Experiences in Teaching Ethics to ICT Students

Candace T. Grant and Kenneth A. Grant
Ted Rogers School of IT Management,
Ryerson University, Toronto, Ontario, Canada

ctgrant@ryerson.ca; **kagrant@ryerson.ca**

Abstract

Ethical and moral behaviour in business and society has come into much greater prominence at the beginning of the 21st century. More specifically, the ever increasing use of information and communications technologies (ICT) has raised a wide variety of ethical issues specific to these technologies. This paper describes the development and delivery of a required Applied Ethics in ICT course in a large hybrid business and ICT undergraduate degree program. It demonstrates that such a course can be delivered effectively with a high level of student engagement, and produces changes in student awareness and attitudes, despite their limited workplace experience.

Keywords: Moral & Ethical Behaviour, Computer Ethics, Positive Psychology, Professional Development, Assessment Techniques

Introduction

Ethical and moral behaviour in business and society has come into much greater prominence at the beginning of the 21st century. Given the ever increasing use of information and communications technologies (ICT) and a significant move from a physical face-to-face world to a much more digital or virtual world, there is a need to broaden the understanding of managers, ICT professionals and the general public in the ethical issues regarding the use of ICT.

As a result of this increased visibility of ethics as a management issue, many business schools, especially those seeking accreditation, are showing an increasing focus on providing ethics education to their students. This paper describes the successful introduction of a required Applied Ethics Course into an undergraduate business & ICT curriculum. It is structured in three sections:

- A description of the underlying theory, both ethical and pedagogical, considered in the initial development of the course
- A review of the lessons learned in developing and delivering the course over a three-year period
- A discussion on appropriate methods of the evaluation of the success of such a course.

The Need for a Specific Focus on Ethics in Business and ICT Education

Background

Mistrust regarding corporate behaviour is currently very high. The well reported failures of oversight that led to the downfall of corporations such as WorldCom and the accounting firm of Arthur Andersen have been compounded by the banking failures that contributed to the current recession. As a result, the need for ethical scrutiny has never been higher with government oversight bodies, boards of directors and shareholders wanting not only to improve the awareness of unethical behaviour but also provide structures and guidance on what employees should do to both avoid such behaviour occurring and how to respond when it is discovered (McDougall, 2006).

As an educational response to these challenges, university accreditation bodies such as the AACSB (the Association to Advance the Collegiate Schools of Business) have taken a keen interest. In its Report of the Education Task Force to the AACSB's Board of Directors in 2004, AACSB (AACSB International, 2004) stressed a need to address ethics in management education to better prepare graduates for the issues they will encounter in the workforce. The report says business schools "must encourage students to develop a deep understanding of the myriad challenges surrounding corporate responsibility and corporate governance; provide them with tools for recognizing and responding to ethical issues, both personally and organizationally; and engage them at an individual level through analyses of both positive and negative examples of everyday conduct in business".

Suggested approaches to meeting this challenge are varied, with some proponents arguing that ethics education should be broadly interspersed across the curriculum, while others believe that there is a need for a very specific and discreet course to address the challenges in a practical and applied manner.

Within the more general focus on ethical corporate behaviour, there are more specific issues related to the use of Information and Communications Technology (ICT). The impact of ICT society has changed dramatically over the last 20 years with the increasing use of the micro-chip, personal computer, email, mobile technology, the Internet and the ability to digitize content. People are exposed to ICT on a daily basis – passing the video surveillance camera, doing their banking over the internet, engaging in social networking chat. Sometimes, they are even unaware they are interacting with technology, for example, when the goods they are carrying are being monitored by RFID technology.

There has been a significant move from a physical, face-to-face world to a virtual, digital world. Inappropriate social behaviours such as breach of trust or breach of privacy exist in both worlds, as do criminal issues such as fraud, theft or child pornography. We have the infrastructures in place to handle many of these issues in the face-to-face world but are struggling in the virtual world, where an incident may cross several jurisdictions. As organizations work on a more global basis, the inter-jurisdictional aspect is even more pronounced.

There is also substantial argument for a separate course focusing on computer ethics. Maner (Maner, 1996) suggests that computer ethics should be studied as a field in its own right. The malleability, the complexity, the discreteness of computer technology raises issues that are not encountered in other domains. Moor (Moor, J.H., 1985) says that "just as the steam engine is the powerful resource of the industrial revolution, the logic of the computer is the raw resource of the Computer Revolution" and with it come unique ethical issues. Gotterbarn (1992) defines ethical issues in the software development process of which IT professionals should be aware.

The AACSB Report mentioned earlier suggests a number of techniques that can support the development of ethical decision-making skills:

1. Develop an understanding of multiple frameworks that can be applied in the decision making process along with the ability to consider the interests and impacts to multiple stakeholders.

2. Make use of reflection to reflect on ethical decisions from the student's own perspective.

3. Analyze case studies similar to situations students would encounter in the business world.

4. Understand one's own values and be prepared to deal with other's conflicting views.

5. Understand the challenges that impact moral courage in acting on one's decision.

In developing the course significant effort was made to review approaches to ethical and moral development. **Morals** are an individual's explicit beliefs and practices about right and wrong. An individual's moral system is the set of principles used to evaluate and determine a course of action and is influenced by their religion, the laws and the culture where they live or have lived as well as their age, gender, ethnicity, upbringing, etc.) and their personal philosophy (Tavani, 2007). **Ethics** is the process by which moral outcomes can be achieved, through explicit reflection on and evaluation of moral beliefs and practices (Reynolds, 2007). For this course the focus was on **Applied Ethics in ICT** – considering the practice of ethics in specific disciplines e.g. medical, legal, ICT. In this review Kohlberg's (Kohlberg, 1969) work proved particularly useful. He studied the moral development of children through to adulthood by looking at moral judgment. His models have been used to study moral development in professionals such as ICT professionals (Heron, 2007).

Kohlberg identified 3 levels of development that individuals pass through from birth to adulthood and each level is recognizable by different factors that influence decision-making. At the **pre-conventional** level, judgments are based on self-interest; at the **conventional** level, judgments are based on the group such as laws, the cultural norms of the society; at the **post-conventional** level, judgments are based more on fundamental moral principles. Most North American high school students have reached the upper end of the conventional and the lower end of the post-conventional level. Kohlberg administered role-taking scenarios to determine an individual's level of moral development.

Much of Kohlberg's work focused on moral judgment, that is determining the right action to follow, but Rest has built on this and suggests that there is more to determining whether an individual will behave ethically than just the ability to decide on the right action. Rest suggests that there are four components that impact behavior and that they all need to be in place to expect that an individual will behave ethically.

1. Moral sensitivity – the ability to interpret the situation and recognize the issue
2. Moral judgment – the ability to determine the right action to follow
3. Moral motivation – the ability to prioritize conflicting moral values
4. Moral character – having the courage, persisting, overcoming distractions, and implementing skills.

Consideration was also given to the applicability of a relatively new psychological field –that of **Positive Psychology**. Seligman, a key proponent of this new field, in a special edition of the journal American Psychologist (Seligman & Csikszentmihalyi, 2000) suggests that although many have studied "how to cure disease", few have focused on prevention - how to stop the situation from occurring in the first place. He suggests identifying the key characteristics or strengths that the "healthy" have used that act as buffers against "illness", characteristics such as: courage,

future mindedness, optimism, interpersonal skill, faith, work ethic, hope, honesty and perseverance.

Van Vuuren, (van Vuuren & Crous, 2005) applies this approach to ethical issues. He discusses the positive organization and suggests that organizations often manage ethical issues from a problem-solving framework where they are reacting to specific issues in the workplace. They may also be driven by pressures from outside of the organization such as managing a negative risk or compliance issue. Although this is an approach that solves the immediate problem, it often does not encourage the forward thinking that is required to develop and maintain an ongoing ethical culture.

He suggests considering "Appreciative Inquiry" to open up dialogues on "what the future ethical organization would look like" and "how do we achieve that reality" with a view to engaging in an ongoing learning discussion of inquiry rather than a compliance, interventionist approach. For Van Vuuren, Appreciative Inquiry is a "collaborative process that creates shared meaning of an ethical future through participation and dialogue by focusing on the positive, viewing ethics as an opportunity and assumes system-wide involvement". Thus, managing ethics is more about the process of engaging people in discussions of a positive organization than developing products or outcomes such as codes of ethics.

As a result of this review, the course design included elements of both moral development theory and appreciative inquiry.

Developing the Initial Course

The "subject school" is a large undergraduate business school with a hybrid or double major degree combining in-depth studies in both business and ICT. It is located very centrally in a large cosmopolitan city. One of the largest schools of its type in the world, it admits about 300 students each year.

In 2006, as part of a wide curriculum review, it was decided to include a required applied ethics course in the second year of the program. As Grant (Grant, 2009) has suggested, in course development, "three key areas needed to be developed: the course content, the method of delivery and the method of assessment".

Course content

In this case, deciding on the course content was a relatively simple task, as there is a significant body of literature and expertise available on the critical ethical issues confronting ICT professionals today. Four main areas were identified:

1. What is "ethics" and what role does it play in the current business and professional environment?

2. How do organizations such as corporations, governments, not-for-profits function? What are the ethical issues that can arise, how to identify them and what are various courses of action that one can take to address the situation? What is the role of an ICT professional body in promoting ethical behaviours and practices?

3. What are the current ethical issues confronting ICT professionals today? (For example: freedom of expression, privacy and surveillance, misuse of intellectual property, ethical approaches to software design and development, bridging the digital divide, cybercrime such as hacking, fraud, stalking, libel, ethics and video games, robotics and warfare.)

4. How to address the ethical issue: how can students identify an issue, understand the stakeholders, consider options beyond the obvious, and execute on their decisions considering the impacts their decision might have?

In addition, the course developer had access to other faculty who had delivered elective courses in a similar area, input from a group of AACSB educators involved in the field, and several university resources with an interest in developing ethical behaviour in students.

Several common themes came up in these discussions.

1. An ethical education is a personal journey and students have to engage and interact with the material. This is difficult to achieve at the undergraduate level as many students lack business experience.

2. Undergraduate business students often perceive ethics as a dry and difficult subject (often offered by a department of philosophy) and can struggle in discussions on philosophy or ethical frameworks and in working on assignments for which there are no easily determined right answers.

3. Student engagement and interaction with the material such as discussions, debates, case studies, and workshops is very important.

The approach to course delivery

While, in principle, there are a number of approaches and techniques that can be used to resolve these issues, this specific situation was compounded by the scale of the classes involved. Each year, the subject school expected to have 200 to 300 students taking the course and, as is common with many universities, budgetary and other pressures require junior undergraduate courses to be taught in a large class format, with three hours allocated per week. Thus significant pedagogical issues had also to be addressed. Assistance in addressing these large class issues was provided through the University's Learning and Teaching Office, which helped in the development of some useful principles for the course delivery.

Specifically, this led to three fundamental decisions:

1. Emphasizing active learning by limiting "lecture" type activities to less than 1 hour of the 3 hours class time available and providing an environment for case study analysis.

2. Making use of cases and simulations (a form of role playing using actors) to allow students a more direct interaction and connection with the content, thus providing an opportunity to "think on one's feet" in responding to the often diverse views of stakeholders.

3. Tying much of the class assessment to the expected student behaviours of engaging with the material in class time.

This led to the following delivery approach:

- A *one-hour common lecture*, for all students (up to 200) to be delivered in a lecture format in a large lecture theatre with electronic teaching podium and film screen. The purpose of the lecture was to present the course concept for the week, invite guests to speak on a specific ethical issue related to technology or business, and deliver common administrative information to the class as a whole.

- A number of *workshops*, each with about 40 students, delivered in a flexible classroom (i.e. a room in which students could arrange their desks to support their specific learning activities). The purpose of the workshop was to generate engagement with the material in a manner that students could appreciate that others might not have the same views or fol-

low the same problem solving approach. Techniques such as debates, discussions, presentations, and simulations were used in the workshop.

- Workshop activities that were ***closely linked to assessment***. Weekly assignments were required, usually before the end of the workshop. Some were individually submitted. Some were submitted in groups. Feedback was provided by the instructor, by another student or by a group of students.

The assessment approach

As mentioned above, assessment was closely linked to learning activities and participation in the basic activities was key to student success. The assessment focused on how well the student was developing the skills identified by Rest as key to contributing to ethical behaviour. Through the use of case studies, simulations and debates, students were assessed on how well they were able to: recognize an ethical issue; identify the stakeholders and how they may be impacted; consider a number of alternative solutions and resolve conflicting priorities; understand the difficulties in following through with action.

The focus is not necessarily on articulating a right or wrong answer but rather on how well, the student presents their argument. Students are often rewarded for simply engaging with the materials rather than necessarily looking for a right or wrong answer.

Lessons Learned from Course Delivery

The course is now in its third year of delivery. It has been delivered twice in the large class on a format and three times in smaller classes to accommodate students out of phase or taking the part-time evening degree. The delivery and continued development of the course has included both pedagogical research and an action research approach intended to improve the learning outcomes.

Key Pedagogical Lessons

The first, and probably most important, insight that can be drawn from this experience is that it is possible to deliver a meaningful applied ethics course to junior undergraduate students in a large-scale format. Student assessments of the experience are positive and have been improving over the period as the course has been further developed.

Students welcome participation in "experimental" delivery, but still need structure

Undergraduate student experiences in large undergraduate universities often lack interactive learning experiences. Many first and second year courses are delivered in large-scale lecture format, where the student's role is largely that of listener and note taker and assessment is often limited to structured exercises and examinations or essays. In this course, students encountered some quite difficult theoretical content, a requirement for self-assessment and reflection and a variety of quite complex workshop activities.

The experience has demonstrated that, despite the limited experience, such activities can be successful. However this needs very clear and structured communication of the basic content, the expected levels of participation and the nature of the deliverables.

Less is more

In planning for an interesting and meaningful class experience, it is easy for the instructor to become too ambitious. Significant improvement came from changes such as: setting fewer cases, allowing students more time to discuss the content and prepare their submissions.

Junior undergraduate students can be reflective

It is possible for junior undergraduate students to engage in self-assessment and reflective activities. Use of journals, especially in electronic formats and providing direction in suggested topics and expectations, produced significantly higher quality results. Students also took part in several self-assessment exercises and reflected both in class and in assignments on the lessons learned from this reflection.

Closely linking the assessment framework to activities

By linking the grading and assessment procedures very closely to the workshop activities, self-assessments and reflections, there was a high degree of student attendance and active participation in class activities. This was well above that experienced by more traditional classes taught to the same student body.

Key Theoretical Lessons

As mentioned above, the students took part in several self-assessment exercises. The most important of these were:

- Rests Defining Issues Test (Rest, Narvaez, Bebeau, & Thoma, 1999), which provides measures relate to Kohlberg's levels of moral development.

- Attitudes of ICT professionals in the ethical use of computer resources (Prior, Rogerson, & Fairwether, 2002).

In a pilot within one small class in Fall 2009, students completed these at the beginning and at the end of the course. The results are shared with the students in class discussion and are also available (through informed consent of the students) for research analysis. The preliminary results are encouraging and the same tools will be used this Winter semester for a larger group of some 200 students. The results will provide insight into the moral and ethical attitudes of future ICT professionals and the degree to which these change through participation in the Ethics course. These results will also be shared with participants at the InSITE2010 Conference.

Conclusions

In conclusion, it is possible to engage undergraduate IT Management students in a compulsory course in ethical issues in IT, even with a large class of full time 2nd year students. The course needs to be structured in such a way that the students can connect personally with the material. The course material should relate to their personal experiences, from either the real world or drawing on case studies that relate to the entry-level jobs they can expect to take as summer jobs or internship opportunities. As an example, the course included significant discussion on student responsibilities to stakeholders at the university and how cheating could impact them and the reputation of the university. The University's Student Handbook provided excellent examples of policy frameworks that can be used to help manage unethical behaviour such as plagiarism.

The students also need to be able to engage with the material through discussions, debates, presentations, simulations, etc. Case studies provided good detailed IT related examples of situations that could occur in the workplace that provided a realistic basis for applying an ethical decision-making process and creative thinking in identifying alternatives that could help avoid ethical behavior.

The students need to see value in the course, especially on how it will help them to get a job or progress in a career. Developing principles and frameworks for use in the business world such as

codes of conduct, non-disclosure agreements, employee contracts, guidelines on use of technology are deliverables they can take away to the places of work.

References

AACSB International. (2004). *Ethics and education in business schools*. St. Louis, MO: AACSB The Association to Advance Collegiate Schools of Business.

Gotterbarn, D. (1992). The use and abuse of computer ethics. *Journal of Systems and Software*, *17*(1).

Grant, C. (2009). Successful engagement of undergraduate information technology management students in a compulsory course in ethical issues in IT in a large class environment. *Information Systems Education Journal*, *Summer*.

Heron, T. W. (2007). *An examination of the moral development and ethical decision making of information technology professionals*. Nova Southeastern University.

Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. Goslin (Ed.), *Handbook of socialization theory and research*. Chicago: Rand McNally and Company.

Maner, W. (1996). Unique ethical problems in information technology. *Science and Engineering Ethics*, *2*(2), 137-154, 175-266.

McDougall, P. (2006, April 3). Money, power and principle. *Information Week*, 20-22,24.

Moor, J. H. (1985). What is computer ethics? *Metaphilosophy*, *16*(4), 266-275.

Prior, M., Rogerson, S., & Fairwether, N. B. (2002). The ethical attitudes of information systems professionals: outcomes of an initial survey. *Telematics and Informatics*, *19*, 21-36.

Rest, J., Narvaez, D., Bebeau, M., & Thoma, S. (1999). A Neo-Kohlbergian approach: The DIT and Schema Theory. *Educational Psychology Review*, *11*(4), 291-324.

Reynolds, G. (2007). *Ethics in information technology*. Boston: Thomson.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5-14.

Tavani, H. T. (2007). *Ethics & technology* (2nd ed.). Hoboken, NJ: John Wiley & Sons, Inc.

van Vuuren, L. J., & Crous, F. (2005). Utilizing appreciative inquiry (AI) in creating shared meaning of ethics in organizations. *Journal of Business Ethics*, *57*, 399-412.

Biographies

Candace Grant, BA, EMBA, G.Dip. Knowledge Management. Candace is a professor in Ryerson University's Ted Rogers School of Management and a management consultant with over 25 years in the information technology sector, focusing on software development, process improvement, quality assurance and knowledge transfer.

Kenneth A. Grant, BA, MBA, G.Dip. Management Consulting. Ken is a professor in Ryerson University's Ted Rogers School of Management and a management consultant with over 30 years of consulting experience. He is also a visiting professor at the American University in Bulgaria. He teaches and researches in the areas of Business and IT Strategy, Knowledge Management, Process and Performance Improvement and Electronic Commerce.

He has held senior partner/vice president positions in major consulting firms, including A.T. Kearney/ EDS and KPMG and is a frequent author and speaker on business and IT topics.