Chapter 21
Predicting Unethical Behavior: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior

Man Kit Chang

Introduction

For the past 10 years, a numbers of studies have proposed frameworks and models to represent the determinants of unethical behavior (Bommer et al. 1987; Ferrel and Gresham 1985; Hunt and Vitell 1986; Trevino 1986). Most of them pulled from past business ethical studies the factors found to influence ethical decision making and behavior. They have been criticized for not contributing to theoretical development, but were only summaries of prior research (Brady and Hatch 1992). Most of the models have not been validated.

Predicting behavior has been the major objective of psychological theories, and some of them have been doing a very good job. The theories may be very useful in investigating unethical behavior. Some of the models mentioned earlier do draw on social psychological theories in their formulation, for example, the theory of reasoned action (TRA) (Ajzen and Fishbein 1980; Fishbein and Ajzen 1975). Theory of reasoned action and its extension, theory of planned behavior (TPB) (Ajzen 1991), have been found to be very useful in predicting a wide range of behavior (Sheppard et al. 1988; Madden et al. 1992). Therefore, it is reasonable to believe that theory of reasoned action and theory of planned behavior will provide a very good foundation for us to investigate unethical behavior. Heretofore, the theories have rarely been applied to this behavioral domain. Randall (1989) reviewed empirical studies of business ethics from 1960 to 1988, and concluded that the theory of reasoned action has rarely been applied to the study of business ethical decision making and only a few of the linkages proposed by the theory have

M.K. Chang (✉)
Department of Finance and Decision Sciences, School of Business,
Hong Kong Baptist University, Kowloon Tong, Hong Kong
e-mail: mkchang@hkbu.edu.hk

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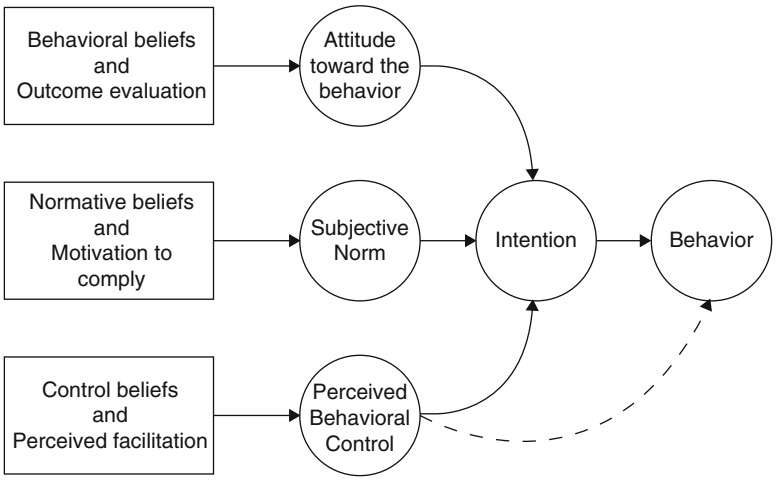

Fig. 21.1 Theory of planned behavior (Adopted from Mathieson 1991; Ajzen 1991)

been tested. Randall suggested that additional tests of the hypothesized linkages in the model should be performed.

The first objective of this study is to test the validity of the theory of reasoned action and theory of planned behavior as applied to an unethical behavior in information systems area – software piracy. Software piracy results in software companies losing billions of dollars in potential software sales (Smiddy and Smiddy 1985). Since it is an unethical and illegal behavior widely practiced worldwide, it is easy to solicit responses from people about their own behavior. The second purpose of the current study is to compare the utility of theory of reasoned action and theory of planned behavior in predicting unethical behavior. The third purpose of this study is to test whether the inclusion of a causal path which has not been hypothesized previously by the theory of planned behavior will improve the predictive power of the theory, as found by other studies (Shepherd and O'Keefe 1984; Shimp and Kavas 1984; Timko 1987; Vallerand et al. 1992).

Theory of Reasoned Action and Theory of Planned Behavior

Figure 21.1 depicts the theory of planned behavior which is an extension of theory of reasoned action. The difference between these two theories is that the theory of planned behavior has added perceived behavioral control as the determinant of behavioral intention, as well as control beliefs which affect the perceived behavioral control. Both theories assume that human beings are basically rational and make systematic use of information available to them when making decisions. Theory of

reasoned action also assumes that the behavior being studied is under total volitional control of the performer (Madden et al. 1992).

Theory of reasoned action is based on the proposition that an individuals behavior is determined by the individuals *behavioral intention* (BI) to perform that behavior, which provides the most accurate prediction of behavior (Fishbein and Ajzen 1975). Behavioral intention is a function of two factors: one's *Attitude* toward the behavior (A) and *Subjective Norm* (SN).

Attitude toward the behavior is defined as "a persons general feeling of favorableness or unfavorableness for that behavior" (Ajzen and Fishbein 1980). Subjective Norm is defined as a person's "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen and Fishbein 1980). Attitude toward behavior is a function of the product of ones salient belief (B) that performing the behavior will lead to certain outcomes, and an evaluation of the outcomes (E), i.e., rating of the desirability of the outcome. Attitude thus is defined as:

$$A = \sum B_i E_i$$

Subjective Norm is a function of the product of one's normative belief (NB) which is the "person's belief that the salient referent thinks he should (or should not) perform the behavior" (Ajzen and Fishbein 1980), and his/her motivation to comply (MC) to that referent. Thus Subjective Norm can be defined as:

$$SN = \sum NB_i MC_i$$

Variables that are external to the model are assumed to influence intentions only to the extent that they affect either attitudes or subjective norms (Fishbein and Ajzen 1975). The theory of reasoned action has been successfully applied to a large number of situations in predicting the performance of behavior and intentions, such as predicting turnover (Prestholdt et al. 1987); education (Fredricks and Dossett 1983); and breast caner examination (Timko 1987). In a meta-analysis of research on the theory of reasoned action, Sheppard et al. (1988) concluded that the predictive utility of the theory of reasoned action was strong across conditions.

However, the predictive validity of the theory of reasoned action becomes problematic if the behavior under study is not under full volitional control. Sheppard et al. (1988) pointed out two problems. First, the prediction of behavior from intention is problematic because a variety of factors in addition to one's intentions determine whether the behavior is performed. Second, there is no provision in the model for considering either the probability of failing to perform one's behavior or the consequences of such failure in determining one's intentions. To deal with these problems, Ajzen (1985) extended the theory of reasoned action by including another construct, perceived behavior control (PBC), to predict behavioral intentions and behavior. The extended model is the Theory of Planned Behavior. Perceived behavioral control refers to "people's perception of the ease or difficulty of performing the behavior of interest" (Ajzen 1991). If behavior is not under complete volitional

control, the performers need to have the requisite resources and opportunities in order to perform the behavior. The perception of whether they have the resources will affect their intention to perform the behavior, as well as the successful performance of the behavior.

Perceived Behavioral Control is a function of control beliefs (CB) and perceived facilitation (PF). Control belief is the perception of the presence or absence of requisite resources and opportunities needed to carry out the behavior. Perceived facilitation is one's assessment of the importance of those resources to the achievement of outcomes (Ajzen and Madden 1986). PBC can be defined as

$$PBC = \sum CB_i PF_i$$

Theory of planned behavior has been successfully applied to various situations in predicting the performance of behavior and intentions, such as predicting user intentions to use a new software (Mathieson 1991), to perform breast self-examination (Young et al. 1991), and to avoid caffeine (Madden et al. 1992). Madden et al. (1992) found that the theory of planned behavior has a better predictive power of behavior than the theory of reasoned action.

Since our study is cross-sectional, we investigated only the relationship between attitude, subjective norm, perceived behavioral control, and behavioral intention. We did not include the prediction of actual behavior in our research design. This study did not attempt to test every component of the theory of reasoned action and theory of planned behavior; it instead attempted to establish the relationships between attitudes, subjective norm, perceived behavioral control, and behavioral intention using confirmatory modeling techniques. We chose to leave the belief components to a more comprehensive study once we have established the validity of the core part of the theories in our present study.

Application of the Theory of Reasoned Action and Theory of Planned Behavior to Moral Behavior

Only a few investigators have used theory of reasoned action or theory of planned behavior to explain unethical decision making. Two recent studies were conducted by Randall and Gibson (1991) and Vallerand et al. (1992). Randall and Gibson (1991) used the theory of planned behavior to investigate the ethical decision making of medical professionals. The results showed that attitude explained a large portion of the variance of intention while subjective norm explained a moderate amount of the variance. The addition of perceived behavioral control did not increase predictive power. Randall and Gibson (1991) explained that the insignificant impact of perceived behavioral control might be due to the behavior studied, reporting misconduct of colleagues, which was under one's total volitional control. Since most unethical behavior, such as corruption and computer hacking, require substantial resources and opportunities to perform successfully, it is reasonable to hypothesize

that the theory of planned behavior will better explain unethical behavior than the theory of reasoned action. Vallerand et al. (1992) investigated the moral behavior in sports by asking the respondents to answer their behavioral choice in two hypothetical situations. The results provided support to the validity of using theory of reasoned action to explain unethical decision making.

The theory of reasoned action and theory of planned behavior are not without their critics. Randall and Gibson (1991) noted that when researchers used theory of reasoned action, they only tested linkage hypothesized by the theory without considering other linkages between constructs. However, a number of studies have shown that attitudinal and normative structure are not independent; subjective norm was found to influence attitude (Shepherd and O'Keefe 1984; Shimp and Kavas 1984; Vallerand et al. 1992). In our analysis, we compared the original formulation of the theory of planned behavior and a modified version of it with a causal path from subjective norm to attitude.

Method

Subjects

A total of 181 (99 male and 82 female) university students participated in this study. They were from several Hong Kong universities. Questionnaires were distributed inside the library and canteens of the universities; the investigators then collected the completed questionnaires.

Measures

Ten measured variables were used to reflect the components of the theory of reasoned action and the theory of planned behavior. The measures were modeled after Ajzen and Fishbein (1980) and Madden et al. (1992). In addition, some demographic variables such as sex, age and university major were collected. The following discussion describes the questions used to measure the constructs.

Behavioral Intentions

The respondent's intention to make unauthorized software copy was measured using three 7-point items. "I intend to make unauthorized software copy in the future" (INT1); "I will try to make unauthorized software copy in the future" (INT2); and "I will make an effort to make unauthorized software copy in the future" (INT3). The scales for these questions ranged from *extremely probable to extremely improbable*.

Attitude

Attitude was measured using a three-item semantic differential scale. On a 7-point fully anchored scale, respondents were asked whether they felt making unauthorized software copies were *good-bad (A1), harmful-beneficial (A2),* and *wise-foolish (A3).*

Subjective Norm

The subjective norm was measured by one question: "Most people who are important to me think that I should make unauthorized software copies" (SN). The SN was rated on a 7-point scale ranging from extremely probable (1) to extremely improbable (7).

Perceived Behavioral Control

It was measured using three items: "I have complete control of making unauthorized software copies" (PCB1); "For me to make unauthorized software copies is easy" (PCB2); "If I want to, I could easily make unauthorized software copies" (PCB3). They were rated on a 7-point scale ranging from strongly agree (1) to strongly disagree (7).

Data Analysis

The method of data analysis used in this study was structural equation modeling with latent variables. The statistical program EQS (Bentler 1993) was used to perform the structural modeling analysis. Structural Equation Modeling (SEM) is a confirmatory approach to data analysis (Byrne 1994), which is highly appropriate in the present context. Since the theory of reasoned action and the theory of planned behavior have been applied and validated in a large number of studies, we have strong theoretical support to specify our models and to test their validity. One additional advantage of using SEM is that it can test the measurement model and the path model simultaneously.

Model fit was evaluated using the Comparative Fit Index (CFI). CFI has an advantage over other fit indices in that it avoids the underestimation of fit in a small sample (Bentler 1990). A CFI value of over 0.90 is desirable and indicates an acceptable fit of the model to the data (Bentler 1992).

The data were analyzed using the two-step approach suggested by Anderson and Gerbing (1988). In the first step, a confirmatory factor analysis (CFA) was performed to determine whether the measured variables reliably reflect the hypothesized latent variables (attitude, perceived behavioral control and behavioral intention). Since Subjective Norm was measured with only one variable, the measured variable itself was used as the construct and allowed to covariate with the latent variables in the CFA.

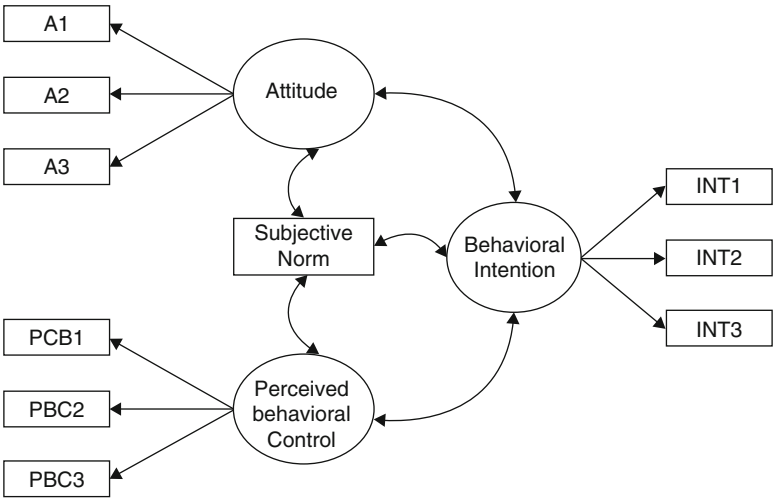

Fig. 21.2 The confirmatory factor analysis model

All latent variables were allowed to intercorrelate freely without attribution of a causal order.

In the second step, a series of structural equation path models were tested: (1) to determine the adequacy of the theory of reasoned action in explaining the software piracy behavioral intention (Model 1); (2) to test whether the theory of planned behavior better predicts the software piracy behavior than the theory of reasoned action (Model 2); (3) to test whether the direct causal path from subjective norm to attitude improved significantly the fit of the data (Model 3).

Nested-model comparison was used to find out which model best explains the sample covariance. Models are nested if "a more restricted model is obtained by imposing constraints on a more general model" (Bentler 1992). In our analysis, theory of reasoned action is nested within theory of planned behavior by setting to zero the path from PBC to BI. While theory of planned behavior is nested within Model 3 by setting to zero the path from SN to Attitude. Chi-square difference test or the likelihood ratio (Bollen 1989) was used to analyze whether the improvement in the model fits are significant.

Results

Confirmatory Factor Analysis

To assess the adequacy of the measurement model, we performed a confirmatory factor analysis in the first step of data analysis. Figure 21.2 shows the confirmatory factor analysis model. The factor variances were fixed at unity and all constructs

Table 21.1 Standardized confirmatory factor loadings

Factors	Cronbach's alpha	Factor loading[a]
Attitude	0.65	
Al		0.86
A2		0.48
A3		0.48
Perceived behavioral control	0.70	
PBC1		0.33
PBC2		0.88
PBC3		0.90
Behavioral intention	0.94	
INT1		0.94
INT2		0.97
INT3		0.82

[a] All factor loadings are significant at $p = 0.05$

Table 21.2 Relationships among latent variables in the CFA

Latent variables	1[a]	2	3	4
1. Attitude	–			
2. Subjective norm	0.758	–		
3. Perceived behavioral control	0.319	0.333	–	
4. Behavioral intention	0.480	0.498	0.514	–

[a] All correlations are significant at $p = 0.05$

were allowed to correlate freely. The confirmatory factor model adequately reflects a good fit to the data, $\chi^2(30, N = 181) = 54.664$, $p = 0.004$, CFI = 0.973. The high CFI indicates that the 3-factor structure is a valid one. Table 21.1 shows the factor loadings of the observed variables on the latent constructs as estimated from the confirmatory factor analysis. All factor loadings are significant at an alpha level of 0.05, and the factor loadings are fairly high. This supports that the measurement shows convergent validity (Anderson and Gerbing 1988).

Table 21.2 shows the correlations between the latent variables. These correlations are in the expected direction and all are significant at an alpha level of 0.05.

Structural Path Model

The second step in our data analysis was to compare various structural models. Figure 21.3 shows the specification of the models we tested; and Table 21.3 shows the results of the model comparisons. Fit statistics (Chi-square, degree of freedom,

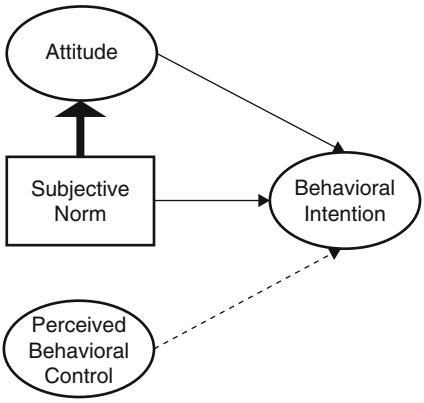

Fig. 21.3 Model specification for Model 1, the theory of reasoned action (*full thin arrows*). Model 2, the theory of planned behavior (*full thin arrows* and *broken arrow*), and Model 3 (*all arrows*)

Table 21.3 Chi-square, normed fit index (NFI) and comparative fit index (CFI) of the models

Models	χ^2	df	$\Delta\chi^2$	NFI	CFI
Null model	953.960	45			
Model 1 – TRA	134.620	34	819.340*	0.859	0.889
Model 2 – TPB	101.395	33	33.225*	0.894	0.925
Model 3 – TPB + SN → Attitude	69.269	32	32.126*	0.927	0.959

*$p<0.05$

normed fit index, and CFI) associated with the models and information about the Chi-square difference tests associated with specific model comparisons are provided.

Model 1 was evaluated to test the validity of theory of reasoned action in predicting behavioral intention. Using maximum likelihood estimation, the model did not provide a good fit to the data, χ^2 (34, $N=181$), $p\leq0.001$, and a poor CFI of 0.889.

Model 2 representing the theory of planned behavior was also evaluated using maximum likelihood estimation. This model provides a reasonable fit to the data with $\chi^2(33, N=181)=101.395$, $p\leq0.001$. A highly significant Chi-square difference test for the comparison of Model 1 and Model 2 suggests that Model 2 (TPB) provides an important improvement in fit over that of Model 1. However, the value of CFI (0.925) and NFI (0.894) are somewhat low but marginally acceptable.

Finally, based on the results of past studies, we tested Model 3 which is created by adding a causal path linking subjective norm to attitude to the theory of planned behavior. The final maximum likelihood model fit is X^2 (32, $N=181$)=69.269, $p\leq0.001$, CFI=0.959. The high CFI value implies that the model provides an adequate fit to the data. The chi-square difference test for the comparison of Model 2 and Model 3 is highly significant. Combining with the high incremental CFI, it can be concluded that Model 3 provides a better fit than Model 2.

Table 21.4 presents the standardized structural model coefficients for Model 3. The pattern of causal relationships is consistent with that predicted by the theories.

Table 21.4 Standardized path coefficients (without factor loadings) for Model 3

Path	Coefficient
A–BI	0.341*
SN–BI	0.086
PBC–BI	0.425*
SN–A	0.492*

Note: A Attitude, *BI* Behavioral intention, *SN* Subjective norm
*$p < 0.05$

Table 21.5 Direct, indirect, and total effect (non-standardized) of Model 3

Relations	Direct	Indirect	Total
Attitude			
SN	0.382*		0.382
Intention			
Attitude	0.425*		0.425
Subjective norm	0.083	0.163*	0.246
Perceived behavioral control	1.373*		1.373

*$p < 0.05$

In predicting behavioral intention, perceived behavioral control contributes more than attitude. The beta for the path linking subjective norm and behavioral intention was not significant. However, as shown in Table 21.5, the indirect effect of subjective norm on behavioral intention through attitude is significant at an alpha level of 0.05.

Discussion

The principal objective of this study was to assess the applicability of two social psychological theories, theory of reasoned action and theory of planned behavior, to the predicting of unethical behavior. We also compared the usefulness of these two theories. The result shows that theory of planned behavior is better than theory of reasoned action in predicting unethical behavior. This result is inconsistent with one found by Randall and Gibson (1991) in a study of ethical decision making in the medical profession. Perceived behavioral control was found to add little explanation power in predicting behavioral intention. Our results show that perceived behavioral control is the most important predictor of intention to use illegal software copies. Our findings support Ajzen's (1991) conclusion after reviewing 16 studies of predicting intention using theory of planned behavior that the addition of perceived behavioral control improved significantly the prediction of intentions.

The usefulness of perceived behavioral control in predicting (un)ethical behavior has been substantiated by our results and is consistent with most situations involving

decisions of performing unethical behavior. As mentioned before, the performers of unethical behavior do not have total control in most situations. Opportunities and resources must exist before they can be performed. In the case of illegal software copying, the perpetrators must be able to obtain a copy of the software before they can make the duplication. Without this, their intention to perform the action will be lower, no matter how favorable their attitudes are towards software copying and how much their significant others agree on the behavior. To perform successfully the behavior requires much greater effort if the software is not readily available. Therefore, in order to prevent software piracy or other unethical behavior, it is important that responsible authorities should curtail any opportunity that the perpetrators has to perform the unethical behavior.

The results also show the validity of the theory of planned behavior as applied to the domain of unethical behavior. This provides a much more solid theoretical basis for the study of ethical and unethical behavior. The theories can be used to structure past studies as well as to guide future research design.

The determinants of attitude, subjective norm, and perceived behavioral control are their corresponding beliefs. This theory provides a relatively simple basis for identifying where and how to target behavioral change attempts by understanding various beliefs about unethical behavior (Sheppard et al. 1988).

Another objective of our study was to test causal links that have not been included in the theory of planned behavior. Specifically, we included the causal path linking subjective norm to attitude in our final model. Our results show that attitude and subjective norm are not as independent as the models predict. The addition of the causal path from subjective norm to attitude improves the model fit considerably and the beta for this path is highly significant. This result is consistent with past findings (Shepherd and O'Keefe 1984; Shimp and Kavas 1984; Vallerand et al. 1992). The significant causal path from subjective norm to attitude suggests that the attitude formation, that is the favorableness or unfavorableness towards the behavior, is affected by how significant others consider the performance of the behavior. The theory of planned behavior predicts that behavioral belief will affect one's attitude. The question is, where does the person get these beliefs? One possible source is, and quite reasonably so, from their parents, teachers, peers, etc. In short, they are the person's significant others. If this is true, the effect of the significant others on attitude formation cannot be ignored. In a company, colleagues may affect greatly the ethical behavior of a person, both through social pressure and formation of attitudes. Therefore, if we want employees to act ethically, creating an ethical atmosphere is of utmost importance.

Limitation and Future Research

Ajzen (1991) pointed out that the relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behavior and situations. Although this study found that perceived behavioral

control is the most important construct in predicting unauthorized software copying, different results may be obtained in other unethical behavior. More research needs to be carried out to test the validity of theory of planned behavior in predicting unethical behavior.

Our study tested only part of the theory of planned behavior. We deliberately did this in order to establish the validity of the theory before a full study is launched. We are now carrying out a study of the full model by incorporating the belief components in our design.

Since a number of studies including this one have found that there is causal path from the subjective norm component and attitude component, we should test for the presence of the causal path routinely as Vallerand et al. (1992) suggested.

Conclusion

The present study attempted to evaluate the applicability of the theory of reasoned action and theory of planned behavior to the moral behavior domain. Results from the present study show that theory of planned behavior can be used quite successfully to predict the intention to perform unethical behavior. As such, it provides a solid theoretical basis for the study of unethical behavior, and it is better than the theory of reasoned action, which does not take the resources and opportunity into account, in predicting unethical behavior. However, the attitude and subjective norm components are not as independent as the theory predicts, which has been supported by previous studies. Therefore, future research should take the path linking subjective norm to attitude into account.

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