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INTEGRATING ETHICS INTO TECHNICAL COURSES
AN EXPERIMENT IN ITS FIFTH YEAR

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In 1990, IIT's Center for the Study of Ethics in the Professions received a four-year grant from the National Science Foundation (#DIR 914220) to introduce ethics into technical courses. During the summers of 1991, 1992, and 1993, the Center offered 30-hour workshops to prepare IIT faculty, fifteen at a time. Each fall our "graduates" introduced into their courses ethics material they had prepared during the workshop, asked students to assess it, and reported back the results.[1] During the summer of 1994, we held a similar workshop for faculty from twenty other universities. All of their reports are now in, making possible for the first time a relatively firm assessment of the entire effort. I shall offer that assessment here. But before I do, I must explain what we mean by integrating ethics into technical courses, why it should be done, how it can be done, and with what effect. Explaining all that will put us in position both to appreciate how much has been accomplished and to consider what it has to tell us, especially the philosophers, about who should do ethics education and how it can be done.

1. Integrating ethics into technical courses

I must begin with an esoteric but important distinction, that between morality and ethics. People generally use "ethics" in one of two senses, that is, as a synonym for morality or as the name of a specifically philosophical discipline (the attempt to understand morality as a rational enterprise). I shall use "ethics" in a third sense.

"Morality", as I use that term, refers to those standards of

conduct everyone (every rational person) wants every other to follow even if everyone else's following them would mean he had to do the same. Morality is the same for everyone. We were all quite young when we learned the basic moral rules: don't lie; don't kill; don't cheat; keep your promises; don't steal; and so on. We were still quite young when we learned that these rules have exceptions (for example, "except in self-defense" for "Don't kill"). Now and then, we may change our view on how to interpret a particular rule or exception--for example, we may come to think that speaking the truth, knowing it will be misunderstood, is (or is not) a form of lying. But, since we entered our teens, such changes have been few and relatively minor. Our students are much like us. They arrive in class more or less morally mature. We have little to teach them about ordinary morality.

Not so with ethics. "Ethics" (as I shall use that term) refers to those special morally permissible standards of conduct every member of a group wants every other member of that group to follow even if that would mean having to do the same. Ethics applies to members of a group simply because they are members of that group. Medical ethics applies to people in medicine (and no one else); business ethics applies to people in business (and no one else); and Hopi ethics applies to Hopis (and no one else).

Ethics is both a higher standard and a moral standard. Ethics is a higher standard because ethics demands more than (ordinary) morality. Ethics is nonetheless a moral standard, not just a standard consistent with morality, because (and only when) members of the relevant group have reasons to set themselves a higher standard, reasons beyond what law or market would impose whatever the group in question did. Such reasons turn maintenance of that higher standard into a cooperative enterprise, that is, an undertaking the benefits of which depend in part at least on others doing their share of carrying the burden of maintaining the special standards. That is as true of a profession as of any other group with its own ethics. For

example, one's status as a CPA is worth more if other CPA's generally do a better job than morality, law, and market demand, less if they do not. Professionals never practice alone.[2]

The higher standard that constitutes a profession's ethics are formulated in codes of ethics, in formal interpretations of those codes, and in the less formal practices by which older members pass on the special ways they do things to new members. So, except for those students following a parent into a profession, no one is likely to learn much about a profession's ethics except at a professional school or while practicing the profession. Professional ethics is as much a part of what members of a profession know as ordinary "technical" knowledge. Professional ethics is part of thinking like a member of the profession in question. Teaching professional ethics is part of teaching how to practice the profession.

"Profession" is a large category, but even it is not large enough for my purpose. Business, for example, is not a profession (though many professionals are in business and many businesses have codes of ethics); many "humanists" resist describing the humanities generally, or their particular discipline, as a profession; indeed, many scientists take the same attitude with respect to science generally or their particular field.[3] Nonetheless, in this paper, when I use "profession", I should be understood to include business, the humanities, and the sciences. I do this in part simply for convenience. Our workshops included faculty in "non-professions"--humanities (literature, technical writing, and philosophy), mathematics, biology, sociology, and business--as well as in law, architecture, computer science, engineering, chemistry, veterinary medicine, and so on. I need some short-hand for this unconventional mix of occupations. But, in part, I shall call all these occupations "professions" on principle. Whatever the differences between them, all shared enough to allow us to talk about teaching their respective ethics (as well as

about their teaching the ethics of other professions in their classrooms). Like engineering, accounting, architecture, and other traditional professions, the humanities and sciences had special standards of conduct they wanted students to know. While business faculty (or, rather, faculty in departments of management) did not have a similar set of standards to teach, they did want their students to recognize the moral problems that arise in business, to be prepared to understand the professionals with whom they would have to deal (including their ethics), and to be prepared to work with the code of ethics of an employer (if the employer has one).

This use of "profession" means that, when I refer to "technical courses", "technical" must be understood to include much more than math, science, and the like. In fact, "technical course" is my short-hand for any course the subject matter of which is generally not explicitly ethical. So, for example, a first-year course in composition or a third-year course in French would be technical (in my sense).

2. What can teaching ethics accomplish?

Teaching ethics (in my third sense of "ethics") can achieve at least four desirable outcomes: 1) increase the ethical sensitivity of students; 2) increase their knowledge of relevant standards of conduct; 3) improve their ethical judgment; and 4) improve their ethical will-power (that is, their ability to act ethically when they want to). How can teaching ethics accomplish all this--indeed, any of this?

Teaching ethics can increase student sensitivity simply by making students aware that they, as members of a certain profession (or otherwise engaged in a certain business), will have to resolve certain ethical problems. Generally, pointing out an ethical problem will mean pointing out the consequences of a seemingly inconsequential act ("a mere technical decision").

Just being exposed to a few examples of a particular problem (for example, how using this method here will have such-and-such harmful effects) will make it more likely than otherwise that the students will see a problem of that sort when it arises on the job. Why teaching ethics might have this effect is not hard to understand. The mechanism is precisely the same as for learning to see technical problems. Both knowledge and practice sharpen perception, make it easier to see a particular decision in context, and make it easier to imagine what the context might contribute.

How can teaching ethics increase student knowledge of relevant standards? Again, the answer is much the same as for any technical standard. For example, a marketing student who reads the Better Business Bureau's Advertising Code of American Business is more likely to know what is in it than a student who has not read it. A student who has had to answer questions about the code is more likely to recall the relevant provisions than one who has not. And so on.

"Knowledge of standards" includes more than just knowing what is written in codes or handbooks. Part of knowing standards is understanding the rationale for them (especially the consequences of departing from them). So, for example, part of teaching engineering students to take operating costs into account when designing something is pointing out how uneconomical a product can turn out if they don't. Only then are they likely to appreciate that a standard requiring them to act as a "faithful agent and trustee of their client or employer" might require them routinely to take operating costs into account when designing something. There is no sharp line between raising sensitivity and teaching standards.

How can teaching professional (or business) ethics improve ethical judgment? Ethical judgment, like technical judgment, tends to improve with use (as well, of course, as with relevant knowledge and sensitivity). If a professor of finance gives a

student a chance to make ethical judgments, explain them, and compare them with those other students make, the student is more likely to judge well than if she gets no such experience. The classroom and laboratory provide a safe place to make mistakes and learn from them--ethical mistakes as well as purely technical ones.

But how can teaching professional (or business) ethics increase a student's ethical will-power? Easily. Isn't an accountant who knows that he shares a commitment to a particular standard of conduct with other accountants more likely to follow it than one who believes himself alone in that commitment? One benefit of discussing ethics in the classroom is that it shows students how much consensus there is (among members of their profession) on most of their profession's standards of conduct. There is power in numbers. That is one source of will-power. Another is a sense of the standard's reasonableness. A student who believes he understands what makes the standard reasonable is more likely to try to explain its reasonableness to others (and so, more likely to win their support and act accordingly). While there are other ways classroom discussion can enhance will-power, these two examples are enough for now. We must get to what professors can actually do to teach ethics.

3. Finding room for ethics in technical classes

There are at least eight ways to teach ethics in an academic environment. They are more or less consistent with each other, indeed potentially mutually supportive.

Two ways are outside the curriculum. One is independent study, for example, giving students the appropriate code of ethics and telling them to read it. The other way is by special event, for example, a public speech on professional ethics or a movie like China Syndrome or The Firm, with a discussion afterward of the ethical issues it raises.[4]

One of the eight ways of teaching students professional ethics is supra-curricular (operating inside the curriculum as well as outside): hold students to their profession's code while they are still students. I am not talking about an "honor code". Honor codes are codes of student ethics, not of professional ethics. A student will learn more about her profession's code by living it than by living by an honor code.[5] A university, college, or department can hold its students to the professional code corresponding to the student's major. Professional codes are sufficiently alike to preserve reasonable order across disciplines, but sufficiently different to be worth a student's effort to learn the particulars.

The other methods of teaching students professional ethics are all internal to the curriculum. The easiest is the guest lecture. (If the guest stays all semester, the course is "team taught".) By itself, the guest lecture makes professional ethics look optional: "If all members of my profession are supposed to know this stuff, why doesn't my prof know enough to teach it?" The same question arises for the sort of course I routinely teach, that is, a free-standing course in a profession's ethics taught outside the department, whether optional or required. A different question arises when the course in the profession's ethics is, while optional, taught by a member of the profession: "If this stuff is important, why isn't it required?"

The free-standing required in-house course answers all these question, but only at the cost of raising another: "How do we fit this into the curriculum?" The last of my eight methods, the pervasive, provides an answer to that question: "You don't have to because you can do something better. You can teach the ethics of your profession in a way that brings home how integral it is to the practice of your profession. You can make ethics pervade the curriculum."

But how can you make room for ethics in technical courses, courses notorious for being both too full already and too

technical for ethics? I propose to answer this question--for our purposes, at least--by giving a few examples of what can be done. These are not alternatives among which one must choose, but options which one can mix and match in a course (with the understanding that, all else equal, the more the better).

To make my answer convincing, I shall avoid easy examples. I shall not, for example, talk about including a question of professional ethics in a first-year composition course (where instructors are always in need of topics to interest students) or of including some discussion of research ethics in an advanced course in philosophy of science (where many of the topics discussed, especially early in the term, are too technical for students to know what to write about). I shall also not draw my examples from a field (such as medicine or management) where the ethical issues seem relatively obvious; or from courses (such as engineering's introduction to the profession) where technical content seems to have left room for practical considerations; or from labs, where issues of safety, honesty, and care cry out for discussion. Instead, I shall take my examples from second- and third-year lecture courses in electrical engineering, hoping that you will agree that if there is room for ethics in those courses, there should be room for ethics in any technical course in any curriculum.[6]

One way to integrate ethics into a course is simply to enhance student awareness of ethical issues. For example, in a course on electric circuits, the instructor might take a moment now and then to point out the practical effect of getting a problem wrong:

> These circuits are typically used in aircraft navigation systems; a small error here, combined with two common errors of pilots, could cause a crash. In practice, your calculations will be checked many times, but some errors slip through. The easiest way to

> prevent disaster is to get the problem right the first time. Next problem.

Even a few such comments in the course of a semester can help engineering students see the practical context of highly abstract calculations, both the relation of those calculations to such ethical concerns as safety and the relation of their education to what they want to do after graduation.

An easy way to provide information about ethical standards is to pass out a code of ethics at the beginning of the term and refer to it often enough during the term so that students get the idea it would be good to read it. For example, a professor of electrical engineering could mention that such-and-such a provision makes engineers responsible for the safety of what they help to make. I am still surprised at how many engineering faculty have not read a code of engineering ethics (and at how many science faculty don't even know that their field has a code of ethics). Needless to say, their students are likely to have read even less. Just exposing students to a code is therefore a significant contribution to ethics education. Asking students questions on problems or exams requiring them to look through the code would, of course, be a further significant contribution.

That, however, is not all a professor teaching an advanced course in electrical engineering can do. Like most engineering courses, much of a course in electrical circuits consists of solving problems. Often several problems assigned on a given night differ little. They can in fact be interpreted as several solutions to the same design problem (for example, three ways of designing the same turn signal for an automobile). An instructor could, then, provide a little "background information" about the design problem, including not only the use to which these solutions will be put but also some factors relevant to cost, safety, reliability, and even manufacturability, and then ask the student (as a fourth step) to recommend one of the solutions and

briefly state her reasons (as she might in a memo to a supervisor). The student then has an opportunity to exercise her engineering judgment--including her ethical judgment (and to practice writing too).

The last example I shall give, though not the last I could give, would require a larger commitment of class time, say, fifteen minutes now and then, to let students discuss their recommendations. Such discussion would not only improve their public speaking but also help them see how much agreement there is among students in their class--and, by extension, engineers generally--about what the code demands (and also how many different ways there may be to satisfy the code). It would, in other words, provide an opportunity to enhance their ethical will-power.

These examples share an overall strategy. Abstract principles, both technical and ethical, are put in the context of practice. The context then brings them to life, allows students both to see their point and to use them. Education becomes practical (while remaining academic).

4. Why integrate ethics into technical courses?

I have already touched on two reason why professional ethics should be integrated into the technical curriculum. Such integration both reenforces what is taught about the profession's ethics elsewhere and helps students develop habits of thinking about ethics while thinking about technical questions. A third reason to integrate ethics into the technical curriculum is that, as a matter of fact, many students will get no ethics training except as part of the technical curriculum. Required ethics courses are unlikely to become universal any time soon; and other methods tend to miss most students. There are two more reasons why professional ethics should be integrated into technical courses: one you may have guessed from the examples I have given;

the other may surprise you, though I have substantial empirical evidence to support what I shall claim.

The reason you may have guessed is that integrating professional ethics into technical courses can remind students of what attracted them to their profession. So, for example, the analytic courses of the second and third year of engineering are a perpetual problem in engineering education, tending to weed out students who went into engineering because they wanted to make things, leaving behind those who think engineering is only "problem solving" (in the narrowest sense of that ambiguous term). Integrating ethics into a course like circuits puts analysis in context, making clear its instrumental importance and thereby livening up the problems (and the course).

My last reason for integrating ethics into technical courses, the one you probably did not guess even though I now have lots of empirical evidence for it, is that students like it. We have required graduates of our seminar to have their students evaluate the ethics component. Class after class, year after year, both at IIT and now at all seventeen of the other schools that have so far reported, the great majority of students--often, over ninety percent--expressed appreciation for the concern shown ethics, some because they thought ethics important, some because it helped them to understand what they would be doing after graduation. Few wanted less ethics; many wanted more. This last reason seems to me as good as any for doing as much professional ethics as we can. We are always looking for ways to make our classes more enjoyable (without pandering to the urge merely to entertain). Here is one more (respectable) way to make class more enjoyable.[7]

5. Assessment (and Speculations)

Our fourth workshop differed in one important way from the other three (aside from the origin of participants).

Participants in the last workshop were supposed to leave the workshop able to teach their own faculty what we had taught them; they came with the understanding that they would have to go back and help colleagues (in their department and outside) to integrate ethics into technical courses. The fourth workshop thus involved a double transfer of "technology". First, there was, as in the other three workshops, the transfer of what we at IIT knew about integrating ethics into technical courses; and second, there was a new element, the transfer of what we knew about transferring that technology.

At IIT, philosophers always taught the workshops. In the first year, I teamed with Pat Werhane; in subsequent years, with Vivian Weil. All three of us had had many years of teaching professional or business ethics. The workshop was, however, not simply the work of philosophers. We developed the workshop at sack lunches with self-selected faculty from psychology, engineering, various sciences, business, public administration, and so on. After an initial period of considerable misunderstanding, we learned a great deal from each other.

The result was a workshop that differed from others philosophers have offered over the years. Ours was not a workshop in "remedial ethical theory". (We gave only three out of thirty hours to ethical theory and our message was, "This is something you may want to know, but it's not something you need to know.") Nor was our emphasis on special substantive topics ("recent developments in _____"). Our emphasis was overwhelmingly pedagogical. We provided participants with a framework for teaching ethics and then gave them an opportunity to try it out. While we always spoke as philosophers, as well as teachers of professional or business ethics, the contribution of philosophy to what we did was generally oblique. I shall now try to explain what it was because that explanation will help us to assess the place philosophers should have in professional and business ethics even as its teaching and the teaching of its teachers pass

(as I believe they will) to other disciplines.

We made, I think, three distinct contributions as philosophers to ethics across the curriculum: legitimacy, experience, and philosophical insight. Let me explain these contributions in turn.

Philosophers routinely teach courses with "ethics" in the title. Other departments do not. Hence, for academics worried about "turf battles", philosophers have a clear claim to "ethics". Anyone not in philosophy who wants to teach "ethics" has to explain why he or she is competent (and why the philosophers do not have prior claim). Many disciplines have developed ways to finesse questions concerning the legitimacy of their teaching ethics. For example, engineers like to talk about courses in "professionalism"; lawyers, about courses in "professional responsibility"; business professors, about courses in "business environment". But the problem of legitimacy will remain until other fields have established their own recognized tradition of ethics teaching. That day is far off for most fields.

Philosophers, of course, have a similar problem of legitimacy. Most professionals quickly recognize how little a philosopher knows about their field, including the ethical problems that arise, what standards apply, and what responses are appropriate. Philosophers with an expertise in ethics do not, as a matter of fact, generally have an expertise in professional ethics. The fields are largely distinct. Yet, even when philosophers make that clear at every possible opportunity, non-philosophers generally continue to feel illegitimate using the term "ethics"; and, even when they don't, their colleagues think they should.

For this reason alone, those of our graduates who have begun to try to get their colleagues to follow their lead have tried to find a philosopher on campus with whom to work. So far, they have succeeded, though some of the philosophers seem initially to

have been dubious. (Those of us who work in practical ethics can be surprised at how suspicious of our philosophical credentials philosophers who do not work in our field can still be.) The most effective technique for reducing doubts has been handing such philosophers something--for example, one of my articles--published in a philosophy journal. The place of publication, as much as the helpful instructions and philosophical content, provide a dubious philosopher with what she needs to overcome her doubts. With a philosopher present, our graduate can legitimately talk about "ethics" to other non-philosophers.

The second contribution philosophers can make, even philosophers who have no experience teaching professional ethics, is experience. Philosophers routinely teach through guided discussion. Though we take this method for granted, many disciplines, especially engineering, mathematics, and the physical sciences do not. Their standard teaching method is lecture rather than guided discussion. They are therefore naturally worried about leading a discussion until they do it successfully a few times. And they usually need a few tips (though far fewer than I originally supposed). Philosophers can be quite helpful here, often more helpful than law or business professors who, though they too are used to guiding discussion, tend to guide it in ways less suitable for a discussion of ethics. This difference is, I think, worth a paper of its own.

Philosophers are also used to assigning open-ended essay questions, whether for homework or exams, and grading the answers. Many non-philosophers are not. Here is another place where philosophers can be helpful in ways they might not expect. They can be especially helpful by making clear how little there is to know.

This second contribution, like the first, is clearly temporary. Non-philosophers can learn most of what there is to know about leading discussion, writing essay exams, and grading them in a few hours. After that, a few months experience is

generally enough to bring them even with the philosophers. That, anyway, has been our experience. The third contribution is another matter. Philosophers seem to bring to professional ethics a systematic approach, and a depth of experience with argument, that non-philosophers do not have and are unlikely to develop (without becoming philosophers).

I'm not sure why that is. In part, no doubt, it is a matter of self-selection. People become philosophers because they are different from people who become scientists, engineers, physicians, lawyers, mathematicians, or the like. Philosophers take an interest in arguments, in distinctions, in definitions, and so on where most people simply become impatient. Philosophers also have a love of abstraction of a sort many disciplines tend to discourage (and a dislike of factual detail many disciplines find unbelievable).

To whatever self-selection may initially distinguish philosophers from practitioners of other disciplines must be added another cause of distinction, years of exercising certain skills while others exercised others. For better or worse, philosophers devote their lives to arguments, arguments aimed at winning over reason, not just arguments aimed at persuading. Where a philosopher can use her discipline, she is likely to see questions others do not, to make moves in argument others do not, or at least to do such things with more facility than others do. Philosophy is a distinct discipline (even if it is hard to say exactly what distinguishes it from others).

If I am right about this, then, it seems to me, philosophers will always have a distinct role in professional ethics, even after every profession has experts of its own. Whether this role will be valuable enough to sustain much participation is another question. My guess is that it will be. Philosophers seem to be useful insofar as change has created puzzling new ethics problems for a profession or made relatively routine responses to traditional ethics problems seem unsatisfactory. Indeed, it

seems to me, the reason professional ethics has moved from a marginal field in a few professions to an important field both in most professions and in philosophy is precisely that traditional arrangements have broken down under the impact of a rapidly changing society. Since change seems to be continuing at a pace making unlikely the reemergence of a new stable tradition, I think it safe to predict that philosophy will continue to have a role in professional ethics.[8] But that role will, I think, come to resemble the critical but marginal role that philosophers have in science more than the central (and practical) role that they now have in, say, medical ethics. We will do "philosophy of professional ethics" (a subdivision of my second sense of "ethics") rather then (as now) professional ethics (in my third sense of "ethics").

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NOTES

1. For a report of early results, see Michael Davis, "Ethics Across the Curriculum: Teaching Professional Responsibility in Technical Courses", Teaching Philosophy 16 (September 1993): 205-235.

2. For a more extended defense of this distinction generally (including subtleties ignored here), see Michael Davis, "The Moral Authority of a Professional Code", NOMOS 29 (1987): 302-337. For its application to various professions, see "The Use of Professions", Business Economics 22 (October 1987): 5-10; "Vocational Teachers, Confidentiality, and Professional Ethics", International Journal of Applied Philosophy 4 (Spring 1988): 11-20; "Professionalism Means Putting Your Profession First", Georgetown Journal of Legal Ethics (Summer 1988): 352-366; "The Special Role of Professionals in Business Ethics", Business and Professional Ethics Journal 7 (Summer 1988): 51-62; "The Discipline of Science: Law or Profession?", Accountability in Research 1 (1990): 137-145; "Thinking Like an Engineer: The Place of a Code of Ethics in the Practice of a Profession", Philosophy and Public Affairs 20 (Spring 1991): 150-167; "Do Cops Need a Code of Ethics?", Criminal Justice Ethics 10 (Summer/Fall 1991): 14-28; "Codes of Ethics, Professions, and Conflict of Interest: A Case of an Emerging Profession, Clinical Engineering", Professional Ethics 1 (Spring/Summer 1992): 179-195; "Wild Professors and Sensitive Students: A Preface to Academic Ethics", Social Theory and Practice 18 (Summer 1992): 117-141; "Treating Patients with Infectious Diseases: An Essay in the Ethics of Dentistry", Professional Ethics 2 (Spring/Summer 1993): 51-65; and "The State's Dr. Death: What's Unethical about Physicians Helping at Executions?" Social Theory and Practice 21 (Spring 1995): 31-60.

3. See, for example, William M. Evan, "Role Strain and the Norm of Reciprocity in Research Organizations," American Journal of sociology 68 (1962): 346-54, in which it is suggested that industrial scientists stand to their employers as artist to patron rather than as professional to client.

4. One of my colleagues, Robert Ladenson, has been experimenting with another device, an "ethics bowl". Students form teams of four each to compete, much as on Public Television's College Bowl, except that they must answer questions concerning how to respond to ethics problems (presented in the form of a situation requiring a decision); the responses are evaluated by a panel of practitioners (as in a diving contest), and (unlike a diving contest) the teams have the right to criticize the "official answer" if they believe their own is better. After two years of experiment with this format at IIT, the ethics bowl went intercollegiate this spring (with DePaul, Loyola, and Western Michigan holding a joint ethics bowl (after each held an internal ethics bowls to choose a team to represent the school). Students enjoy the competition while appreciating the opportunity the ethics bowls gives them to practice making decisions.

5. For a good critique of the honor system, see the entire Perspectives on the Professions 14 (January 1995).

6. For other examples, see the entire issue of Perspectives on the Professions 13 (February 1994), as well as Davis, "Ethics Across the Curriculum".

7. In preparation for this conference, I had my research assistant, Victor Kabuye, do a follow-up survey of IIT faculty who had participated in the work during 1991-93. Of the 45 faculty we

began with, seven had left IIT (and we were not able to find them). Of the remaining 38, 34 returned questionnaires (some in response to our mailing, some in response to a follow up mailing, and a few only after Victor had phoned them). Four remain officially unaccounted for. I do not believe their absence is significant a) because I could see no difference in responses between those who responded early and those who responded later and b) because in one case of "no response" I know from a student that he continues to do a substantial amount of ethics in at least one of his courses. I collated the questionnaires. For the question, "Are you integrating more, less, or about the same as you did the first semester (or the first time) after taking the workshop?", the results were: 1991 (7 more, 1 "a little bit" less, and 2 commented in ways not easily categorized), 1992 (3 more, 2 less, and 6 same), and 1993 (4 more, 2 less, 5 same, 2 not easily categories). For the question, "What is your present opinion of integrating ethics into technical courses?", the results were: 1991 (6 favorable, 1 neutral, 3 hard to categorize), 1992 (9 favorable, 1 neutral) and 1993 (all 13 favorable). To the question, "What effect, if any, has your integrating ethics had on colleagues in your department? None? Some? Lots? Details?", the results were: 1991 (2 lots, 4 some, 2 none, and 2 not sure), 1992 (0 lots, 6 some, 4 none, and 1 not sure), and 1993 (1 lots, 5 some, 3 none, and 3 not sure).

8. For more on this claim, see my "The Ethics Boom: What and Why", Centennial Review 34 (Spring 1990): 163-186.