

# Chapter 19

## Ethical Issues in Information Technology: Does Education Make a Difference?

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### ABSTRACT

*This research examines the impact of education on the ethical decision-making outcomes of adult learners in the area of information technology (IT). This study sheds light on the research question “Does IT ethics education make a difference?”, and more specifically, “Do ethics courses influence decisions regarding IT ethical issues in adult learners?” In a field study of 78 pre- and post-test surveys, we found that graduate students who took a course in IT ethics made different decisions than those made at the start of the term, for 2 of 6 ethical issues. The ethical issues described in this article are particularly relevant in today’s knowledge economy. Implications for IT ethics education and future research in the area are discussed.*

### INTRODUCTION

The corporate scandals of the past several years have sparked intense interest and debate in academic, corporate, and government circles over the topic of business ethics education. These groups agree that more emphasis needs to be placed on business ethics education (Etzioni, 2002; Sims, 2002; Mangan, 2003; Swanson, 2003, 2004; Swanson & Frederick, 2003). This article exam-

ines a specific functional area of business ethics education—ethical issues within the information technology field. The ethical issues highlighted in this article have tremendous relevance in the present global knowledge economy, and the findings shed new light on our current understanding of the outcomes associated with business ethics education.

Only a small number of studies have dealt with education of information technology (IT)

ethics. Students have been used in measuring attitudes toward IT-related ethical issues (Logsdon, Thompson, & Reid, 1994; Loch & Conger, 1996; Calluzzo & Cante, 2004; Haines & Leonard, 2007), but the purpose of these studies was to measure attitudes at a certain point; they did not focus on the impact of ethics education and therefore did not measure changes in the attitudes. Those that have focused on a single ethical issue usually address only software piracy (Oz, 1990; Logsdon, et al., 1994; Sims, Cheng, & Teegen, 1996; Ramakrishna, Kini, & Vijayraman, 2001; Peace, Galleta, & Thong, 2003), but none have taken a holistic approach to test the effect of IT ethics education on student attitudes.

We conducted a pre-test-post-test study to examine the hypothesis that ethical education in the form of a graduate course makes a difference in students' ethical decision-making. Repeatedly, students in earlier sections of this course said they now discovered "another side to the issue." Thus, we expected that if some students did not recognize the ethical nature of some of the issues at the start of the class, they would by its end; and that if they did not consider all of the relevant stakeholders involved and the entire potential impact of an act, they would by the end of the course. In an effort to understand *whether* and *how* learning takes place, we employed two taxonomies of educational objectives to frame the types of learning outcomes we could expect from a course in IT ethics. A brief discussion of Bloom's (1956) taxonomy of educational objectives and Tomei's (2005) taxonomy for the technology domain follows in the next section.

### **Taxonomies of Learning in IT Ethics Classes**

Bloom's taxonomy of educational objectives is a widely-used and accepted framework for classifying educational outcomes as a result of instruction. Bloom described three educational domains: cognitive, affective, and psychomotor-

skills and the expected outcomes or behaviors associated with each (Reeves, 1990; Krathwohl, 2002). The cognitive and affective domains are relevant to this study. The cognitive domain refers to the development of intellectual competencies whereas the affective domain deals with attitudes, feelings, values, and behaviors. Outcomes associated with teaching ethics in information technology can fall within both domains, although the affective domain outcomes are harder to measure (Reeves, 1990).

In the cognitive domain, learning outcomes fall into one of six hierarchical levels: knowledge, comprehension, application, analysis, synthesis, and evaluation, where each higher category requires the skills and abilities associated with lower categories. Bloom believed educators should focus on developing student problem-solving abilities and higher-order thinking skills. To do this, educators must provide students with methods for application and critical thinking (Reeves, 1990).

To determine cognitive mastery of a subject, many ethics educators use the case method, which lends itself nicely to the development and improvement of critical thinking skills. However, ethics educators often find themselves in a conundrum in terms of measuring learning outcomes. Most likely it is because testing cognitive capabilities only provides insight into one component of a student's learning. The other component focuses on how students internalize what they have learned. Critics of business ethics education suggest that it is difficult if not impossible to determine whether students have become more ethical or whether their moral development has increased because of ethics education. While this may be true, including pedagogies that employ affective domain principles can help to measure outcomes, such as attitude changes that must go along with improved decision-making.

The affective domain refers to the manner in which individuals deal with emotions and includes five outcome levels: receiving, respond-

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