted that the students would have to make political decisions based on their biological knowledge. We considered where the greatest good and harm would lie and also whether "personal freedom" was an "overriding force."

In general, the discussion went well. But some students, especially the smokers, wanted to discuss their personal solution--usually a compromise of some sort. They had trouble thinking about the question as a decision for society at large. They felt that, since they had a solution they were happy with, everyone else should let them be.

### **Conclusion**

I was pleased with the results of my first foray into teaching professional ethics. The degree of ethical discussion seemed appropriate to the course, judging by my own observations and student surveys. I would have enjoyed incorporating more cases, perhaps about genetic disorders; however, time was too short.

In the future, I'd like to assess the impact of ethical instruction--to discover if any of the principles discussed actually affect students' behavior. Of course, such investigation would require a good assessment instrument and experimental design. My suspicion is that one class will not significantly affect students' behavior; but I hope that if ethical principles are integrated throughout many classes, students will be influenced to act more ethically.

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**"Using the Videotape  
"Academic Integrity" in a  
Freshman Engineering  
Course"**

Eldon D. Case, Michigan State  
University

During the Fall of 1997, I taught a section of EGR 291 (Success in Engineering), a one-credit course limited to first-semester pre-engineering freshmen at Michigan State University. The course met for one hour a week and dealt with study habits, time management, resumes writing, cooperative education opportunities, diversity, and ethics. How much time to allot each of these topics was left to the instructor's discretion.

Although most other sections of EGR 291 discussed professional ethics during a single class meeting, my section's ethics component spanned the tenth through fourteenth week of the course. I used the NSPE (National Society of Professional Engineers) Code of Ethics, a videotape

*Academic Integrity: The Bridge to Professional Ethics*, and Michael Davis' "Seven Step Guide to Ethical Decision Making". I focus here on the use I made of the videotape.

*The Bridge to Professional Ethics*--produced by Duke University's Center for Applied Ethics--consists of four short vignettes (about four or five minutes each). Although "engineering" does not appear in the video's title, each vignette in fact deals with what the preface for the accompanying instructor's manual calls "professional engineering ethics problems". Each vignette has actors portraying students and professors who deal with ethical questions in which the particular courses involved, the equipment pictured, and the general "backdrop" would be familiar to engineering students. I used the first two vignettes: "The Take Home Exam" and "When in Rome".

**The Take-Home Exam**

My students' reactions to the first vignette was quite mixed. "The Take Home Exam" features a student (Tom) who finds a textbook in the library with worked-out example problems that answer every question on a take-home exam. Tom copies the text's answers and then tells a friend (Mary) about the text in the library, and Mary in turn tells her roommate (Penny). Tom, Mary, and Penny all score 100% on the take-home exam. After the exam has been graded, another student (Mark) who is dejected about his low exam score, finds out from Penny how Tom, Mary, and Penny, had obtained perfect scores on the test. Mark then confronts the professor who "wrote" the exam (Dr. Miller).

Many of my EGR 291 students showed at least minimal interest in discussing this vignette, but there was grumbling from the back of the classroom, "This is like junior-high." The reference to "junior high" was provoked by the last scene in "The Take Home Exam": Dr. Miller pressures Mark to reveal the names of the students who cheated. Even for me, this last scene was unpleasantly reminiscent of the tactics of some of my teachers in junior high (or was it elementary school?), for example, threatening to punish everyone unless someone confessed to a certain misdeed.

The initial discussion of "Me Take Home exam" highlighted the feeling of many in the class that copying from the textbook was not wrong. Comments from the class included "They found the book, they should use it" and "They did the work to find the book in the library, so that means that they can copy the exam from the book." But when I asked the class if they thought the students who copied the exam from the text also cited the text on their exam sheet, they thought the idea was laughable ... of course no one would do that! "The professor would know you cheated!" Many students didn't see the flaw in the logic of "Copying the exam is not cheating" and "Don't cite the book you copied the exam from or you'll be caught cheating".

**The Professor's Role?**

When I asked the class "What about the professor's role here; was he wrong to copy the take-home exam questions from a textbook?", some students replied "He's the professor, he can do anything he wants". No one in the class protested that view. Many in the class seemed genuinely surprised when I suggested that

the professor should take a sizable share of the blame for the situation. This was a turning point, after which the class participation was more lively. One student suggested that Mark (the student in the video who confronted the professor, Dr. Miller) should also have gone to Dr. Miller's department chair to discuss the exam. Another student asked about Dr. Miller's ethics in copying the exam and not citing the text. The floodgates were open! A torrent (or at least a healthy stream) of criticisms and questions concerning Dr. Miller flowed from the class.

### **When in Rome**

We discussed "The Take Home Exam" during the tenth week of class (and wrote an essay about it in the eleventh). In the twelfth week, we watched the second vignette, "When in Rome." "When in Rome" is about an undergraduate student who confronts two classmates from another country about their open plagiarism of material for an assigned paper. 'Me international students argue that plagiarism is all right in their home country.

After my students watched "When in Rome", I asked them to write an essay of one or two paragraphs addressing two questions: (1) Did not knowing about the prohibition against plagiarism make it "OK" to plagiarize? and (2) Did they believe that the international students in the video really did not know that plagiarism was not allowed?

These essays made an interesting contrast with the in-class discussion of the "Take Home Exam" and the follow-up writing assignment. Most of the class had said, in effect, that using the text was "no big deal". But when the

plagiarism and cheating motif was recast in the "When in Rome" vignette, most students wrote that plagiarism was wrong and "The foreign students were just making excuses... they knew what they were doing was wrong." 'Me contrast between "The Take Home Exam" and the "When in Rome" assignments (more evident in the written assignments than in the in-class discussion) seemed to show that when those doing the cheating are "different" from the class in some way, the class will find it much easier to dispense with rationalization and assign blame. Unfortunately I failed to challenge the class on this point.

### **Contrast with Code Assignment**

During the thirteenth week class, I assigned each student a different section of the NSPE code--such as Section III. Lb. 'Engineers shall advise their clients or employers when they believe a project will not be successful'-to use as the basis for an essay of between one and two pages that was to be handed in during the following week's class. The assignment was to describe an ethical problem in the workplace, covered by the section of the code they had been assigned, and then to explain how the code could be used to solve the problem.

All but two or three students produced plausible and interesting examples that straightforwardly addressed the practical ethical issues. I found it hard to believe that these were the same students who had written so superficially about "The Take Home Exam" and "When in Rome". The "work-based" NSPE code examples seemed to bring out a thoughtfulness the "school-based" examples left untouched.

In the course evaluations, several

students said that they would like more workplace examples of ethics rather than academically-based examples. I had tried to make analogies between the ethical problems in academia and ethical problems in the workplace. While some students seemed to appreciate that, others did not. If I were to teach EGR 291 again, I would try to achieve a greater and more direct emphasis on workplace ethics.

### **The Bridge Reconsidered**

I'm unsure how (or even if) I might use the *Bridge to Professional Ethics* again.

"The Take Home Exam" did provide a wonderful lead-in to challenging the class's views on the role of the professor, but it also evoked the 'Juniorhigh' complaint (justified to some extent), and left the class trying to rationalize cheating (although I had tried to guide them away from that).

"When in Rome" did lead the class to condemn plagiarism, but many in the class also seemed to condemn (however indirectly) others for being different from themselves, and that left me feeling uncomfortable.

If my ethics component had consisted of only the writing assignments and discussions connected with the *Bridge to Professional Ethics*, I would have ended the semester disappointed with the class response and unhappy with my own teaching. The NSPE Code of Ethics assignment saved me from that. Perhaps the more practical flavor of the NSPE code appealed to the class. (Engineering students often pride themselves on being both "technical" and "practical".) Students in the sciences or

business might get more from the video--but the video's obvious emphasis on engineering might also put them off.

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### "Life After the Ethics Seminar"

Marilyn A. Dyrud, Oregon Institute of Technology

Little did I realize after completing CSEP's Ethics Across the Curriculum workshop in 1994 what would lie ahead. The following term, I focused on my own communications classes, diligently creating classroom exercises and writing assignments to help my students understand the importance of ethics in their professional lives. Then, early in 1995, a conversation with my provost led to the OIT "Faculty Ethics Seminars," a discussion series now in its third year. Its goal is the same as CSEP's summer workshop, to bring faculty to an increased awareness of ethical issues in their respective fields and explore techniques to seamlessly integrate ethics into their courses.

OIT, I should mention, offers only one stand-alone ethics course, required by only one department. Our students have little room for free electives within their crowded technical curricula. OIT seemed the ideal place to experiment with a cross-curricular approach to ethics, much as we had done with writing across the curriculum.

#### Nuts and Bolts

Administrative support, both psychological and financial, is

essential to the success of such a venture. I was given released time for two quarters develop materials and to conduct the sessions. The Provost's Office paid for supplies and, because meetings were held in the late afternoon, munchies to stoke creative fires. The Provost helped in selecting participants. Criteria included an expressed interest in ethics and a willingness to participate actively in the seminar and to share seminar materials with departmental peers. The guinea-pig year included faculty from business, engineering, and engineering technologies; the second year focused on arts and sciences and allied health. This year's group is a combination of all of these fields.

The development phase consisted of researching appropriate areas and compiling a resources notebook to be given to each participant. Although the CSEP workshop's handouts were the starting point, the result was a 1 1/2 inch binder of materials, divided into five sections:

- Copies of professional codes of ethics.
- Information on stages of moral development, current issues in a variety of fields, and ethical problems.
- Course materials, including transparency masters and handouts for students
- Resources, including a list of ethics centers, videos, Internet sites, and OIT library resources, with an annotated bibliography of library holdings.
- Selected readings for discussion.

Week by week, our binders grew thicker, as faculty shared articles, codes, classroom exercises, and other materials of their own.

#### Meetings and Projects

The seminar met informally for eight weeks during the winter term. The ninety-minute meetings consisted of discussions and small group exercises designed to bring faculty to agreement on what constitutes professional ethics and to encourage them to develop techniques for integrating professional ethics into their courses without displacing technical content. "Hands-on" exercises seem to work well. This year, for example, we played Lockheed-Martin's *Ethics Challenge Game* at the second meeting. Although some faculty complained about the corporate hierarchy in the "right" answers, the game was a valuable tool; it allowed participants to explore their own ethical stance in relation to the game's scenarios.

Eventually, seminar participants were asked to "do" something with ethics in one of their classes and choose a day to report back to the larger group. The result was an impressive list of techniques for integrating ethics into their courses. Below is a part of that list:

- Use cases and videos
- Develop short "pithy" scenarios related to issues in the field.
- Distribute professional codes.
- Have students read professional literature in the field and report back to class (a group activity).
- Ask students to interview working professionals for their thoughts on ethics;

report back to class or write a short memo.

- Adapt some of the exercises from *Classroom Assessment Techniques* (Angelo and Cross, 1993) to focus on ethics.
- Take a "regular" problem and add an ethical dimension.

Projects that faculty have developed for their classes have been surprisingly varied and creative; below is a sampling:

- Number-crunch Ford Pinto gas tank redesign statistics (accounting).
- Examine the Hyatt Regency walk ways collapse (civil engineering).
- Explore why a corporation persistently includes a deceased employee's resume in grant applications (technical writing).
- View "Stalking the Wily Hacker" and discuss issues of database privacy (computer soft-ware).
- Discuss data distortion (statistical methods).
- Discuss the technician's role in maintaining confidentiality in relation to death and dying issues (medical imaging).
- Discuss fictional characters' ethical stances (literature)

Faculty universally report that students willingly engage in these class projects and that even in the quietest classes, discussion is energetic and fruitful.

### Evaluations

After the final meeting, participants completed a written

evaluation of the series, answering questions regarding the resources of meetings; seminar leader; seminar value, both personal and pedagogical; and recommendations for improvement. Feedback has been excellent: all have been very satisfied with the experience and eager to include ethics in their courses. One participant spoke of the weekly meeting as "an oasis." Another indicated that the seminars gave her a foundation for approaching the general field of ethics in technology courses: "I appreciated the suggestions regarding differentiating professional ethics from personal morality issues, as students tend to get 'hung up' on the familiar and be less aware of the concept of 'professional' ethics." Many expressed mild postpartum, for example: "I really enjoyed all of the meetings and hated to see them end. I think a few more would have been beneficial."

### Lessons Learned

While the seminars obviously have value for the participants, I have also learned a great deal from my role as facilitator.

First, I have seen how fruitful crosspollination of ideas across departmental borders can be. At a recent meeting of the seminar, for example, a software instructor reported on a classroom project: She had asked students to write down their opinions about hackers. She had assumed that they would condemn hacking as unethical. Instead, they wrote about hacking as a challenge to ingenuity. They saved their ethical condemnation for Web "cookies". What, you ask, are Web cookies? A cookie is a block of text sent to the hard drive of a PC when the user enters a cookie-loaded Web

site. A cookie records browsing habits for later retrieval. The students objected to advertisers using the Internet to collect information about them without their explicit consent. The software instructor spent nearly fifteen minutes of the seminar answering questions about Web cookies before arming us with Web addresses for more information. Web cookies were something most seminar participants had known nothing about. Thanks to the seminar, we all have, I'm sure, cookiecleaned our hard drives by now.

Getting stuck in a departmental rut, associating only with one's departmental peers, is what we all tend to do. Bringing together faculty from a variety of academic disciplines for free discussion of ideas has had a dramatic impact on both my personal relationships and my teaching: I know my colleagues better. I can now link my field more easily with theirs by virtue of what I learned in the seminars.

The second thing I learned from the seminar was that meeting for ninety minutes weekly over a couple of months is better than one or two long, intense meetings. Although the factual content of the seminar could easily be imparted in one or two longer sessions, imparting it in that way would preclude discussion--and much of the seminar's value lies precisely in the in-depth discussion of the complex issues that our students will face as professionals. Having more meetings over a longer period also allows participants to experiment with their classes as they themselves are learning, to plan for the next term, and to bond with other participants.

The third thing I learned, the most dramatic for me personally, is the risk of being identified as the campus "ethics expert". Seminar participants, five since October, have come to me with ethics problems, often problems involving other faculty. Some of the problems are easy. Others, however, are incredibly thorny and have no clear solution. Some problems involve faculty I barely know, but others involve friends.

Though I am flattered that my colleagues consider me a good sounding board--and that they feel a bond of trust because of the seminar, this "ethics counseling" has made me uncomfortable. I lack appropriate training in counseling. I have also learned that I cannot look at some of those involved in the ethics problems I hear about in the same uncomplicated way as before. I hope to avoid ethics counseling by helping OIT form a committee to write and interpret an institutional code of ethics.

### **Conclusions**

Judging from evaluations, the OIT series is a success. Participants have renewed their acquaintance with longneglected professional codes, gotten a lot of new ideas, and infused their classes with new energy. We have even discussed publishing, in-house, a booklet of "academic" cases to distribute to all faculty.

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### **"Ethics and Success: The Mars Pathfinder Mission"**

Vivian Weil, Illinois Institute of Technology

On July 4, 1997, the Pathfinder

space capsule opened its petals on Mars. What followed over the next few weeks was a success of both engineering and public relations. As I watched, I wondered whether any ethical lessons might be drawn from it. We look at failures to avoid repeating them: could we look at success to learn what elements to repeat or adapt?

### **Getting Started**

That question was the beginning of a CSEP project made possible by a gift from the Grainger Foundation. The project will end with a conference on engineering ethics and the Mars Pathfinder to be held early this autumn; an important part of the project is not the conference itself but the preparations for it. Nineteen IIT faculty from engineering and science, with an invited speaker now and then, have been meeting at a series of sack lunches this academic year.

The sack lunches had four purposes: 1) to determine what ethical lessons, if any, could be learned from the Pathfinder's success; 2) to bring participants' understanding of the Pathfinder mission "up to speed" so that they could use material derived from the project to integrate ethics into their teaching; 3) to develop a plan for the engineering ethics conference, and 4) to have some IIT faculty and students primed to participate in the conference. The sack lunches were a new way to extend ethics across the curriculum at IIT.

At the first sack lunch, participants struggled to find a starting point for analyzing a success. Was the Pathfinder mission really a success? If you set the bar low enough, then (as

one participant noted) you are certain to have a "success." The first outside speaker, Thanasis Economou, a physics professor at the University of Chicago and creator of the spectrometer used in the mission, recalled that the definition of success had aroused considerable discussion inside the project. To land the craft as planned and operate it and its little "rover" for a week seemed enough for some, but others thought that too modest a goal. Eventually, the goal was enlarged so that gathering scientifically useful information was thirty percent of the goal and the landing and roving only seventy. Funds were allocated accordingly.

When Economou recalled, without emphasis, that Pathfinder was the first mission carried out under the new slogan, "Faster, Better, Cheaper," he suggested other questions about the ethics of this success. How was responsibility distributed within the project's teams so that moving faster with a smaller budget did not lead to undue risk-taking? How did the Pathfinder team deal with glitches? Runaway successes are rare (as another of our participants reminded us). Perhaps Pathfinder's engineers had an approach to problem-solving that we could take for an ethical lesson. Economou left us with those questions unanswered.

### **Public Relations**

The engineering success was impressive, but the project team also scored a public relations success. Countering stereotypes of engineers, members of the team who appeared on television and radio were relaxed, forthcoming, and easy to understand. During a slow period for news, they stepped into the spotlight and

captivated a very large audience. What information did they think they owed the public? How did they make choices about what to emphasize, what to talk about only a little, and what to leave out entirely? Answers to these questions, which generally arise for engineers reporting in any context or medium, could illuminate ethics in reporting.

Because the Pathfinder mission was a public relations success, we thought it useful to invite a journalist to give us insight into why that was so. Brian Smith, a reporter who had done the *Chicago Sun-Times* story on the landing, explained how, as a general assignment reporter, he went about gathering and digesting information for the story. Participants at that sack lunch were shocked to hear that he had less than half a day to complete the assignment. While agreeing that the *Sun-Times'* lean staff should have a science reporter, he pointed out that even a science reporter would have been covering a highly innovative landing with a tight deadline. He also pointed out that distinctions—such as the one he had made in his story between discovering conditions that could support life on Mars and discovering life on Mars—often do not register with readers.

#### **Ethics and Priorities**

One ethical question that bothered many participants from the beginning of the project was how to justify the many billions of taxpayer dollars spent on space exploration when the money might have been used to feed poor children, provide medical care to the sick, or satisfy other pressing human needs. A report from one participant familiar with cost-

benefit analysis in transportation policy clarified the limited role cost-benefit analysis could have in answering such questions. But cost-benefit analysis did help participants in the sack lunch to make explicit some benefits that accrue from space exploration, for example, public enjoyment in seeing formidable obstacles to new knowledge overcome. Clearly, priorities for government spending had to be determined politically—but politics remained a black box.

We therefore devoted one sack lunch to looking inside the box. We invited J.B. Pritzker, who had just run a thoughtful, but unsuccessful, primary campaign for Congress, to share his thinking about the politics of budgeting. There is, he pointed out, no list ranking all governmental priorities in order from one to nine hundred according to urgency or importance. Rather, budgeting begins by dividing the budget into a few large categories: defense, health and human services, and so on. In one of these categories, science, including space exploration, competes for funding with several other independent agencies, all much smaller than the Department of Defense or Health and Human Services. Within such a category, legislators decide priorities based on their assessment of intrinsic merit and constituent interest. Arguing for space exploration (and new knowledge generally) is, Pritzker suggested, like arguing for federal support of the arts. A few constituents with a good case can have a large effect.

#### **Team Work**

Because team work clearly had been important to the Pathfinder's success, we invited a specialist on

team work at Motorola, a company known for its emphasis on teams, to join us for lunch. Russell Robinson immediately won our confidence with a few insights into the organization of another educational institution—comments applying to IIT as well. He emphasized that teams require careful planning. There must be special attention to the team's launch, to monitoring progress, and to making course corrections. Meetings should be carefully focused and timed, using a noisy alarm, if necessary.

Two semesters of sack lunches were capped by a lecture for the entire IIT community on April 1. The speaker, Jennifer Harris, had been NASA's Flight Director on the day of the Mars landing. While showing "cool" slides of the landing, she talked about how the team had avoided or managed glitches and ethical problems. The foundation of success was, she thought, that responsibility for the project rested with a single team from "cradle to grave." The team knew that it could not hand off problems that it introduced; sooner or later it would have to deal with them. Candor and openness prevailed; there were no conversations behind closed doors.

One of her slides showed a group of perhaps fifteen team members deliberating about what to do now that the software on which the timing for solar power depended was not responding properly. The problem was one they had considered in their planning, classifying it among those from which they could not recover. The slide did not show finger pointing or panic, only intense concentration. Harris admitted that at more than one juncture the

team had some good luck, but (she said) "good luck" comes when you have worked hard enough to be prepared to seize what luck offers.

### Testing Ideas

A few of the sack lunches gave participants the chance to present examples of what they would do, or had done, in class as a result of the sack lunches. One participant explained how thinking about the Pathfinder's success had led him to change somewhat a student project looking at the success of companies in streamlining certain operations. Another participant led us through a case study concerning the release of innovative software that might present some problems to users. What warning should an engineer issue? How? A third had developed a final assignment in a student project that would require students to write a press release describing what they had done. Students would have to help the public understand what they had achieved while accurately conveying technical detail. Writing such a press release was an idea a number of participants saw ways to adapt to their own classes.

The conference for which the described activities were preparation will occur this autumn. We expect our students, properly primed, to learn with us from the speakers we will host.

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### "Announcements"

**Thinking Like An Engineer:**  
*Studies in the Ethics of a*

### Profession

Michael Davis, Senior Fellow at the Center for the Study of Ethics in the Professions, Illinois Institute of Technology.

Davis examines how social organization and technical requirements define how engineers should (and presumably do) think. Later chapters test his analysis of engineering judgement and autonomy empirically, engaging a range of social science research including a study of how engineers and managers work together in ten different companies.

Available from Oxford University Press, Orders Dept., Evans Road, Cary, NC 27513. Tel. 1-800-451-7556

### Publication Announcement:

Illinois Institute of Technology's (IIT) Center for the Study of Ethics in the Professions (CSEP), together with the National League of Cities, Washington, D.C., recently published a guidebook, titled *Municipal Service Delivery: Thinking Through the Privatization Option*. The guide assists officials in making ethical decisions about the best delivery of programs and service, whether in-house or on contract.

Beginning with the fundamental question of whether local government should be responsible for a given function and ending with practical details about auditing contracts, the guide takes officials step-by-step through the decision making process. This approach ensures that key issues - such as accountability for taxpayers' money, access to services for vulnerable

populations, impact on employees and conflict of interest - are not missed.

The guidebook resulted from a research project on privatization involving Vivian Weil, CSEP's director; Inge Fryklund, a privatization consultant and former City of Chicago parking administrator; Harriet McCollough, an ethics consultant and former director of the Chicago Board of Ethics, and Mary Stone, program development manager at National League of Cities (NLC). The project was funded by the Joyce foundation.

### Publication Announcement:

*Professional Ethics and Engineering: A Resource Guide*, 2nd Edition, May, 1997.

Cost: \$10.00 plus \$3.00 S/H (\$13.00)

Available from CSEP, Illinois Institute of Technology, 10 West 31 st Street, Rm. 102, Stuart Building, Chicago, Illinois 60616. Tel. (312) 567-3017, Fax (312) 567-3016 E-mail: csep@charlie.cns.iit.edu

### Call for Papers:

*Business and Society Review* addresses ethical issues affecting relationships between business, society, and the public good. The Review invites for publication manuscripts from academics, business people, members of the legal profession, government administrators, and others interested in the contemporary debate about the proper role of business in society. Potential authors should submit three copies for review to: Robert Frederick, Ph.D., Center for Business Ethics, Bentley College,

175 Forest Street, Waltham, MA 02154.

**Conferences:**

*3rd International Congress on Dental Law and Ethics* will be held at the Royal Society of Medicine, London, October 1-3, 1998. Each of the following topics will be dealt with in a half day session: **trust**--the competent adult patient; **protection**--the vulnerable and non-compliant patient; **consumerism**--patients' clinical needs and expectations; **whistleblowing**--the ethical problems of informing on colleagues; **regulation and criticism**--self-regulation or external control? Contact: Katherine Fort, Conference Manager, British Dental Association, 64 Wimpole Street, London W1M 8AL, United Kingdom. Tel: 44-171-935-0875 x233. Fax: 44-171-486-0855.

An international conference on *The Ethics of the Image* will be held at the Haute Ecole d'arts applique, Vevey, Switzerland, October 8-10, 1998. The conference will review the history and current state of the ethical dimension of the creation of images, examine critically the existing relationship between ethics and images in the broadest sense (from paparazzi to image manipulation), and provide an international forum for exchange of ideas on these subjects. The conference (in English and French) is intended for professors, researchers, and students, as well as for artists, art directors, journalists, and other professionals with an interest in the ethics of visual communication. Contact: Radu Stem, Deputy Director, Haute Ecole d'arts applique, Av. Nestl 1, 1800 Vevey, Switzerland.

Email:radu.stem@cepv.vd.ch.

The fifth annual *International Conference Promoting Business Ethics: From the Universities to the Marketplace: The Business Ethics Voyage*, will be held at DePaul University, Chicago, October 29-31, 1998. Among questions to be considered are how well are organizations' actual ethical practices aligned with their stated ethical practices? What are the new ethical problems introduced by advances in technology? How can a business create a more ethical environment between individuals within its workplace? What are the implications of ethics in the international arena? What are the lessons we can learn from ethical failures? What is the place of spirituality, religion, or individual values in business? Contact: Laura Pincus Hartman, Institute for Business and Professional Ethics, One East Jackson, Chicago, IL 60604. Tel: 312-362-6569. Fax: 312-362-6973. E-mail: Lpincus@wppost.depaul.edu.

**Publications:**

A forty-minute video, *A Stampede of Zebras*, is now available at cost to all departments and research institutes interested in conducting seminars or workshops in research ethics. The video presents a play written by a senior scientist at the National Institutes of Health, Dr. Robert G. Martin that has been widely used to introduce students and researchers to ethics training. The video was produced with funds from the Ethics Institute of Dartmouth College, the Program in Science, Technology, and Human Values at Duke University, and the National Science Foundation. The video can be purchased at \$95 a copy (including shipping) from the

Program in Science, Technology, and Human Values, Duke University, Durham, NC 27708-0287.

**Courses:**

The fifth annual program of *Ethical Issues in Medicine*, sponsored by Montfiore Medical Center at Castello di Santa Maria Novella, Tuscany, Italy, July 25-August 1, 1998, will focus on physician assisted suicide and the doctor-patient alliance in an era of managed care. Contact: Ms. Vera Ricciardi, Office Manager, or Dr. Richard Stem, Course Administrator, 3555 Bainbridge Avenue, Bronx, NY 10467. Tel: 718-655-2400. Fax: 212-567-9593.

*Health Care Issues in Pluralistic Societies*, a European Bioethics Seminar, will be offered in Nijmegen, the Netherlands, August 3-7, 1998. Subjects include the Foundations and History of Bioethics; The Person: Procreation and Reproduction; The Person: Suffering and Death; Person and Community; and The Human Body. The seminar is designed to provide participants with both a theoretical and practical understanding of pressing issues in bioethics and to educate the participants on a range of topics and problems which are the focus of current debates, both within health care institutions in Europe and in society at large. Contact: Bert Gordijn, Ph.D., Dept. of Ethics, Philosophy, and History of Medicine, Catholic University of Nijmegen, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands. Tel: 0031-24-361-53-20. Fax: 0031-24-354-02-54. E-mail: b.gordijn@efg.kun.nl. Internet site: <http://www.azn.nl/fmw/bioeth1.ht>

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*Managing Ethics in Organization*, sponsored by the Ethics Officer Association and the Center for Business Ethics will be offered at Bentley College in Waltham, Massachusetts November 8-13, 1998. This weeklong program is an executive development course providing advice and theoretical tools for creating an effective ethics program. Learn from practicing ethics and compliance officers from profit and non-profit organizations how to set up and administer ethics, compliance and business conduct programs. Contact: Kelly Leblanc, Tel.: (617) 891-2981, Ethics Officer Association 30 Church Street Belmont, MA 02178 or the Center for Business Ethics, Bentley College, 175 Forest Street, Waltham, MA 02154-4705. Tel.: (781) 891-2981. Fax: (781) 891-2988.

**Miscellaneous:**

The Ethics Center at the University of Southern Florida invites applications for the position of *Affiliated Scholar*. If you do research in ethics, the Ethics Center may be the perfect place for you to spend your semester or academic year sabbatical. The Center, located at the St. Petersburg campus of the University of South Florida, will provide: office space, use of a computer, easy access to fax, copier, and other essential office equipment, use of the USF library and other USF facilities, peer feedback for your work-in-progress, and academic and community programming in ethics. The Center cannot provide a stipend. To apply, send a cover letter that includes a brief description of your research project and a CV to: Professor

Peter French, Director and Cole Chair in Ethics, The Ethics Center, 100 Fifth Avenue South, St. Petersburg, FL 33701. Tel: 813-553-3172. E-mail: french@bayflash.stpt.usf.edu. Deadline: April 1, 1999.

The Center for the Study of Ethics in the Professions (CSEP) was established in 1976 for the purpose of promoting education and scholarship relating to ethical and policy issues of the professions. *Perspectives on the Professions* is one of the means the Center has of achieving that purpose.

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