



# Individual characteristics and ethical decision-making in an IT context

Ethical decision-making

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## Abstract

**Purpose** – The purpose of this paper is to propose and empirically test an ethical decision-making model in an information technology (IT) context. The model includes both demographic and personality variables, their direct influence on beliefs and judgments, and their influence on the relationships between beliefs, judgments, and moral intent.

**Design/methodology/approach** – Subjects were assessed on their perceptions of IT ethical scenarios both before and after discussing them with others in a web-based chat room in order to test the research model.

**Findings** – The results show that gender has the most profound effect on ethical decision-making, with ego strength also having a strong effect, while *locus* of control has a negligible effect. Beliefs and judgments about questionable behavior shifted after (a chat) discussion more for those with low ego strength than those with high ego strength.

**Originality/value** – The results suggest that the relationship among factors that influence ethical decision-making is complex and different factors become more important in determining moral intent for different individuals.

**Keywords** Personality tests, Ethics, Decision making, Gender, Communication technologies

**Paper type** Research paper

## Introduction

Ethical issues are prominent in the information technology (IT) field. Reports of widespread illegal distribution of intellectual property, privacy violations, and security breaches recur on an almost weekly basis in the popular press, and well-known crimes like fraud, forgery, and theft have resurfaced in new forms. This has prompted some to say that the rapid development and deployment of IT appears to be outpacing the development of ethical guidelines for its use (Marshall, 1999).

Employees remain a very high threat to security for inappropriate use of IT, either through inadvertent misuse of IT or deliberate action (Haugen and Selin, 1999). One survey noted that 80 percent of all computer- and internet-related crimes against corporations are committed by individuals from within, causing an average of \$110,000 per corporate victim (Carr, 2002). Another study found that 78 percent of organizations have had to discipline employees for downloading pornography, pirated software, or misusing e-mail (Messmer, 2003).

The academic community has focused on finding out what leads people to behave unethically in order to give advice to managers for formulating strategies that prevent unethical behavior. Studies of ethical decision-making in an IT context generally



search in one of two directions. The first focuses on examining demographic and personality styles of individuals that indicate that they are more or less likely to judge a behavior as being immoral (Cappel and Windsor, 1998; Gattiker and Kelley, 1999; Kreie and Cronan, 1998; Peterson, 2002). The second focuses on the process of ethical decision-making to find beliefs and attitudes that lead to unethical behavior, relegating individual differences to being external variables (Randall, 1989). Some suggest that relegating individual differences to purely external status may have been premature; individual characteristics appear to affect not only beliefs and attitudes toward questionable behavior, but also the decision-making process itself (Loch and Conger, 1996; Trevino, 1986). Therefore, the purpose of this paper is to propose and empirically test an integrated model of ethical decision-making in an IT context, examining both demographic and personality variables.

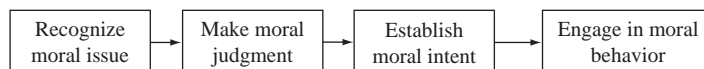
### Theoretical background

Kohlberg's (1969) model of cognitive moral development has been the theoretical foundation for many theories of ethical decision-making (Rest *et al.*, 1986; Trevino, 1986). It addresses how the cognitive processes of ethical decision-making become more sophisticated as individuals develop. Trevino (1986) used Kohlberg's model of cognitive development to develop a theory of ethical decision-making that focuses on the characteristics of the individual making the decision. Her decision-making model links moral judgment to moral action and proposes that individual characteristics influence links throughout the process of decision-making rather than merely judgments of whether the behavior was acceptable and ethical behavior. She identified five individual characteristics that affect the process of ethical decision-making: moral reasoning level, education, ego strength, field dependence, and *locus* of control.

Rest *et al.*'s (1986) four-component model of ethical decision-making is also based on Kohlberg's model (Figure 1). It proposes that individuals must first recognize a moral issue before making a moral judgment, then establish moral intent (choosing what to do), and finally engage in moral behavior. Rest suggests, similar to Trevino, that demographic and personality characteristics affect the links between the four stages.

Although the four-component model is prevalent in the psychology, management, and organizational behavior fields, it has been generally ignored in the MIS field, with the theory of planned behavior (TPB) being predominant and continuing to be applied to ethical decision-making in an IT context (Leonard *et al.*, 2004; Peace *et al.*, 2003). The four-component model and the TPB are similar in many ways. The TPB proposes that an individual's intention to behave is predicted by their attitude toward the behavior, their perception of social norms, and their perceived ability to actually engage in the behavior (Ajzen, 1991). Ethics studies that apply the TPB define attitude toward a behavior almost identically to the four-component model's definition of moral judgment, and is generally formulated in the same way as whether the questionable behavior is acceptable/unacceptable (Leonard *et al.*, 2004) or ethical/unethical (Loch and Conger, 1996).

**Figure 1.**  
Four-component model of  
ethical decision-making



Source: Rest *et al.* (1986)

Some studies suggest that the TPB may be weak in predicting ethical behavior. Beck and Ajzen (1991) found that personal moral obligation to act was a greater influence on behavioral intention than subjective norms, or the social obligation to act, in some ethical situations. Furthermore, Loch and Conger (1996) found the TPB to be weak in describing the ethical decision-making process in an IT context and found that the relative importance of moral judgment in predicting moral intent was different for men than for women, suggesting that other individual characteristics might also impact the relative strength of links throughout the process of ethical decision-making. Therefore, an integrative approach may be fruitful; examining the ethical decision-making process with individual variables as both an external influence on beliefs and judgments and an internal moderator that affects the decision-making process itself (Figure 2).

### Research model

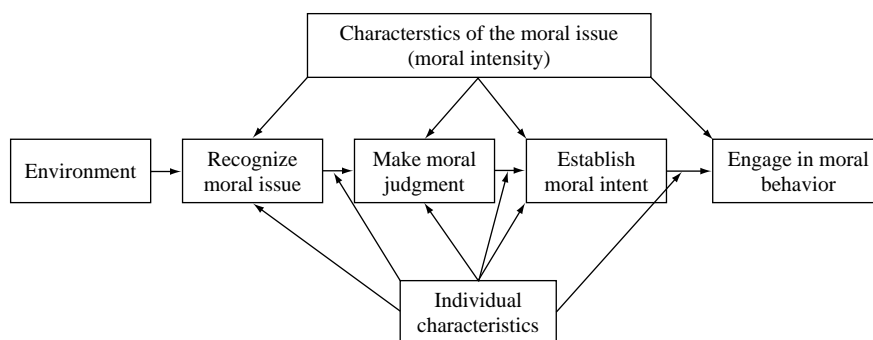
We focus on the first three components of the four-component model because we could not actually observe whether the subjects engaged in the moral behavior. Individual demographic and personality characteristics were included to integrate Trevino's (1986) theory. Perceptions of moral obligation were included to integrate Beck and Ajzen's (1991) extension of the TPB and Jones and Ryan's (1997) extension of Jones' model. Perceptions were gathered about five different scenarios that varied in their moral intensity to integrate Jones' (1991) issue-contingent model. Finally, perceived importance was included to integrate Robin *et al.*'s (1996) operationalization of Jones' moral intensity construct. The research model is shown in Figure 3.

We propose that an individual's moral intent is influenced by:

- their moral judgment of the behavior; and
- their personal feelings of moral obligation to perform or not perform the behavior (Beck and Ajzen, 1991; Jones and Ryan, 1997).

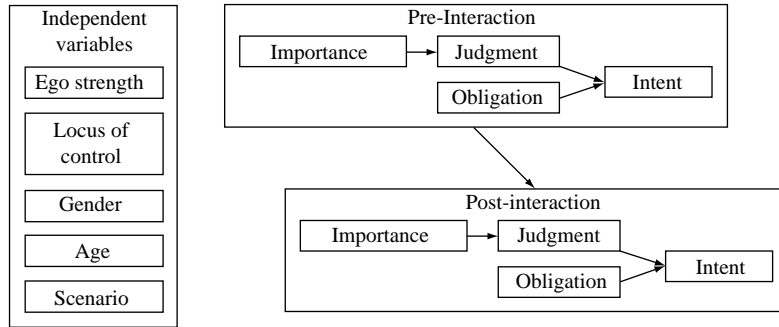
Moral judgment is influenced by the perceived importance of the behavior (Robin *et al.*, 1996). Individual characteristics and beliefs (including perceived importance) are not expected to directly influence moral intent; rather they are mediated by moral judgment and moral obligation.

Demographic and personality traits are the independent variables. The demographic traits included in this study that are believed to influence ethical behavior are:



**Figure 2.**  
Impact of individual characteristics on ethical decision-making

Figure 3.  
Research model



- gender (Gattiker and Kelley, 1999; Kreie and Cronan, 1998; Loch and Conger, 1996); and
- age (Gattiker and Kelley, 1999; Leonard *et al.*, 2004).

Our sample consisted almost entirely of college juniors and seniors, so there is little variance in our sample with respect to age (127 out of 167 were between 20 and 22 years of age). Therefore, we offer no analysis with respect to age but included it as an independent variable with all of the other individual characteristics. The personality traits included in this study are:

- *Locus* of control (Trevino, 1986; Jones, 1991); and
- Ego strength (Trevino, 1986; Rest *et al.*, 1986).

Because, Jones (1991) proposes that characteristics of the ethical scenario are expected to influence ethical decision-making, four scenario dummy variables are used to control for differences among the five scenarios.

### *Gender*

Gender has been found to be a significant indicator of ethical behavioral intention, with women acting more ethically than men (Banerjee *et al.*, 1996; Beltramini *et al.*, 1984; Chonko and Hunt, 1985; Dawson, 1997; Deshpande, 1997; Ferrell and Skinner, 1988; Jones and Gautschi, 1988; Kidwell *et al.*, 1987; Leonard and Cronan, 2001; Leonard *et al.*, 2004; Loch and Conger, 1996; Ruegger and King, 1992; Whipple and Swords, 1992). However, it should be noted that some studies have found gender to have no impact on ethical beliefs (Allmon *et al.*, 2000; Browning and Zabriskie, 1983; Callan, 1992; Dubinsky and Levy, 1985; Hegarty and Sims, 1978, 1979; Jones and Kavanagh, 1996; McNichols and Zimmerer, 1985; Mudrack, 1993; Serwinek, 1992). We propose that men's and women's beliefs and judgments regarding ethical behavior will be different:

*H1a.* Women and men will differ in their beliefs and judgments about ethical behavior.

There is evidence that the ethical decision-making process is different for men than women. Men rely on their attitudes toward an action when deciding to perform a computing act, whereas women rely on prevailing social norms (Loch and Conger, 1996). Differences between men and women have also been found to depend on the situation (Loch and Conger, 1996; Dawson, 1997; Deshpande, 1997; Leonard and Cronan, 2001).

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Dawson (1997) found women to reach ethical judgments based on relationships rather than rules and rights. Kreie and Cronan (1998) found different variables significant for men and women, with women relying on the societal environment, belief system, personal values, legal environment, moral obligation, and the ethical issue itself, and men relying on the legal environment, moral obligation, awareness of consequences, and the ethical issue itself. Gattiker and Kelley (1999) found that women appear to be more cautious in the use of technology and were less tolerant about the distribution of a banned violent computer game. Therefore, the process of ethical decision-making is likely to be different for women and men:

*H1b.* Women and men will differ in the relationship strength between beliefs, judgments, and intent.

### *Ego strength*

Barron (1953, p. 332) resolved “that a significant determinant of personality change in psychotherapy is strength of the ego before therapy begins.” In ethical situations, Trevino (1986) proposed that people with high ego strength would be more likely to resist their impulses and act in a manner that was consistent with their moral judgment. Rest *et al.* (1986, p. 16) likewise proposed that individuals with high ego strength have “the strength of their convictions” and will follow through on their moral judgments. Therefore, individuals with high ego strength should be less likely to change their opinions about an ethical dilemma than individuals with low ego strength:

*H2a.* High ego strength and low ego strength individuals will differ in their beliefs and judgments about ethical behavior.

The ethical framework of a high ego strength individual is likely to have a stronger relationship from beliefs and judgments to intent because of his/her conviction than a low ego strength individual. Leonard and Cronan (2001) found that ego strength was a significant indicator of intent:

*H2b.* High ego strength and low ego strength individuals will differ in the relationship strength between beliefs, judgments, and intent.

### *Locus of control*

*Locus* of control is the degree to which an individual perceives that a reward results from one’s attributes or behavior rather than from outside forces. Rotter (1966) describes two orientations for *locus* of control – internal and external. Internally-oriented individuals believe events in their lives are determined by their own behavior and effort, where as externally-oriented individuals believe events in their lives are determined by forces outside their control, such as fate, chance or other forces (Trevino, 1986). Jones (1991) proposes that an individual’s *locus* of control plays a role in his/her recognition of moral issues:

*H3a.* Internal *locus* of control and external *locus* of control individuals will differ in their beliefs and judgments about ethical behavior.

*Locus* of control has been found to directly influence ethical behavior and decision-making (Terpstra *et al.*, 1991; Trevino and Youngblood, 1990), and significantly affect an individual’s intent, with individuals having an external *locus* of control being more likely

to behave unethically than individuals having an internal *locus* of control (Jones and Kavanagh, 1996; Terpstra *et al.*, 1991). This reaffirms Hegarty and Sims' (1978) findings regarding *locus* of control and individual behavior:

*H3b.* Internal *locus* of control and external *locus* of control individuals will differ in the relationship strength between beliefs, judgments, and intent.

### Research method

The experimental system was entirely web-based, including the questionnaires and chat room. The subjects first filled out questionnaires about their background (gender, major, etc.), ego strength and *locus* of control, and the research model items for each of the five scenarios. Once all of the subjects had completed the questionnaires, they were divided into groups. The groups ranged in sizes from five to seven members. Because Trevino (1986) proposed that high ego strength individuals were less likely than low ego strength individuals to change their opinions based on social influence, group membership was assigned to balance ego strength scores. All of the groups had a pairing of high and low ego members; meaning low ego strength members would have an approximately equal chance of their opinion being swayed by the high ego members in any of the groups.

During the chat sessions, each group member was shown a web page with the scenario that they were to discuss along with instructions to discuss the moral judgment item (was the behavior acceptable?). The chat session was anonymous; comments appeared on a bulleted list with no identifying information or alias. After discussing the scenario for three minutes, the individual subjects completed the scenario questionnaire again[1]. The five scenarios were read and discussed in the order presented in Appendix. The same five scenarios have been used in other studies (Kreie and Cronan, 1998, 2000; Leonard and Cronan, 2001; Leonard *et al.*, 2004).

### Measures

The independent variables are individual characteristics: gender (male = 1, female = 0), age, ego strength (Barron, 1953), and *locus* of control (Rotter, 1966), and scenario dummy variables are used to control for differences in beliefs and attitudes among the five scenarios. The decision-making process variables measure perceptions about the ethical scenarios. Perceived importance (Robin *et al.*, 1996) measures the perceived degree of importance of the ethical issue. Moral judgment (Leonard *et al.*, 2004) measures whether the individual finds the questionable behavior acceptable or unacceptable. Moral obligation (Leonard *et al.*, 2004) measures the individual's moral obligation to act when faced with the questionable behavior. Finally, moral intent (Robin *et al.*, 1996) measures the individual's intention to perform the questionable behavior. We chose a scenario-based approach because many of the participants either would have varying levels of ability to commit the questionable act or would infrequently, if ever, engage in questionable behavior involving IT.

Paired *t*-tests and partial least squares (PLS) analysis were used to analyze the collected data. PLS was chosen over covariance-based SEM (e.g. LISREL, EQS, and AMOS) for this study because:

- the model itself is exploratory: some of the structural paths are implied in the theory but the relationships have not been proposed in previous research; and

- it requires smaller sample sizes than covariance-based SEM with minimal sample size recommendations ranging from 30 to 100 cases compared with recommendations of 200-800 for covariance-based SEM (Chin, 1998).

### *Sample*

Students have been shown to have different beliefs and attitudes toward ethical behavior (Cappel and Windsor, 1998); however, they are just as likely as professionals to follow the four-component model when making ethical decisions, so student differences in beliefs, attitudes, and decision-making based on their individual characteristics such as gender, ego strength, or *locus* of control may hold for more mature professionals. The subjects were students in a junior-level management information systems course at a private mid-western university that was required of all business majors.

Because we want to compare differences in moral decision-making regardless of the scenario, the phenomenon of interest is the response to each question for the five scenarios. By aggregating the responses, differences in ethical decision-making processes due to characteristics of the individual scenarios for each participant are mitigated. This should give an idea of how individual characteristics influence ethical decision-making, independent of differences in ethical scenario. The overall sample size is 835 (167 participants answering questions about five scenarios).

Statistical comparisons based on gender and whether they had faced an ethical dilemma were made using those dichotomous variables. Those based on continuous or interval variables (ego strength and *locus* of control) were divided into quartiles, with the first and fourth quartiles forming the basis for comparison.

Based on Chin's (1998) strong rule of thumb criterion, the minimum sample size for PLS analysis is ten times the number of independent variables in the largest multiple regression. In our model, the dependent variable with the largest number of independent variables impacting it is post interaction attitude with ten. Therefore, the minimum sample size required for the PLS analysis is 100 ( $10 \times 10$ ). All of the models exceed this level. Because the sample sizes for each model vary, they are reported for each of the individual characteristics in their respective results sections.

### **Findings**

The Bonferonni technique was used to adjust for performing multiple statistical comparisons for both the *t*-tests and PLS model comparisons, meaning a *p*-value of 0.0125 (0.05/four tests for each variable or path coefficient) or less was necessary in order for a single comparison to be statistically significant. The bootstrap resampling technique (Chin, 1998) was used to determine the significance of paths (500 subsamples). Path coefficients between groups were compared using Chin's (2000) multi-group analysis technique. Perceived importance is coded such that lower values represent higher perceived importance. Therefore, negative path coefficients between perceived importance and positively coded variables represent a positive relationship between the underlying constructs.

### *Gender*

Of the 167 total participants in the study, 81 indicated that they were male, and 86 indicated that they were female. With five scenario responses per subject, the sample

sizes are 405 and 430 for males and females, respectively. Table I summarizes the results of *t*-tests comparing males with females. Males were significantly different in their responses than females on all questionnaire items, supporting *H1a*. Females found the questionable behavior more important, less acceptable, felt more of an obligation to act, and were less likely to engage in it. After interacting with others in a chat session, both males and females shifted in their responses; males and females found the behavior more acceptable, and females felt less of an obligation to act.

In the PLS models, none of the pre-interaction paths are significantly different between males and females ( $p > = 0.114$ ). However, the post-interaction relationship between obligation and intent is significantly lower for females than for males ( $p < 0.001$ ), with the relationship for females being insignificant. The relationship between judgment and intent is significantly higher for females than males ( $p = 0.008$ ), as is the relationship between importance and judgment ( $p < 0.001$ ). Therefore, *H1b* is partially supported.

*Ego strength*

Of the 167 total participants in the study, 35 scored 5 or lower on the ego strength scale, and 36 scored 9 or higher. With five scenario responses per subject, the sample sizes are 175 and 180 for low and high ego strength, respectively. Table II summarizes the results of *t*-tests comparing low with high ego strength subjects.

**Table I.**  
Means (standard deviations) and *p*-value of differences by gender

	Male	Female	<i>t</i> -test <i>p</i> -value
iImportance <sup>a</sup>	3.79 (1.72)	3.31 (1.69)	< 0.001
iJudgment	4.18 (2.10)	5.02 (1.86)	< 0.001
iObligation	3.93 (1.87)	4.75 (1.86)	< 0.001
iIntent	3.81 (2.11)	5.00 (2.03)	< 0.001
piImportance	3.85 (1.83)	3.38 (1.96)	< 0.001
piJudgment	3.88 (2.22) *	4.67 (2.29) *	< 0.001
piObligation	3.86 (1.99)	4.51 (2.04) *	< 0.001
piIntent	3.74 (2.17)	4.85 (2.26)	< 0.001

**Notes:** \*Indicates significantly different from pre-interaction ( $p < = 0.0125$ ); and <sup>a</sup>a letter i preceding a variable name indicates initial (pre-interaction) while pi indicates post-interaction

**Table II.**  
Means (standard deviations) and *p*-value of differences by ego strength scores

	Low ego strength	High ego strength	<i>t</i> -test <i>p</i> -value
iImportance <sup>a</sup>	3.22 (1.55)	3.83 (1.75)	0.001
iJudgment	5.05 (1.87)	3.98 (2.08)	< 0.001
iObligation	5.06 (1.63)	3.56 (1.92)	< 0.001
iIntent	5.11 (1.90)	3.55 (2.18)	< 0.001
piImportance	3.36 (1.73)	3.76 (1.90)	0.039
piJudgment	4.66 (2.14) *	3.77 (2.31)	< 0.001
piObligation	4.81 (1.96)	3.57 (1.96)	< 0.001
piIntent	4.70 (2.13) *	3.48 (2.28)	< 0.001

**Notes:** \*Indicates significantly different from pre-interaction ( $p < = 0.0125$ ); and <sup>a</sup>a letter i preceding a variable name indicates initial (pre-interaction) while pi indicates post-interaction



Low ego strength subjects were significantly different in their responses than those with high ego strength on all of the questionnaire items except post-interaction perceived importance. Low ego strength subjects found the questionable behavior more important (before interaction), less acceptable, felt more of an obligation to act, and were less likely to engage in it. This generally supports *H2a*. As expected, individuals with high ego strength generally did not shift in their scores between pre- and post-interaction, while those with low ego strength did, indicating that high ego strength individuals have more “strength of conviction,” and are less persuaded by others. Low ego strength individuals shifted significantly on judgment and intent.

In the PLS models, the low ego strength and high ego strength models are similar pre-interaction ( $p > 0.38$  for all links), but have some striking differences in their post-interaction relationships, which seem to reflect the shifting opinions of the low ego strength subjects. The post-interaction relationships are significantly weaker for high ego strength subjects from importance to judgment ( $p < 0.001$ ) and from judgment to intent ( $p < 0.001$ ). This partially supports *H2b*.

*Locus of control*

Of the total participants in the study, 42 scored 7 or lower on *locus* of control scale, and 45 scored 13 or higher. With five scenario responses per subject, the sample sizes are 210 and 225 for internal and external *locus* of control, respectively. Table III summarizes the results of *t*-tests comparing internal with external *locus* of control subjects. External *locus* of control subjects were significantly different in their responses compared with those with internal *locus* of control for pre-interaction judgment, pre-interaction intent, and post-interaction intent. External *locus* of control individuals generally found the questionable behavior less acceptable and were less likely to engage in it. This lends some support for *H3a*. Only judgment for those with external *locus* of control shifted significantly after interacting with others.

None of the relationships in the two PLS models are significantly different from each other ( $p > = 0.09$  for the relationship between importance and judgment,  $p > = 0.451$  for the others), pre-interaction. The post-interaction relationship between judgment and intent is significantly higher ( $p < 0.001$ ) for internal *locus* of control subjects than for external *locus* of control subjects. The post-interaction relationships from importance to judgment ( $p = 0.166$ ) and from obligation to intent ( $p = 0.048$ ) are

	Internal <i>locus</i> of control ( $n = 210$ )	External <i>locus</i> of control ( $n = 225$ )	<i>t</i> -test <i>p</i> -value
iImportance <sup>a</sup>	3.42 (1.88)	3.66 (1.51)	0.141
iJudgment	5.01 (2.01)	4.37 (1.88)	0.001
iObligation	4.44 (1.97)	4.08 (1.65)	0.041
iIntent	4.75 (2.18)	4.18 (2.01)	0.005
piImportance	3.46 (1.93)	3.70 (1.75)	0.166
piJudgment	4.63 (2.24)	4.17 (2.17)*	0.029
piObligation	4.34 (2.09)	4.07 (1.89)	0.157
piIntent	4.66 (2.31)	4.10 (2.14)	0.009

**Notes:** \*Indicates significantly different from pre-interaction ( $p < = 0.0125$ ); and <sup>a</sup>a letter *i* preceding a variable name indicates initial (pre-interaction) while *pi* indicates post-interaction

**Table III.**  
Means (standard deviations) and *p*-value of differences by *locus* of control scores

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not significantly different for external *locus* of control subjects than for internal *locus* of control subjects. This lends little support for *H3b*.

### Discussion

Gender differences in ethical decision-making seem to primarily be related to initial attitude, with women having a more negative attitude than men toward questionable behavior. After interacting with others, women hold more strongly to their moral judgment when determining their behavioral intent, while men continue to weigh their personal moral obligation to act. Our results suggest women's judgment of questionable behavior can be shifted due to social interaction, and once shifted becomes the primary driver for intent. Men tend to shift their judgments less, and continue to weigh their moral obligation to act when determining their intent even after interacting with others.

Pre-interaction, there are almost no differences in the process of ethical decision-making between high and low ego individuals. This suggests that in absolute terms, the relationships between each component may not be different; rather, individuals with high ego strength are more likely to hold to their moral judgments and carry those through, while those with low ego strength are likely to be swayed by others. As was anticipated in the design of this experiment, lower ego strength individuals will change not only their moral beliefs and judgments, but their ethical decision-making processes after interacting with higher ego strength individuals.

In addition to a less favorable attitude toward questionable behavior for low ego strength individuals, they have a stronger relationship between perceived importance and judgment and between judgment and intent after they interact with others. The lower strength post-interaction relationship between judgment and intent for high ego strength individuals appears to contradict Trevino's (1986) proposition that higher ego strength individuals would have a stronger relationship between moral judgment and moral action (intent); however, much of this difference may be due to the greater shift in intent for the low ego strength individuals as a result of the interaction. Indeed (and as would be expected), the relationship between pre- and post-interaction intent is significantly higher for high ego strength individuals than low ego strength individuals (0.34 versus 0.15,  $p = 0.002$ ), which supports the proposition that high ego strength individuals stick to their convictions while leaving less variance in post-interaction intent to be explained by other factors.

Persons with an internal *locus* of control think about questionable behavior differently than those with an external *locus* of control. The differences in beliefs and judgments are not as striking as the difference between high and low ego strength people, however. After interacting with others, the individuals with internal *locus* of control had a stronger relationship between judgment and intent, which would seem to be consistent with Trevino's (1986) proposition that internal *locus* of control individuals would have a greater relationship between moral judgment and moral action. It should be noted that the relationship between pre- and post-interaction intent was higher for subjects with external *locus* of control (0.28 versus 0.13,  $p = 0.006$ ), which left less intent to be explained. Although significant, the differences are not as pronounced as the differences between high and low ego strength individuals and are the opposite of what would be expected.

Of the individual characteristics we looked at, gender seems to have the most profound effect on ethical decision-making. Males and females differ markedly in both

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their beliefs and attitudes and their process of ethical decision-making. Ego strength also has a strong effect on ethical decision-making. This study shows that those with high ego strength will stick to their beliefs and attitudes, making their decisions more predicable even after they interact with others.

This study used students as subjects. Students have been found to have different beliefs about questionable behavior than professionals (Cappel and Windsor, 1998). A student's process of ethical decision-making may also be different. Certainly, much of the differences in beliefs and the process of ethical decision-making may be related to the young age of most students, and hence their lower level of moral development (Rest *et al.*, 1986). This limits the generalizability of these results; however, the data suggests that both the level of beliefs and judgments about ethical behavior and the relationships among them are influenced by individual characteristics.

### Conclusions

The results of this experiment show that the relationship among factors that influence ethical decision-making is complex and that different factors become more salient for different individuals, based on their gender and personality. Clearly, both judgments and the moral decision-making processes of individuals change after they interact with others. Given that the phenomenon of group polarization occurs even without group discussion (Myers and Lamm (1976) for a review of this phenomenon), individuals can be expected to change their decision-making process as they consider an issue over time, with or without asking others what they think. This suggests that one-shot surveys of ethical behavior may not account for the complete process of ethical decision-making.

### Implications for managers

Researchers in IT ethics all suggest implementing codes of ethics and implementing training programs as a means for controlling unethical behavior, which is also reflected in the popular press. Many studies also suggest targeting such training based on individual characteristics such as personality styles and demographics and rules to follow in organizations, and they offer approaches to teaching ethics in the field of MIS (Kreie and Cronan, 2000; Foltz *et al.*, 2005; Gattiker and Kelley, 1999; Leonard and Cronan, 2001, 2005; Peterson, 2002; Steinke and Nickolette, 2003). In general, organizations would be unable to target ethical training based on gender. However, conductors of ethics training courses should be aware when dividing personnel into groups that those with high ego strength are likely to persuade those of lower ego strength. Additionally, ethical behavioral intentions and privacy should be examined in relation to changes in IT such as the use of the internet (refer to Cao *et al.* (2005), Dwivedi *et al.* (2006), Flavian and Guinaliu (2006) and So *et al.* (2005) for recent internet use, intention, and satisfaction studies).

### Note

1. A pilot study indicated that the features of the chat room allowed for normal conversation flow, but found that a five-minute discussion period was too long. We decided to ensure as little off-topic chat as possible and limited the discussion time to three minutes. Later experimental groups indicated that this was long enough for an adequate discussion of the scenarios.

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## Appendix. Scenarios and questionnaires

### Scenario 1

A programmer at a bank realized that he had accidentally overdrawn his checking account. He made a small adjustment in the bank's accounting system so that his account would not have an additional service charge assessed. As soon as he made a deposit that made his balance positive again, he corrected the bank's accounting system.

Judgment: The programmer's modification of the accounting system was: (acceptable – unacceptable).

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Intent: If you were the programmer, what is the probability that you would have modified the accounting system? (highly probable – highly improbable).

Importance: The programmer's modification of the accounting system was a(n): (extremely important issue – unimportant issue, highly significant issue – insignificant issue, issue is of considerable concern – issue is of no concern, fundamental issue – trivial issue).

Obligation: How *morally obligated* would you feel to take corrective action in this case? (no obligation – strong obligation).

#### *Scenario 2*

With approval from his boss, a person ordered an accounting program from a mail-order software company. When the employee received his order, he found that the store had accidentally sent him a very expensive word processing program as well as the accounting package that he had ordered. He looked at the invoice, and it indicated only that the accounting package had been sent. The employee decided to keep the word processing package.

#### *Scenario 3*

A computer programmer enjoyed building small computer applications to give his friends. He would frequently go to his office on Saturday when no one was working and use his employer's computer to develop computer applications. He did not hide the fact that he was going into the building; he had to sign a register at a security desk each time he entered.

#### *Scenario 4*

A computing service provider offered the use of a program at a premium charge to subscribing businesses. The program was to be used only through the service company's computer. An employee at one of the subscribing businesses obtained a copy of the program accidentally, when the service company inadvertently revealed it to him in discussions through the system (terminal to terminal) concerning a possible program bug. All copies of the program outside of the computer system were marked as trade secret, proprietary to the service, but the copy the customer obtained from the computer was not. The employee used the copy of the program after he obtained it, without paying the usage fee to the service.

#### *Scenario 5*

A marketing company's employee was doing piece work production data runs on company computers after hours under contract for a state government. Her moonlighting activity was performed with the knowledge and approval of her manager. The data were questionnaire answers of 14,000 public school children. The questionnaire contained highly specific questions on domestic life of the children and their parents. The government's purpose was to develop statistics for behavioral profiles, for use in public assistance programs. The data included the respondents' names, addresses, and so forth.

The employee's contract contained no divulgement restrictions, except a provision that statistical compilations and analyzes were the property of the government. The manager discovered the exact nature of the information in the tapes and its value in business services his company supplied. He requested that the data be copied for subsequent use in the business. The employee decided the request did not violate the terms of the contract, and she complied.

#### **About the authors**

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