

Ethical Reasoning, Machiavellian Behavior, and Gender: The Impact on Accounting Students' Ethical  
Decision Making

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# ETHICAL REASONING, MACHIAVELLIAN BEHAVIOR, AND GENDER: THE IMPACT ON ACCOUNTING STUDENTS' ETHICAL DECISION MAKING

Kelly Ann Richmond

(ABSTRACT)

This research is designed to gain an understanding of how accounting students respond to realistic, business ethical dilemmas. Prior research suggests that accounting students exhibit lower levels of ethical reasoning compared to other business and non-business majors. This study uses the Defining Issues Test, Version 2 (Rest, et al., 1999) to measure accounting students' ethical reasoning processes. The Mach IV scale (Christie and Geis, 1970) is used to measure moral behavior. Eight ethical vignettes adapted from prior ethics studies represent realistic, business ethical scenarios.

A total of sixty-eight undergraduate accounting students are used to examine three hypotheses. Literature suggests that individuals with lower ethical reasoning levels are more likely to agree with unethical behavior. Therefore, hypothesis one investigates the relationship between ethical reasoning and ethical decision making. Literature also suggests that individuals agreeing with Machiavellian statements are more likely to agree with questionable activities. Hypothesis two investigates the relationship between Machiavellian behavior and ethical decision making. Prior gender literature suggests that gender influences ethical decision making, with females being more ethical than males. Therefore, hypothesis three examines whether female accounting students agree less with questionable activities compared to males.

Results indicate that ethical reasoning is significantly correlated with students' ethical ratings on the business vignettes. Similarly, Machiavellian behavior is significantly correlated with students' ethical ratings. Consistent with prior gender literature, females agree less with questionable activities compared to male accounting students.

## **DEDICATION**

**I would like to dedicate this dissertation to my parents, Dr. Tyronza Roderick Richmond (1940-1999) and Mrs. Carol Ann Kelly Richmond (1942-1996), and my grandmother, Mrs. Eva Lois Kelly (1917-2001). Although you all passed away during the completion of this dissertation, your lasting spirits and memories gave me the motivation and courage to complete this endeavor. I miss you and will continue to love you each and every day.**

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## CHAPTER 1

### INTRODUCTION AND MOTIVATION

*“A distinguishing mark of a profession is acceptance of its responsibility to the public...”*  
*(ET Section 53, paragraph .01 and .02, AICPA Professional Standards)*

As lawsuits have continued to plague the accounting profession, the need to attract trustworthy, knowledgeable accounting professionals has greatly increased. In a 1988 survey conducted by Touche Ross, accountants were once perceived to be more ethical compared to many other professionals (Ameen, et al., 1996).<sup>1</sup> Recent litigation cases facing accounting firms have begun to have a negative impact on the public’s confidence and perception of the profession. The goal of many professional fields is to attempt to hire and retain competent employees that exhibit high moral conduct and good ethical decision making skills. Prior literature has reported that accounting students exhibit lower levels of ethical reasoning compared to other undergraduate business students (Mautz, 1975; Blank, 1986; Armstrong, 1987). Ponemon (1988) concluded that the structure of most accounting curricula and the accounting profession could inhibit an individual’s ability to develop an increasing sense of integrity or ethical beliefs during a person’s education or career.

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<sup>1</sup> Commonly, an individual is described as ‘ethical’ if his/her own level of ethics meets or exceeds social expectations in either a personal or business context. Morals refer to learned behavior through personal experiences involving family, church education, and work. Ethics can be classified as social expectations held for a specific person or group, whereas, morals can be classified as private or personal. “Strengthening Ethics Within Agricultural Cooperatives”. United States Department of Agriculture, Rural Business Cooperative Service, RBS Research Report 151.

In addition, prior literature indicates that accounting students develop ethical reasoning skills more slowly than non-accounting business and liberal arts students (Jeffery, 1993). Therefore, the need to better understand accounting students' ethical reasoning processes is important to ensure that accounting students are properly developing adequate ethical reasoning skills within their undergraduate curricula.

Some researchers have reported that socialization into the accounting profession begins during a student's collegiate years (Ponemon and Glazer, 1990). Prior literature also suggests that accountants do not develop ethical reasoning skills equivalent with individuals having similar socio-economic and educational backgrounds (Armstrong, 1984, 1987; Ponemon 1988, 1990; Ponemon and Gabhart, 1990). An implication is that more emphasis should be placed on the discussion of realistic potential ethical dilemmas that students may encounter when they enter the profession. The present study measures accounting students' ethical reasoning processes and argues how ethical reasoning impacts their evaluation of realistic business ethical dilemmas. The present study also examines how moral behavior measures are related to students' evaluation of questionable ethical dilemmas. Candee and Kohlberg (1987) review numerous empirical studies (e.g. Haan, et al., 1968; Milgram, 1974; McNamee, 1978) that report a linear relationship between ethical reasoning and moral behavior. Ethical reasoning has been shown to be important to the study of behaviors within the accounting profession because many professional judgments are conditioned upon the beliefs and values of the individual (Ponemon, 1992). If socialization into the accounting profession actually begins during the collegiate years, it is important to the profession that undergraduate accounting students' ethical reasoning skills are properly measured and understood.

The accounting profession's expansion into new areas has revealed many potential ethical dilemmas. As competition continues to increase, the accounting profession is constantly faced with pressure to maintain high ethical standards. The July 1, 1998 merger between PriceWaterhouse, LLP and Coopers & Lybrand, LLP (hereafter PWC) not only formed the world's largest accounting firm,

but also revealed over 8,000 PWC independence violations.<sup>2</sup> In response, PWC set aside \$2.5 million for education on independence issues. KPMG Peat Marwick has shown their concern for ethics training by forming a National Ethics Consulting Group based in Washington, DC.<sup>3</sup>

Prior research suggests ethics education has been limited. In the past, ethics coverage was usually found only in a discussion of professional codes in auditing courses (May, 1994). The American Accounting Association has asked colleges and universities to place a greater emphasis on “accounting education to foster students’ sensitivity to ethical and social responsibilities” (American Accounting Association Committee on the Future Structure, Content, and Scope of Accounting Education, 1986). The accreditation standards for business and accounting programs require that “curriculum coverage should include ethical issues”.<sup>4</sup> It has been argued that many business students are not developing appropriate ethical decision making skills within their business curricula to allow them to handle ethical dilemmas in the workplace (White and Dooley, 1993). Prior business ethics research suggests incorporating business ethics courses into the curricula may have an effect on the ethical awareness or ethical reasoning skills of business students (Hiltebeitel and Jones, 1991; Cohen and Pant, 1989; Armstrong, 1993). Rest (1986, p.110-111) suggests that college and graduate school education can increase ethical reasoning skills.

Gaining a better understanding of accounting students’ ethical reasoning processes and moral behavior has practical implications for accounting education and future accounting ethics research. The results can aid universities in developing and incorporating adequate ethics curricula to increase students’ ethical awareness, which may better prepare students for the challenges faced in business. The results can also help businesses decide on appropriate training needs for their employees when faced with ethical dilemmas.<sup>5</sup> Rest (1994) argues that developing adequate ethics training begins with gaining an understanding of individuals’ ethical reasoning processes. The primary purpose of this study is to

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<sup>2</sup> *Business Week*, February 23, 2000, p.140.

<sup>3</sup> *Austin Business Journal*, 1997, pp.11-17.

<sup>4</sup> American Assembly of Collegiate Schools of Business: 1991, Standards for Business Accreditation, p.1147, (AACSB, St. Louis).

investigate how ethical reasoning and moral behavior influence undergraduate accounting students' evaluation of realistic ethical dilemmas.

This study also provides further information on whether accounting students' evaluation of ethical dilemmas varies by gender. A substantial amount of literature (Beltramini, et al., 1984; Miesing and Preble, 1985; Jones and Gauthi, 1988; Ameen, et al., 1996) suggests that ethical judgments vary according to gender, where females have historically been more ethical compared to males.

Rest's (1999) Defining Issues Test, Version 2 (hereafter DIT2) is used to measure ethical reasoning. Christie and Geis's Mach IV scale (1970) is used to measure an individual's agreement with Machiavellian statements. Further insight on the use of the DIT2 in ethics research is also highlighted. The original DIT has been used extensively, but the newly revised DIT has been used in very few empirical studies (i.e. Rest, et al., 1999). This study further tests the DIT2 in a business setting. As Blasi (1980) states in his extensive review of ethical reasoning and moral behavior literature, "any new domain of behaviors that can consistently be shown to be related to ethical reasoning strengthens the theory as a whole"(p.40).

Specifically, this study examines three hypotheses. The first hypothesis examines the influence ethical reasoning skills have on the evaluation of realistic ethical dilemmas. The second hypothesis examines how moral behavior influences the evaluation of realistic ethical dilemmas. The last hypothesis examines if gender differences exist in the evaluations of the ethical dilemmas.

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<sup>5</sup> Business ethics can be referred to as personal behavior considered appropriate within a business or professional context.

## CHAPTER 2

### LITERATURE REVIEW AND HYPOTHESES

*“When people accept responsibility for their own conduct and for the well-being of others, ethics serves to stabilize society” ... Gary Edwards*

This section reviews relevant moral psychology literature useful for understanding how ethical reasoning is related to ethical decision making behavior. Rest’s (1979) Model of Moral Action introduces the discussion of the Defining Issues Test, Version 2 (Rest, et al., 1999). In addition, prior literature reviewing Machiavellian behavior and its relationship to ethical decision making behavior is discussed. Relevant gender literature is also reviewed showing the influence of gender on the evaluation of ethical dilemmas.

#### **2.1 Cognitive Moral Development**

Cognitive moral development theory states that cognitive ethical reasoning becomes more complex as individuals mature and acquire additional cognitive structures (Rest, 1986). Ethical reasoning can be differentiated from all other mental processes by three distinct aspects that require the (1) cognition be grounded in value and not tangible fact, (2) judgment be based upon some issue involving self and others, and (3) judgment be framed around an issue of “ought” rather than being based on simple likings or preference rankings (Colby and Kohlberg, 1987, p.10).

Lawrence Kohlberg (1969) researched the cognitive processes people use when making decisions between right and wrong. Kohlberg’s (1964) model depicts six stages of ethical development. The six phases of the model are as follows (Kohlberg, 1964, p. 400):

1. Punishment and obedience orientation.
2. Naïve-instrumental hedonism.
3. Good-boy or good-girl morality of maintaining good relations, approval of others.
4. Authority maintaining morality.
5. Morality of contract, of individual rights, and of democratically accepted law.

## 6. Morality of individual principles of conscience.

Rest (1979a, p.22-23) describes the pre-conventional level (Stages 1 and 2) as “the morality of obedience”. The conventional level (Stages 3 and 4) is described as “the morality of law and duty to the social order”. The post-conventional level (Stages 5 and 6) is characterized by an increased focus on personal reasoning and a decreased focus on rules. Stage 5 reasoning “attempts to eliminate arbitrary rules by providing procedures for making new rules that reflect the will of the people, giving each person equal say in determining the arrangements of society”(p.36). Stage 6 reasoning is based on the notion that “merely because the majority of the people want a law, that does not make it morally right”(p.36). As an individual moves from each successive stage, their moral judgment grows less dependent on outside influences (Trevino and Youngblood, 1990). For a more detailed discussion of Rest’s stages of ethical reasoning, refer to Table 1.

Whereas Kohlberg was interested in developing a system to represent logical ethical reasoning, James Rest (1986) extended Kohlberg’s work by developing a valid, reliable instrument to measure ethical reasoning. Rest’s (1979a) four-component model describes the process most individuals use in ethical decision making and behavior. Lapsley (1996) concludes that multiprocess models, such as Rest’s four-component model, may be necessary “to improve our understanding of ethical reasoning” (p.105). The four-component model depicts how these cognitive structures combine to lead to one’s reasoning processes when presented an ethical dilemma. Lampe and Finn (1992, p. 36) summarize Rest’s four-component model as follows:

1. The person must be able to make some sort of interpretation of the particular situation in terms of what actions are possible, who would be affected by each course of action, and how the interested parties would regard such effects on their welfare.
2. The person must be able to make a judgment about which course of action is morally right (or fair, just or morally good), thus labeling one possible action as what a person ought to do in that situation.

3. The person must give priority to moral values above other personal values such that there is an intention to do what is morally right.
4. The person must have sufficient perseverance, ego strength, and implementation skills to be able to follow through on his/her moral intention, to withstand fatigue, and to overcome obstacles.

Figure 1: Rest’s Four-Component Model of Moral Action

<u>Psychological Process</u>	<u>Outcome</u>
I. Moral Sensitivity	Identification of a moral dilemma
II. Prescriptive Reasoning	Moral judgment of the ideal solution to the moral dilemma
III. Deliberative Reasoning	Intention to comply or not comply with the ideal solution
IV. Moral character	Moral action or behavior

Source: Thorne (1997). *The Influence of Social Interaction on Auditors’ Moral Reasoning*. Unpublished Dissertation, McGill University.

Studies of component I of Rest’s Four-Component Model indicates several findings. First, studies have shown that many people have difficulty identifying moral dilemmas (e.g. Staub, 1978). Studies have also found differences among people in their sensitivity to the needs and welfare of others. Bebeau et al. (1982) developed a moral sensitivity scoring system, which indicates a person’s ability to identify an ethical dilemma. A low moral sensitivity score means an individual is unaware of the moral issue and focuses primarily on technical problems.

Component II of Rest’s model focuses on determining the appropriate course of moral behavior or action. Prescriptive reasoning is defined as ‘the consideration of what should be done to appropriately handle an ethical dilemma’ (Rest, 1979a). Component II research is based on the cognitive stages of moral development developed by Kohlberg (1969) and extended upon by Rest

(1979a). Cognitive moral development posits that individuals advance along a stage-sequence continuum in their moral development. Cognitive moral development theory assumes that an individual with lower order ethical reasoning is incapable of processing higher order ethical reasoning (Rest, 1979a, 1986).

Component III focuses on deciding what one should do when presented with an ethical dilemma. Deliberative reasoning is defined as determining ‘what will actually be done’ to handle an ethical dilemma (Rest, 1979a). Component IV involves execution of the moral plan.

## **2.2 Defining Issues Test, Version 2 (Rest, et al., 1999)**

The purpose of DIT research is to measure the way people think about issues dealing with the ‘macro-issues’ of social justice. One’s ethical reasoning can be operationalized using scores from the DIT2. The DIT2 is a revision of the original DIT, which was first published in 1974. DIT research is based on the assumption that “developmental stages of moral judgment involve distinctive ways of defining social moral dilemmas and of evaluating crucial issues in them” (Rest, 1979a, p.85). The original DIT is based on Kohlberg’s stages of ethical development. The original DIT remained unchanged for over twenty years and is cited in over 400 published articles (Rest, et al., 1999). Because of methodological criticisms with the original DIT, Rest, et al., (1999) revised the DIT instrument. The following list highlights some of the common issues found when using the DIT1 in ethics research (Rest, et al., 1999, p.647):

1. Some of the dilemmas in the DIT1 are dated, and some of the issue statements need to be re-worded.
2. Questionable participation reliability checks.
3. The DIT1 can purge over 10% of a sample due to questionable participant reliability.

Rest et al., (1999) revised the test to include only five dilemmas, whereas the original DIT included six. Clearer instructions for the participants were also added. Paragraph length hypothetical dilemmas are used, followed by twelve issue statements that correspond to Kohlberg’s stages of ethical

development. After reading each case, subjects are required to rank order their top four (out of twelve) issue statements based on their level of importance. The ethical reasoning score is determined based on the participant's ranking of the four most important issue statements. The five revised dilemmas are as follows:

1. "Famine"- a father contemplates stealing food for his starving family from the warehouse of a rich man hoarding food- comparable to the Heinz dilemma in DIT1.
2. "Reporter"- a newspaper reporter must decide whether to report a damaging story about a political candidate- comparable to the prisoner dilemma in DIT1.
3. "School Board"- a school board chair must decide whether to hold a contentious and dangerous open meeting- comparable to the newspaper dilemma in DIT1.
4. "Cancer"- a doctor must decide whether to give an overdose of a painkiller to a frail patient- comparable to the doctor dilemma in DIT1.
5. "Demonstration"- college students demonstrate against U.S. foreign policy- comparable to the students' dilemma in DIT1.

Rest, et al., (1999) also developed the N2 measure for calculating an ethical developmental score. The DIT-N2 score is comparable to DIT1- p score or principled reasoning score. Rest, et al., (1997) report that the N2 index has superior performance in comparison to the traditional P index.<sup>6</sup>

In order to determine the DIT2's validity, Rest, et al., (1999) administered the DIT1 and the DIT2 to a sample of 200 participants representing four different age and educational levels.<sup>7</sup> The following criteria were used to assess the DIT2's internal validity. The criteria chosen were based on prior research indicating that the DIT1 has high validity characteristics on three criteria:

1. Discrimination of age and education groups

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<sup>6</sup> For a further discussion on the N2 index, see Rest, Thoma, Narvaez, et al., 1997.

<sup>7</sup> The sample included students who were in the ninth grade, students who had recently graduated from high school and were enrolled for only a few weeks as freshmen in college, students who were college seniors, and students in graduate of professional school programs beyond the baccalaureate degree (Rest et al. 1999, p.648).

2. Prediction of opinions on controversial public policy
3. Adequate internal reliability.

The results indicate that the DIT2-N2 measure has higher validity characteristics on the three criteria compared to the DIT1- p-score. The results also indicate a high correlation (.71) between the DIT1 and DIT2.<sup>8</sup>

The DIT1 and DIT2 also use different methods to ensure participant reliability checks. The DIT1 contains four standard checks to assess participants' responses. These checks are designed to address the following problems commonly found when using the DIT1 in empirical research: (1) random responding, (2) missing data, (3) alien test-taking sets, and (4) nondiscrimination of items. Although the DIT2 performs the same standard checks, Rest, et al., (1999) incorporated cut-off points for weighted rank-rate inconsistencies to decrease the number of unreliable participants. Rest, et al., (1999) reports a loss of 8 (4%) participants using the new checks in the DIT2 compared to a loss of 46 (23%) participants using the standard checks in the DIT1.<sup>9</sup>

Overall, the increased validity and reliability results are attributed to the DIT2's new methods of analyzing the data. Rest, et al., (1999) emphasizes the practical research advantages that the DIT2 has by reducing the number of purged participants compared to the DIT1. As previously mentioned, the DIT2 updates the dilemmas and issue statements, shortens the test, and has clearer instructions compared to the DIT1. The results from this study may contribute to existing ethics research by providing further information on the usefulness of the DIT2 in accounting ethics research.

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<sup>8</sup> The DIT1 and DIT2's correlation is consistent with prior research that has reported a similar test-retest reliability of the DIT1 with itself. For a further discussion, see Rest (1979, p. 239).

<sup>9</sup> The standard checks purge more of the younger group of participants than for the oldest group. The new checks have stronger validity trends because it retains more of the lower scores from the younger participants (p.655).

### **2.3 Ethical Reasoning Literature**

A substantial amount of prior literature (e.g. Armstrong, 1987; Ponemon and Glazer, 1990) investigates accounting students' ethical reasoning processes and their evaluation of ethical dilemmas. Numerous prior studies report ethical development differences among undergraduate business students. Borkowski and Ugras (1992) investigates whether ethical attitudes differ (1) among freshman, juniors, and MBA students, (2) between accounting and other business majors, and (3) between males and females. Using an Institute of Management Accountants (IMA) videotape of ethical dilemmas, each respondent completed a demographic questionnaire, read a one-page summary on two ethical cases, and viewed two five minute videotapes of each case. The ethical attitudes of each respondent were analyzed according to one of the following ethical behavior classifications; utilitarian, rights (Kantian), or justice (Golden Rule). The results indicate that freshman and juniors are more justice-oriented than MBA students, and significant differences in ethical attitudes between male and female respondents. The results also indicate that undergraduate students are more willing to quit their jobs than to participate in unethical activities as compared to MBA students. Borkowski and Ugras (1992) used ethical dilemmas that were clear violations of the IMA's Standards of Ethical Conduct for Management Accountants. The present study uses general business ethical vignettes adapted from prior ethics research that are indirect violations of a code of ethical conduct.

Prior literature (e.g. Leming, 1978; Ponemon, 1990, 1992; Ponemon and Gabhart, 1993; Trevino, 1986; Trevino and Youngblood, 1990) also suggests that individuals that are more morally developed are less likely to engage in unethical behavior. Sweeney and Roberts (1997) found that an auditor's level of ethical development influences his or her sensitivity to ethical issues present in work related ethical dilemmas. Other studies (see also Ponemon, 1994; Windsor and Ashkanasy, 1995) suggest that the level of ethical development affects an auditor's resolution to work-related ethical dilemmas.

According to Ponemon (1990), auditors at lower levels of ethical reasoning, measured by the DIT (Rest, 1979), are more sensitive to factors relating to penalty (personal harm) resulting from misconduct when framing an independence judgment. Ponemon (1990) also indicates that auditors at

higher ethical reasoning levels are more sensitive to affiliation (harm to others) when framing ethical judgments. In addition, Ponemon (1992) investigated if socialization into accounting firms impacted auditors' ethical reasoning skills. Comparing DIT p-scores from practicing partners and managers, the results indicate that partners and managers at higher ethical reasoning levels would be better able to independently frame ethical judgments separate from clients and other colleagues within the firm. The results also indicate that auditors at higher ethical reasoning levels have greater sensitivity to ethical conflicts not well defined by the firm or the profession. Surprisingly, Ponemon (1992) suggests that individuals with higher ethical reasoning levels are less likely to be found in upper management positions within the firm. These results imply greater attention may need to be placed on training and educating accountants when faced with ethical controversy.

Trevino and Youngblood (1990) designed a study to investigate ethical reasoning processes, using the DIT, and moral behavior, using Rotter's (1966) Internal-External Locus of Control Scale.<sup>10</sup> The results from the management decision making exercise indicate that subjects with more of an internal locus of control exhibit more ethical behavior than subjects with more of an external locus of control. Cognitive moral development was also found to be significantly correlated to ethical decision making. In other words, individuals at the principled stages of cognitive moral development behave more ethically compared to individuals at lower stages of ethical development.

Sweeney and Roberts (1997) also investigated whether ethical reasoning impacts an auditor's independence judgments. Consistent with prior research findings and cognitive moral development theory, the higher an auditor's level of ethical development, the less likely he or she is to resolve an independence dilemma by referring solely to technical standards, therefore, implying a significant relationship between ethical reasoning and ethical judgment. Using the Defining Issues Test (Rest, 1979), Brabeck (1984) also argues that students with higher DIT scores are more willing to reveal wrongdoing than students with lower ethical reasoning scores. Based on the review of ethical reasoning

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<sup>10</sup> The scale is designed to measure an individual's perception of how much control he or she exerts over events in life. Individuals with internal locus of control are more likely to do what is right and face punishment for doing so. (See Trevino and Youngblood, 1990, p.379 for a detailed discussion.)

literature, this study hypothesizes that individuals at higher levels of ethical development are more likely to view questionable actions as unethical compared to individuals at lower levels of ethical development.

#### **2.4 The Mach IV Scale (Christie and Geis, 1970)**

Students' moral behavior is operationalized using scores from the Mach IV scale. Prior research has examined Machiavellianism in the business environment (McClellan and Jones, 1992; Ghosh and Crain, 1996; Ricks and Fradedrich, 1999). Machiavellianism is defined as "a process by which the manipulator gets more of some kind of reward than he would have gotten without manipulating, while someone else gets less, at least within the immediate context" (Christie and Geis, 1970, p.106). Machiavellianism is commonly associated with an individual who is manipulative, uses persuasive behavior to accomplish personal objectives, and is usually aggressive. Machiavelli wrote:

"Any person who decides in every situation to act as a good man is bound to be destroyed in the company of so many men who are not good. Wherefore, if the Prince desires to stay in power, he must learn how to be not good, and must avail himself of that ability, or not, as the occasion requires."<sup>11</sup>

The Mach IV scale is a well-validated measure of Machiavellian-type behavior. The Mach IV scale is a 20-item instrument designed to measure a respondent's feelings about whether a person believes that others are susceptible to manipulation in interpersonal situations (Gable, 1988). The original Mach IV scale consisted of 71 items based upon the writings of Niccolo Machiavelli adapted from *The Prince* and *The Discourses*. An item analysis indicated the ten highest-related items in favor of Machiavellian statements, and the ten highest-related items not in favor of Machiavellian statements, resulting in a total of twenty statements comprising the scale.<sup>12</sup> The 20-items are scored on a 7-point Likert scale ("agree strongly" being scored 7, "no opinion" 4, and "disagree strongly" 1). A constant of 20 was added to the calculation so that scores range from 40 points (most ethical) to 160 points (least ethical), with a neutral score of 100 points.

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<sup>11</sup> N. Machiavelli, *The Prince*, Chapter 15, quoted from E. Stevens, *Business Ethics* (New York, Poulit Press, 1979). P.49.

<sup>12</sup> The statements are counterbalanced to minimize the effects of indiscriminate agreement or disagreement with the items.

In terms of the item-test correlation, the first nine samples using the Mach IV scale reported a correlation of 0.39 (Wrightsmann, 1991). Based on a total of 1,700 undergraduate college students, the mean split half reliability averaged 0.79 (Christie and Geis, 1970, p.16).<sup>13</sup> Ghosh and Crain (1996) obtained a Cronbach's  $\alpha$  coefficient of 0.74 in a study of tax compliance behavior, whereas Hunt and Chonko (1987) obtained an  $\alpha$  coefficient of 0.76 in a study of marketing practitioners.

## **2.5 Studies in Machiavellianism**

Machiavellian behavior is a common stereotype of business behavior (McLean and Jones, 1992). Machiavellian behavior is expected to be an additional construct that impacts ethical reasoning processes or helps explain differences in ethical reasoning.<sup>14</sup> Prior research examining business students' Machiavellian behavior has found partial support for the argument that business students are more Machiavellian-like than non-business students. Specifically, accounting and finance students had the lowest scores on the Mach IV scale compared to other business disciplines (McLean and Jones, 1992). The present study is designed to determine if agreement with Machiavellian behavior is related to accounting students' view of questionable business ethical dilemmas. Prior literature suggests that individuals with higher scores on the Machiavellian scale tend to be more deceitful (McLaughlin, 1970), less moral, more indifferent to societal needs (Long, 1976) and more manipulative. This instrument is considered appropriate in this study for several reasons. First, there exists an established relationship between moral behavior and ethical decision making behavior (Hegarty and Sims, 1978, 1979; Trevino et al., 1985). Also, the ethical vignettes used in the study are general business vignettes, and the participants are business students. As previously mentioned, prior literature (McClean and Jones, 1992) suggests that Machiavellianism is a common stereotype of business behavior, therefore, the results could imply that Machiavellianism may be present in business scenarios.

Machiavellianism is commonly correlated with gender, age, ethnicity and birth order (Ricks and Fraedrich, 1999). Prior literature indicates no significant differences in Machiavellianism and intelligence

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<sup>13</sup> The mean part-whole correlation of the items worded in agreement (disagreement) with Machiavelli is .38 (.37).

<sup>14</sup> Christie and Geis (1970) stated that Machiavellianism as a construct represents a set of behaviors that include lack of conventional morality, negativism and emotional detachment.

or social status. Some researchers argue that Machiavellian-type behavior is amoral, whereas others argue that it can lead to career success.

Interestingly, field studies in the areas of medicine and psychiatry indicates that surgeons score lowest on the scale, whereas, psychiatrists score highest. Christie and Geis (1970, p.312) state:

“High Machs manipulate more, win more, are persuaded less, persuade others more, and otherwise differ significantly from Low Machs in situations in which subjects interact with others, when the situation provides latitude for improvisation and the subject must initiate responses as he can or will, and in situations in which affective involvement with details irrelevant to winning distracts Low Machs.”

Due to accountants’ public obligation to be “financial watchdogs”, it is expected that accounting students will disagree with Machiavellian principles. Machiavelli’s ethical principles can be summarized as follows:

1. As there is a sharp contrast between reality and ideas, “what is” takes precedence over “what ought to be.” Justice, for example, is an ideal but injustice and unfairness are quite prevalent everywhere. Trust is expected from all but distrust and intolerance are ubiquitous.
2. Ethics may guide the private sphere but expediency reigns in public life. Therefore, the advice is: “Be a good man at home but try to be practical and expedient on the job!”
3. There are no absolutes in professional life, no categorical imperatives but only conditional ones to be applied situationally.
4. Success determines right or wrong. Virtue is equivalent to power and effectiveness in reaching goals. If successful, a businessman is “good”, if unsuccessful, “bad!”
5. A virtuous man must be prepared to be not-virtuous, if when required: “The Prince must appear to be filled with sympathy and trust, and seem to be humane, honest and religious, and indeed actually be so, and yet, when necessary, he must be mentally ready not to practice these virtues, ready, in a word, to do the opposite, and to do the opposite with class and skill”.<sup>15</sup>

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<sup>15</sup> The Prince, Chapter 15, quoted in: E. Stevens, *Business Ethics* (Paulist Press, New York, 1979), p.49.

Several empirical studies have identified Machiavellianism in business practices. Miesing (1985) compared 487 MBA students' opinions on different business ideologies. The results indicate that postgraduate and individuals with work experience are less Machiavellian compared to undergraduates and individuals without work experience. In addition, females compared to males, and individuals with some religious convictions are less likely to agree with Machiavellian statements. According to Leary et al., (1986), Machiavellian individuals focus their ethical judgments based upon a personal set of relativistic ethical guidelines rather than upon moral absolutes. Consistent with prior Machiavellian literature, it is expected that individuals that agree with Machiavellian behavior would find questionable actions more ethical compared to individuals that do not agree with Machiavellian behavior.

## **2.6 Gender and Ethical Evaluations**

Many empirical studies report significant gender differences in ethical reasoning (Beltramini, et al. 1984; Miesing and Preble, 1985; Jones and Gauthi, 1988; Ameen, et al. 1996). Interestingly, a 1983 Gallup poll revealed that gender differences in ethical judgments may exist with women being more ethical than men (Ricklets, 1983). Although Rest (1986) states that gender ethical reasoning differences are nonsignificant, Gilligan (1977, 1982) believes that women and men have significant differences in ethical reasoning skills. Based on the gender socialization approach, women and men have different moral reasoning skills that affect their business attitudes and interactions with people. Gilligan (1977, p.4) believes that women are "more prone to base their moral judgments on obligations to care for and avoid hurting others" whereas men are more "justice-based". Gilligan (1977, p.19) states:

"In [women's] conception, the moral problem arises from conflicting responsibilities rather than from competing rights and requires for its resolution a mode of thinking that is contextual and narrative rather than formal and abstract. The conception of morality as concerned with the activity of care centers moral development around the understanding or responsibility and relationships, just as the conception of morality as fairness ties moral development to the understanding of rights and rules."

The gender socialization approach also suggests that men will seek competitive success, thereby becoming more likely to break rules because they view achievement as competition. In comparison, females are more concerned with completing tasks efficiently and effectively, and promoting work

relationships, thereby becoming more likely to adhere to rules and less tolerant of individuals who do not adhere to rules.

Ruegger and King (1992) surveyed 2,196 undergraduate students to determine whether gender and age are moderating factors in a person's perception of proper ethical conduct. The survey contained ten questions that attempted to measure students' evaluations of six areas of ethical conduct in general business situations.<sup>16</sup> Subjects were presented with six ethical cases and were asked to evaluate the ethical acceptability of each case. The results indicate that gender and age are both significant factors in determining ethical conduct. The results support the findings of prior studies that report females to be more ethical than males. Extending Ruegger and King (1992), this study examines if gender is related with questionable accounting ethical dilemmas.

Radtke (2000) investigated whether responses to personal and business issues, deemed ethically sensitive, differed between female and male respondents. While prior gender ethics studies surveyed student respondents, Radtke (2000) surveyed 51 accounting professionals to determine if 'ethical setting' impacted females' and males' ethical judgments differently. Each participant provided demographic data and responses to sixteen ethical dilemmas. The sixteen ethical dilemmas were divided into two groups (personal ethical dilemmas and business ethical dilemmas) to measure if gender impacted moral reasoning. The eight dilemmas for the personal ethical dilemma survey were paired with the eight dilemmas for the business ethical dilemma survey. Of the eight ethical dilemmas on each survey, four were based on the DIT and the remaining four were more situation-specific. Consistent with Rest (1986), the results indicate no significant differences in the ethical decisions between females and males. The nonsignificant results could be a function of the ethical scenarios chosen for the study or a relatively small sample size. The present study examines if significant differences exist between male and female respondents using general business vignettes.

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<sup>16</sup> The six areas of ethical conduct were: performing work or engaging in practices that may be unethical or harmful; the employer's responsibility for the safety and welfare of its workers; using company time for personal business; informing on your employer; informing on fellow employees; and the company's duty to restrain itself when there is a lack of competition.

In a survey of 213 business school students, Betz et al. (1989) found that male students are more willing to engage in unethical actions compared to female respondents. The survey was designed to ask participants to make judgments about unethical behavior in roles they might play as future business leaders. In a study of 91 undergraduate accounting students and 217 professional auditors, Shaub (1994) reports a significant relationship between gender and moral development, with women being more morally developed than men. Sweeney (1995) and Sweeney and Roberts (1997) also report in a sample of auditors that females are more morally developed than males.

Ameen, et al. (1996) indicates that females are less tolerant than males when questioned about unethical academic dilemmas. Based on their ethical sensitivity scores, female respondents had higher sensitivity ratings indicating they were less likely to engage in unethical behavior. Therefore, it is expected that female accounting students will view questionable activities as more unethical compared to male accounting students.

## **2.7 Hypotheses**

The first two hypotheses presented here are designed to measure whether ethical reasoning and moral behavior measures are related to accounting students' evaluation of the ethical dilemmas. The final hypothesis is designed to measure whether gender impacts the manner in which undergraduate accounting students evaluate ethical business dilemmas. The three hypotheses are summarized in Exhibit 1.

Previously mentioned research indicates that individuals with higher ethical reasoning processes are expected to behave more ethically. Numerous empirical studies have found this relationship using the Defining Issues Test (Rest, 1979) as a surrogate measure for ethical reasoning. As Ponemon (1992) indicates in his cross-sectional and longitudinal study of audit managers and partners, individuals with higher ethical reasoning scores on the DIT are more responsive to ethical dilemmas not well defined by the firm or the accounting profession. Also, higher DIT scorers are more likely to frame their ethical judgments independent and separate from clients and other colleagues within the firm. Similarly, Trevino and Youngblood (1990) found that MBA students at the postconventional stage of ethical reasoning are

more likely to behave more ethically compared to students at the conventional or pre-conventional stages of ethical reasoning. As cognitive moral development theory states, the progression from stage 1 to stage 6 indicates an individual's ability to make ethical judgments less dependent on outside influences. As individuals often struggle with their feeling about right versus wrong, better ethical reasoners are more likely to determine his/her ethical judgments based on a self-chosen set of principles as opposed to outside pressures and influences. If individuals that are more morally developed are less likely to engage in unethical behavior (Leming, 1978; Ponemon, 1990, 1992; Ponemon and Gabhart, 1993; Trevino, 1986; Trevino and Youngblood, 1990), it is expected that they will view questionable behavior as less acceptable, and be less likely to engage in unethical activities compared to individuals that are less morally developed. The following hypothesis is, therefore, proposed:

**H<sub>1</sub>: Accounting students at lower ethical reasoning levels, as measured by the Defining Issues Test, Version 2, will agree more with questionable actions, compared to accounting students at higher ethical reasoning levels.**

Literature discussed earlier indicates that individuals that agree with Machiavellian statements are commonly characterized as individuals who are manipulative, use persuasive behavior to accomplish personal objectives and are usually aggressive. Prior literature also suggests that individuals with higher scores on the Machiavellian scale tend to be more deceitful (McLaughlin, 1970), less moral, more indifferent to societal needs (Long, 1976) and more manipulative. As indicated by Ghosh and Crain (1996), taxpayers with higher ethical standards, measured by the Mach IV scale are less likely to engage in noncompliance tax behavior. As prior literature also indicates, Machiavellianism is significantly correlated with ethical decision making (Hegarty and Sims, 1978, 1979). An important quality of accountants is to maintain a certain level of integrity and appropriate ethical decision making skills. The American Institute of Certified Public Accountants' Code of Professional Conduct emphasizes that ethical awareness is a professional responsibility that requires CPAs to exercise sensitive, professional and moral judgments in all their activities (Anderson and Ellyson, 1986). Although other professional organizations such as the Institute of Management Accountants also emphasize adherence to a strict code of ethical conduct, it is questionable whether agreement with Machiavellian statements would lead to an accountant making ethical judgments in accordance with high ethical standards. It is expected that

individuals that agree with Machiavellian statements will find questionable behavior acceptable and appropriate in business transactions. Accordingly, the following hypothesis is proposed:

**H<sub>2</sub>: Accounting students that exhibit more Machiavellian behavior, as measured by the Mach IV scale, will agree more with questionable actions, compared to accounting students that exhibit less Machiavellian behavior.**

Based on the gender socialization approach and the literature discussed by Gilligan (1977, 1982), females and males evaluate ethical dilemmas differently. According to the gender socialization approach, males are more likely to engage in unethical behavior because they will focus on competitive success and will more likely break rules to achieve success. In contrast, females are more task-oriented, and are therefore more focused on achieving the task without breaking rules. Gender accounts for the different values and traits that males and females exhibit, which therefore impacts their work-related interest, decisions, and practices (Ameen, et al. 1996). Based on the review of prior literature reporting significant gender differences, it is hypothesized that female respondents will view questionable activities as more unethical compared to male respondents.

**H<sub>3</sub>: Male accounting students will agree more with questionable actions, compared to female accounting students.**

The remaining chapters detail the methodology, analyses of results, and a discussion of the results.

## CHAPTER 3

### RESEARCH DESIGN AND METHODOLOGY

*“Every day our society pays a heavy price, both emotionally and economically, for the consequences of unethical behavior.” - Michael Josephson*

This chapter discusses the collection and analysis of the data. The experiment is first described including a detailed discussion of the questionnaire, the tasks, and the participants used to collect the data. In addition, the independent variables and dependent measures used to test the hypotheses are discussed.

One experiment was conducted to test all three hypotheses. The experiment used undergraduate accounting students enrolled in a junior level undergraduate accounting course at Virginia Tech.

#### **3.1 The Experiment**

Each participant was required to complete the entire questionnaire. Each questionnaire was placed into a small, sealed envelope with a participant cover letter attached to the front of each envelope. The questionnaire contained three parts (listed in presentation order):

1. Eight ethical vignettes (Burton, et al., 1991; Davis and Welton, 1991; Cohen, et al., 1996)
2. Mach IV scale (Christies and Geis, 1970)
3. Defining Issues Test, Version Test 2 (Rest and Narvaez, 1998)

The questionnaire parts are discussed in detail in the next section.

### 3.1.1 Ethical Vignettes

Ethical vignettes were used to determine students' evaluation of questionable behavior.

Vignettes are short, concrete stories to which participants respond in a variety of formats (Lampe and Finn, 1992). Vignettes are a common method used in business ethics research (see Baumhart, 1968). They allow the researcher to place ethical problems in a realistic context, and obtain some measure of the difference between ethical principles and ethical behavior (Velasquez, 1982; Cavanaugh, 1984). An advantage of using vignettes in ethics research is that vignettes establish a series of variables, which respondents take into consideration when rating the dependent measure question. Clark (1966) provides a vignette example and a detailed outline of the variables the vignette introduces:

Sam Stone, a member of the Board of Directors of Scott Electronics Corporation, has just learned that the company is about to announce a 2-for-1 stock split and an increase of dividends. Stone himself is on the brink of personal bankruptcy. A quick gain of a few thousand dollars can save him from economic and social ruin. He could take advantage of this information concerning the stock split by purchasing stock now to sell in a few days at a substantial profit.

If you were Stone, what are the chances that you would purchase the stock for short term gain?

The vignette introduces the following variables that impact the respondent's answer to the dependent measure question:

1. **The actor:** Stone. He is a member of the Board. He could have been an employee of the firm.
2. **The inside information.** This example highlights stock split information. The information could have been dealing with product testing (Similar to Vignette 6, Exhibit 2).
3. **The actor's financial situation.** In the vignette, Stone is suffering from financial difficulties.
4. **Sex of the actor.** Stone could have been changed to Susan.

Vignettes also allow the researcher to focus on a specific area of interest. This allows the researcher to learn more about specific behaviors in a particular area of interest. In a comparison of

different techniques used in ethics research, Cavanaugh and Fritzsche (1985, p.291) states that ethical vignettes “as a vehicle for investigating an individual’s ethical principles and ethical behavior provide significant advantages over other instruments.” Several of these advantages include the researcher’s ability to control the stimuli presented in the dilemma, and anonymous responses allow the participants the opportunity to honestly respond to the ethical dilemma.

The vignette technique was originally developed to study social status. Rossi (1977) and Nosanchuk (1972) used vignettes to study family life, and concluded that vignettes have a significant amount of validity. In addition, Hunt and Vitell (1986) found vignettes to be useful in studying marketing ethics research. Vignettes have also been used to study social attitudes (Burstin, Doughtie, and Raphaeli, 1980) and in simulations of jury decision making (Landy and Aronson, 1960).

A total of eight ethical vignettes (Exhibit 2) were used to determine how ethical reasoning, moral behavior, and gender impact students’ evaluation of questionable ethical dilemmas. Prior research stated the importance of presenting a variety of ethical dilemmas to adequately measure an individual’s ethical orientation (Lampe and Finn, 1992). The ethical vignettes were adapted from prior ethics research (Burton, et al. 1991; Davis and Welton, 1991; Cohen, et al. 1996). For purposes of this study, the vignettes were further altered to incorporate an ethical intention question. The following list briefly summarizes the content of the vignettes:

1. Early shipment of goods\*
2. Bank loan to friend
3. Personal Gift
4. Bad debt adjustment\*
5. Layoff of younger but more competent hire
6. Product safety: continue to sell an untested product
7. Foreign bribe authorization of payment\*
8. Copying software: lending software to copy.

\*represents accounting-related vignettes.

### *3.1.2 Mach IV Scale and DIT-2*

After completing the evaluations of the eight ethical vignettes, participants then completed the Mach IV scale and the DIT2. As previously stated, the Mach IV scale is a 20-item instrument in a Likert-type format that asks the participant to rate their agreement/disagreement with each of the twenty items. The Mach IV scale was scored by hand according to Christie and Geis's (1970, p. 27) formula.<sup>17</sup> The participants then proceeded to complete the DIT2. The DIT2 booklet contained five ethical scenarios and a computerized score sheet. The booklet contains specific instructions guiding the participant on how to fill out the test. The DIT2 booklets and score sheets were obtained from the Center for the Study of Ethical Development at the University of Minnesota. All completed DIT2 forms were returned to the research group at the Center for scoring.

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<sup>17</sup> The score is calculated based on the following formula: (20 items x item mean) + 20.

### **3.2 Participants**

The participants in the experiment were 68 undergraduate junior and senior accounting majors at a large state university. The sample included 41 male and 27 female accounting students.

### **3.3 Procedure**

The experiment was conducted outside of the participants regularly scheduled class time. The researcher attended two sections of an undergraduate cost accounting class to solicit volunteers for the experiment. At this time, the researcher told students that all responses to the questionnaire were anonymous. There were no marks or identification numbers placed on the instruments to determine a respondent's identity. The participants had a choice of two time intervals over a two-day period to participate in the experiment. Participants were instructed by the researcher not to discuss the questionnaire with other students. Participants were given a monetary reward of ten dollars for participation in the experiment. Completion of the entire questionnaire took approximately 45 minutes. Based on the extensive time commitment, the monetary reward was considered fair and appropriate.

Each participant received a sealed envelope containing a participant letter, the DIT2, the Mach IV scale, and the eight ethical vignettes. The participant letter also informed the participants that their responses were completely anonymous. Because participants could complete the instrument during several time intervals, all instructions were included inside the sealed envelope. The researcher was present at the testing location in case participants had questions regarding the questionnaire.

### **3.4 Independent Variables**

The DIT2-N2 score represents the independent variable for hypothesis one. The Mach IV score represents the independent variable for hypothesis two. Gender represents the independent variable for hypothesis three.

### **3.4.1 Dependent Measures**

There are two dependent measure questions after each of the eight ethical vignettes. The first dependent measure question required the respondent to evaluate the person's decision in the ethical vignette. The second dependent measure question asked the respondent to evaluate the dilemma as if they were placed in the same situation as the person in the vignette. All sixteen dependent measure questions were analyzed based upon a 7-point Likert scale. The second dependent measure question is designed to measure ethical intention. Prior attitude-behavior literature (Ajzen, 1988) suggests a strong linkage between an individual's intentions and their actions. Cavanagh and Fritzsche (1985) argue that responses to such questions as "what I would do" compared to "what others would do" provide 'valuable and quite different information' (p.285). A study by Baumhart (1968) indicate very interesting results when asking responses to a dependent measure question worded in two different contexts. Referring to an example taken from the study, Baumhart (1968) found it necessary to ask the dependent measure question using two different approaches;

An executive earning \$30,000 a year has been padding his/her expense account by about \$1,500 a year.

	<b>What I would do</b> (%)	<b>What an average executive would do</b> (%)
Acceptable if other executives in the company do the same thing	6	27
Acceptable if the executive's superior knows about it and says nothing	11	28

Based on these results, it is apparent that respondents had a lower estimate of their peer's ethical beliefs compared to their own personal ethical beliefs. Similar to prior literature, the dependent measure question was worded in two different contexts.

Ethical rating scores for the two dependent measure questions were evaluated separately to capture ethical evaluations in both contexts. The responses to both dependent measure questions were summed to provide an ethical rating summary score. The scale for the dependent measure question was worded such that a high (low) score indicates that the participant agrees (disagrees) more (less) with the questionable action.

### **3.5 Analyses**

Regression analysis is used to determine if ethical reasoning (as measured by the DIT2 score), Machiavellian behavior (as measured by the Mach IV score), and gender are related to subjects' agreement with the business ethical vignettes.

Hypothesis one proposes that individuals with lower ethical reasoning levels will agree more with questionable actions. Therefore, hypothesis one will be supported if there is a negative relation between the DIT2 score and the dependent measure responses of ethical ratings.

Hypothesis two proposes that individuals that agree more with Machiavellian statements will agree more with questionable actions. Therefore, hypothesis two will be supported if there exists a positive relation between Mach IV scores and the dependent measure responses of ethical ratings.

Hypothesis three proposes that males will agree more with questionable actions compared to females. Therefore, hypothesis three will be supported if there is a correlation between gender and the dependent measure responses of ethical ratings.

## CHAPTER 4

### RESEARCH RESULTS

*“We judge ourselves by our intentions while others must judge us by our behavior”  
-Vern E. Henderson*

The data were tested for and met the assumptions of normality and homogeneity of variance. The results to these tests can be found in Appendix A.

#### **4.1 Hypothesis One**

The first hypothesis is designed to test if ethical reasoning is correlated with accounting students' evaluation of realistic ethical dilemmas. It is hypothesized that students exhibiting higher ethical reasoning levels will agree more with questionable activities compared to students with lower ethical reasoning levels. Regression analysis is used to analyze the data. For each of the eight cases, the dependent measure question is worded in two ways; (1) the participant evaluated the person's actions in the case, and (2) the participant evaluated the dilemmas as if he/she were the person faced with the ethical dilemma. The answers to the dependent measure question for the first wording method are summated for the eight cases as ERATINGA for the regression analysis, and the answers to the second wording method are summated as ERATINGB for the regression analysis. Descriptive analysis summarizing the mean, median and standard deviation for ethical reasoning (DIT2 score), moral behavior (Mach IV score), and ethical ratings (ERATINGA and ERATINGB) can be found in Table 2.

DIT-N2 scores ranged from 5.06 to 54.93, with a mean of 29.06 and standard deviation of 12.44. Rest et al. (1999) obtained a mean and standard deviation of 40.40 and 13.60 using the DIT2.

Fifty-nine of the original sixty-eight accounting students comprised the final DIT2 sample.<sup>18</sup> The testing of hypothesis one is summarized in Table 3, Panel A and B. In order for hypothesis one to be supported, a negative correlation must exist between the DIT2 score and the ethical rating summary scores. The results indicate a significant,  $F(1,57)=4.587$ ,  $p=.037$ , linear relationship between the DIT2 score and the ERATINGA summary score. The negative standardized beta coefficient (-.27) on the DIT2 variable indicates the inverse relationship between the DIT2 and ERATINGA scores. The increase in the DIT2 score indicates a progression to higher ethical reasoning stages. The decrease in the ethical rating summary score indicates that the participant more strongly disagrees with questionable ethical behavior. The ethical rating score ranged from 1=strongly disagree to 7=strongly agree. Therefore, as the ethical rating score decreases, the participant more strongly disagrees with the person's action in the vignette. The results also indicate a nonsignificant,  $F(1,57)=3.590$ ,  $p=.063$ , linear relationship between the DIT2 score and the ERATINGB summary score.

The relationship between ethical reasoning and ethical decision making is also analyzed at the vignette level (see Appendix C). These results indicate that accounting students at higher ethical reasoning levels significantly disagree more with the unethical actions depicted in Vignettes 1 and 3 compared to accounting students at lower ethical reasoning stages.<sup>19</sup>

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<sup>18</sup> Nine participants failed to pass the DIT2's participant reliability checks, and were therefore purged from the sample.

<sup>19</sup> Vignette 1,  $F(1,57)=4.385$ ,  $p=.041$ ; Vignette 3,  $F(1,57)=6.818$ ,  $p=.012$  and  $F(1,57)=5.567$ ,  $p=.022$ .

## **4.2 Hypothesis Two**

The second hypothesis is designed to measure if a relationship exists between Machiavellian behavior and the evaluation of the ethical dilemmas. Mach IV scores ranged from 64 to 132, with a mean of 95.26 and standard deviation of 14.26. This hypothesis will be supported if a direct relationship exists between the Mach IV score and the ethical rating summary scores. The results for hypothesis two are summarized in Table 4, Panel A and B. The results indicate a nonsignificant,  $F(1,66)=3.574$ ,  $p=.063$ , linear relationship between the Mach IV score and the ERATINGA summary score. The relationship between the Mach IV score and the ERATINGB summary score resulted in a significant,  $F(1,66)=7.022$ ,  $p=.010$ , linear relationship between the Mach IV score and the ERATINGB summary score. The positive standardize beta coefficient (.310) on the Mach IV variable indicates the direct relationship between the Mach IV and ERATINGA scores. As the Mach IV score increased, the ethical rating summary score also increased. A lower Mach IV score indicates that the participant is more ethical, and less likely to agree with Machiavellian statements. A lower ethical rating score indicates that the participant strongly disagrees with the unethical action depicted in the ethical vignette.

Hypothesis two is also analyzed at the vignette level (see Appendix C). These results indicate accounting students agreeing more with Machiavellian statements are significantly more likely to agree with unethical actions depicted in Vignettes 1, 3, and 5 compared to accounting students exhibiting less Machiavellian behavior.<sup>20</sup>

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<sup>20</sup> Vignette 5 resulted in a significant negative correlation between Machiavellian behavior and ethical ratings. Vignette 5 focuses on the decision to layoff a more competent, recent hire as opposed to the long-time employee of the firm. Although the beta coefficient is in the opposite direction from that of the other three vignettes, the results also support hypothesis two. The inverse relationship between the Mach IV score and the ethical ratings for Vignette 5 suggests that the respondents strongly disagree with the partner's decision of firing the younger employee as oppose to firing the long-time employee who was experiencing family illness. This vignette shows the competitive spirit that Machiavellian-type individuals display. Instead of helping the long-term employee, a Machiavellian-type would believe that the younger, recent hire was more important to the firm than the long-time employee.

### **4.3 Hypothesis Three**

Hypothesis three is designed to determine whether male accounting students would agree more with questionable actions compared to female respondents. Hypothesis three is supported if there is a correlation between gender and the dependent measure responses of ethical ratings. Regression analysis is used with males recorded as '1' and females recorded as '2'. The results for hypothesis 3 are summarized in Table 5, Panel A and B. The results indicate a nonsignificant,  $F(1,66)=2.663$ ,  $p=.107$ , linear relationship between the GENDER and the ERATINGA summary score. The results also indicate a nonsignificant,  $F(1,66)=3.477$ ,  $p=.067$ , linear relationship between GENDER and ERATINGB. Therefore, there is no significant statistical support that male respondents agree more with the behavior of the person described in the vignette compared to female respondents.

When the vignettes are analyzed separately (see Appendix C), the results indicate a significant gender difference for Vignette 7. Vignette 7 deals with the issue of paying bribes to solicit customers. Consistent with Gilligan's (1979) research, males may have perceived bribes as an acceptable way of conducting business, whereas females may have perceived bribes as breaking the law.

## CHAPTER 5

### DISCUSSION AND CONCLUSION

*“An individual may be ethical in a business sense and unethical in a personal sense (i.e. “immoral”). However, most people believe there is a high degree of correlation between one’s personal and business ethics.” United States Department of Agriculture, Rural Business Cooperative Service, RBS Research Report 151.*

This chapter discusses the results and implications of the data analysis presented in the previous chapter. Section one contains a discussion of the results from each of the three hypotheses. The second section contains a discussion of the implications of this research. The limitations of the study are summarized in the third section, followed by a review of future research studies in the final section.

#### **5.1 Discussion of Results of Hypothesis Testing**

An understanding of ethical decision making within the accounting profession is critical due to the fact that a large percentage of professional judgment is dependent upon the ethical beliefs and attitudes of the individual. The purpose of this study is to gain a better understanding of how ethical reasoning, moral behavior, and gender impact accounting students’ evaluation of general business ethical vignettes. The vignettes highlight personal controversies that are often faced by practicing accountants. This study is specifically designed to provide participants a variety of ethical dilemmas, and to determine how reasoning, behavior and gender correlate with ethical decision making. Three hypotheses are tested, each examining a different variable that may impact ethical decision making behavior.

##### *5.1.1. Ethical Reasoning and Ethical Decision Making*

Hypothesis 1 predicts that accounting students that display higher ethical reasoning levels are less likely to agree with questionable business behavior compared to accounting students that display lower ethical reasoning levels. A summary ethical score is calculated for the two dependent

measure questions for each of the eight ethical vignettes. The results indicate that ethical reasoning is significantly correlated with the participant's agreement with the behavior of the person described in the vignette. The results also indicate that ethical reasoning is not significantly correlated with ethical decision making when the participant views himself as the person faced with the ethical dilemma. These results are consistent with prior literature, which suggests that accountants' that exhibit higher ethical reasoning levels are more capable and sensitive to questionable dilemmas not well defined by the profession (Ponemon, 1992).

Cognitive moral development posits that individuals advance along a stage-sequence continuum in their moral development. Consistent with cognitive moral development theory, this study found that accounting students at higher stages of ethical reasoning did more strongly disagree with unethical business behavior than accounting students at the lower stages of ethical reasoning. These results also provide information on the usefulness of the DIT2 in ethics education and training. The DIT2 instrument identified a significant correlation between reasoning and decision making in two of the eight vignettes. Therefore, administering the DIT2 may be a useful technique for identifying students or staff accountants who may need additional education and/or training in potential ethical dilemmas.

Prior empirical ethics studies usually compare DIT scores to the established DIT norms published by James Rest. Since the current study is one of the few empirical studies to use the revised DIT, the only comparisons that can be made are with the DIT2 scores obtained by Rest et al., (1999). The sample of college seniors in Rest et al.'s study obtained an average DIT2 score of 40.40. The sample of accounting seniors and juniors in this study obtained an average DIT2 score of 29.1. Although Rest's sample was not limited to only accounting majors, this does suggest that accounting students may exhibit lower levels of ethical reasoning skills compared to other college undergraduates at the same academic level. Future ethical reasoning comparisons with other business disciplines can be made to determine if accounting students' ethical reasoning skills are below other disciplines with similar demographic characteristics.

### *5.1.2. Moral Behavior and Ethical Decision Making*

Trevino and Youngblood (1990) found evidence that Machiavellianism is significantly related to ethical decision making. In addition, Ghosh and Crain (1996) indicate that individuals that exhibit Machiavellian behavior are more likely to engage in noncompliance tax behavior. The current study is designed to determine if agreement with Machiavellian statements is related to ethical decision making. The results indicate that Machiavellian behavior is not significantly correlated with ethical decision making when the participant evaluated the third party's ethical choice. The results also indicate that Machiavellian behavior is significantly correlated with ethical decision making when the participant views oneself as the person faced with the ethical dilemma. These results suggest the usefulness of the Mach IV instrument in ethics education and training. This instrument may also be administered at the beginning of a course or during a training session to help determine individuals that may need additional guidance on controversial business dilemmas.

### *5.1.3. Gender and Ethical Decision Making*

Ameen et al. (1996) found evidence that female accounting students are more ethical compared to male accounting students based on their evaluation of unethical academic activities. Gilligan (1977, 1982) argues that females are more concerned with their relationships with others, and are less likely to engage in unethical activities. In contrast, males are more justice-oriented, and are more likely to engage in unethical activities. The third hypothesis predicts that female accounting students would find questionable dilemmas more unethical compared to male accounting students. The results of the current study indicate a significant relationship between gender and ethical evaluations for Vignette 7, with females appearing to be more ethical than males.

## **5.2 Implications**

In the past, most academic business curricula have placed little attention on the teaching of business ethics. The Report of the National Commission on Fraudulent Financial Reporting recommended that “the business and accounting curricula should emphasize ethical values by integrating their development with the acquisition of knowledge and skills to help prevent, detect, and deter fraudulent financial reporting” (p.82). According to Rest (1979), many individuals have a difficult time

identifying ethical dilemmas. Assessing students' ethical reasoning processes can aid colleges and universities in developing effective methods to introduce ethics into the classroom. Rest (1986, p.110-111) suggests that college and graduate school education can increase ethical reasoning skills. Based on the results from this study, accounting students appear to exhibit lower ethical reasoning abilities compared to other college undergraduates. Introducing ethics into the classroom will not necessarily result in all students increasing their ethical reasoning levels, however, ethics education can raise students' awareness of potential dilemmas that they may face in business. As the business environment becomes more complex, it is important that tomorrow's business leaders have the appropriate training to handle questionable ethical situations when they arise.

The results of this study show that the DIT2 and Mach IV scale may be important in explaining differences in ethical reasoning abilities and moral behavior for accounting students. These results may be useful in determining the type of ethical dilemma to discuss in the classroom and the type of training needed for newly employed staff accountants. Ponemon (1988) indicates that socialization within accounting firms has a negative impact on ethical reasoning levels. Therefore, addressing some common ethical dilemmas earlier in an accountants' career may help them better handle professional ethical issues.

The individual vignette analysis also provides information when determining which types of vignettes are useful in developing scenarios to measure ethical decision making. The vignette analysis results identify scenarios where the focus is either on the character of the decisionmaker (Vignette 3 and 5), whether the decision complies with existing rules and regulations (Vignette 1), or the focus is on the consequence of the decision (Vignette 7).

Vignette 3 and 5 can be classified as representing situations in which the focus is on character-based ethical scenarios. In character-based ethical scenarios, the intentions, motivations, and character of the decisionmaker are the primary focus on determining what is ethical in business. Vignette 1 represents an accounting dilemma focusing on a revenue recognition issue. Vignette 1 can also be classified as compliance-based ethicality. Whereas character-based ethics focuses on the intentions of

the decisionmaker, compliance-based ethicality is dependent upon the rightness or wrongness of the method (Pojman, 1990). Ethical behavior is determined based on compliance with established laws, principles, and regulations. Vignette 7 represents a scenario focusing on consequences-based ethicality. Individuals who focus on consequences-based ethics are “more likely to ‘bend’ the rules, change the standards, or do the right things (versus doing things right).

Vignettes 2,4,6, and 8, which did not result in significant support for the hypotheses, represent scenarios that subjected the individual to serious risk (Vignette 2 and 8) or harm (Vignette 6) as a consequence of the unethical conduct.<sup>21</sup> Future ethics studies may vary payoff amounts to individuals or vary the amount of risk or harm the individual is exposed to in order to analyze how ethical decision making changes.

### **5.3 Limitations**

Although the results from this study can be very useful to ethics research and ethics training and education, several limitations are noted. Students are selected from only one university, which limits the generalizability of the results. Also, the research design is cross-sectional. Such designs often make it difficult to assess changes in students’ ethical development over a period of time. Also, the DIT2 provides only a surrogate measure of ethical reasoning, since DIT research is based upon the premise that an individual’s ethical reasoning abilities are a measurable construct.

### **5.4 Future Research Extensions**

Because ethics research is such an important topic in today’s business environment, numerous future research studies can reveal practical information for accounting education and practice. In order to learn more information about reasoning and behavior, students in different geographical areas can be used. Some empirical studies have investigated the relationship between culture and moral behavior. Future research may translate the survey instrument into other languages, such as German, to determine

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<sup>21</sup> Vignette 4 may not have resulted in significant support for the hypotheses because minimal risk was incorporated into the scenario. The participants may not have perceived this vignette as a questionable dilemma.

how the German culture may impact the Machiavellian construct. Based on research involving Eastern and Western cultures, Christie and Geis (1970) determined that Machiavellianism existed across cultures. German business students could participate in a similar experiment to determine if culture impacts ethical reasoning and moral behavior in realistic accounting dilemmas.

As the pressure of competition continues to threaten many of the traditional services offered by accounting firms, ethical issues will continue to rise. In some foreign countries, the merger of accounting practices and law practices are allowed. The development of multidisciplinary practices allows people with different areas of qualification to merge in order to provide a wider range of services to clients. Although this practice is not common in the United States, other countries such as Germany, Canada, France, and Switzerland allow the creation of these practices (Jenson, 2000). It would be interesting to contact professionals in these multidisciplinary organizations and measure their ethical reasoning levels. Business vignettes, similar to the vignettes used in this study, can be used to determine if reasoning and behavior are related to responses to ethical situations, and how attorneys and accountants' responses differ.

Additional measurement scales and cases can be developed to better measure and understand other profession-specific behaviors. Rest et al. (1999) encourages ethics researchers to use the DIT2 as a foundation for developing other measurement scales to gain an understanding of profession-specific behavior. For example, measurement scales could be developed to gain an understanding of ethical reasoning and the accounting information systems environment. In organizations where information technology is the main source for communication, ethics can play an interesting role in these environments. Measurement scales could also be developed to learn more about earnings manipulation behavior. Using the DIT2 as a foundation, earnings management cases can be devised in order to develop a measure of managers' propensity to engage in earnings manipulation behavior.

Additional comparisons could also be made with other disciplines or fields that enforce a code of ethical conduct. It would be interesting to compare accounting students' or accountants' ethical reasoning levels to other professionals that have an obligation to maintain integrity for the public good.

As more attention continues to be placed on accountants' and other managers' business practices, the need to better understand ethical decision making processes in business relationships should continue to increase.

## **EXHIBITS**

## **Exhibit 1- Hypotheses**

H<sub>1</sub>: Accounting students at lower ethical reasoning levels, as measured by the Defining Issues Test, Version 2, will agree more with questionable actions, compared to accounting students at higher ethical reasoning levels.

H<sub>2</sub>: Accounting students that exhibit more Machiavellian behavior, as measured by the Mach IV scale, will agree more with questionable actions compared to accounting students that exhibit less Machiavellian behavior.

H<sub>3</sub>: Male accounting students will agree more with questionable actions, compared to female accounting students.

## Exhibit 2- Ethical Vignettes

1. a. A manager realizes that the projected quarterly sales figures will not be met and thus the manager will not receive a bonus. However, there is a customer order, which if shipped before the customer needs it, will ensure the quarterly bonus. The manager ships the order this quarter to ensure earning the quarterly sales bonus. Do you agree with the manager's decision to ship the order this quarter to ensure the bonus?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the manager, would you ship the order to ensure your quarterly sales bonus?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

2. a. A promising start-up company applies for a loan at a bank. The Credit Manager at the bank is a friend and frequently goes golfing with the company's owner. Because of this new company's short credit history, it does not meet the bank's normal lending criteria. The Credit Manager recommends extending the loan. Do you agree with the Credit Manager's recommendation to extend the loan?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the Credit Manager and the start-up company's owner was a friend of yours, would you recommend extending your friend the loan?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

3. a. A salesman (saleswoman), the father (mother) of two small children, has been promoted to a job in which he (she) has to travel away from home for the firm on a regular basis. Because these trips are frequent and inconvenient to his (her) family, he (she) is contemplating charging some small personal expenses while traveling for the company. The salesman (saleswoman) charges the company \$50 for family gifts. Do you agree with the salesman's (saleswoman's) decision to charge the company for small personal expenses?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the salesman (saleswoman), would you charge the company for small personal expenses?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

4. a. The CEO of a company requests that the controller reduce the estimate for bad debts in order to increase reported income, arguing that this is a common practice in the industry when times are hard. Historically, the company has made very conservative allowances for doubtful accounts, even in bad years. The CEO's request would make it one of the least conservative in the industry. The controller makes the adjustment. Do you agree with the controller's decision to make the adjustment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the controller, would you make the bad debts adjustment by reducing the estimate for bad debts in order to increase reported income?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

5. a. An accounting firm has been hard hit by recessionary times and the partners realize that they must scale back. An analysis of productivity suggests that the person most likely to be terminated is a long-time employee with a history of absenteeism due to illness in the family. Instead, the partner-in-charge lays off a younger, but very competent, recent hire. Do you agree with the partner's decision to lay off the recent hire?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you the partner-in-charge, would you lay of the recent hire?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

6. a. A saleswoman (salesman) has just been promoted to product manager. Her (His) first responsibility is for a new, highly successful small kitchen appliance. She (He) will be paid in part based on sales of this product. On reviewing information about her (his) new product, she (he) discovers that there has been insufficient product testing to meet new federal product safety guidelines. However, all testing so far indicated no likelihood of any safety problem. She (He) authorizes the sales force to continue to promote and sell the product. Do you agree with the saleswoman's (salesman's) decision to authorize the sales force to continue to promote and sell the product?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the saleswoman (salesman), would you authorize the sales force to continue to promote and sell the product?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

7. a. A United States manager of a company eager to do more business abroad has been requested to make an undisclosed cash payment to a manager of a local distributor in a foreign country. The payment is requested as a “good will gesture” that will allow the United States company to introduce the product in that foreign country. This practice is considered normal business procedure in that country and no laws prohibit such payment there. The United States manager verbally authorizes the payment. Do you agree with the manager’s decision to authorize the payment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the United States manager, would you authorize the payment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

8. a. The owner of a local small business, which is currently in financial difficulty, approaches a longtime friend to borrow and copy a proprietary data-base software package which will be of great value in generating future business. The software package retails for \$500. The friend loans the software package. Do you agree with the friend’s decision to loan the software package?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

- b. If you were the longtime friend, would you loan the software package to your friend?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree



## **TABLES**

### **Table 1: Rest's (1979) Six Stages of Moral Reasoning**

#### **Pre-conventional level: focus is on self**

Stage 1: Obedience: you do what you're told primarily to avoid punishment

Stage 2: Instrumental egotism and simple exchange: let's make a deal or only consider the cost and/or benefits to oneself

#### **Conventional level: focus is relationships**

Stage 3: Interpersonal concordance: be considerate, nice and kind and you'll get along with people.

Focus is on cooperation with those in your environment.

Stage 4: Law and duty to the social order: everyone in society is obligated and is protected by the law.

Focus is on cooperation with society in general.

#### **Post-conventional level: focus is personally held principles**

Stage 5: Societal consensus: you are obligated by whatever arrangements are agreed to and by due process and procedure. Focus is on fairness of the law or rule as determined by equity and equality in the process of developing the rule.

Stage 6: Nonarbitrary social cooperation: how rational and impartial people would organize cooperation is moral. Focus is on fairness of the law or rules derived from general principles of just and right as determined by rational people.

**Table 2: Summary of Descriptive Statistics**

<b>Variable</b>	<b>N</b>	<b>Minimum Statistic</b>	<b>Maximum Statistic</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
DIT2	59	5.07	54.93	29.06	12.44	154.83
MACH4	68	64.00	132.00	95.26	14.25	203.09
ERATINGA	68	16.00	45.00	31.12	6.79	46.14
ERATINGB	68	19.00	49.00	31.84	6.71	45.12

Definition of Variables:

DIT2- Defining Issues Test, Version 2 score

MACH4- Mach IV score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

**Table 3: Regression Analysis for H1**

**Panel A: OLS Estimation of Ethical Ratings and Ethical Reasoning Score (DIT2)**

$$\text{Model: ERATINGA} = \beta_1 + \beta_2(\text{DIT2}) + \epsilon_i$$

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			16.4
DIT2	-	-.273	-2.142*
Number of Observations			59
F-Statistic			4.587
Prob Value			0.037
Adjusted R <sup>2</sup>			0.058

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Panel B: OLS Estimation of Ethical Ratings and Ethical Reasoning Score (DIT2)**

$$\text{Model: ERATINGB} = \beta_1 + \beta_2(\text{DIT2}) + \epsilon_i$$

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			16.6
DIT2	-	-.243	-1.895
Number of Observations			59
F-Statistic			3.590
Prob Value			0.063
Adjusted R <sup>2</sup>			0.043

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

Where:

DIT2- Defining Issues Test, Version 2 score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

$\epsilon_i$ = the normally distributed random error term

**Table 4: Regression Analysis for H2**

**Panel A: OLS Estimation of Ethical Ratings and Machiavellian Behavior (MACH4)**

**Model: ERATINGA =  $\beta_1 + \beta_2(\text{MACH4}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			3.785
MACH4	+	.23	1.890
Number of Observations			68
F-Statistic			3.574
Prob Value			0.063
Adjusted R <sup>2</sup>			0.051

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Panel B: OLS Estimation of Ethical Ratings and Machiavellian Behavior (MACH4)**

**Model: ERATINGB =  $\beta_1 + \beta_2(\text{MACH4}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			3.372
MACH4	+	.31	2.650
Number of Observations			68
F-Statistic			7.022
Prob Value			0.010**
Adjusted R <sup>2</sup>			0.096

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

Where:

MACH4- Mach 4 score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

$\epsilon_i$ = the normally distributed random error term

**Table 5: Regression Analysis for H3**  
**Panel A: OLS Estimation of Ethical Ratings and Gender**

**Model: ERATINGA =  $\beta_1 + \beta_2(\text{GENDER}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			14.182
GENDER	-	-.04	-1.632
Number of Observations			68
F-Statistic			2.663
Prob Value			0.107
Adjusted R <sup>2</sup>			0.039

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Panel B: OLS Estimation of Ethical Ratings and Gender**

**Model: ERATINGB =  $\beta_1 + \beta_2(\text{GENDER}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic
Constant			14.916
GENDER	-	.22	1.865
Number of Observations			68
F-Statistic			3.477
Prob Value			0.067
Adjusted R <sup>2</sup>			0.050

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

Where:

GENDER- Gender

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

$\epsilon_i$ = the normally distributed random error term

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## APPENDIX

## **Appendix A- Test of Assumptions**

Regression analysis was used to test the proposed hypotheses. This section discusses the testing of the assumptions related to these statistical procedures. These assumptions include normality and homogeneity of variance.

### ***Normality***

The Kolmogrov-Smimov Normality test was performed for the DIT2, Mach IV, ERATINGA, and ERATINGB variables. These results are summarized in Table A1. Table A1 shows that the hypothesis of normality cannot be rejected for the DIT2 ( $p=0.895$ ), MACH4 ( $p=0.961$ ), ERATINGA ( $p=0.981$ ), and ERATINGB ( $p=0.917$ ) variables.

### ***Homogeneity of Variance***

Levene's Test of Homogeneity of Variance is presented in Table A2. The results indicate that the assumption of homogeneity of variance has not been violated for any of the variables.

**Table A1: Kolmogorov-Smirnov Test of Normality**

		<b>DIT2</b>	<b>ERATINGA</b>	<b>ERATINGB</b>	<b>MACH4</b>
<b>Normal Parameters</b>	Mean	29.06	31.12	31.84	95.26
	Std.Deviation	12.44	6.80	6.71	14.25
<b>Most Extreme Differences</b>	Absolute	.075	.057	.067	.061
	Positive	.075	.049	.053	.061
	Negative	-.055	-.057	-.067	-.059
<b>Kolmogorov-Smirnov Z</b>		.56	.47	.56	.51
	<b>Asymp. Sig. (2 tailed)</b>	.895	.981	.917	.961

Definition of Variables:

DIT2- Defining Issues Test, Version 2 score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

MACH4- Mach IV score

**Table A2: Levene's Test of Homogeneity of Variance**

<b>Variable</b>	<b>Levene Statistic</b>	<b>Df1</b>	<b>Df2</b>	<b>Sig.</b>
DIT2	0.149	1	59	0.701
MACH4	0.513	1	66	0.476
ERATINA	0.000	1	66	0.983
ERATINGB	0.001	1	66	0.973

Definition of Variables:

DIT2 score- Defining Issues Test, Version 2 score

MACH4- Mach IV score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

## Appendix B: Instrument for Experiment

1. a. A manager realizes that the projected quarterly sales figures will not be met and thus the manager will not receive a bonus. However, there is a customer order, which if shipped before the customer needs it, will ensure the quarterly bonus. The manager ships the order this quarter to ensure earning the quarterly sales bonus. Do you agree with the manager's decision to ship the order this quarter to ensure the bonus?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the manager, would you ship the order to ensure your quarterly sales bonus?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

2. a. A promising start-up company applies for a loan at a bank. The Credit Manager at the bank is a friend and frequently goes golfing with the company's owner. Because of this new company's short credit history, it does not meet the bank's normal lending criteria. The Credit Manager recommends extending the loan. Do you agree with the Credit Manager's recommendation to extend the loan?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the Credit Manager and the start-up company's owner was a friend of yours, would you recommend extending your friend the loan?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

3. a. A salesman (saleswoman), the father (mother) of two small children, has been promoted to a job in which he (she) has to travel away from home for the firm on a regular basis. Because of these trips are frequent and inconvenient to his (her) family, he (she) is contemplating charging some small personal expenses while traveling for the company. The salesman (saleswoman) charges the company \$50 for family gifts. Do you agree with the salesman (saleswoman) decision to charge the company for small personal expenses?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the salesman (saleswoman), would you charge the company for small personal expenses?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

4. a. The CEO of a company requests that the controller reduce the estimate for bad debts in order to increase reported income, arguing that this is a common practice in the industry when times are hard. Historically, the company has made very conservative allowances for doubtful accounts, even in bad years. The CEO's request would make it one of the least conservative in the industry. The controller makes the adjustment. Do you agree with the controller's decision to make the adjustment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the controller, would you make the bad debts adjustment by reducing the estimate for bad debts in order to increase reported income?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

5. a. An accounting firm has been hard hit by recessionary times and the partners realize that they must scale back. An analysis of productivity suggests that the person most likely to be terminated is a long-time employee with a history of absenteeism due to illness in the family. Instead, the partner-in-charge lays off a younger, but very competent, recent hire. Do you agree with the partner's decision to lay off the recent hire?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you the partner-in-charge, would you lay of the recent hire?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

6. a. A saleswoman (salesman) has just been promoted to product manager. Her (His) first responsibility is for a new, highly successful small kitchen appliance. She (He) will be paid in part based on sales of this product. On reviewing information about her (his) new product, she (he) discovers that there has been insufficient product testing to meet new federal product safety guidelines. However, all testing so far indicated no likelihood of any safety problem. She (He) authorizes the sales force to continue to promote and sell the product. Do you agree with the saleswoman (salesman) decision to authorize the sales force to continue to promote and sell the product?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the saleswoman (salesman), would you authorize the sales force to continue to promote and sell the product?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

7. a. A United States manager of a company eager to do more business abroad has been requested to make an undisclosed cash payment to a manager of a local distributor in a foreign country. The payment is requested as a “good will gesture” that will allow the United States company to introduce the product in that foreign country. This practice is considered normal business procedure in that country and no laws prohibit such payment there. The United States manager verbally authorizes the payment. Do you agree with the manager’s decision to authorize the payment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the United States manager, would you authorize the payment?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

8. a. The owner of a local small business, which is currently in financial difficulty, approaches a longtime friend to borrow and copy a proprietary data-base software package which will be of great value in generating future business. The software package retails for \$500. The friend loans the software package. Do you agree with the friend’s decision to loan the software package?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

b. If you were the longtime friend, would you loan the software package to your friend?

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

**Section 2 Mach IV Instructions:** For each question below, please indicate your extent of agreement or disagreement by circling the appropriate number.

1. The best way to handle people is to tell them what they want to hear.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

2. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons, which might carry more weight.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

3. Anyone who completely trusts anyone else is asking for trouble.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

4. It is hard to get ahead without cutting corners here and there.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

5. Honesty is the best policy in all cases.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

6. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

7. Never tell anyone the real reason you did something unless it is useful to do so.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

8. One should take action only when sure it is morally right.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

9. It is wise to flatter important people.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

10. All in all it is better to be humble and honest than important and dishonest.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

11. Barnum was very wrong when he said there's a sucker born every minute.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

12. People suffering from incurable diseases should have the choice of being put painlessly to death.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

13. It is possible to be good in all respects.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

14. Most people are basically good and kind.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

15. There is no excuse for lying to someone else.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

16. Most people forget more easily the death of their father than the loss of their property.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

17. Most people who get ahead in the world lead clean, moral lives.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

18. Generally speaking, people won't work hard unless they're forced to do so.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

19. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

20. Most people are brave.

1	2	3	4	5	6	7
strongly disagree	somewhat disagree	slightly disagree	no opinion	slightly agree	somewhat agree	strongly agree

### **Section 3: DIT2 Instructions**

This questionnaire is concerned with how you define the issues in a social problem. Several stories about social problems will be described. After each story, there will be a list of questions. The questions that follow each story represent different issues that might be raised by the problem. In other words, the questionnaire/issues raise different ways of judging what is important in making a decision about the social problem. You will be asked to rate and rank the questions in terms of how important each one seems to you.

This questionnaire is in two parts; one part contains the INSTRUCTIONS (this part) and the stories presenting the social problems; the other part contains the questions (issues) and the ANSWER SHEET on which to write your responses.

Here is an illustration case and sample questionnaire.

Imagine that you are about to vote for a candidate for the Presidency of the United States. Imagine that before you vote, you are given several questions, and asked which issue is the most important to you in making up your mind about which candidate to vote for. In this example, 5 items are given. On a rating scale of 1 to 5 (1=Great, 2=Much, 3=Some, 4=Little, 5=No) please rate the importance of the item (issue) by filling in with a pencil one of the bubbles on the answer sheet by each item.

Assume that you thought that item #1 (below) was of great importance, item #2 had some importance, item #3 had no importance, item #4 had much importance, and item #5 had much importance. Then you would fill in the bubbles on the answer sheet as shown below.

**IMPORTANCE:**

Great	Much	Some	Little	No
X				
		X		
			X	
	X			
	X			

1. Financially are you personally better off now than you were four years ago?
2. Does one candidate have a superior personal moral character?
3. Which candidate stands the tallest?
4. Which candidate would make the best world leader?
5. Which candidate has the best ideas for our country's internal problems, like crime and health care?

Further, the questionnaire will ask you to rank the question in terms of importance. In the space below, the numbers at the top, 1 through 12, represent the item number. From top to bottom, you are asked to fill in the bubble that represents the item in first importance (of those given to you to choose from), then second most important, third most important, and fourth most important. Please indicate your top four choices. You might fill out this part, as follows:

  1   MOST IMPORTANT      4   SECOND MOST IMPORTANT      5   THIRD MOST IMPORTANT      3   FOURTH MOST IMPORTANT

Note that some of the items may seem irrelevant to you (as in item #3) or not make sense to you—in that case, rate the item as “no” importance and do not rank the item. Note that in the stories that follow, there will be 12 items for each story, not five. Please make sure to consider all 12 items (questions) that are printed after each story.

In addition you will be asked to state your preference for what action to take in the story. After the story, you will be asked to indicate the action you favor on a seven-point scale (1= strongly favor some action, 7=strongly oppose the action).

In short, read the story from this booklet, then fill out your answers on the answer sheet. Please use a #2 pencil. If you change your mind about a response, erase the pencil mark cleanly and enter your new response.

*[ Notice the second part of this questionnaire, the Answer Sheet. The Identification Number at the top of the answer sheet may already be filled in when you receive your materials. If not, you will receive instructions about how to fill in the number. If you have questions about the procedure, please ask now. Please turn now to the Answer Sheet ]*

Famine- (Story #1)

The small village in northern India has experienced shortages of food before, but this year's famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh's family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some food from the rich man's warehouse. The small amount of food that he needs for his family probably wouldn't even be missed.

**What should Mustaq Singh do? Do you favor the action of taking the food (Mark one)**

\_\_\_\_\_ Should take the food      \_\_\_\_\_ Can't decide      \_\_\_\_\_ Should not take the food

Rate the following 12 issues in terms of importance (1-5)

**IMPORTANCE:**

Great	Much	Some	Little	No

1. Is Mustaq Singh courageous enough to risk getting caught for stealing?
2. Isn't it only natural for a loving father to care so much for his family that he would steal?
3. Shouldn't the community's laws be upheld?
4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?
5. Does the rich man have any legal right to store food when other people are starving?
  
6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?
7. What values are going to be the basis for social cooperation?
8. Is the epitome of eating reconcilable with the culpability of stealing?
9. Does the rich man deserve to be robbed for being so greedy?
10. Isn't private property an institution to enable the rich to exploit the poor?
11. Would stealing bring about more total good for everybody concerned or wouldn't it?
12. Are laws getting in the way of the most basic claim of any member of a society?

From the list above, select the four most important:

\_\_\_\_\_ MOST IMPORTANT      \_\_\_\_\_ SECOND MOST IMPORTANT      \_\_\_\_\_ THIRD MOST IMPORTANT      \_\_\_\_\_ FOURTH MOST IMPORTANT









## Appendix C-Supplemental Analysis

Additional regression analysis is conducted to investigate how accounting students' ethical ratings vary throughout the eight vignettes. These results are summarized in Tables C1-C3 in Appendix C.

### *Hypothesis One*

As previously stated, hypothesis one investigates the relationship between ethical reasoning and ethical decision making. Specifically, individuals at lower ethical reasoning levels are expected to agree more with questionable activities compared to individuals at higher ethical reasoning levels. When an ethical score summarizing the students' responses is calculated, the results indicate a significant relationship between ethical reasoning and ethical decision making. Further explanation can be inferred from the analysis at the vignette level. The regression analyses by each vignette are summarized in Table C1. These results indicate a significant correlation between ethical reasoning and ethical decision making for Vignette 1 and 3.

### *Hypothesis Two*

Hypothesis two is designed to examine if accounting students that agree with Machiavellian statements are more likely to agree with questionable actions compared to accounting students that agree less with Machiavellian statements. The testing of this hypothesis for each vignette is summarized in Table C2. These results indicate that three (Vignette 1, 3, and 5) of the eight vignettes resulted in significant correlations between Machiavellian behavior and ethical ratings.

### *Hypothesis Three*

It is hypothesized that female accounting students would view questionable activities more unethical than male accounting students. These results indicate that only one (Vignette 7) of the eight vignettes resulted in a significant correlation between gender and ethical ratings, with females being perceived as more ethical than males.

### *Multiple Regression Analysis Results*

Additional multiple regression analysis is also conducted with the ERATINGA and ERATINGB summary scores serving as the dependent variables for both models. The DIT2, MACH4, and GENDER represent the independent variables. These results are summarized in Table C4, Panel A and B. The results indicate a significant  $F(3,55)=2.907$ ,  $p=.043$ , linear relationship between the ERATINGA summary score and the DIT2, MACH4, and GENDER variables.<sup>22</sup> The results also indicate a significant  $F(3,55)=3.608$ ,  $p=.019$ , linear relationship between the ERATINGB summary score and the DIT2, MACH4, and GENDER variables.<sup>23</sup>

The multiple regression analysis results at the vignette level are summarized in Tables C5 and Table C6 for the dependent measure questions. The results for the dependent measure question A indicate that the MACH4 variable is significant ( $p=.033$ ,  $.028$ , respectively) for Vignette 1 and 4, and the DIT2 variable is significant ( $p=.019$ ) for Vignette 3. The results for the dependent measure question B also indicate that the MACH4 variable is significant ( $p=.017$ ,  $.035$ , respectively) for Vignette 1 and Vignette 3, and the GENDER variable is significant ( $p=.027$ ) for Vignette 7.

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<sup>22</sup> Although the overall model is significant, the three independent variables are not statistically significant; DIT2 ( $p=.061$ ), MACH4 ( $p=.194$ ), and GENDER ( $p=.239$ ).

<sup>23</sup> Although the overall model is significant, the three independent variables are not statistically significant; DIT2 ( $p=.109$ ), MACH4 ( $p=.074$ ), and GENDER ( $p=.146$ ).

**Table C1: Regression Analysis by Vignette for H1**

OLS Estimation of Ethical Ratings and Ethical Reasoning (DIT2 score)					
Vignette	Variable	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
1	GOODSA	-	-.27	-2.09	0.041*
	GOODSB	-	-.10	-0.79	0.431
2	LOANA	-	-.05	-0.37	0.717
	LOANB	-	-.067	-0.43	0.668
3	GIFTA	-	-.337	-2.61	0.012**
	GIFTB	-	-.30	-2.36	0.022*
4	DEBTA	-	-.19	-1.45	0.141
	DEBTB	-	-.24	-1.89	0.063
5	LAYOFFA	-	-.10	0.79	0.432
	LAYOFFB	-	.034	0.97	0.973
6	SAFETYA	-	-.031	-0.23	0.815
	SAFETYB	-	-.12	-.92	0.359
7	PAYMENTA	-	.022	.17	0.868
	PAYMENTB	-	.062	.47	0.640
8	SOFTWAREA	-	.002	.012	0.991
	SOFTWARE	-	-.11	-.87	0.389

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Table C2: Regression Analysis by Vignette for H2**

OLS Estimation of Ethical Ratings and Machiavellian Behavior (Mach IV score)

Vignette	Variable	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
1	GOODSA	+	.25	2.11	0.038*
	GOODSB	+	.28	2.37	0.021*
2	LOANA	+	.12	0.99	0.322
	LOANB	+	.031	0.25	0.799
3	GIFTA	+	.26	2.16	0.035*
	GIFTB	+	.33	2.86	0.006**
4	DEBTA	+	.18	1.48	0.143
	DEBTB	+	.16	1.28	0.207
5	LAYOFFA	+	-.26	-2.22	0.030*
	LAYOFFB	+	-.07	-0.61	0.541
6	SAFETYA	+	-.05	-0.43	0.670
	SAFETYB	+	.30	0.24	0.808
7	PAYMENTA	+	.12	1.00	0.319
	PAYMENTB	+	.11	0.92	0.361
8	SOFTWAREA	+	.19	1.61	0.113
	SOFTWAREB	+	.24	1.96	0.054

and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Table C3: Regression Analysis by Vignette for H3**

Vignette	Variable	OLS Estimation of Ethical Ratings and Gender			
		Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
1	GOODSA	-	-.008	-.064	0.949
	GOODSB	-	-.033	-.268	0.790
2	LOANA	-	-.169	-1.39	0.168
	LOANB	-	-.165	-1.36	0.179
3	GIFTA	-	-.20	-1.64	0.106
	GIFTB	-	-.16	-1.36	0.178
4	DEBTA	-	-.048	-0.39	0.697
	DEBTB	-	-.084	-0.69	0.494
5	LAYOFFA	-	.005	.042	0.967
	LAYOFFB	-	-.055	-0.44	0.658
6	SAFETYA	-	.091	0.74	0.460
	SAFETYB	-	.11	0.89	0.377
7	PAYMENTA	-	-.34	-2.94	0.004**
	PAYMENTB	-	-.367	-3.20	0.002**
8	SOFTWAREA	-	-.065	-0.53	0.596
	SOFTWAREB	-	-.092	-0.75	0.458

and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Table C4: Regression Analysis for DIT2, MACH4, and Gender**

**Multiple Regression Estimation of Ethical Ratings and Ethical Reasoning, Machiavellian Behavior, and Gender**

**Panel A Model: ERATINGA =  $\beta_1 + \beta_2(\text{DIT2}) + \beta_3(\text{MACH4}) + \beta_4(\text{GENDER}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
Constant			4.392	.000
DIT2	-	-.24	-1.91	.061
MACH4	+	.17	1.31	.194
GENDER	-	-.15	-1.19	.239

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

**Panel B Model: ERATINGB =  $\beta_1 + \beta_2(\text{DIT2}) + \beta_3(\text{MACH4}) + \beta_4(\text{GENDER}) + \epsilon_i$**

Variables	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
Constant			4.48	.000
DIT2	-	-.20	-1.63	.109
MACH4	+	.23	1.82	.074
GENDER	-	-.19	-1.15	.146

\* and \*\* indicate statistical significance at the 0.05 and 0.01 levels, respectively

Where:

DIT2- Defining Issues Test, Version 2 score

ERATINGA- Summary score for first dependent measure response for the 8 vignettes

ERATINGB- Summary score for second dependent measure response for the 8 vignettes

$\epsilon_i$ = the normally distributed random error term

**Table C5: Regression Analysis for Dependent Measure Question A**

Multiple Regression Estimation of Ethical Ratings and Ethical Reasoning, Machiavellian Behavior, and Gender By Vignette for Dependent Measure Question A

Vignette	Variables	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
1	DIT	-	-.22	-1.82	.074
	MACH4	+	.28	2.19	.033*
	GENDER	-	.010	.075	.941
2	DIT	-	-.027	-1.20	.232
	MACH4	+	.095	.699	.487
	GENDER	-	-.163	-.21	.838
3	DIT	-	-.293	-2.41	.019*
	MACH4	+	.168	1.35	.181
	GENDER	-	-.228	-1.85	.069
4	DIT	-	-.18	-1.09	.27
	MACH4	+	.14	2.26	.028*
	GENDER	-	.063	-.49	.622
5	DIT	-	-.14	-1.09	.276
	MACH4	+	-.30	-2.26	.028*
	GENDER	-	-.065	-.496	.622
6	DIT	-	-.29	-.287	.775
	MACH4	+	-.073	-.073	.942
	GENDER	-	.961	.961	.205
7	DIT	-	.045	.341	.734
	MACH4	+	.076	.566	.574
	GENDER	-	-.252	-1.90	.063
8	DIT	-	.028	.212	.833
	MACH4	+	.173	1.26	.210
	GENDER	-	-.059	-.44	.660

\* indicates statistical significance at the 0.05

**Table C6: Regression Analysis for Dependent Measure Question B**

Multiple Regression Estimation of Ethical Ratings and Ethical Reasoning, Machiavellian Behavior, and Gender By Vignette for Dependent Measure Question B

Vignette	Variables	Expected Sign	Estimated Coefficient	t-Statistic	Prob Value
1	DIT	-	-.059	-.459	.648
	MACH4	+	.32	2.465	.017*
	GENDER	-	-.026	-.197	.845
2	DIT	-	-.057	-.424	.232
	MACH4	+	-.041	.297	.487
	GENDER	-	-.113	-.825	.838
3	DIT	-	-.253	-2.092	.041*
	MACH4	+	.268	2.17	.035*
	GENDER	-	-.184	-1.50	.14
4	DIT	-	-.234	-1.78	.081
	MACH4	+	.058	.43	.671
	GENDER	-	-.024	-.18	.859
5	DIT	-	.00	-.001	.991
	MACH4	+	-.072	-.519	.61
	GENDER	-	-.12	-.846	.40
6	DIT	-	-.12	-.93	.36
	MACH4	+	.04	.29	.77
	GENDER	-	.16	1.15	.30
7	DIT	-	.082	.64	.526
	MACH4	+	.045	.34	.735
	GENDER	-	-.29	-2.27	.027*
8	DIT	-	-.083	-.63	.532
	MACH4	+	.194	1.44	.155
	GENDER	-	-.10	-.76	.453

\* indicate statistical significance at the 0.05

## VITA

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She has completed internships with General Electric Corporate Benefits Delivery and General Electric Information Services. She also served as a consultant with the Harvard Institute for International Development. During her doctoral program, she was a KPMG Fellow for four consecutive years.

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