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AN INVESTIGATION OF VOLITIONAL CONTROL IN INFORMATION ETHICS

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Abstract

The main motivation of this research is how the issue of volitional control might affect the application of the theory of planned behavior (TPB) to research decisions related to information ethics. Specifically, a TPB-based model provides the best fit to the sample collected for the present study. In this model, the contribution of both the attitude and perceived behavioral control to the intention is shown to fluctuate depending upon the degree of volitional control concerning the targeted behavior. As the behavior's degree of volitional control lessens, the weighted influence of perceived behavioral control increases and that of the attitude decreases. Thus we confirm that degree of volitional control concerning an ethical act indeed plays a central role in applying the theory of planned behavior to information ethics research.

Keywords: Information ethics, theory of planned behavior.

INTRODUCTION

Today, computer and communication technologies have permeated every part of our lives and pushed us into a wired society of which no single centralized authority can claim control. As a result, the responsibility of balancing the diverse interests of various stakeholders of our society has been placed more on individual human agency than on other avenues such as laws and norms (Lessig 1999). Resources must, therefore, be directed at raising the efficacy of human agency in situations where volitional behavioral control is critical to the detection and resolution of ethical conflicts. For example, information systems professionals need both the knowledge of moral reasoning and a resilient capacity to malevolent attempts. Similarly, managers have to learn how to devise work structure and reward programs to foster a pro-social climate while at the same time encouraging individual creativity. All of these necessitate a deep understanding of the process of volitional behavioral control involved in information ethics.

To pursue this end, we begin with the premise that all ethical questions arise initially out of human agency. But knowing what governs human agency in their misconduct is difficult, primarily because researchers are dealing with decisions that arise in the context of an ethical dilemma (Paradice and Dejoie 1991). Here one main concern is how people may sanction behaviors that benefit solely themselves while at the same time harming others. In dilemmas involving ethical conflict, the individual may lack information concerning specific ethical violations, may not have the knowledge or skill to make an appropriate moral judgment, may be exposed to an environment that provides little guidance in moral behaviors, or may lack the will to effect the moral actions. The situation may be so messy that no definitely right or wrong solution is immediately available to the person trapped in the dilemma.

Thus, in this research, we study how one's ethical decisions may vary in accord to the situations that vary in their ethical challenges. Specifically, we employ the theory planned behavior (TPB) to investigate how one's conviction and ability may influence his or her decision in two dilemmas that differ in the degree of volitional control.

DEGREE OF VOLITIONAL CONTROL FOR ETHICAL BEHAVIORS

In the field of ethical research, the theory of reasoned action (TRA) and the theory of planned behavior (TPB) stand out as the most preferred attitude-behavior model adopted by researchers (Banerjee et al. 1998; Chang 1998; Loch and Conger 1996; Randall and Gibson 1991; Vallerand et al. 1992). In their formulation of the TRA, Fishbein and Ajzen (1975) postulate that an individual intends to perform an action alternative that has the highest product of expectancy (for achieving the aspired goal) by the personal value (reward of that goal). Thus, a person's intention to act in a certain way has two basic determinants: attitude and subjective norm. The attitude toward the behavior is defined as "a person's general feeling of favorableness or unfavorableness for that behavior," and subjective norm as the "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen and Fishbein 1980). The former is personal in nature, while the latter reflects social influence. The relative importance of attitude and subject norm may vary depending upon the situational and personal factors governing the behavior. For example, for a quick lunch, one's attitude may exert more weighted influence than the norm on one's choice of a fast food restaurant. But for an important business dinner, the significance of the norm (i.e., how relevant others may perceive this event) may increase substantially. Furthermore, Ajzen (1989) postulates that attitude and norm may influence each other. That is, social influence and personal evaluation may interact reciprocally in one's behavioral decision. Bandura (1986) made a similar observation. A researcher's responsibility, therefore, is to probe whether such interactions indeed exist and how the weight of each might fluctuate in accord with the situational and personal factors.

Several researchers have examined whether TRA can be applied to effectively study ethical conduct. For example, Vallerand et al. based their study on a sample of 1,056 athletes and concluded that TRA was appropriate for ethical research. They further found that a model including a causal path from normative beliefs to attitude significantly enhanced the robustness of the prediction. In a slightly different formulation, Loch and Conger discovered that, depending upon the type of behavior, the subjective norm might or might not be a factor directly influencing one's intention to moral acts. They also found that, for some people in a certain occasion, self-image and deindividuation could influence both attitude and intention toward a certain ethical act. Finally, Eining and Christensen (1991) investigated software piracy in a psycho-social model extended from the TRA and found that normative expectations (norms) provide the most insight into piracy behavior.

These aforementioned studies collectively suggest that the components of TRA are present in ethical decision situations. Yet, it also appears that they are inconsistent in their usual characterizations to completely describe an ethical decision process. Why this inconsistency? Many theorists have suggested that TRA is appropriate for behaviors under one's total volitional control (Sheppard et al. 1988), i.e., for behaviors that one can consistently execute in accord with his or her behavior-related thoughts concerning the expected outcome and social norm. Ethical behaviors, however, may differ from one another in the degree of volitional control due to the fact that their attainment is uncertain. According to Ajzen (1985), both internal personal factors and external environmental factors may contribute to the increase of uncertainty. The internal factors include differences in people's locus of control (Rotter 1966), their skills and abilities, the power of will, and the states of emotion. The external factors are if the situations provide favorable resources (in terms of time and opportunity) to facilitate the behaviors and if the execution of conduct depends upon others. Clearly, ethical behaviors, which take place in moral dilemmas and involve more than moral thoughts (Bandura 1991), are often not under one's total volitional control.

For example, consider the act of "destroying other people's computers for profit" (which is a form of hacking). In most cultures, such act is prohibited and most people would have no objection (i.e., total volitional control) to sanction themselves against such acts. Conversely, the act of "pirating software to complete one's work" would be subjected to various situational and personal influences (e.g., vague organizational ethical climate and ambiguous personal ethical standards) and result in less volitional control. Thus, to research a wider range of ethical conduct, one may speculate that the TPB, which improves upon TRA by adding the perceived behavioral control construct, could be more appropriate than TRA. Perceived behavioral control represents "the belief that one is able to control personally the performance of behavior" (Ajzen 1989). As shown in Figure 1, the formation of individual intention to perform behaviors is influenced by the perception of whether these behaviors are affectively positive, normatively expected, and under their control.

Like TRA, several researchers have investigated TPB's application to information ethics and, again, the degree of volitional control for the behaviors under study emerges as a central issue. Randall and Gibson, for example, found that the perceived behavioral control was not a factor, due probably to the type of behavior (i.e., high volitional control) in their study. In another TPB-based study, Banerjee et al. discovered that the organizational variable was the most significant variable affecting one's ethical decisions while moral judgment and attitudes were not. A study by Chang, however, concluded that the TPB was better than the TRA for predicting ethical decisions. More importantly, Chang confirmed the finding of Vallerand et al. regarding the causal path from the norm to the attitude. He concluded that, for the behavior under his study, both attitude and personal behavioral control exert direct influence on one's ethical intention, while the subjective norm has only indirect influence on this intention through attitude.

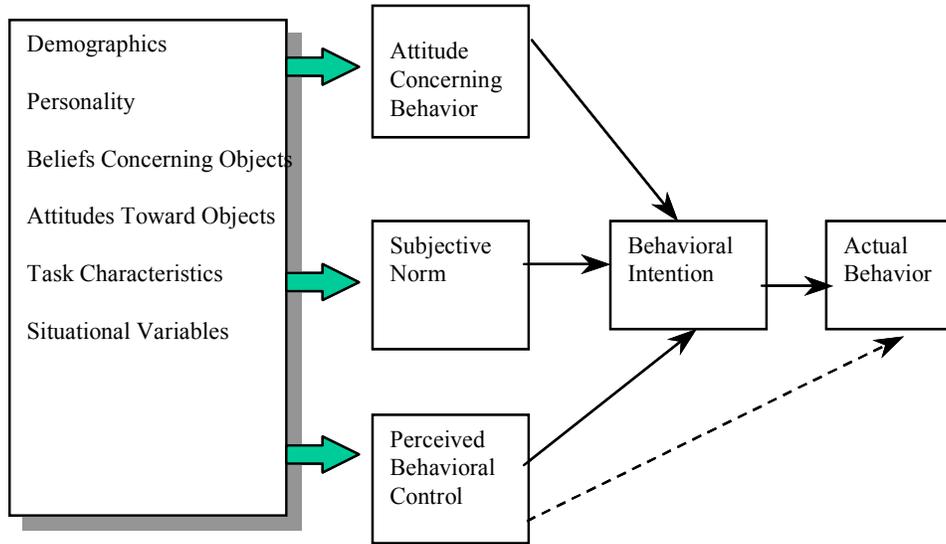


Figure 1. The Theory of Planned Behavior (Source: Ajzen 1989, pg. 252)

The previous review of TRA- and TPB-based studies of information ethics reveal that, in general, TPB could be more appropriate than TRA for investigating a wider range of ethical decisions related to computer use. But clearly, the degree of volitional control for the behavior (in the ethical vignettes) should be the center of the concern for researchers attempting to apply TPB to their study.

Furthermore, our review suggests that the TPB model can be constructed based on the suggestion of Vallerand et al. and of Chang to accommodate information ethics research. That is, the causal linkages to ethical intention exist only for the two constructs, attitude and personal behavioral control, while the subjective norm will influence intention indirectly through attitude (Vallerand et al. 1992; Chang 1998). Figure 2 depicts this TPB-based model. Critical to our discussion here is that in the model depicted in Figure 2, the weighted influence of attitude, norm, and perceived behavioral control on the ethical intention would vary depending upon the degree of volitional control for the behavior. This is because when the targeted behavior is subjected to less volitional control, the perceived behavioral control construct helps strengthen the model’s level of fitness. Accordingly, the relative importance of perceived behavioral control should increase as the degree of volitional control for the behavior lessens. Hence, as the degree of volitional control lessens, the relative importance of the attitudes should decrease and that of the perceived behavioral control should increase. Thus, our two hypotheses will be:

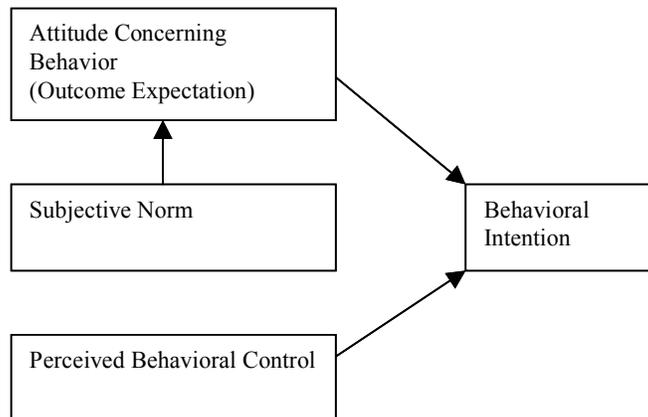


Figure 2. The TPB-Based Model for Researching Information Ethics

Hypothesis I: The fitness, measured by the goodness-of-fit index, of the TPB-based model (Figure 2) for information ethics research will vary depending upon the degree of volitional control for the behavior in the ethical vignettes. The less is the degree of volitional control, the better fit is this model.

Hypothesis II: In the TPB-based model, the relative importance of the attitudes should decrease and that of the personal behavioral control should increase as the degree of volitional control lessens.

RESEARCH DESIGN

Vignette Design

We have chosen a scenario-based field survey in our present endeavor. While the alternative to the use of survey, i.e., direct questions about engaging/not engaging in a behavior, may be methodologically superior to the use of scenarios, vignette is commonly used in ethics and deterrence research due to the sensitive nature of ethical conduct (Bachman et al. 1992). In our pursuit, it is necessary to manipulate the degree of volitional control for the targeted behavior. For these two vignettes to reflect different degrees of volitional control, we formulated a software piracy story that consisted of two phases, the first being a high degree of volitional control and the second being a low degree. The degree of volitional control was manipulated according to the finding of Ajzen (1985), who suggested that two situational factors would influence the degree of volitional control for a given behavior. One was if the situation provided favorable resources (in terms of time and opportunity) to facilitate the behaviors; and the other, if the execution of conducts depended upon others. Thus, in the second phase, the resources became more constrained than those needed for the first, and the behavior was more dependent on others than in the first. The two phases of the vignette presented here.

Phase I: *Dave is a senior at the local college and is now attending a multimedia design class. Most of his class projects require the use of computer multimedia software. The department has provided computers and the software necessary to meet class requirements. It has also imposed a very strict policy against unauthorized copies of software in the computer center. While the number of computers is limited, Dave certainly has an advantage because he works in the computer center as a consultant. One day, Dave accidentally finds a copy of software that is very useful for his multimedia class. It has been left unprotected in the computer center of his college. While he is not authorized to copy, Dave begins to consider whether he should make a copy of the software.*

Phase II: *After a day of considering, Dave decides not to make a copy of the needed software. Although somewhat agonized, Dave continues to use the department's computers, which he must share with his schoolmates for completing his class projects. Near the end of the semester, however, the computer center has become more and more crowded and the access to the computers has become very limited. Because of this problem, Dave has turned in homework late twice. In the final week, his teacher hands out the term project and wants it to be completed within one week. Due to the complexity of the term projects, Dave has found himself stuck on several parts of the project. Dave begins to reconsider making a copy of the software needed for completing the term project.*

In each of the two phases of the vignette, the subjects were placed in a decision-making role for the targeted ethical behavior, i.e., whether to make an illegal copy of the software needed. The subjects were then treated with the questionnaire to identify their intention, attitude, subjective norm, and perceived behavior control for the behavior in each phase.

In our study, the data was split into two subgroups. Responses from the Phase I vignette (higher degree of volitional behavioral control) were put into the first split sample (S1). Responses from Phase II vignette (lower degree of volitional behavioral control) were put into the second (S2). Both samples were used to evaluate the propositions.

Sample Characteristics

Questionnaires were administered to upper level undergraduate and graduate students selected from two universities. A total of 333 students volunteered their participation. The questionnaires were administered in a classroom setting at each university. Students were told, both verbally and in writing, that their responses would be kept confidential and that only summary information would be presented. Incomplete questionnaires were discarded, leaving 244 usable questionnaires. Table 1 shows the diversity of the samples.

Table 1. Sample Demographics (N = 244)

Demographic Variable	Sample Composition	
Age	Mean = 23.5; std. Dev. = 2.4; range: 21-28	
Gender	Men	40%
	Women	60%
Major/Profession	Information Management	36%
	Finance	22%
	Marketing	18%
	English	24%
Years of Work Experience	Mean = 2.8; std. Dev. = 1.6; range:0-6	

Measurement Variables

According to Ajzen (1985, 1989; see also Fishbein and Ajzen 1975), a measure of TPB constructs would always specify the action and target being assessed. In this study, the action was “copy (illegally)” and the target was “the software.” Predictive variables (intention, attitude, subjective norms, and perceived behavioral control) should be phrased so as to correspond to the behavior (Ajzen and Fishbein 1980) in terms of both action and target. Thus, operationalizations of TPB constructs were phrased to the behavior (vignette). Each construct was assessed twice, once with the first phase vignette, and a second time with the second phase vignette. Table 2 shows the measures for each of the TPB constructs. All of these measures were initially tested in a pilot study.

Table 2. Summary of Instruments

Items	Measure
INT1	If I were Dave and were in his situation, I would have copied the software.
INT2	If I were Dave and were in his situation, I would have attempted to copy the software.
A1	It is not right had Dave indeed copied the software.
A2	It is not smart had Dave indeed copied the software.
A3	If is not beneficial to Dave personally had he indeed copied the software.
SN1	I believe that my classmates would not approve of Dave copying the software.
SN2	I believe that my teachers would not approve of Dave copying the software.
PBC1	Had I been in Dave situation and done the same thing, I believe that no one would find out if the software was copied.
PBC2	Personally, I think that copying the software would be an easy thing to do.
PBC3	I have confidence that it would be easy for me to copy the software.

INT1 to INT2, A1 to A3, SN1 to SN2, and PBC1 to PBC3 refer to the scales of intention, attitude, subjective norm, and perceived behavioral control, respectively.

DATA ANALYSIS AND RESULTS

Model Measurement

Table 3 shows the assessment of measurement model for the latent constructs being investigated. Panel A of Table 3 uses the S1 sample, and Panel B uses S2. The factor structure matrix presents the individual item loadings and cross loadings for the constructs. It shows that all the individual item loadings meet or exceed the 0.7 criteria, and that none of the individual items load more highly on another construct than they do on the construct they were designed to measure.

The reliability and discriminant validity coefficients are reported in Table 4. Panel A of Table 4 uses the S1 sample, and Panel B uses S2. All of the measures exceed 0.70 for internal consistency reliability. To assess the discriminant validity of research constructs, tests were conducted between all possible pairs of constructs. Table 4 shows that the square root of the variance for all pairs is well above the correlation among constructs, suggesting strong properties of discriminant validity (Fornell and Larcker 1981).

Table 3. Factor Structure Matrix

Panel A (Sample S1)				
	1	2	3	4
INT1	.901	0.074	-0.063	0.042
INT2	.859	-0.095	-0.068	.203
A1	0.092	.845	0.032	0.090
A2	-.477	.735	.221	0.041
A3	-0.028	.774	.157	-0.096
SN1	-.136	0.004	.881	-0.064
SN2	-0.003	.287	.825	-0.004
PBC1	.410	-.171	0.051	.738
PBC2	0.058	0.048	-0.047	.899
PBC3	-0.004	0.075	-0.065	.894

Panel B (Sample S2)				
	1	2	3	4
INT1	.915	-0.083	-0.047	.142
INT2	.887	-.101	-0.065	.284
A1	.131	.830	.120	-0.036
A2	-.217	.793	.112	0.006
A3	-.112	.831	.123	-0.010
SN1	-.108	0.070	.890	-0.068
SN2	0.012	.278	.835	0.001
PBC1	.181	-.135	-0.040	.794
PBC2	.168	0.073	-0.009	.896
PBC3	0.070	0.028	-0.033	.918

Diagonal elements (shaded) are the square root of the variance shared between the constructs and their measures. Off diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Evaluation of Hypotheses

Hypothesis I suggests that the fitness of the TPB-based model (Figure 2) differs depending upon the degree of volitional control for a given behavior. We have evaluated this proposition by comparing the goodness-of-fit indices for the TPB-based model using both sample S1 and S2. As shown in the Table 5, the chi-square value in S2 is lower ($\chi^2 = 83.87$, $df = 34$, $p < 0.01$) than that ($\chi^2 = 141.93$, $df = 34$, $p < 0.01$) in S1. This indicates that the model seems to fit the S2 sample better the S1 sample.

The other fit indices in Table 5 all suggested that the model using sample S2 has a better fit than using sample S1. The χ^2/df index for the TPB-based model using S2 is 2.47, which is smaller than its corresponding value of the model using S1 ($\chi^2/df=4.17$). The remaining fit indices using S1 for the TPB-based model are NNFI=0.816, CFI=0.861, and AIC=73.73, all of which are outside the acceptable levels. However, the indices for the TPB-based model using the S2 sample surpass the acceptable levels (NNFI=0.939, CFI=0.954, AIC=15.87). Thus, the aforementioned indices collectively support that, as the degree of volitional control for the targeted behavior lessens, the overall goodness-of-fit indices increase for the TPB-based model. Hypothesis I is, therefore, confirmed.

Table 4. Mean, S.D., Reliability, and Discriminant Validity

Panel A (Sample S1)							
	Mean	S.D.	ICR	1	2	3	4
1. Intention	3.37	1.45	0.82	0.64	.202	.167	.309
2. Attitude	5.06	1.01	0.71	.202	0.42	.350	.045
3. Subjective Norm	4.37	1.17	0.71	.167	.350	0.61	.097
4. Perceived Behavioral Control	3.50	1.34	0.78	.309	.045	.097	0.62
Panel B (Sample S2)							
	Mean	S.D.	ICR	1	2	3	4
1. Intention	3.03	1.43	0.90	0.69	.186**	.145*	.380**
2. Attitude	4.91	1.10	0.78	.186**	0.62	.334**	.047
3. Subjective Norm	4.38	1.09	0.72	.145*	.334**	0.54	.085
4. Perceived Behavioral Control	3.46	1.37	0.86	.380**	.047	.085	0.74

* $p < 0.01$; ** $p < 0.05$.

Diagonal elements (shaded) are the square root of the variance shared between the constructs and their measures. Off diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements.

Finally, as can be seen in Table 5, we also find significant differences in the strength of model paths exist among the constructs being investigated. Of the three paths of the TPB-based model, as the degree of volitional control lessens, the path coefficient from attitude to intention decreases from 0.271 in S1 to 0.187 in S2. However, the path coefficient from perceived behavioral control to intention increases from 0.265 in S1 to 0.390 in S2 as the degree of volitional control lessens. This supports Hypothesis II.

Table 5. Summary of Model Test for TPB-based Model

Construct Pairs	Sample S1	Sample S2
	Path Coefficient	Path Coefficient
A→INT	0.271**	0.187**
PBC→INT	0.265**	0.390**
Measures of Goodness-of-Fit		
Chi-Square	141.93	83.87
Df	34	34
Chi-Square/df	4.17	2.47
NNFI	0.751	0.939
CFI	0.812	0.954
AIC	111.55	15.87

DISCUSSION AND FUTURE RESEARCH

One main motivation of our research was how the issue of volitional control might affect the application of the theory of planned behavior to research decisions related to information ethics. Specifically, a TPB-based model that eliminated the path from the subjective norm to the intention and that added the path from the subjective norm to attitude was shown to provide the best fit to the sample collected for the present study. In this model, the contribution of both the attitude and perceived behavioral control to the intention was shown to fluctuate depending upon the targeted behavior's degree of volitional control. As the degree of control lessened, the weighted influence of perceived behavioral control increased and that of the attitude decreased. Thus we

confirmed that volitional control indeed played a central role in applying the theory of planned behavior to information ethics research.

It is worthwhile for us to compare our research to that of Banerjee et al. (1998) and of Loch and Conger (1996), which are based on the theory of planned behavior and the theory of reasoned action respectively. Our model prescribes that the subjective norm's influence on one's intention to commit an act of software piracy is indirect, mediated by the attitude. While this is consistent with the work by Chang (1998), it nevertheless contradicts the findings of Banerjee et al. that the subjective norm has a direct influence on the piracy intention while the attitude does not. Note that in the study by Banerjee et al. personal normative beliefs are measured by anchoring one's obligation concerning an ethical act (i.e., "strong or no obligation not to"). While they have forcefully argued that this measure is better than others for capturing one's subjective norm, such a measure is not typical in the tradition of TPB-related research (Loch and Conger 1996). We, therefore, have chosen the measure in Chang's study, which employs the traditional measure for the subjective norm, to be our implementation. This allows us to compare and contrast our finding to his and enables the building of strong continuity in this line of research. We hope that this will lessen the problem of diversity (Benbasat and Weber 1996).

There is yet another inconsistency between our findings and those of Banerjee et al., who discovered that attitude exerts little influence on ethical intention. We suspect that Banerjee et al.'s operationalization of personal attitude suffers from a lack of compatibility between the attitude object and the intention (Ajzen 1989). That is, their measure relies on an evaluation (i.e., "how would you evaluate your behavior as...") that may be at a level too general or too specific to be compatible with the specific intention designated in a particular scenario. Had they improved their measure, a higher explanatory power might also be reached.

We now turn to a broader concern—the inclusion of other constructs like moral judgment, ego strength, and locus of control—studied by Banerjee et al. and self-image and de-individuation, which are examined by Loch and Conger. The locus of control construct is primarily concerned with causal beliefs about action-outcome contingencies (Bandura 1997). Unlike perceived behavioral control, locus of control rarely fluctuates across different domains of functioning. Likewise, the constructs of self-image and ego-strength, are global dispositions that are steady over time. As Ajzen (1989) has suggested, the level of compatibility is one major issue in the inclusion of such global constructs in formulating a TPB-based model. What is specifically relevant here is that while these constructs may indeed influence one's ethical intention, it is possible that no significant direct statistical correlation can be found because they may only do so through the mediation of one's perceived behavioral control. Thus, locus of control, self-image and ego-strength may also serve as antecedents to one's perceived behavioral control regarding a particular domain of moral functioning. Note that consistent with the theme of this research, researchers should pay particular attention to how the degree of volitional control and other situational factors may affect research outcome.

De-individuation is an interesting issue related to the degree of volitional control. Loch and Conger have made this clear in their research. "Computer-induced de-individuation appears to reduce the computer user's ability to identify other stakeholders to their actions... Individuals who are highly de-individuated would be expected to engage in and condone a broader ranged of behaviors, including ethically questionable acts" (pg. 76). Their research, however, showed only partial support for the influence of de-individuation on ethical intentions. We believe that this result reflects the dynamics of behavioral control, i.e., how one's volition to act may be reciprocally influenced by environmental and personal factors.

We can now conclude that the theory of planned behavior can be effectively applied to study a broad range of issues in information ethics. Ethical studies have suffered from one major limitation: the inability of researchers to directly observe the ethical conduct. Researchers, therefore, have to rely on theories like TPB for their investigation. Yet the past TPB-based research has produced somewhat inconsistent results. We believe that the clarification of the role that the construct of perceived behavioral control plays is a significant step to improve future ethical research.

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