

INFORMATION SYSTEM ETHICS: REFINING THE PEDAGOGY

by Eli Cohen, Ph.D., CDP, CSP, CCP
and Larry Cornwell, Ph.D.

College of Business
Bradley University
Peoria, IL 61625
(309) 677-2279
eli@bradley.edu

ABSTRACT: This article describes an approach to teaching ethics in the information system curriculum that the authors have used successfully in a variety of courses at various levels. The approach is comprised of five steps: 1. Administering to students a questionnaire designed to address ethical and policy issues; 2. Reporting to the students a summary of their responses to the questionnaire and those of previous classes; 3. Using the responses as an entree to pose other ethically ambiguous situations and solicit from student volunteers their solutions to the situations; 4. Furnishing the students with normative solutions to these situation as provided by experts; and 5. Using additional scenarios to develop generic ethical principles that can be applied to other situations as well.. The article proceeds to explain the psychological principles that make this approach effective. Experimental validation of this approach have been reported in a companion article.

KEYWORDS: Information System Ethics, Pedagogy, Piracy, Psychology

Studies on the alarming prevalence of software piracy and the apparent rampant disregard for software as intellectual property convinced us that ethics must be taught as part of the information system (IS) curriculum. [1,2] Yet, we could not find a coherent pedagogy for teaching about IS ethics. A common approach to teaching ethics is through the presentation of scenarios that illustrate ethical issues. Meldman [3], DeMitchell [4] and others cited below apply this technique to the ethical issues specific to information systems.

We built on the work of these predecessors to develop a pedagogy for the teaching of ethics in information systems that we have demonstrated to be sound and effective. This article describes that pedagogy and so will be of use to IS educators who wish to incorporate IS

ethics into their courses. The pedagogy involves these following steps:

- o Challenging students to think about IS ethics by administering a questionnaire designed to address ethical and policy issues, and then using their collective responses as impetus for discussion,
- o Posing to the students additional ethically ambiguous situations and soliciting from student volunteers their solutions to the situations, then reporting to the students a summary of the responses to these situations provided by experts, and
- o Using additional scenarios to develop generic ethical principles that can be applied to other situations as well.

These five steps of the pedagogy are administered in classes at different levels and not all in a single class meeting.

STEP 1. QUESTIONNAIRE

A key element in our pedagogy is confronting students with ethical cases. We developed a questionnaire to aid in challenging students thinking on IS ethical issues. The procedure for constructing that instrument is described elsewhere. [5]

On the first meeting of the class, we administer this questionnaire. The questionnaire contains approximately thirty items that address various ethical issues regarding the use of software and information. Several items speak to software piracy while others focus on University policies on plagiarism and use

of the University computers.

The students complete their questionnaires anonymously and are asked to be accurate in their responses. Immediately following administering the questionnaire, we collect the students' responses to it.

Typically some students in the introductory class report that they do not understand one or more items because they lack experience with computers. This is understandable since that class is the first exposure to information systems for many. Approximately 30% of the students in our beginning IS class report no or only passing experience with computers.

The questionnaire contains items such as these:

1. I think most students copy commercial software instead of buying it.
2. I have copied commercial software instead of buying it.
3. I think it is okay for a student to look at, but not change confidential student records.
4. I think it is okay for two students to share the work for a computer assignment and each hand in a copy.
5. I think it is okay to use another student's computer account if the student agrees.
6. I think it is okay for employees to take with them to their new job copies of programs they have written for the University.
7. I think it is okay for University employees to run programs for their social organization on the University's computer.

Items such as 4 and 5 are included to facilitate our informing the students about the appropriate class and University policies. We include these types of items to provide us with the avenue to discuss and develop our normative set of ethics expectations for the class.

STEP 2. REPORT A SUMMARY OF STUDENTS RESPONSES

We compile the responses from the questionnaire and present the results to the students when we introduce the topic of computer ethics. This lead-in is an effective approach to the topic because students are interested in learning the results of their answering the questionnaire. Students are attentive, comparing their own responses to the responses of the summarized responses of their peers.

STEP 3. PRESENT STANDARD SCENARIOS

Having the students' attention, we present them with standard scenarios that are designed specifically to introduce ethical problems. The students then discuss their thoughts on what is right or wrong in each scenario.

Aside from our own experiences, several published sources provide excellent scenarios for illustrating ethical situations in information systems. These sources include Hosmer's text on ethics and Parker's text and workbook on computer ethics. [6,7]

Authors' Experiences

We found that our own professional experiences provide a rich source for scenarios. Here is one such sample scenario that we use in class:

A university course requires students to prepare laboratory assignments. Students are given the assignments during class and are required to submit the assignment by the next week's class.

The professor discovered several cases where different students submitted identical assignments results. When confronted, the students admitted working together, but pled ignorance of knowing that submitting duplicate copies was wrong.

This scenario is very useful in helping

the student to learn what we as professors consider to be wrong.

Hosmer's Text

LaRue Tone Hosmer's business ethics text provided us with a rich source of scenarios in addition to being an excellent reference. We highly recommend Hosmer's discussion on five major ethical systems for the professor preparing ethics discussions, although we develop just three of these: (1) Eternal Law, (2) Utilitarian Theory, and (3) Universalist Theory. These systems, as applied to information systems, are described succinctly in Cohen. [8]

Hosmer's scenarios, while management oriented, were easily adapted to the information systems environment. For example, Hosmer provides a management-oriented case that questions the ethics of selling radar detectors, devices whose sole use is to break the law. While most states ban the ownership of these instruments, they do not outlaw their manufacture and sale.

We adapted this scenario by changing the product from "radar detectors" to "software that breaks copy protection on programs."

Parker's Text

Donn Parker is the father of computer ethics. His work is the basis for practically all scenario-based pedagogies on IS ethics. Parker's text and workbook are rich and valuable resources of ethical scenarios, providing a total of forty-seven scenarios in six areas. The text is an AFIPS publication that describes an NFS research project built around a workshop held in 1977 at SRI International, Menlo Park, California. Here is a sample scenario from Parker:

"A computer programmer worked for a business enterprise highly dependent on its own computer system. He was the sole author of a computer program of great value to his employer. The program was specified, and the work directed, by his manager; it was performed during specified working

hours at his place of employment, using only materials, facilities, and services supplied by his employer.

The programmer terminated his employment, giving due notice, and with no malice on his or his manager's part. He immediately went to work for a competitor of his former employer, who had similar need for use of the computer program.

Without the permission of his former employer, he took with him a copy of the program and associated documentation and provided them for use by the new employer. The new employer did not question the source of the program, nor had the program constituted a factor in hiring the programmer."

This scenario has generated very good discussion because it provides several views of ethical behavior. The discussion may center around the behavior of the programmer, the new employer and the original employer. Many of the scenarios in the Parker text can be viewed in this manner.

STEP 4. PROVIDE NORMATIVE FEEDBACK

We follow these scenario discussions by providing the students with normative feedback. In the case of our own scenarios (where we wish to illustrate the policies on plagiarism used in this class and University), we simply tell the students what the University considers to be right and wrong.

Scenarios taken from the Parker text provide additional aids for understanding normative behavior. Parker presented his scenarios to about thirty MIS, legal, and academic professionals. After concluding our class discussions of a scenario, we share with the class how the "experts" resolved the dilemma. We present the professionals views as the number who felt the act was (1) unethical, (2) not unethical and (3) not an ethical issue. This information enables students to compare their views with these professionals, and to learn that even among

professionals, there are differences of ethical interpretation.

Note that we share this normative information only after the class discussion is complete.

STEP 5. USE THE SCENARIOS TO INTRODUCE ETHICAL SYSTEMS.

We not only develop discussion on the ethics of the scenarios, we use the scenarios to develop ethical principles.

For example, one scenario asks the students whether it is okay for a manager to ask a potential vendor to demonstrate the prospective software. No one sees an ethical problem in this. We proceed, in stages, spicing up the scenario. The manager attends a free seminar, accepts a free text book on how to select the best software, and ultimately accepts a free trip to a seminar in Hawaii (since, says the vendor, it is cheaper for them to consolidate their seminars). We craftily build on the previous setting of this scenario so that, at the end, few if any student finds an ethical problem with the situation.

We then ask, "How would you feel if you heard that a Pentagon official accepted a 'free' trip to Hawaii from a defense contractor?" By turning the tables on the students, we introduce the ethical analysis tool of Universalism.

We also address the misuse of Utilitarianism. We talk of a company that decided to dump toxic wastes in the river since by doing so it would provide the greatest good to the greatest number of its employees. Utilitarianism requires firms to consider the greatest good for the public at large.

We point out the Eternal Law, such as summarized by the Golden Rule, guides the ethics of many firms, and it, too, is a useful tool of ethical analysis. We point out its limitations as well. Eternal Law is open to interpretation, which explains why different churches hold differing views on important issues, such as abortion.

For the most part, we practice Values Clarification, teaching the tools of ethical

analysis as opposed to preaching what is right. [9] However, we do use these sessions to provide information on what we expect from our students regarding this course. And we also do seize the opportunity to express our own view that there is right and wrong. It is our view that students must hear from us that Cultural Relativism (what is right depends on the time and place) is not a meaningful ethical stance. Our view has particular significance as we enter an increasingly international business work place. For example, bribery is part of the way of life in the Middle East and South America. If it is wrong here, we must consider it wrong everywhere. This statement provides an interesting segue into the teaching of international issues in information systems.

A PSYCHOLOGICAL BASIS FOR THIS PEDAGOGY

In an earlier article, we empirically demonstrated that this pedagogy is indeed effective in developing students' ethics. [5] There are several psychological principles that suggest why this approach is effective in changing student attitudes. These principles include development as a maturational process, social truth, authority, and commitment.

Ethical Development as a Maturational Process.

The research by the Piagetian psychologist Kohlberg provides the basis for our understanding of the development of morality in people. [10] Kohlberg demonstrated through his research that people develop their sense of morality in predictable stages. Kohlberg identified three levels of moral development, which he labeled pre-conventional, conventional, and post-conventional. We assume that this moral development can be accelerated. We know that practice helps in the development of matters as diverse as muscle tone and musical ability, and so practice with solving morally ambiguous scenarios may accelerate the moral development of our students.

Cialdini writes that social truth, authority, and commitment influence the behavior of people. [11] The following three social-psychological principles are described in his text.

Social Truth

Social psychologists have shown that we learn how to behave by observing the behavior of those around us. By having our students who are operating at the conventional level of moral development observe the reasoning of fellow students operating at post-conventional stages, we believe that they are moved toward conformity. (Kohlberg tells us that those at post-conventional levels of moral development are not easily swayed by others in moral matters.)

Authority

Social psychologists also point out that our behavior is influenced by those we perceive to be authorities. In our pedagogy, we draw attention to experts' opinions on the same scenarios with which the students have been struggling, thereby evoking this influence factor.

Commitment

We ask students to speak out as to what to do. We know from their responses that many students will say that software piracy, for example, is wrong while they say they have committed this act. Psychologists have demonstrated that publicly speaking out against (or for) something changes ones' later actions

regarding it. We believe that publicly asserting that software piracy, for example, is wrong will lead students away from acting as pirates in the future. Alcoholics Anonymous uses this technique, requiring participants to acclaim that drinking is wrong. We ask students to say that piracy is wrong.

SUMMARY

The authors have presented a suggested approach to integrating ethics topics into information systems courses. The approach uses a questionnaire to initiate student interest and thought. It then uses scenarios to generate discussion to aid the student in formulating their own personal code of ethics. Lastly, selected scenarios are used to introduce classical ethical systems.

REFERENCES

1. E. Cohen and L. Cornwell, "College Students Believe Piracy is Acceptable." *CIS Educator Forum*, 1:3, March 1989, pp. 2-5.
2. W. V. Schuster, *Bootleggery, Smoking Guns, and Whistle Blowing: a Sad Saga of Academic Opportunism*, Proceedings of Western Educational Computing Conference, San Francisco, 1987 pp 179-187.
3. J. A. Meldman, "SMR Forum: Educating toward Ethical Responsibility in MIS". *Sloan Management Review*, Winter, 1982, pp. 73-75.

4. R. DeMichielli, "Information Systems Development with Ethics: Integrating Theory and Practice." *Interface, The Computer Education Quarterly*, Winter 1988-89, pp. 74-81.
5. E. Cohen and L. Cornwell. "A Question of Ethics: Developing Information System Ethics", *Journal of Business Ethics*, 8: 1989, pp. 431-437.
6. L. T. Hosmer. *The Ethics of Management*, Homewood, IL: Dow Jones Irwin, 1987.
7. D. B. Parker, *Ethical Conflicts in Computer Science and Technology*, Arlington, VA: AFIPS Press.
8. E. Cohen, "Employ Others as You Would have Others Employ You." *Computers in Personnel*, Fall 1989 pp. 48-51.
9. S. Simon, L. Howe, and H. Kirshenbaum, *Values Clarification: A Handbook of Practical Strategies for Teachers and Students*, Hart Publishing Company, Inc. New York, 1972.
10. L. Kohlberg, "Stage and Sequence: the cognitive-developmental approach to socialization," in D. Gosling (ed.) *Handbook of Socialization Theory and Research*. Chicago: Rand McNally, 1969.
11. R. B. Cialdini, *Influence: Science and Practice*, second edition. Scott, Foresman and Company, Glenview, IL 1988.

AUTHORS' BIOGRAPHIES

Eli Boyd Cohen is an Associate Professor of Management Information Systems at Bradley University, Peoria, Illinois. He received his Ph.D. from Indiana University and holds CDP, CCP, CSP and CDE certificates. He is also Editor for Government Technology Magazine, the author of *Business BASIC with Cases* (Irwin, 1988), the Hardware/Software Review Editor for the *CIS Educator Forum*. Additionally, he serves on the Board of Directors of DPMA's EDSIG organization.

Larry Cornwell is Professor of Business Management and Administration at Bradley University, Peoria, Illinois. He is the recipient of the 1988 Midwest Grain Teaching Award and has extensive consulting experience with industry. He received his Ph.D. from the University of Missouri at Rolla. He has numerous publications in statistics, mathematical programming, computer science and information systems.



STATEMENT OF PEER REVIEW INTEGRITY

All papers published in the Journal of Information Systems Education have undergone rigorous peer review. This includes an initial editor screening and double-blind refereeing by three or more expert referees.

Copyright ©1990 by the Information Systems & Computing Academic Professionals, Inc. (ISCAP). Permission to make digital or hard copies of all or part of this journal for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial use. All copies must bear this notice and full citation. Permission from the Editor is required to post to servers, redistribute to lists, or utilize in a for-profit or commercial use. Permission requests should be sent to the Editor-in-Chief, Journal of Information Systems Education, editor@jise.org.

ISSN 1055-3096