A study on the effect of a web-based teaching module and gender on accounting students' ethical judgements

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August 2006

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Accounting educators face the increasingly important task of teaching ethics. Yet, there is little empirical evidence on the effectiveness of different ethics instructional methods on accounting students' ethical judgements. This study examines whether the ethical decision making of accounting students differs (1) between those instructed through a web-based teaching module and those adopting a more traditional textbook-focused approach, and (2) between gender. A total of 156 students from a second-year financial accounting course participated in the study, with 90 students utilising the web-based module which was designed based on Rest's (1979) model on ethics development. The other 66 students were instructed through a more traditional teaching approach based on regular class discussions using the ethical problems presented in the textbook. Subsequently, when presented with a whistle-blowing situation, the results of the study suggest that the attitudes and judgements of students instructed through the web-based module were more ethical than those utilising the traditional textbook module. Further, gender was found to impact ethical judgements but only among students who were exposed to the web-based module. The implications of the findings on accounting ethics education are discussed.

Introduction

The recent spate of financial reporting scandals and criticisms of accountants for their role in the scandals, no doubt, has increased the pressure for ethics training and development in the accounting curriculum. Teaching ethics thus remains a significant challenge to accounting educators. Over the years, the need for integrating ethics into the accounting curriculum has been emphasised by various parties including the National Commission on Fraudulent Financial Reporting (Treadway Commission, 1987), and the American Accounting Association (AAA) (Albrecht and Sack, 2000). More recently, PricewaterhouseCoopers, based on their study of accounting curriculum within the tertiary sector in 2003, have rebuked accounting educators for failing to coherently include ethics as part of the curriculum (Hass, 2005). Further, the American Assembly of Collegiate Schools of Business (AACSB) and the American Institute of Certified Practising Accountants (AICPA) have recommended that accounting students ought to receive ethics education at both the general education, as well as at the individual accounting course levels (Thomas, 2004). According to a survey of 17 CPA firms by Warth (2000), most firms rely on colleges to teach the ethical behaviour expected in the profession. Likewise, Albrecht and Sack (2000) suggest that accounting education should focus more on ethics, values, and integrity. However, research on the effectiveness of teaching and learning approaches in accounting ethics education remains scant and limited. In particular, it is argued that ethics education should not only result in increased awareness among accounting students of the numerous potential ethical conflicts, but also lead to ethical judgements and behaviour i.e. making ethical decisions (Bampton and MacLagan, 2005).

The present study examines the differences in accounting students' ethical judgements based on the type of ethics teaching approach and their gender. Prior studies on accounting

students' ethical decision making have largely focused on the influence of factors such as the type of ethical dilemma e.g. tax evasion versus cheating in exams (O'Leary and Radich, 2001), the country of origin e.g. Ireland versus Australia (O'Leary and Cotter, 2000), and gender (Haswell and Jubb, 1995; O'Leary and Radich, 2001))[1]. No study to date has however undertaken a systematic and comparative analysis of the effects of different types of teaching approaches utilised by accounting educators on accounting students' ethical judgements. Traditionally, some of the common tools used for teaching ethics in accounting include ethics cases and scenarios within the textbook, professional codes of conduct, instructional videos, games, educational novels and controversial films (Madison, 2001; Berger and Pratt, 1998, Druyd, 1998; Haywood et al., 2004). With increasing technological and multimedia developments in recent years, there are significant opportunities to adopt more flexible accounting interactive teaching tools in the classrooms that are more efficient and effective. For example, web-based, multi-media-oriented approaches are considered as being more stimulating and visually attractive which in turn has the potential to improve students' learning outcomes (Byrne, 2002; Liu et al., 2003; Huang and Cappel, 2005). Furthermore, universities are increasingly being forced to reconsider their traditional pedagogical teaching approaches against more flexible and stimulating web-based approaches to enhance student learning (Jonassen et al., 1999; James and Subramaniam, 2005). Yet, the impact of the use of more sophisticated teaching resources and approaches, namely one that is web-based with interactive features on accounting students' ethical judgements, remains indeterminate. Much of the related literature in this area tends to be largely descriptive, focusing on explaining the design of teaching resources rather than assessing the outcomes of the adoption of such resources.

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[1] For example, O'Leary and Cotter's (2000) study revealed that Irish students were significantly more prepared to act unethically than their Australian counterparts. It was suggested that this difference may be related to differences in national legal frameworks e.g. whistle-blowing policies, and the greater emphasis placed on ethics in the Australian chartered accounting programmes in contrast to the Irish accountancy-training programme.

The objectives of this study thus are two-fold. The first objective of the study is to assess whether the ethical judgements of accounting students differ between those instructed through a web-based, multi-media orientated teaching module (hereafter referred to as the web-based module) and those utilising a more traditional textbook focused teaching approach. The web-based module developed for this study is an innovative teaching module that was specifically designed to develop accounting students' ethical decision-making ability through a systematic integration of the theory of ethics with ethical decision-making models and other decision aids such as the accounting code of professional conduct. Students were also given various examples of real-life and hypothetical accounting ethical dilemmas to develop their ethical reasoning and decision-making. It is argued that the key strengths of the module lie in two areas: (1) its more holistic approach to communicating the importance of ethics, how ethical situations can be analysed and what guidelines are provided by the codes of professional conduct, and (2) in the adoption of a more interesting and interactive teaching format using multi-media tools. Thus, unlike a more traditional teaching approach to accounting ethics that largely focuses on identifying ethical dilemmas and possible courses of action, for example at the end of the textbook chapters, a more interactive web-based module is seen to offer a more rigorous, stimulating and effective teaching tool. A more detailed description of the web-based module adopted in the present study is provided in a latter section of this paper.

The second objective of this study is to examine the effect of gender on accounting students' ethical judgements. Understanding the differences in ethical judgements between male and female students is important as in recent years there has been a significant upward trend in the number of females undertaking accountancy studies as well as female graduates

entering into the accountancy profession (Hardin, et al., 2002; AICPA, 1998). Further, results of prior studies on the impact of gender on ethical decision-making remains mixed and largely unclear, thus warranting further research on the issue (Radtke, 2000; Roxas and Stoneback, 2004).

The present study involved a total of 156 second-year financial accounting students from two Australian universities (A and B), with the first student cohort (90) receiving instructions through a web-based module, while the second student cohort (66) were exposed to ethics teaching through a more traditional text-book format. The accounting students' ethical judgements were assessed at the end of a 13-week study semester through a questionnaire survey involving a whistle-blowing case scenario. The results suggest that the students exposed to the web-based module were more willing to whistle-blow than those exposed to the traditional textbook module. Further, using Reidenbach and Robin's (1990) multi-dimensional ethical judgement scale, significant differences were found in all three ethical dimensions: moral equity (e.g. perceptions of fairness, justice, etc.), relativism (i.e. cultural acceptance) and contractualism (contractual terms). More specifically, students exposed to the web-based module found the unethical scenario to be less moral and less acceptable. In terms of gender, the findings suggest that for the overall student participants, there was no difference in the students' ethical judgements between males and females. However, the analysis within each student cohort suggests that female students exposed to the web-based module were more willing to whistle-blow than their male counterparts, but no such difference was found for the second student cohort. It thus appears that the type of instructional mode i.e. an interactive, web-based module may moderate the relationship between gender and accounting students' ethical judgements. These results have implications

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for future studies on the use of more stimulating, and interactive web-based ethics education resources, and the need to consider gender when adopting such teaching strategies.

The remainder of the paper is structured as follows. The next section provides a literature review on students' ethical decision making, followed by a description of the accounting tools available to accounting educators for teaching ethics, and the background on the web-based teaching module developed for this study. Two key research hypotheses are subsequently developed, and the research method is described. The results of the study are provided, and the findings and implications of the results are discussed. Finally, the conclusion and limitations of the study are delineated.

Literature Review

While a number of early studies indicate that the impact of ethics education on students' ethical judgements is negligible, more recent studies appear to provide a positive association between the two factors. For example, Martin (1981-82) found that enrolment in two ethics courses (as offered by a department of philosophy) was not significantly related to the ability of students to assess various ethical scenarios. Likewise, Wynd and Mager (1989) found that enrolment in a business ethics course had no impact upon students' ethical or moral reasoning ability as well as ethical decision-making. By contrast, Boyd (1981-82) found that in comparison to students who were not enrolled in an ethics course, those enrolled in such a course showed improvements in their moral reasoning judgements. Green and Weber (1997) demonstrated that accounting students, after taking an auditing course that emphasised the AICPA's code of professional conduct, demonstrated a higher level of moral reasoning ability. The stage of moral reasoning ability was assessed by analysing the reasons

why a particular course of action had been recommended by the respondents for a given ethical dilemma, and comparing their responses with traits from the Kohlberg's (1984) three levels of moral reasoning development.[2]

Likewise, Gautschi and Jones (1998) based on a study of the effects of students' exposure to a business ethics course found that enrolment in such a course can enhance the students' ability to recognize ethical issues in business situations. More recently, Clikeman and Henning (2000) surveyed 141 college sophomores (56 accounting majors and 77 other business majors) and found no significant differences between the accounting and other business majors in their willingness to "manipulate earnings." A repeat survey of the same students in their senior year (i.e. two years later), however, revealed that accounting majors were less willing to manipulate earnings than were other business majors. These results clearly indicate that accounting education tends to promote greater ethical awareness of professional responsibility, and that accounting students with ethics education may start adopting the attitudes of their professional reference groups even before they have commenced their professional careers.

Teaching Ethics in Accounting Curriculum

Given that ethical dilemmas in the business world are generally complex, accounting educators need to raise the awareness of such issues among accounting students who will in time progress to function as accounting professionals. It is also vital to cultivate the students'

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[2] Pre-conventional considerations are those defined by external authority, self-interest, and the rewards and punishments attached to various outcome choices. Conventional considerations are defined by the social group and one's interpretation of the group norm. Principled or post-conventional considerations are defined by complex notions of universal fairness, one's internal sense on responsibility (conscience), and one's interpretation of what is best for society.

ability to critically evaluate a situation from multiple viewpoints before arriving at a decision that reflects the most ethical course of action. To date, the integration of ethics education in an undergraduate business curriculum has been undertaken in two main ways. The first approach involves the undertaking of a separate and distinct course or subject on ethics which usually is a semester-long programme covering the foundations of ethics theory, and the introduction to various ethical decision-making models. Procardio-Foley and McLaughlin (2003) in their survey of 24 American colleges and universities found that 29% of the institutions required a business ethics course of their accounting/ business majors, and of the remainder, 42% had a business ethics course that a student may undertake as an elective. Likewise, a study by the Institute for Business Ethics in London found about 24% of the business students had chosen ethics as an elective (Cummins, 1999). The second approach to teaching ethics is to incorporate ethical issues or case scenarios in the different courses of an accounting major. Often students are introduced to specific issues at the end of each topic or the chapter of a textbook, and they are required to discuss these questions as part of their classroom activity. Each approach entails strengths and weaknesses.

The first approach i.e. the use of a distinct ethics course provides a fairly comprehensive and intensive period of ethics study by encompassing the theoretical foundations of ethics, the application of decision making models and ethical resolution techniques. However, given the increasing pressure on meeting professional accreditation requirements, undergraduate accounting programmes have difficulty in incorporating a distinct, semester-long ethics course as part of their formal accounting study programme. This situation is further exacerbated as accounting students increasingly seek to specialise in other areas as well, for example, in finance, information systems and management. Further as noted by Procario-Foley and McLaughlin (2003),

"it is well known, though, that accounting professors and others in the business disciplines will routinely argue that there is no room for flexibility in their syllabi; the argument is not against ethics education in courses but a statement about the content-based nature of courses that must build upon each other sequentially. The real and difficult problem of finding time in an accounting course...to account for ethics must be acknowledged" p.281.

By contrast, the second approach tries to avoid the problem of time by integrating and highlighting ethical issues specific to the individual courses as part of the normal accounting course structure. Further, an added advantage of this approach is that students can develop a more in-depth understanding of ethical matters not only in each individual course, but also over time across multiple accounting courses in a more sequential mode over the entire accounting programme. Usually ethical conflicts are discussed as part of the set classroom problems sourced from textbook chapters. However, this method tends to use a piece-meal approach to teaching ethics by highlighting solutions to various ethical conflicts rather than providing students a deeper theoretical understanding of ethical decision-making and the moral responsibilities of accountants as professionals. In addition, it has also been argued that coverage of ethics can often be dry and textbook exercises can fail to grab the students' attention and interest (Haywood et al., 2004).

Two recent studies report the adoption of more innovative approaches to teaching ethics to accounting students. First, Haywood et al.'s (2004) study reports on the use of games as a strategy to teach ethics and professionalism to students. Using the format of a bingo game and the aid of power-point slides that showed examples of (un)ethical practices as reported in the press, the students were required to earn spaces on their bingo card by responding appropriately to the ethical issues raised in the power-point slides. Unfortunately, the effectiveness of this learning strategy was not measured in terms of the students' ability to

make the right ethical decision, but was based on student feedback on their perceptions of the games. The general feedback was that it was a fun and stimulating way to learn.

In the second study, Smith et al. (2005) utilised a computerised power-point slide show to teach ethics in ten upper-level business classes. According to Smith et al. (2005), ethics is an appropriate topic for a multimedia application for at least two reasons. First, even though recent corporate scandals have highlighted the importance of ethics, there is limited coverage of ethics topics in accounting textbooks. Second, "ethics lends itself to multimedia as there are many images (and music) that stimulate consideration of ethical issues" (Smith et al., 2005, p.157). The study entailed 276 student participants in a pre-presentation and post-presentation survey. The results not only suggest that the students' attitudes towards the presentation slides were positive, but that their attitudes towards ethics in general had improved as well. For example, in the post-slide show survey, there was stronger agreement on the view that "when individuals lack ethics, that hurts society at large" and that "a presentation on ethics is valuable". Nevertheless, Smith et al. (2005) had not specifically assessed the ethical decision-making ability of students subsequent to the use of the power-point slides, and thus the impact of the use of the multi-media presentation on accounting students' ethical judgements remains indeterminate.

In conclusion, no study in accounting ethics education to date has examined the impact of adopting a more technologically advanced teaching approach that encapsulates interactive multi-media with a web-based format. Given the numerous opportunities for enhancing student learning through multimedia-related applications, it is surprising that research on the impact of such a teaching approach remains scant in accounting education. In

the next section, we develop the study's hypotheses based on the benefits derived from adopting a multimedia and web-based format for teaching accounting ethics.

Research Hypotheses

The Case for Multimedia, Web-based Learning

While the term multimedia may commonly mean different things to different people, in the present study, it is broadly defined as "the presentation of material in more than one form that undertakes a learner-centred approach". This includes the use of words, pictures, sound and various interactive tools while taking into consideration that students learning styles may differ. Mayer (2001) notes that support for use of multimedia learning is premised on the idea that instructional messages should be designed in light of how the human mind works. While some textbooks tend to have colourful diagrams and other illustrations, it is argued that seeing, hearing and interacting with instructional messages may better function to reinforce the information and lead to better learning outcomes (Miller, 1996, Smith et al. 2005). For instance, the literature on vividness effect suggests that a positive association exists between vividness and the effectiveness of messages. Nisbett and Ross (1980) argue that vivid information is likely to attract and hold our attention as well as to excite the imagination to the extent that it is (a) emotionally interesting; (b) concrete and imagery-provoking; and (c) proximate in a sensory, temporal, or spatial way. Empirical studies by Mayer and Gallini (1990) and Mayer and Sims (1994) indicate that presenting an explanation with words and pictures results in better learning than does presenting words alone. In a similar vein, Moreno and Mayer (1999) found that students learn better from animation and narration as spoken text compared to those who received the narration as printed text only. It is argued that by both seeing and listening to a given instructional message, the students are

able to use their visual and auditory channels simultaneously for learning, leading to better learning outcomes.

Furthermore, according to the constructivist view of learning, the learning environment and the motivation of the learner are key determinants of learning outcomes. It is argued that, "the process of learning is seen as the construction of meanings by the learner from what is said or demonstrated or experienced" (Hedberg et al., 1994, p.16). As such, the role of the educator is to facilitate the development of meanings or understanding by selecting appropriate material and tools that allow students to reflect on the given information. The construction of meanings and subsequently the evaluation and acceptance of the subject matter remains within the discretion of the student. Hedberg et al. (1994, p.16), further note that "the overarching issue in a constructivist view of learning is that …students need to have some understanding and control over their learning process". A web-based teaching module would offer significant independence to students to learn at their own pace. In addition, the ability to link to related sites on the Internet is also a key advantage over the more traditional textbook methods of study whereby learning is made more interesting and study resources can be easily widened and enriched. Thus, a multi-media based approach to teaching ethics is likely to be more effective than a traditional textbook approach.

Thus, based on the above discussion, the following research hypothesis is suggested:

Research Hypothesis 1: There is a significant difference in the ethical judgements between accounting students exposed to a web-based, multi-media ethics learning module and those exposed to a traditional text-book focused learning module.

Gender

In general, much of the evidence to date on the effect of gender on ethical behaviour appears mixed. The study by Haswell and Jubb (1995) of 202 first-year university students studying accountancy revealed that almost half (50%) of the male as opposed to 25% of female students would accept a bribe if there was no risk of being caught. Likewise, O'Leary and Radich (2001) found in a survey of 103 final year auditing students that the males were more likely to act unethically than females in terms of accepting a bribe to defraud the Taxation Office and to defraud shareholders, but the differences in gender was negligible when it came to cheating in exams.

Radtke (2000), on the other hand, based on 51 practising accountants from both public and private sectors found that there were generally no significant differences in the ethical decisions between male and female. Of the 16 ethically sensitive situations provided, males and females were found to differ only in five situations. Although Roxas and Stoneback (2004), based on a study of 750 students from eight different nations, found males tended to act less ethically overall, they also reported that culture may have a moderating effect. For example, the study found that male students from Ukraine tended to act less ethically, while female students from China tended to act less ethically.

Thus, based on the above discussion, the second research hypothesis for the study is as follows:

Research Hypothesis 2: There is no significant difference in the ethical judgements between male and female accounting students.

Research Method

Sample

The sample comprised students enrolled in a second year university course across two universities in South-East Queensland, Australia. Student cohort A were exposed to a web-based interactive ethics learning module, that was made available to students through their course website, and student cohort B were exposed to the more traditional text-book focused ethics learning model. The initial sample for each cohort consisted of all students enrolled in a second year financial accounting course. The course content and the textbooks used by each cohort were comparable. As the survey questionnaire was administered in the final week of the teaching semester, only the responses of students attending the final lecture were included. Further, students who had received any ethics instruction prior to the second year accounting course were removed from the sample. The final sample sizes for cohort A and cohort B were 90 and 66 students, respectively.

The Teaching Approaches:

The "Web-based Ethics Module"

The ethics teaching resource adopted in this study is an interactive, web-based module using a multimedia format. A multi-dimensional approach was adopted towards developing the ethical decision-making ability of the students whereby a comprehensive set of learning features including exposure to ethical theories, ethical decision-making frameworks and practice application problems were adopted. More specifically, the module comprised the following five main sections, titled:

(i)   Importance of ethics for accountants;

(ii)   Ethical theories;

(iii)   Ethical decision-making model;

(iv)   Professional Code of Conduct; and

(v)   Ethical Scenarios in Financial Accounting.

The module was designed, guided by Rest's (1976) ethical behaviour model, which involves four key components:

• Ethical sensitivity (identifying the issues or conflicts)

• Ethical reasoning (rationalising the situation)

• Ethical motivation (desire to act ethically)

• Ethical behaviour (acting or carrying through)

According to Rest (1979), an individual is able to demonstrate ethical behaviour only if he or she is able to firstly recognise that an ethical conflict or issue exists in a given situation, and upon this recognition the individual needs to be able to analyse the various implications of the available choices of action, and thereon be motivated to act in the most ethical manner, and finally to act out according to his or her intentions.

Accounting educators can play a key role in enhancing the first three components, with the final outcome i.e. an individual's actual ethical behaviour remaining a function of his or her will. To begin with, a critical step for the accounting educator is to help students spot what are the ethical issues. For example, ethical sensitivity can be enhanced in accounting courses by discussing the issues germane to the technical issues being covered. Many of the ethics cases and problems at the end of textbook chapters usually aim to help foster ethical sensitivity. In this study, the web-based module goes further to include hypothetical examples of ethical scenarios from a financial accounting perspective and to provide additional links to

reports on the internet, namely high profile real-life cases such as World-Com and One-Tel in the section on ethical scenarios.

The second component of Rest's model highlights the importance of enhancing students' ethical reasoning skills, which can be achieved in several ways, such as developing their theoretical understanding of the philosophy of ethics, promoting critical thinking on issues of morality and justice, and analysis of real life incidences. It is assumed that by promoting ethical reasoning skills, an individual is more likely to cognitively evaluate and judge the implications of one's actions. In our web-based model, we firstly provide a brief overview of the three main normative ethical perspectives, namely deontology, teleology and virtue ethics (Gay and Simnett, 2003).[3] We also use several interactive problems in a multiple-choice format where students learn to distinguish the outcomes of adopting each of the ethical rationale or perspective in a given ethical situation. Further, we provide them a brief outline of the Australian Joint Code of Professional Conduct (ICAA, 2004), as an additional guideline to developing ethical reasoning ability. Such a tool is expected to increase students' awareness of the Codes' basic principles, and to help the students form a more ethical reasoning of the options available in a given ethical situation.

The third factor in Rest's model is ethical motivation (i.e. the desire to act ethically), which is not a cognitive skill, but one that relates to a student's intentions to act morally. Accounting academics can still play an important role in motivating students to act ethically i.e. 'do the right thing'. It is argued that developing a sense of professionalism and enhancing pride in the profession are powerful motivating factors. Apoustolou and Apostolou (1997), for instance argue that one way to enhance pride in the profession is to tell stories about "accounting heroes." For instance, examples of heroes may include the Time Magazine's

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[3] Deontology is based on duties and rights, teleology is based on outcomes of one's actions, and virtue ethics is based primarily on integrity and personal attributes such as honesty, courage and fairness.

"Persons of the Year" (i.e. as per December 30, 2002 issue): Cynthia Cooper of WorldCom, Coleen Rowley of the FBI, and Sherron Watkins of Enron. Two of them were accountants. Exhortation can be a powerful tool for increasing students' desire to act ethically, and accounting educators thus may encourage their students to aspire to always to act in the public interest. In our web-based ethical model, we include accounts of such heroes as well as provide many inspirational quotes by famous people such as Edward Hale's how "One accountant can make a difference".

The web-based module was first introduced to students in the lecture of week three of a 13-week teaching semester, and students were thus able to use the web-based module throughout the remainder 10-week period. The introductory lecture involved a 45-minute discussion of a case study where the various issues were raised and related to the relevant components of the web-module. Further, ethical situations formed part of their weekly tutorial homework, and students were then regularly encouraged to use various components of the ethics module throughout the semester.

The "Traditional Text-book Method"

Cohort B students were exposed to the traditional text-book teaching mode. In week X, a case study type question was put to the student cohort and a question and answer session was undertaken during the lecture where students were encouraged to discuss the issues raised in the case. In the subsequent weeks, an ethical situation pertinent to the week's topic (based on an example from the text-book) was raised and discussed briefly in the tutorials. Questions relating to ethical situations were largely taken from the text-book and included in the tutorial homework of each week. Students were expected to complete the analysis of the nominated

ethical problems prior to the tutorial and suggested answers to the problems were discussed during the tutorial.

Variable Measurement

The survey questionnaire consisted of an ethical scenario relating to a whistle-blowing situation, and 11 related questions that assessed the respondent's ethical judgement or decision-making. A copy of the ethical scenario and the related questions are provided in Appendix A. The ethical scenario is based on a case developed by Meier and Rittenberg (1986), and subsequently used by Arnold and Ponemon (1991) and Patel (2003). The questions requested of the respondents are based on the Reidenbach and Robin's (1990) multi-dimensional ethical judgement scale. Three single-attribute questions were included that asked respondents to evaluate the scenario in terms of whether the decision made was ethical or unethical, whether they would make the same decision, and whether their colleagues would make the same decision.[4] Further, eight additional items were also included measuring respondents' judgement of moral equity, relativism and contractualism. Moral equity which is premised on justice theory related to the four attributes: *Fair/Unfair*, *Just/Unjust, Morally right/Not Morally right,* and *Acceptable/Unacceptable*. The concept of relativism, which assumes that all values are a function of culture (Singer, 1994) is composed of the two items: *Culturally Acceptable/Unacceptable*, and *Traditionally Acceptable/Unacceptable,* while contractualism is measured by the two items: *Violates/Does not Violate an Unwritten Contract*, and *Violates/Does not Violate a Spoken Promise*. The theoretical basis for contractualism is rooted in the philosophy of deontology with the focus on the importance of ethics in social contracts (Kant, 1964). All responses were sought on an eight-point bipolar

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[4] Following Patel (2003) the last two questions were included to identify the presence of any social desirability response bias (SDRB), which refers to respondents' desire to portray a particular picture of themselves by the way that they respond to survey questionnaire items.

scale. In addition, participants were asked several background questions such as age, gender, work experience, previous ethics instruction and educational qualifications.

The descriptive statistics of the sample are presented in Table 1. As can be seen from Table 1, student cohort A and student cohort B are similar in terms of age, work experience and number of years in full-time and part-time work. The breakdown of the two cohorts in regards to gender and higher education level attained differ slightly. Approximately 46% of cohort A are male and 54% are female, whereas 40% of cohort B are male and 60% are female.[5] In addition, a larger percentage of students from cohort B have completed prior tertiary/university study (37% compared to 21% from cohort A).[6]

Insert Table 1 Here

Results

The descriptive statistics of the ethical decision-making survey questionnaire items are presented in Table 2. Statistics are provided for both cohort A and cohort B, together with the descriptive statistics for male and female groups within each cohort. Overall, the average response to each question was above the mid-point of the eight-item bi-polar scale for student cohort A and below the mid-point for student cohort B i.e., students from cohort A who were exposed to the web-based interactive teaching module were more likely to engage in whistle-blowing than students from cohort B who were exposed to the traditional text-book based teaching approach. The mean scores for the female student cohort A group were higher for

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[5] 2.3% of respondents from cohort A, and 19.7% of respondents from cohort B did not complete the background information question relating to gender (i.e. missing values).

[6] Tests were conducted to control for the level of prior study. No significant differences were found between the results presented herein and those with the level of prior study controlled for.

each of the eleven questions than their male counterparts. In comparison, the mean scores for the female student cohort B group were higher than the male group for three of the eleven questions.

Insert Table 2 Here

Hypotheses testing were conducted by performing independent samples t-tests. The results of these tests for each of the ethical decision making questions is presented in Table 3. Four comparisons were made between: the overall responses between student cohort A and student cohort B (Panel A); the overall responses between males and females (Panel B); the cohort A male and female groups (Panel C); and the cohort B male and female groups (Panel D).

Insert Table 3 Here

As shown in Panel A of Table 3, the differences in the mean responses of cohort A and cohort B were statistically significant for all eleven questions with cohort A providing significantly greater ethical responses to all questions than cohort B ($p < 0.05$ for all questions). This finding is particularly important for Q10 ('you would make the same decision') and Q11 ('your colleague would make the same decision'), which provides the strongest test of the two research hypotheses (Patel, 2003). Further, as the difference in the scores for Q10 and Q11 are positive and significant, this indicates that student cohort A are more likely to engage in whistle-blowing than student cohort B ($p < 0.001$). Therefore, it can be concluded that accounting students exposed to a multimedia, web-based ethics learning

module make more ethical judgements than those exposed to a traditional text-book focused learning module. Hypothesis 1 is therefore supported.

In terms of gender, as indicated in Panel B of Table 3, there were no significant differences in the mean responses between the male and female groups for all questions. Further examination of differences in ethical judgements based on gender, within each of the cohorts, indicates that females in Cohort A were more willing to whistle-blow than their male counterparts (refer Panel C of Table 3). Females rated the decision not to whistle-blow as being more unethical ($p < 0.01$) and not morally right ($p < 0.05$) than the male students from cohort A. Also, females responded that it was more highly improbable that if they were making the decision, they would make the same decision as made in the scenario ($p < 0.05$). Within the cohort B sample, as shown in Panel D of Table 3, there were no significant differences between the responses of males and females to all questions.

These findings lead to a rejection of Hypothesis 2 in relation to student cohort A. That is, there is a significant difference in the ethical judgements between male and female accounting students who are exposed to a web-based teaching method. This suggests that a web-based multimedia orientated method, in the case of ethics instruction, has been more effective for females than males. The implications of these findings for accounting ethics' teaching strategies are discussed in the following section.

Discussion of Results

Extant literature indicates that commonly used tools in teaching accounting ethics range from basic textbooks, professional articles to electronic resources such as firm and

internet websites (Thomas. 2004). The present study provides a systematic, comparative analysis of the impact of two types of teaching resources: an innovative multimedia, web-based instruction versus a traditional in-class text-book approach on accounting students' ethical judgements. Rest's (1976) ethical behaviour model was used to develop the web-based resource which takes into consideration the need to first increase student awareness of the existence of an ethical problem or issue, followed by developing their ability to rationalise the situation and encourage the desire to act ethically, leading to ethical judgements and decisions. The results of this study indicate that the ethical judgement of accounting students to be higher among those instructed through the web-based module when compared with students who were instructed through the traditional textbook focused method. These results suggest that a more stimulating, flexible and visually attractive electronic module to be more effective in affecting the ethical judgements of accounting students. The results also provide support to Smith et al. (2005) who contend that ethics lends itself to multimedia as the various ethical issues can be made more interesting and relevant to students. In Haywood et al.'s (2004) study, the use of games were found to enhance students' understanding of accountants' professional and ethical responsibilities. The present case likewise suggests that the use of a multidimensional approach that utilises exposure to the fundamentals of ethics theory, ethical decision models including the code of professional conduct for accountants as being a more effective approach to enhancing ethical judgements of accounting students than the traditional textbook method.

A second objective of this study was to assess the impact of gender on accounting students' ethical attitudes and judgement. The findings of the study do not seem to reveal gender as a significant determinant of ethical judgement for the full sample of students. However, interestingly there was a significant difference between males and females within

24

cohort A (i.e. those students instructed through the web-based approach) with females displaying higher ethical judgements. However, on the contrary, males are seen to react better to visually stimulating material, and as such ought to have responded more positively to the web-based module. Unfortunately, given that we are not able to distinguish how males and females had responded to the different aspects of the web-based module e.g. its visual, interactive aspects versus the use of a more multidimensional and integrative approach to teaching ethics (i.e. theoretical and practical aspects), the reasons for females ethical judgements to significantly differ from the males among those exposed to the web-based module is unclear. Thus, further study in this area may be warranted so as to gain a better understanding of more effective design of such web-based modules.

Conclusion

The results of this study lead to several implications for accounting ethics education. The study extends the literature and provides evidence to accounting ethics educators on the need for more innovative web-based educational tools to be developed that seek to integrate theory, codes of professional conduct and ethical decision models, to improve students' ethical decision-making ability rather than adopting traditional text-book methods. The study also informs the impact of gender on accounting students' ethical decision-making ability. From a practical viewpoint, the results of this study have implications for developing more effective ethics education tool for accounting students.

Apart from the usual shortcomings associated with survey research, some additional limitations of the study should be acknowledged. Firstly, generalisability of the findings to all accounting students should be undertaken with some caution due to self-selection of

respondents. Only students who attended the final lecture in both student cohort A and B were included in the study. This may raise issues in relation to motivation and any impact this may have on students' responses to the survey questions. Secondly, generalisability of the results would be improved if potential confounding variables, e.g. nationality and religious background, were controlled for in the study. Finally, a stronger research design would result if a measure of students' ethical judgements had been undertaken prior to exposure to the ethics instruction. A baseline measure would provide useful insights into the progressive impact of the modes of ethics instruction upon students' ethical judgements.

A number of avenues for further research should be noted. As discussed, culture may have a moderating effect on students' ethical decision-making and as such is worthy of further study. The impact of interactive, visually stimulating multimedia methods of instruction on males and females warrants further study. In addition, a longitudinal study that incorporates multiple exposures to web-based ethics instruction over time would provide even greater insights into the impact of interactive multimedia instruction methods on students' ethical judgements.

Table 1: Descriptive Statistics of the Sample

Description	Cohort A (n = 90)	Cohort B (n = 66)
Mean Age:	23.78 years	26.52 years
Minimum	18	18
Maximum	54	45
Gender:		
Male	40 (45.5%)	21 (39.6%)
Female	48 (54.5%)	32 (60.4%)
Work Experience:		
No	25 (28.4%)	19 (28.8%)
Yes	63 (71.6%)	47 (71.2%)
Mean Full-time work:	6.45 years	8.54 years
Minimum	1	2
Maximum	30	20
Mean Part-time work:	2.19 years	3.42 years
Minimum	1	1
Maximum	9	6
Higher Education:		
High School	47 (60.3%)	27 (41.5%)
TAFE	15 (19.2%)	14 (21.5%)
Tertiary/University	16 (20.5%)	24 (37.0%)

Table 2: Descriptive Statistics of Ethical Questions

	Cohort A						Cohort B					
	Overall		Male		Female		Overall		Male		Female	
Item Description	x̄	S.D.	x̄	S.D.	x̄	S.D.	x̄	S.D.	x̄	S.D.	x̄	S.D.
Ethical[a]	6.54	1.62	6.03	1.80	6.96	1.34	2.63	1.47	2.95	1.63	2.65	1.47
Moral Equity Dimension[a]:												
Fair	6.18	1.66	5.93	1.70	6.42	1.64	2.67	1.40	2.81	1.44	2.83	1.51
Just	6.03	1.79	5.73	1.83	6.29	1.77	2.88	1.54	3.05	1.36	3.10	1.81
Morally right	6.53	1.75	6.13	1.92	6.83	1.57	2.27	1.24	2.38	1.32	2.30	1.26
Acceptable to my family	5.71	2.12	5.55	2.21	5.88	2.08	3.39	1.95	3.90	2.21	3.47	1.87
Relativism Dimension[a]:												
Culturally acceptable	5.86	1.79	5.68	1.72	6.00	1.89	3.45	1.78	3.52	2.02	3.67	1.86
Traditionally acceptable	5.98	1.84	5.68	1.86	6.23	1.83	3.81	2.08	4.19	2.04	3.90	1.35
Contractualism Dimension[a]:												
Unwritten contract	6.31	1.77	6.05	1.88	6.48	1.69	3.14	1.65	3.76	2.05	2.97	1.59
Unspoken contract	6.29	1.72	5.95	1.79	6.52	1.65	3.17	1.83	3.52	2.16	3.00	2.10
You would make the same decision[b]	5.43	2.19	4.87	2.14	5.85	2.19	3.51	2.02	3.81	2.06	3.81	1.94
Your colleague would make the same decision[b]	4.77	2.07	4.58	2.04	4.90	2.13	4.12	1.98	4.81	2.14	4.10	1.72

[a] Responses ranged from 1 to 8 (where 1 = ethical/fair/just/morally right/acceptable to my family etc., and 8 = unethical/unfair/unjust/not morally right/unacceptable to my family etc.).

[b] Responses ranged from 1 to 8 (where 1 = highly probable and 8 = highly improbable).

Table 3: Independent t-test Differences in Responses

Item Description	Panel A Overall Cohort A vs Cohort B		Panel B Overall Male vs. Female		Panel C Cohort A Male vs. Female		Panel D Cohort B Male vs. Female	
	Ⴟ diff.	*t*-stat	Ⴟ diff.	*t*-stat	Ⴟ diff.	*t*-stat	Ⴟ diff.	*t*-stat
Ethical[a]	3.91	15.43***	-0.30	-0.7	-0.93	-2.78**	0.31	0.71
Moral Equity Dimension[a]:								
Fair	3.51	13.76***	-0.19	-0.48	-0.49	-1.38	-0.24	-0.51
Just	3.16	11.43***	-0.26	-0.68	-0.57	-1.47	-0.52	-0.11
Morally right	4.26	17.63***	-0.27	-0.62	-0.71	-1.88*	0.08	0.22
Acceptable to my family	2.32	6.93***	0.04	0.09	-0.33	-0.71	0.44	0.76
Relativism Dimension[a]:								
Culturally acceptable	2.40	8.21***	-0.17	-0.46	-0.33	-0.84	-0.14	-0.26
Traditionally acceptable	2.17	6.81***	-0.17	-0.45	-0.55	-1.41	0.29	0.47
Contractualism Dimension[a]:								
Unwritten contract	3.17	11.18***	0.13	0.35	-0.43	-1.13	0.79	1.67
Unspoken contract	3.11	10.73***	-0.05	-0.13	-0.57	-1.55	0.52	0.99
You would make the same decision[b]	1.92	5.54***	-0.55	-1.41	-0.98	-2.10*	0.01	0.01
Your colleague would make the same decision[b]	0.64	1.94*	0.07	0.21	-0.32	-0.72	0.71	1.25

[a] Responses ranged from 1 to 8 (where 1 = ethical/fair/just/morally right/acceptable to my family etc., and 8 = unethical/unfair/unjust/not morally right/unacceptable to my family etc.).

[b] Responses ranged from 1 to 8 (where 1 = highly probable and 8 = highly improbable).

All *t*-tests are one-tailed tests of significance.

*p: < 0.05; **p: <0.01; ***p:<0.001.

Levene's test for the equality of variances was appraised to ascertain whether equal variances could be assumed. If a significant F statistic was provided for a test, the t value for unequal variances was interpreted.

Appendix A

Sam has been an internal auditor for seven years with an organization that is a primary contractor for the Australian Government. Sam recently completed an audit of a subsidiary business unit (ABC plant) that is completing large contracts for various government agencies. The billings of the subsidiary have been audited previously and no major problems were detected. During the present audit, Sam discovered, within the subsidiary's billing system, a series of bogus (inflated or falsified) invoices to customers that had already been paid. Sam reported this finding to the director of internal audit. The director said that he would report it to authorities within the company. After a few days, the director told Sam, "Forget about it." Sam argued that further action should be taken but the director shouted, "If you pursue this, you will be fired."

Sam is aware that finding another such a well-paid position in the current economic climate is going to be difficult. After thinking about this for a few days, Sam decided <u>not</u> to report the matter to the next higher level of management.

Q1: **How would you evaluate Sam's decision?** *Please indicate your evaluation of Sam's decision by marking a cross (**X**) on a specific point on each of the following scales.*

(a) Ethical ____:____:____:____:____:____:____:____ Unethical

(b) Fair ____:____:____:____:____:____:____:____ Unfair

(c) Just ____:____:____:____:____:____:____:____ Unjust

(d) Morally Right ____:____:____:____:____:____:____:____ Not Morally Right

(e) Acceptable
to my Family ____:____:____:____:____:____:____:____ Unacceptable
to my Family

(f) Culturally
Acceptable ____:____:____:____:____:____:____:____ Culturally
Unacceptable

(g) Traditionally
Acceptable ____:____:____:____:____:____:____:____ Traditionally
Unacceptable

(h) Does not Violate
an Unwritten
Social Contract ____:____:____:____:____:____:____:____ Violates
an Unwritten
Social Contract

(i) Does not Violate
an Unspoken
Social Contract ____:____:____:____:____:____:____:____ Violates
an Unspoken
Social Contract

Q2: **If <u>you</u> were responsible for making the decision in the above case, what is the probability that you would make the same decision as Sam?**

Highly Probable ____:____:____:____:____:____:____:____ Highly Improbable

Q3: **If <u>your colleagues</u> were responsible for making the decision in the above case, what is the probability that they would make the same decision as Tim?**

Highly Probable ____:____:____:____:____:____:____:____ Highly Improbable

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