How Did Ethical Evaluation Work As a Mediator between Moral Intensity and Decision Making?

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Abstract

IT professionals who were entitled to develop information technology required commitment with information ethics. When IT professionals facing unethical issues, how did the dominators of their ethical evaluations work between unethical issue with different moral intensity and their ethical intention? An individual's ethical decisions are dominated by either deontological evaluation (DE) or teleological evaluation (TE). Using data collected from IT professionals who responded to three scenarios, we applied partial least squares in data analyses, resulting in the following findings. The moral intensity of an unethical action significantly influenced the teleological evaluation regarding organizational harm for IT professionals. The ethical decision of IT professionals was affected primarily by deontological evaluation. And temporal immediacy, one of the six indicators of moral intensity, showed the strongest effect on moral intensity with regard to the information ethical issues. Implications and managerial practices were then discussed.

Keywords: moral intensity、deontological evaluation、teleological evaluation、ethical intention

1. Introduction

Information technology (IT) misuse has resulted in serious losses to business and society. In modern information societies, the ethical integrity and accountability of IT professionals is particularly important given the extensive reliance of individuals as well as organizations and governments on various forms of IT. Ethical studies on IT professionals have concluded that good ethics in the development and uses of IT correspond to the basic business principle that good ethics is good business (Payne and Landry, 2005). Today, IT workers are integrated into every department, function globally, and have access to a wealth of knowledge and information. Virtually, all elements of business involve the use of IT workers. Therefore, their ethical behaviors present not only a professional ethics issue, but also business-wide concerns (Payne and Landry, 2006).

To date, studies of IT ethics have consisted of researchers focusing on ethical issues, such as piracy and virus spreading, and/or behaviors of various IT users (e.g., MIS students, internet users, IS professionals, and managers). Among these studies, factors affecting IT ethical behavior can be characterized as scenario-relevant (i.e., significant only in certain scenarios) and scenario-irrelevant (i.e., significant in general) (Davison et al., 2009; Leonard et al., 2004). Although scenarios are commonly used as an instrument in ethical studies, they exert certain effects on the research factors. The influences on characteristics of moral issues cannot be ignored. Scenarios used in IT ethical issues usually represent one of Manson's four PAPA issues—namely, property, accessibility, privacy, and accuracy. PAPA is often applied in studies to validate current and important ethical issues (Parrish, 2010; Peslak, 2006). Meanwhile, Jones (1991) proposed an issue-contingent model to present the notion of moral intensity, which differed in applied scenarios, suggesting that it may play an important part in individual ethical intention. Empirical studies about moral intensity of information issues were few in contrast to studies of marketing issues. Studies of IT professionals' ethical decisions concerning moral intensity have their contributions.

Ethical issues can be affected by cultural factors as well. Snell (1999) found that Chinese employees were very likely to obey requests from their boss to do something unethical in order to fulfill contractual obligations. Another investigation surveying the ethics of IT professions in China found that most IT employees and managers are expected to rationalize ethical issues, although not on specific issues; moreover, IT professionals are likely to exhibit some volatility in their ethical reasoning (Davison et al., 2009).

Although a code of ethics needs to be expressed explicitly in organization policies to regulate employees' behavior, a gap exists between the existence of explicit ethical principles and the attitude and behavior of the employees (Webley and Werner, 2008). Will the sub-culture between China and Taiwan show any impact on their IT professionals?

In addition, differences in information ethics between Chinese managers and American managers indicated that the values and beliefs implanted in Chinese managers' early childhood shaped their ethical decision-making processes. However, the American managers were able to rely on a well-established set of laws and rights (Martinsons and So, 2005). American managers are educated in democratic country. However, mainland Chinese is educated in communistic country. Education is important to individual moral development (Rest,1986).In light of such understanding, will the ethical decision making be the same for Chinese managers or employees as individuals from a society like that of the United States? Empirically examining Chinese IT professionals' ethical intention in a democratic society with regard to issue specifics offers an intriguing opportunity for research.

The major purposes of the current study is to incorporate issue-contingent elements into IT professionals' ethical decision making in Taiwan in order to identify factors that influence an individual's evaluation of the decision. Comparisons of our results and those of prior researches of IT professionals in China and U.S. are the minor ones. Ultimately, this study aims to determine how the moral intensity of an ethical issue specifically influences the ethical intention.

2. Literature Review

2.1Moral philosophy

Ethics can be defined as "inquiry into the nature and grounds of morality where the term morality is taken to mean moral judgments, standards, and rules of conduct" (Taylor, 1975, p.1). Almost all normative ethical theories in moral philosophy can be classified as either deontological or teleological (Murphy and Laczniak, 1981). Deontological theories focus on the behavior of an individual whereas teleological theories focus on the consequences of the behavior. Deontologists believe in the inherent righteousness of a behavior; teleologists believe in the comparative value of a behavior. Thus, an individual's ethical decisions are dominated by either deontological evaluation (DE) or teleological evaluation (TE).

2.2 Moral Intensity (MI)

Jones (1991) integrated the models of Ferrell and Gresham (1985), Rest (1986), Trevino (1986), Hunt and Vitell (1986), and Dubinsky and Loken (1989) to propose an issue-contingent ethical decision model. Jones used Hunt and Vitell's theory as a theoretical foundation, focusing on the importance of the moral intensity of an ethical issue as key for understanding situations involving ethical content. The model contains a new set of variables—called moral intensity—that characterize the ethical issue itself. The moral intensity construct includes six components:

- Magnitude of consequences (MC), defined as the sum of the harms (or benefits) done to victims (or beneficiaries) of the moral act in question.
- Social consensus (SC), defined as the degree of social agreement that a proposed act is evil (or good).
- Probability of effect (PE), defined as a joint function of the probability of the act in question.
- Temporal immediacy (TI), defined as the length of time between the present and the onset of consequences of the moral act in question (shorter length of time implies greater immediacy).
- Proximity (PX), which is the feeling of nearness (social, cultural, psychological, or physical) that the moral agent has for victims (beneficiaries) of the evil (beneficial) act in question.
- Concentration of effect (CE), which is an inverse function of the number of people affected by an act of given magnitude.

Moral intensity not only characterizes an ethical issue, but also affects the ethical intention. In Jones's (1991) proposed model, moral intensity affects Rest's (1986) four-component ethical decision, which includes the processes of moral issue recognition, moral judgment, moral intent, and moral behavior. The moral problem activates the ethical decision making and can be characterized in terms of moral intensity. The moral intensity then influences the ethical intention. Ethical judgment will certainly be included in the ethical intention process (Hunt and Vitell, 1986; Rest, 1986).

In Jones's model, the moral issue is an independent variable affecting all four stages, including moral judgment. Both DE and TE affect ethical judgment as they are the components of the ethical decision-making process according to Hunt and Vitell's (1986) model. Therefore, moral intensity also affects DE and TE as well. Thus, we hypothesize that:

H1: High moral intensity of an unethical issue will have a high deontological evaluation.
H2: High moral intensity of an unethical issue will have a high harmful (teleological) evaluation

2.3 Ethical Decision Model

Numerous empirical tests of models derived from the theory of planned behavior (TPB) and theory of reasoned action (TRA) have explained factors from psychological and sociological aspects in the field of information ethics (Banerjee et al., 1998; Lin and Ding, 2003; Leonard et al., 2004). Cronan (2006) integrated the associated studies to propose a general IT ethical behavior model. However, deontological and teleological theory was only partly applied in the study of digital piracy (Al-Rafee and Cronan, 2006). Thus, studies about information ethical intention based on deontological and teleological theory should be conducted to enrich the ethical intention research.

Hunt and Vitell's (1986) theory—called the H-V theory—provide a general theory of ethical decision making and represent the theory in a process model. The theory draws upon both the deontological and teleological ethical traditions in moral philosophy. The model was revised in Hunt and Vitell (1993) to illustrate the individuated portion for professional and managerial context and general portion of this theory. Individuals in some situations are strict deontologists and, therefore, completely ignore the consequences of alternative actions. In such a case, DE independently affects intention. The H-V model proposes that TE also independently affects intentions.

Although the H-V model suggested that guilt will occur when the ethical judgment differs from intention, it is the intention that affects the behavior, not the ethical judgment. The individual may have perceived a particular alternative as the most ethical one, but the person may intend to choose another alternative because of preferred consequences, indicating that his intention is dominated by TE, which overcomes the DE. Thus, ethical intention is directly influenced by TE (Hunt and Vitell, 1986). Therefore, we believe that either TE or DE will manipulate individuals' intentions.

Studies supporting the direct relationship between DE and ethical intention have been conducted with marketing professionals (Cherry and Fraedrich, 2000; Cherry et al., 2003). As TE can always be assessed either by benefit or harm, Cherry et al.'s (2003) work was applied to divide TE into harm-to-organization and harm-to-individual factors. The current research model eliminates the ethical judgment construct, proposing that TE as well as DE will directly influence ethical intention. We hypothesize that

H3: High deontological evaluation will have high ethical intention.
H4: High harmful (teleological) evaluation will have high ethical intention.

Empirical tests of the H-V model have been conducted in the marketing area (Hunt and Vasquez-Parraga, 1993; Mayo and Marks, 1990; Menguc, 1998; Singhapakdi andVitell, 1991; Vitell et al., 2003), providing strong support for the H-V theory (Hunt and Vitell, 2006). The H-V model applied in the area of information ethics was empirically tested in our study to expand upon previous H-V research.

2.4 Morality Intensity Items As Formative Indicators

Internal consistency is a main characteristic for reflective indicators (Diamantopoulos and Winklhofer, 2001). Previous studies have applied principal factor analyses to determine that the composed items were hardly consistent across studies. The six components of MI previously discussed have often been used as reflective indicators. The latent variables and their composed items are listed in Table 1.The six MI items are applicable as formative indicators for several reasons. First, the items used as formative indicators must cover the entire scope of the latent variable (Diamantopoulos and Winklhofer, 2001).With formative indicators, "omitting an indicator is omitting a part of the construct" (Bollenand Lennox, 1991, p. 308).The six items cover the MI construct; theoretically, none of them can be omitted. Second, the indicators are interchangeable as reflective items. Since the six items are not interchangeable, they are suitable as formative indicators. Third, the items have been used as independent variables in studies of regression analysis (McMahon and Harvey, 2007; Singer et al., 1998).

This method matched the formative specification of MI. Thus, the current study uses the six components of MI as formative indicators. Indicators of other constructs were reflective. The research model for the current study is presented in Figure 1.

3. Methodology

Scenarios commonly used in ethics research were applied to this study to successfully project users into a practical decision context (Harrington, 1996). The survey consisted of three scenarios and related questions. Each scenario, adapted from Banerjee (1998), depicted a different information ethical issue. Scenario 1 represented the issue of property, Scenario 2 represented the issue of privacy, and Scenario 3 represented the issue of accuracy. Questions following each scenario were divided into five parts, and item responses were measured using a 7-point Likert scale. The first part consisted of one question to determine whether an ethical issue exists in the scenario or not. The second part consisted of six questions, adapted from Singhapakadi et al. (1996), to measure moral intensity construct. Items rated as "1" represented low MI (e.g., the participant judged the questionable action in the scenario as low magnitude of consequences) while "7" indicated high MI. The third part consisted of two questions, adapted from Cherry et al. (2003), about deontological evaluation, with "1" representing unethical and "7" representing ethical. The fourth part consisted of four questions, adapted from Cherry et al. (2003) that inquired about teleological evaluation, with "1" representing harmless and "7" representing very harmful. The last part consisted of one question—"intention to do the ethical behavior," adapted from Singhapakdi et al. (1999)—with "1" representing low ethical intention and, "7" representing high ethical intention.

A convenience sample of 357 questionnaires was dispatched to IT workers, including system analysts, IT managers, system engineers, and system designers. All were information system workers in various industries. Ultimately, 280 independent responses were collected for each scenario. As each participant responded to three scenarios, a total of 840 observations was collected. Ethical intention can be discussed only when respondents were able to recognize the ethical issues (Trevino, 1986). Samples that did not recognize ethical issues and invalid/incomplete responses were removed, resulting in 761 valid observations (see Table 2). Most respondents were male, well-educated, aged 30-50, and experienced employees. About 60% of the respondents worked in middle to large businesses (see Table 3). Partial least square (PLS) was used to analyze data. PLS employs a component-based approach for estimation purposes (Lohmoller, 1989) and can handle formative factors. PLS places minimal restrictions on measurement scales, sample size, and residual distributions (Chin et al., 2003). SmartPLS 2.0 was applied for data analyses.

4. Results

4.1 Measurement Model

Measurement reliability was assessed using internal consistency scores, calculated by the composite reliability scores (Werts et al., 1974) and Cronbach'sα. Item loadings and internal consistencies greater than 0.7 were considered acceptable (Fornelland Larker, 1981). Item loadings (see Table 4) greater than 0.7 for teleological evaluation of organizational harm (TEC) and teleological evaluation of individual harm (TEP) were loaded on the corresponding factor. The Cronbach's α of TEP was 0.627, which is a little bit lower than the recommended value 0.7.As Fornell(1982) recommended, a CR score higher than 0.6 is considered acceptable, which is also true for TEC and TEP (see Table 5).

Convergent and discriminate validity is inferred when (1) indicators load much higher on their hypothesized factor than on other factors and when (2) the square root of each construct's average variance extracted (AVE) is larger than 0.5 (Fornell and Larcker, 1981).AVE of one construct larger than the correlations with other construct indicates discriminate validity, as shown in Table 5. Factor of TEC and factor of TEP displayed good CR and AVE scores (see Table 5).

The original measuring item for DE included questions related to whether the behavior was considered unethical or not acceptable. Generally answers to these two questions are consistent (Vitell, 1986), although not in the current study, indicating that respondents may consider the behavior unethical, but acceptable. Therefore, we eliminated one question and kept the question of ethical or not as a measurement of DE. Constructs of DE as well as behavioral intention (BI) have only one measuring item. Their Cronbach's α, CR, and AVE scores were not available.

The MI construct is based on formative indicators rather than reflective indicators. Formative indicators are viewed as causing rather than being caused by the latent variables measured by the indicators (MacCallurn and Browne 1993, p. 533). As such, the construct validity of MI is measured by the weight of formative indicators (Diamantopoulos and Winklhofer, 2001). The formative indicators of MC, PX, PE, SC, and TI exhibited significant weights, but CE did not show significant weight (=0.001), as indicated in Figure 2. In fact, "Indicator elimination by whatever means should not be divorced from conceptual consideration when a formative measurement model is involved" (Diamantopoulos and Winklhofer, 2001, p. 273). Non-significant indicators can be kept to preserve content validity (Bollen and Lennox, 1991). Due to the formative nature of the construct—and to keep ethical content with the same concept of MI across studies—CE cannot be eliminated from MI even though the parameter is not significant.

The model was tested regarding multicollinearity and external construct validity. The highest value of the variance inflation factor was 2.367 for the MI construct, so multicollinearity should not pose a problem as it is below the common cut-off threshold of 10 (Kleinbaum et al., 1998).

To evaluate external construct validity, the measure was included in a wider nomological network. According to Bollen and Davis (1994), one way to establish model identification is the specification of two structural relations from the formative latent variable to two reflectively measured constructs; however, these two reflectively measured constructs need to be unrelated in models that only comprise the focal formatively measured construct and the two reflectively measured constructs. Our MI model exhibited the relations from MI to TEP and to TEC, which were reflectively measured variables. Their correlation (=0.257) is low (see Table 6). Paths from MI to TEP and TEC were all significant. The cross loadings for reflective measures were all higher than the recommended 0.5 (Hair et al., 1998), as demonstrated in Figure 2.Thus, our MI model was identified accordingly.

4.2 Structural Model

As the structural model showed, DE and TE together explain 33.7% of the variance in ethical intention. Meanwhile, 12.5% of the variance in DE is accounted for by MI. MI also explains 25.0% of the variance of TE of individual harm, and 43.2% of the variance of organizational harm. As indicated in Figure 3, PLS results provide strong support for the effect of MI on TE of organizational harm. Specifically, moral intensity has significant effects on both DE and TE.

The path coefficient between DE and ethical intention was greatest among the paths to ethical intention. Ethical intention was affected primarily by DE (ß=0.345). MI had the strongest effect on TE of organizational harm (ß=0.657). MI of an ethical issue showed greater influences on TE than DE. These results indicate that ethical intention is determined primarily by an individual's DE, followed by TE of organizational harm and TE of individual harm, respectively. All hypotheses were supported.

Temporal immediacy and magnitude of consequences had the strongest weights among the six formative indicators of MI. However, concentration of effect did not have a significant influence on MI for our IT professionals.

5. Discussions and Implications

The concentration of effect of an unethical issue did not significantly influence IT professionals' evaluations. These results are in line with the results of McMahan and Harvey (2006), which did not include concentration of effect after the factor extraction. The outcome was probably subject to our scenarios, which might barely identify the concentration effect of the unethical behavior.

Temporal immediacy of an unethical behavior showed the strongest effect on moral intensity. The IT professionals placed a lot of emphasis on accuracy and acceleration, which were common requirements of their work. Thus, the job characteristics of IT professionals could make the assessment of temporal immediacy of an unethical issue stand out.

Our results further showed that moral intensity has the greatest effects on teleological evaluation of organizational harm. When an ethical issue occurred, IT professionals evaluated the harm to the organization the most. This is different from our understanding that personal harms will be evaluated first when facing an unethical action. In our study, the harm to organization was assessed more than the individual harm when an unethical behavior occurs in an organization.

One of the studies about information ethics across culture indicated that the Chinese placed more importance on social norms and organizational needs and less concerned with individual rights than US-based managers when privacy of information ethics was concerned (Martinson and So, 2005). Our results showed the similar outcome. The moral intensity of an information ethic issue had greater effect on organizational harm evaluation rather than individual harm evaluation. When harm to the organization could be recognized, individual harm was accompanied accordingly for the one who behaved unethically. Consequently, managers should proclaim the magnitude of harm to the organization to enforce the relationship between moral intensity and organizational harms.

Ethical intention was significantly affected by deontological evaluation. The individual's moral development still proved to be an important factor among IT professionals, who represented a well-educated group in our sample. Individuals evaluated the inherent rightness or wrongness of the action as the deontological evaluation. The process involves comparing the behaviors with a set of predetermined deontological norms, representing personal value or rules of behavior. Stage 4 in cognitive moral development includes behaviors contributing to the society, group, or institution as a whole, following the law and fulfilling actual duties to which the individual has agreed. Moral development in higher stages tended to occur among persons with higher level of education (Karcher et al., 2002; Rest, 1986). Our results are consistent with these studies of moral development. According to Davison's study, most IT professionals in China attained stage 4 or above reasoning. IT professionals from both socialism (i.e. China) and capitalism (i.e. Taiwan) all have a reasonably well developed sense of ethical reasoning. Social economic differences did not show any impact on ethical decision. To improve ethical behaviors of IT professionals, deontological education remains the dominant approach for ensuring their ethical intention.

The influential orders of the ethical intention among deontological evaluation, harmtoorganization, and harmtoindividual explained the unethical business practices. Harmtoorganization was the last to be evaluated when an unethical behavior occurred. Harmtoindividual must be greater than harmtoorganization to prevent workers from conducting unethical practices. Any unethical behavior should be accompanied with serious individual punishment in order to magnify the individual harm perception. Studies have supported that punishment severity and punishment certainty influence individuals' software piracy intention (Peace et al., 2003). Organizations should proclaim the consequences of unethical actions. We conducted the ANOVA analysis of the ethical intentions between groups with/ without the code of ethics in their organizations. The results did not show significant differences in our study. The results also confirmed the gap between the existence of explicit ethical principles and the intention of the employees (Webleyand Werner, 2008), suggesting the need for additional attention. Thus, codes of ethics as well as the consequences of unethical behavior should be announced simultaneously to enforce ethical behavioral intention.

6. Limitations and Future Study

This study focused on testing our model with IT professionals. In the future, the model should be validated with a greater variety of professionals in different functional areas (e.g., marketing, accounting) to provide insights. In addition, the handling of non-significant items needs to be investigated more closely. An application of the model in different function settings might result in different weights of MI indicators. Further studies pertaining to the investigation of managers and non-managers, applying our model, should be conducted in the future.

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Table 1. Latent Variables of Moral Intensity

Study	**Field**	**Variable labeled**	**Composed items by principal component analysis**
Leitsch(2006)	accounting	Perceived corporate concern	MC,PE,TI,PX,SC
		Perceived involvement effect	CE
McMahan & Harvey(2006)	business	Probablemagnitudeof consequences	MC,PE,TI
		Proximity	PX
		Social consensus	SC
Valentine & Silver(2001)	marketing	One factor	MC,PE,TI,PX,SC, CE
Dukerich et al. (2000)	business	Organizational moral intensity	MC,SC,PX,CE
		Temporal immediacy	TI
Singhapakdi et al.(1996)	marketing	Perceived potential harm	MC,PE,TI,CE
		Perceived social pressure	SC,PX

Table 2. Sample Data

Scenario	**1 (property)**	**2 (privacy)**	**3 (accuracy)**
Collected samples	280	280	280
Samples successfully recognizing ethical issues	257	265	265
Invalid sample	10	11	5
Valid samples	247	254	260
% of Valid returned rate	69.18%	71.14%	72.82%

Table 3.Descriptive Statistics of Sample Profiles

Item	**Group**	**Number**	**%**
Sex	Male	175	67.3%
	Female	85	32.7%
Age	18-30	51	19.6%
	31-40	140	53.8%
	41-50	55	21.2%
	>51	14	5.4%
Education	College	173	66.5%
	Graduate school	87	33.5%
Business type	SME	47	18.1%
	Large	97	37.3%
	Government-owned	62	23.9
	Others	54	20.8
Position	Management	53	20.4%
	Non-management	207	79.6%
Employment	<2 years	29	11.2%
	2-5 years	72	27.7%
	6-10 years	69	26.5%
	>10 years	90	34.6%

Table 4. Item Loadings

Construct	Teleological Evaluation	
Items	Harm-to-organization	Harm-to-individual
TEC_1	0.917	
TEC-2	0.868	
TEP_1		0.739
TEP_2		0.937
Eigen value	2.146	1.508
Variance of explanation	35.768	25.131
Accumulated variance of explanation (%)	35.768	60.898

Table 5. Measurement Reliability and Construct Validity

Index	Cronbach'sα	Composite Reliability (CR)	Average Variance Extracted (AVE)
Recommended value	>0.7	>0.6	>0.5
TEC	0.749	0.887	0.798
TEP	0.627	0.831	0.713
DE	n.a.	n.a.	n.a.
BI	n.a.	n.a.	n.a.

Table 6. Construct Correlations

	MI	DE	TEC	TEP	BI
MI	n.a.				
DE	0.354	n.a.			
TEC	0.657	0.332	0.798		
TEP	0.499	0.386	0.257	0.713	
BI	0.358	0.497	0.370	0.409	n.a.

Note: The diagnosed element represented the AVE value.

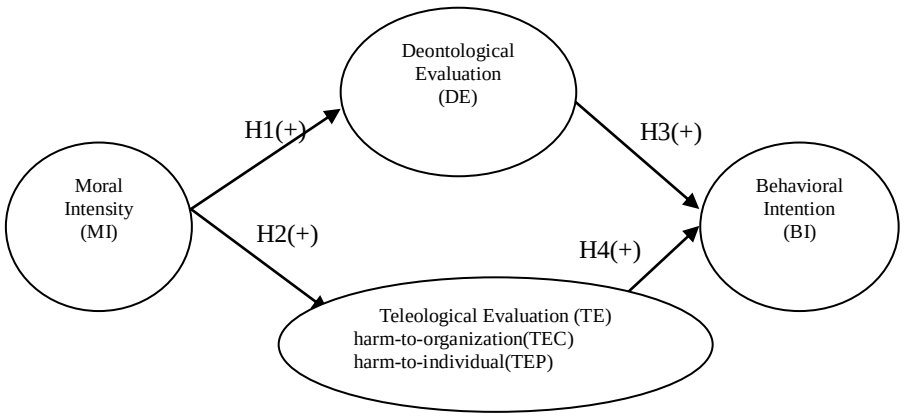

Figure 1. Research Model

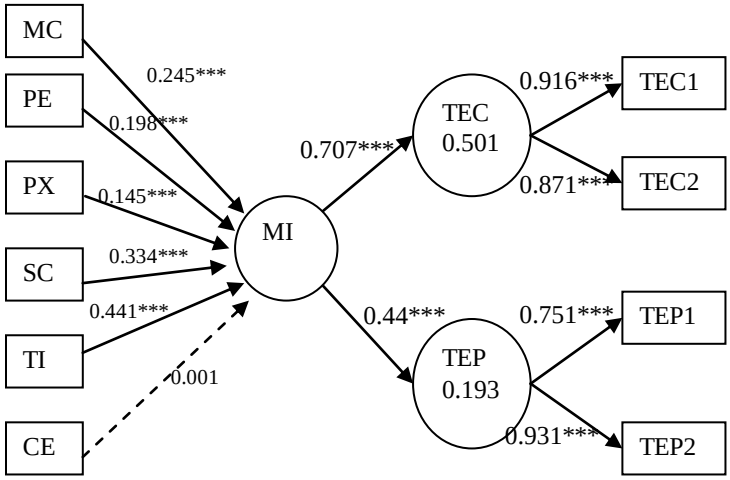

Figure 2. Model Identification of Moral Intensity
*p<0.1;**p<0.05;***p<0.01

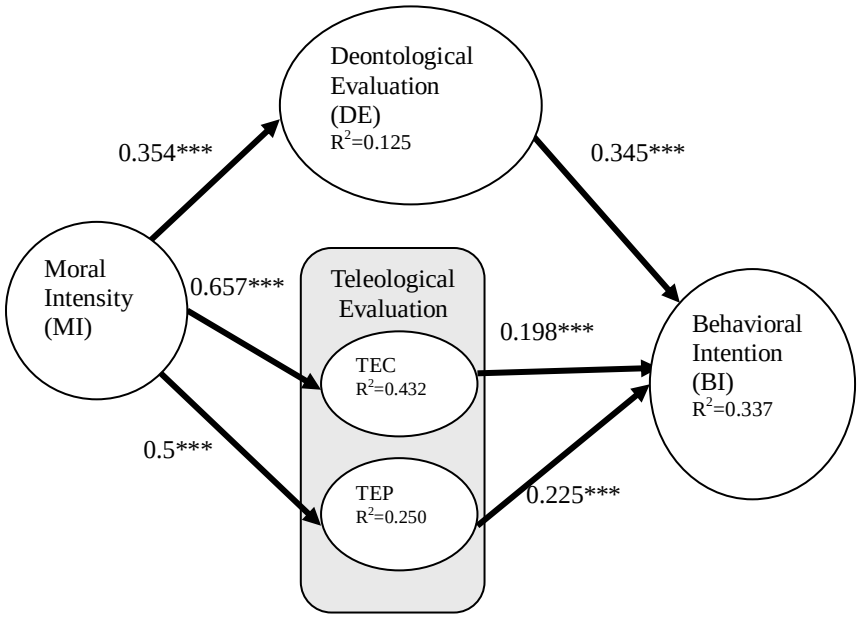

Figure 3. Structural Model
*p<0.1;**p<0.05;***p<0.01