

The Moderated Influence of Internal Control: An Examination Across Health-Related Behaviors

Blair Kidwell

*Department of Marketing
Kansas State University*

Robert D. Jewell

*Department of Marketing
Virginia Polytechnic Institute and State University*

An extension of the theory of planned behavior (Ajzen, 1991) was used to identify whether moderated relationships exist between perceived behavioral control and theoretical constructs within the model. Study 1 examined influences of perceived internal control relative to behavioral category; for a *utilitarian* behavior (e.g., using sunscreen, donating blood), the moderating relation was of a cognitive nature (i.e., attitude, subjective norm), whereas for *hedonic* behaviors (e.g., drinking and driving, fast food consumption), the moderating relation was of a noncognitive nature (i.e., affect, past behavior). These relations were manipulated in Study 2 via the framing of neutral behaviors (i.e., chocolate and fat consumption) to explicate the hypothesized patterns of interactions. Theoretical implications of findings are discussed.

Within a short time, the theory of planned behavior (TPB) has become well-established in the consumer and psychological literature (see Eagly & Chaiken, 1993). The focal construct of the TPB, perceived behavioral control (PBC; see Ajzen, 1991), has attracted considerable attention, eliciting numerous studies evaluating its use as a predictor of intention and behavior across a variety of domains (e.g., Ajzen & Madden, 1986). However, few studies have identified the relation between PBC and other TPB variables. In this article, we explore (a) evidence of both a main and moderated effect of PBC onto intention, (b) patterns of interactions between perceived control and other TPB variables relative to behavioral category, and (c) a manipulation of behavioral category to explicate hypothesized patterns.

THEORETICAL FRAMEWORK

Theory of Planned Behavior

The TPB was developed as an extension of the theory of reasoned action (TRA) to account for behaviors beyond com-

plete volitional control (see Ajzen, 1991). The TPB implicates intention as the primary determinant of behavior. Intention is determined by cognitive evaluations (i.e., attitudes), perceptions of social pressure (i.e., subjective norms), and PBC. Attitude is determined by cognitive structure ($\sum b_i e_i$) and conceptualized as the product of the perceived likelihood of particular outcomes occurring (outcome beliefs, b_i) and evaluations of those outcomes (outcome evaluation, e_i ; Ajzen & Fishbein, 1980).

PBC. Ajzen (1991) originally introduced PBC as a proximal determinant of behavioral intention. Specifically, PBC is argued to reflect actual control over behavioral performance; and the likelihood of successful behavioral performance will increase as a function of the perceived controllability of performing the behavior (Armitage, Connor, Loach, & Willetts, 1999).

Researchers have suggested that support for the TPB depends heavily on the “nature, formulation, and adequacy of the PBC construct employed in a study” (Notani, 1998, p. 254). As a result, a number of conceptualizations of PBC have emerged from the literature (for a review, see Peterson & Stunkard, 1992). Further, Notani (1998) and others (e.g., Bagozzi & Kimmel, 1995; Sparks & Shepherd, 1992) have recommended that more research is needed to understand, refine, and elaborate the PBC construct.

Requests for reprints should be sent to Blair L. Kidwell, Department of Marketing, College of Business Administration, Kansas State University, Manhattan, KS 66506. E-mail: bkidwell@vt.edu

One avenue of research is the dimensionalization of PBC into distinct components (see Armitage et al. 1999). Specifically, a behavior may be perceived as being within an individual's control based on factors that are either internal or external. A behavior may be internally controllable to the extent that an individual perceives that he or she possesses the personal resources, such as requisite skills, confidence, and ability, to perform the behavior (Conner & Armitage, 1998). For example, a person's intention to quit smoking may be influenced by his or her internal perceptions of fortitude, desire, or capability to quit. This conceptualization is similar to Bandura's (1986) concept of self-efficacy (Armitage, Conner, Loach, & Willetts, 1999).

A behavior may be externally controllable when it is perceived as relatively free of external or extrinsic influences that may act as a barrier or when perceived facilitators of behavioral performance are available. For example, a person's intention to quit smoking may be influenced by the extent or number of referents around the person who smoke, or the availability of external resources to help a person quit smoking, such as behavioral therapy or clinical support. This conceptualization is similar to Triandis' (1977) concept of facilitating conditions (Bagozzi & Kimmel, 1995).

Although various models have been proposed to identify relations between internal and external control components and intention (e.g., Armitage et al., 1999), numerous researchers (e.g., Parker, Manstead, Stradling, Reason, & Baxter, 1992) indicated a main effect of the internal, rather than the external component, as the proximal determinant of intention. Moreover, recent work by Kidwell and Jewell (2003) suggests an antecedent relation between control components in which external control influences internal control, leaving internal control as a proximal determinant of intention. Thus, in this study, internal control is conceptualized as a proximal determinant of intention.

Internal control as a moderator. Bagozzi and Kimmel (1995) suggested that the nature of perceived control is unclear and points to the need for more research to consider the moderating effects relative to "goal expectations and self-efficacy" (p. 460). Research has recently identified internal control as a moderator of variables within the TPB. For example, Lee (2000) provided empirical support for internal control as a moderator in a consumer context, indicating that consumer attitude toward buying behavior was moderated by the consumer's perceived ability to make the purchase.

Theory of Social Behavior. In addition to variables used in the TPB (Ajzen, 1991), our model is derived using two additional constructs from Triandis' (1977) theory of social behavior. Triandis (1977) proposed an alternative model of behavior that incorporates affect, past behavior, and perceived control in addition to attitude and social pressure in predicting intention. Empirical evidence supporting the addi-

tion of these constructs to the TPB has been numerous (e.g., see Bagozzi & Kimmel, 1995; Parker et al., 1992).

Past experience. The influence of past behavior (habit) on intention and behavior within the TPB has been examined across several health-related domains including: dieting/consumption, smoking, and exercising (see Bagozzi & Kimmel, 1995). Research has indicated that past behavior directly affects intention (e.g., Bentler & Speckart, 1981) and behavior (e.g., Ajzen & Madden, 1986; Albarracin & Wyer, 2000). Triandis (1977) offered a theoretical rationale; the performance of any given behavior relies on prior learning, and although a behavior does not necessarily become habitual just because it has been performed many times, frequent performance of a behavior may bring subsequent behavior under the control of habitual processes. For example, Aarts, Verplanken, and van Knippenberg (1998) provided evidence suggesting that when behavior is habitual for an individual, there can be an increased use of simplified decision rules (e.g., performance based on past performance), decreased information search, and increased focus on information about the habitual choice. Aarts et al. (1998) suggested that habitual behaviors can be automatically activated by features of the situation and context in which the behavior occurs.

Affective influences. Affect is defined as the emotion a person feels at the thought of the behavior (Triandis, 1977). Affect associated with performing a behavior may be an important determinant of intention (van der Pligt & de Vries, 1998), especially in situations where the consequences of the behavior are unpleasant or negative (Conner & Armitage, 1998).

There is sufficient evidence across a variety of behaviors (e.g., fast food consumption, alcohol use, and AIDS prevention) to support a role of affect within the TPB (e.g., Parker et al., 1992). Furthermore, several typologies have been proposed to categorize primary emotions. For example, Russell (1980) posited a two-dimensional structure of affect shown to reliably capture positive and negative aspects of arousal. This typology has been used extensively in consumer research on affect (e.g., Bodur, Brinberg, & Coupey, 2000).

CATEGORIZATION OF BEHAVIOR

Hirschman and Holbrook (1986) suggested two categories that differentiate behavior. One category (i.e., utilitarian) views behavior as practical and useful, and engaging in this type of behavior can be viewed as a deliberately considered act that an individual intends to perform via cognitive processes (Ajzen & Fishbein, 1980). A second category (i.e., hedonic) views the behavior as pleasurable satisfying short-term interests, and the decision to engage in a hedonic

behavior can be viewed as “a steady flow of fantasies, feelings, and fun” (Hirschman & Holbrook, 1986, p. 132).

Given the distinct natures of utilitarian and hedonic behaviors it is likely that the relations among constructs in the model will differ for each behavioral category. Consider a utilitarian behavior that is poorly performed due to a person’s perception of ability to perform the behavior. This perception can influence thoughts about possible consequences of performing the behavior, and thus, guide future decision making (Albarracin & Wyer, 2000). Alternatively, for a hedonic behavior, a person may use past habitual performance of a behavior as a basis for later actions. For example, a person might simply assume that the conditions that led to an earlier behavior exist in the present situation and repeat the behavior without bothering to verify this assumption. Both conceptualizations indicate the use of perceived internal control as a proxy for decision making within each behavioral category. However, the former conceptualization implies that the influence of cognitions on future decisions is moderated by perceptions of ability to perform the behavior. The later conceptualization implies little thought toward the behavior and the consequences of engaging in it and is based on referral to previously learned information on the specific ability related to the focal behavior.

Some health-related behaviors can be classified as primarily utilitarian (e.g., donating blood, using sunscreen). As conceptualized, a utilitarian behavior is likely to be influenced by a cognitive orientation. Specifically, when a utilitarian behavior is considered, such as donating blood, cognitions could evoke consequences (risk of contracting HIV, etc.) and subsequently influence perceptions of an individual’s control over personal resources, such as their ability to control their own fear or anxiety. Thus, perceived internal control is anticipated to moderate cognitively focused determinants of intention (i.e., attitude, subjective norm) for utilitarian behaviors.

A second category of health-related behaviors can be classified as primarily hedonic (e.g., fast food consumption, drinking and driving). As conceptualized, a hedonic behavior is likely to be influenced primarily by a noncognitive orientation. Specifically, when a hedonic behavior is considered, such as eating fast food, conditions that led to earlier behavior (e.g., pleasure derived from taste, convenience, etc.) exist in the present situation and are likely to influence perceptions of an individual’s control over personal resources, such as his/her ability to control cravings and desires. Thus, perceived internal control is anticipated to moderate noncognitive determinants of intention (i.e., affect, past behavior) for hedonic behaviors.

Overview of Health Behaviors

A considerable amount of TPB research has been conducted in the health field, where perceived control is regarded as a central concept in models of health behaviors (Conner & Armitage, 1998). Moreover, Notani (1998) indicated that dif-

fering contextual factors across studies can have a systematic effect on theoretical support for the model. Several studies indicate the importance of sunscreen use (e.g., Leary & Jones, 1993), drinking and driving (Turrissi & Jaccard, 1992), blood donation (e.g., Allen, Machleit, & Kleine, 1992), and fast food consumption (e.g., Bagozzi, Wong, Abe, & Bergami, 2000). Few studies, if any, however, have attempted to identify differences in levels of control across conceptualized categories of health-related behaviors (i.e., utilitarian vs. hedonic). Additionally, the four behaviors used in this study are contextually distinct in that they cover a broad range of substantively significant socially marketed issues, and at the same time, offer a diverse continuum of utilitarian and hedonic orientations.

Based on a pretest, we found two behaviors (i.e., sunscreen use, donating blood) that were considered primarily utilitarian, whereas two other behaviors (i.e., drinking and driving, fast food consumption) were considered primarily hedonic. These four health behaviors were used in Study 1 to explicate the relation between internal control and decision-theoretic variables.

STUDY 1

Overview

Study 1 implicates internal control as moderating both cognitive and noncognitive determinants of intention for utilitarian and hedonic health behaviors. Specifically, a person’s attitude and subjective norm may be influenced for utilitarian behaviors, whereas affect and past behavior may be influenced for hedonic behaviors. We hypothesize the following relations:

- H1: Attitude, subjective norm, internal control, positive and negative affect, and past behavior will be significantly related to intention.
- H2: Internal control will moderate the relation between subjective norm and behavioral intent for a *utilitarian* behavior, but not for a *hedonic* behavior.
- H3: Internal control will moderate the relation between attitude and behavioral intent for a *utilitarian* behavior, but not for a *hedonic* behavior.
- H4: Internal control will moderate the relation between affect and behavioral intent toward a *hedonic* behavior, but not toward a *utilitarian* behavior.
- H5: Internal control will moderate the relation between past behavior and behavioral intent toward a hedonic behavior, but not toward a *utilitarian* behavior.

Method

Sample. Respondents were 139 students from a large southeastern university who participated as part of an intro-

ductory course requirement. Each respondent participated in a 30-min research session, consisting of 30 to 40 students. The participants in our study ranged from 19 to 27 years of age, with a mean age of 21.2 years.

Measure and procedures. At the start of the research session, each participant was given a letter of consent providing an overview of the study and general instructions. After reading and signing the letter of consent, respondents were administered a questionnaire that operationalized the constructs in the model. Internal consistency for each multi-item construct was assessed using Cronbach's α ¹.

Attitude. Attitude toward performing each behavior was assessed on four 7-point semantic differential scales with anchors: *good/bad*, *favorable/unfavorable*, *positive/negative*, and *satisfactory/unsatisfactory*. This scale is used widely as an indicator of attitude (e.g., Armitage et al., 1999). Cronbach's α = .91 for sunscreen use, .94 for drinking and driving, .92 for donating blood, and .90 for fast food consumption.

Subjective norm. We assessed subjective norm using the following question on a 7-point bipolar scale ranging from -3 (*Extremely Unlikely*) to 3 (*Extremely Likely*): "Most people who are important to me think I should [donate blood] at least once per year."

Affect. Respondents were asked to express how they felt toward each behavior using a list of 12 word descriptors: (a) positive affect (elated, active, excited, pleased, satisfied, happy) and (b) negative affect (anxious, fearful, nervous, aroused, astonished, surprised) on a 5-point scale ranging from *Not at All* to *Very Much*. The Cronbach's α s for each measure of affect were: (a) sunscreen use (α = .83 for positive affect and α = .86 for negative affect), (b) drinking and driving (α = .82 for positive affect and α = .84 for negative affect), (c) donating blood (α = .81 for positive affect and α = .80 for negative affect), and (d) fast food consumption (α = .83 for positive affect and α = .80 for negative affect).

Past behavior. We assessed past behavior by assessing two 7-point unipolar scales: The first scale, "During the past year, I have [donated blood]," ranged from *Not at All* to *Very Many Times*"; the second scale, "How often have you [donated blood] in the past 12 months" ranged from *Never* to *Always*. Cronbach's α = .95 for sunscreen use, .93 for drinking and driving, .96 for donating blood, and .92 for fast food consumption.

Perceived internal control. Internal control was assessed using items from Armitage et al. (1999) on four 7-point scales: (a) "I believe I have the ability to [donate blood at least once per year]," (b) "To what extent do you see yourself as being capable of [donating blood at least once per year]," (c) "If it were entirely up to me, I am confident that I would be able to [donate blood at least once per year]," and (d) "How confident are you that you will be able to [donate blood at least once per year]." Cronbach's α = .86 for sunscreen use, .80 for drinking and driving, .85 for donating blood, and .88 for fast food consumption.

Intention. Intention to perform behavior was assessed using three items with stems: "I plan to/I intend to/I want to [donate blood at least once per year]" each on a Likert-type 7-point unipolar scale ranging from 1 (*Strongly Agree*) to 7 (*Strongly Disagree*). Cronbach's α = .84 for sunscreen use, .82 for drinking and driving, .83 for donating blood, and .89 for fast food consumption.

Results

Influence of theoretical constructs. We conducted two sets of analyses to examine the direct and moderating influence of internal control onto variables within the TPB. In the first set of analyses, we regressed intention onto attitude, positive and negative affect, subjective norm, past behavior, and internal control. In the second set of analyses, we included 5 two-way interactions for each behavior. All variables were mean-centered to reduce multicollinearity between constructs. We report the analyses of the full model². The overall R^2 for the intention to use sunscreen, drink and drive, donate blood, and consume fast food was .572, .489, .561, and .611, respectively. Theoretical components of the model for utilitarian behaviors (see Figure 1a) and hedonic behaviors (see Figure 1b) contributed significantly to prediction of intent with some exceptions, providing partial support for H1. Across all four behaviors, attitude, affect, and past behavior significantly predicted intent. However, subjective norm was only significant for behaviors (blood donation and drunk driving) in which internal control was not significantly related to intent. This finding will be discussed further in the Discussion section.

Moderated influence of internal control. For the two-way interactions, internal control was treated as a moderator to examine the relations with cognitive variables; attitude and subjective norm, and noncognitive variables; affect and past behavior across all 4 behaviors. Hy-

¹The measures for each construct were normally distributed (i.e., the skewness and kurtosis values were consistently below 2). Missing values were replaced using a listwise deletion method.

²The hierarchical tests of the main effects versus the full model were significant for sunscreen use ($F = 24.75$; $df = 7, 132$; $p < .001$), drinking and driving ($F = 24.58$; $df = 7, 132$; $p < .001$), donating blood ($F = 23.42$; $df = 7, 132$; $p < .001$), and fast food consumption ($F = 22.78$; $df = 7, 132$; $p < .001$) onto intention.

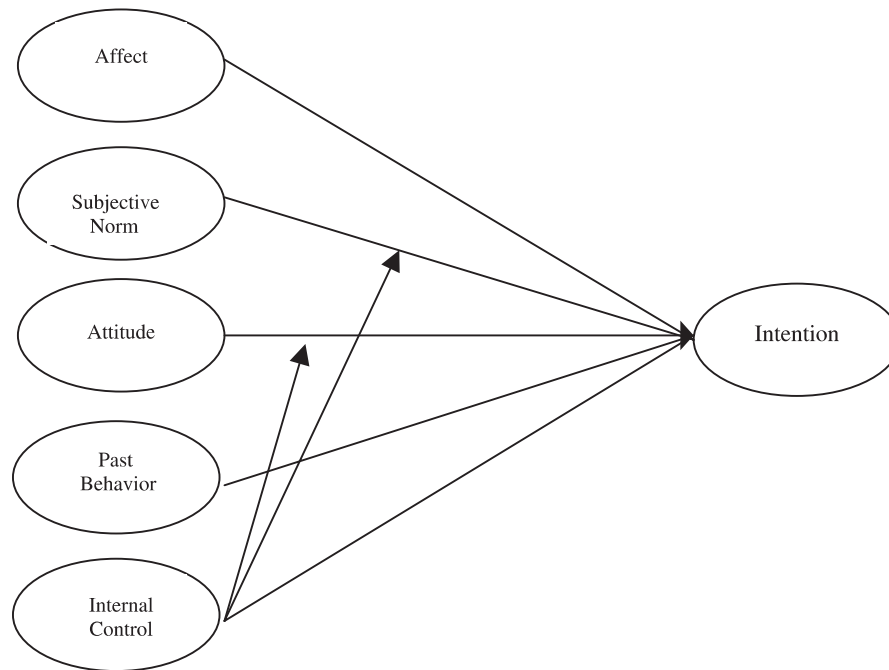


FIGURE 1a Conceptual model specification for hypothesized relations of determinants on intention for Utilitarian behaviors.

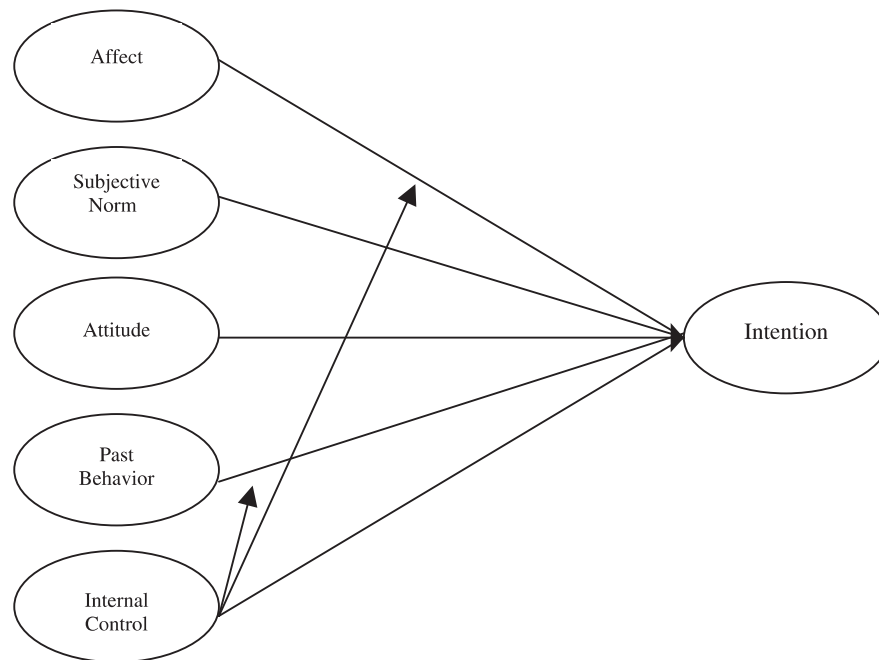


FIGURE 1b Conceptual model specification for hypothesized relations of determinants on intention for Hedonic behaviors.

hypothesized patterns of interactions were supported. We found that subjective norm and attitude were significantly related to intention only for utilitarian but not hedonic behaviors (H2 and H3); further, affect and past behavior were significant only for hedonic but not utilitarian behav-

iors (H4 and H5). Table 1 contains a summary of the regression analyses.

The nature of the two-way interactions (i.e., the slope at each level of the moderator variable) for the hypothesized constructs is contained in Table 2. As in previous research

TABLE 1
Regression of Theoretical Constructs and Interactions onto Intention

Construct	Utilitarian Behaviors				Hedonic Behaviors			
	Sunscreen Use		Blood Donation		Drinking and Driving		Fast Food Consumption	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Attitude	.775	8.336*	.198	2.694*	.152	2.634*	.184	2.776*
Past behavior	.148	2.613*	.549	2.022*	.298	5.596*	.166	3.922*
Subjective norm	-.014	-.173	.227	3.444*	.222	2.241*	.001	.031
Positive affect	.086	.752	.335	3.307*	.244	1.505	.279	3.649*
Negative affect	.324	1.967*	-.224	-2.875*	-.194	-2.635*	.173	1.563
Internal control	.359	2.283*	.104	1.553	-.023	-.255	.361	4.177*
Internal control \times Attitude	.152	-2.805*	-.077	-2.286*	-.020	-.492	-.029	-.544
Internal control \times Subjective norm	.189	2.583*	.088	2.811*	-.059	-1.081	-.049	-.908
Internal control \times Positive affect	-.067	-.430	.069	1.223	-.542	-2.211*	.094	1.220
Internal control \times Negative affect	.011	.060	-.002	-.070	.074	.634	-.284	-2.801*
Internal control \times Past behavior	.038	.521	.052	.323	-.433	-2.136*	-.136	-1.989*

* $p < .05$.

TABLE 2
Nature of Two-Way Interactions on Intention (Study 1)

Construct/Behavior	Level of Control	β	<i>t</i>	<i>p</i>
Utilitarian				
Sunscreen use				
Internal control \times attitude	Low	.992	9.542	.000
	Moderate	.714	7.014	.000
	High	.336	1.555	.122
Internal control \times Subjective norm	Low	-.139	.968	.334
	Moderate	.248	1.079	.111
	High	.677	2.742	.009
Donating blood				
Internal control \times attitude	Low	.457	3.540	.001
	Moderate	.201	1.091	.104
	High	.139	1.568	.119
Internal control \times Subjective norm	Low	-.132	1.492	.138
	Moderate	.270	4.083	.000
	High	.386	4.753	.000
Hedonic				
Drinking and driving				
Internal control \times Positive affect	Low	.922	3.501	.003
	Moderate	.244	1.503	.185
	High	.027	.144	.886
Internal control \times past behavior	Low	.712	1.039	.154
	Moderate	.298	4.955	.000
	High	.268	6.102	.000
Fast Food Consumption				
Internal control \times Negative affect	Low	.472	4.136	.000
	Moderate	-.295	1.395	.130
	High	.290	1.300	.123
Internal control \times Past behavior	Low	.007	.215	.830
	Moderate	.025	3.386	.000
	High	.027	2.737	.007

(e.g., Bodur, Brinberg, & Coupey, 2000), we used the 10th, 50th, and 90th percentiles to represent low, medium, and high levels of the moderator variable.

For utilitarian behaviors (i.e., using sunscreen and donating blood) in which respondents had high levels of internal control, subjective norm was more predictive of intention; at

lower and moderate levels of internal control, attitude was more predictive of intention.

For hedonic behaviors (i.e., drinking and driving and consuming fast food), respondents with low levels of internal control, affect was significantly predictive of intention. For respondents with moderate and high levels of internal control, past behavior significantly influenced intention. Implications of the two-way interaction are considered in the Discussion section.

STUDY 2

Overview

One limitation of Study 1 is that the type of behavior is confounded with the specific context of the behavior. Study 2 was conducted to address this concern. A framing manipulation was created on which the same behavior (e.g., chocolate/fat consumption) was described as either a utilitarian or a hedonic behavior. We hypothesize the same pattern of interactions as described in Study 1.

Method

Sample. Respondents were 188 students from a large southeastern university who participated as part of an extra credit opportunity. Each respondent participated in a 30-min research session, consisting of 30 to 40 students. The participants in our study ranged from 18 to 29 years of age, with a mean age of 19.7 years.

Manipulation and procedures. The study was described to the participants as a study on student's intentions to perform food-related behaviors. Participants were randomly assigned to four conditions (utilitarian/hedonic and fat/chocolate consumption): (a) utilitarian fat, (b) hedonic fat, (c) utilitarian chocolate, and (d) hedonic chocolate. Each participant was given a packet to read including instructions and stimulus material. The materials framed a behavior (i.e., either fat or chocolate consumption) in either a positive or negative way. The positive message discussed health advantages and reasons why performing this type of behavior is useful. The negative message discussed the disadvantages and reasons why performing this type of behavior is harmful. The underlying goal was for respondents to realize the potential harm, but to derive pleasure (by satisfying their short-term interests) from engaging in the behavior.

Results

Preliminary analyses. To ensure that our manipulations were effective, respondent's responses to the following item were measured: "To what extent do you feel that [consumption of chocolate at least once per week] is useful

or pleasurable?" Results indicated that the manipulations were effective: for chocolate consumption ($t = 3.420$, $p < .001$; $M_{\text{useful}} = .69$, $M_{\text{useful}} = -.510$); for fat consumption ($t = 2.680$, $p < .01$; $M_{\text{pleasurable}} = .36$, $M_{\text{pleasurable}} = -1.49$).

Moderated influence of internal control. Two sets of analyses were conducted to examine the moderating influence of internal control onto variables with the TPB across both behaviors.

In the first set of analyses, intention was regressed onto attitude, positive and negative affect, subjective norm, past behavior, and internal control. In the second set of analyses, 5 two-way interactions for positively and negatively framed neutral behaviors were included. We report the analyses of the full model³. The overall R^2 for the intention to consume fat was .535 (utilitarian) and .638 (hedonic); to consume chocolate the intention was .649 (utilitarian) and .788 (hedonic). Table 3 contains a summary of the regression analysis.

For the two-way interactions, internal control was treated as a moderator and used to examine the relation on cognitive variables (attitude and subjective norm) and noncognitive variables (affect and past behavior) across two neutral behaviors (i.e., fat and chocolate consumption).

The hypothesized relations (see Figures 1a and 1b) were supported across positively and negatively framed neutral behaviors. For positively framed behaviors (i.e., utilitarian), respondents with high (and moderate for fat consumption) levels of internal control, subjective norm was predictive of intention; at lower levels of internal control, attitude was more predictive of intention. For negatively framed behaviors (i.e., hedonic), respondents with low (and moderate for fat consumption) levels of internal control, affect was significantly predictive of intention. For respondents with high levels of internal control, past behavior significantly influenced intention.

DISCUSSION

Summary of Results

The purpose of Study 1 was to test hypothesized relations between PBC and variables within a decision-theoretic framework. Support for multiple determinants of intention was found via an extended model of the TPB. Positive and negative affect, attitude, subjective norm, past behavior, and moderating influence of internal control were generally significant determinants of intention for utilitarian behaviors (e.g., using sunscreen and donating blood) and for hedonic

³Hierarchical tests of main effects versus the full model were significant for both behaviors. Fat consumption was positively framed ($F = 35.67$; $df = 7, 36$; $p < .001$) and negatively framed ($F = 38.43$; $df = 7, 36$; $p < .001$); chocolate consumption was positively framed ($F = 47.67$; $df = 7, 40$; $p < .001$) and negatively framed ($F = 51.18$; $df = 7, 40$; $p < .001$) onto intention.

TABLE 3
Regression of Theoretical Constructs and Interactions onto Intention (Study 2)

Construct	Utilitarian Frame				Hedonic Frame			
	Fat		Chocolate		Fat		Chocolate	
	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>	β	<i>t</i>
Attitude	.351	2.403*	.856	5.008*	-.451	-1.979*	.357	2.208*
Past behavior	.073	.671	-.045	-.745	-.038	-1.688	.074	1.962*
Subjective norm	.109	.925	.453	3.210*	-.324	-2.401*	.189	1.369
Positive affect	.861	1.987*	.468	1.575	-.244	-.500	.146	.304
Negative affect	-.123	-.306	.266	.528	.414	.667	-.245	-1.010
Internal control	.378	.671	-.036	-.210	.952	-4.290*	-.374	-.441
Internal control \times Attitude	-.307	-2.128*	.505	3.342*	.323	1.631	-.143	-1.166
Internal control \times Subjective norm	.227	2.447*	.219	2.065*	-.150	-1.888	.108	1.207
Internal control \times Positive affect	.203	.374	.029	.218	.386	1.121	.596	1.877
Internal control \times Negative affect	-.660	-1.850	-.126	-.256	-.897	-3.163*	.054	-.015
Internal control \times Past behavior	.015	.302	-.036	-1.783	.056	2.201*	-.069	-2.339*

* $p < .05$.

behaviors (e.g., drinking and driving and fast food consumption). Internal control was found to moderate the relation between intention and cognitive variables (attitude and subjective norm for utilitarian behaviors) and noncognitive variables (affect and past behavior for hedonic behaviors) as predicted.

Relations explicated in Study 1 were further tested in Study 2 via manipulation of neutral behaviors into utilitarian and hedonic categories. Findings in Study 2 support relations hypothesized in Study 1. In an attempt to reduce plausible alternative explanations in our findings, the results of Study 2 indicate that the context of the behavior is not confounded with the category of behavior (i.e., utilitarian and hedonic).

Theoretical Implications

Consistent with past research (e.g., Bagozzi & Kimmel, 1995), additional constructs (affect and past behavior) in the TPB not only added significant variance to the proposed model directly, but also allowed for moderated relations between perceived control and extended TPB variables to be identified. Direct and moderated influences were found to capture a significant proportion of the variance in intention beyond currently existing variables.

Utilitarian behaviors. For utilitarian behaviors (e.g., sunscreen use and donating blood), a shift from attitude to subjective norm for respondents with low to high levels of internal control was identified. This suggests that when people feel that they have lower internal control to perform behaviors that provide a utility (i.e., utilitarian behaviors), they seem to rely on cognitions (i.e., attitude) to specify or clarify decision rules. For example, when an individual considers donating blood, previously learned information about his or her control could hinder performance based on potentially

unfavorable consequences (contracting HIV, etc.) evoked through cognition (i.e., attitude).

In contrast, when people feel they have higher internal control, they may be more aware of normative expectancies toward engaging in the focal behavior and thus making performance more likely. When an individual perceives himself or herself as being able to perform a utilitarian behavior, justification for not engaging in the behavior may not exist, whereby the individual could perceive heightened social pressure. For example, when an individual considers donating blood, previously learned information about his or her control could enable performance based on expectancies of important normative influences (i.e., subjective norm).

Hedonic behaviors. For hedonic behaviors (e.g., drinking and driving and consuming fast food), a shift from affect to past behavior for respondents with low to high levels of internal control was identified. When people feel that they have lower internal control toward performing hedonic behaviors, they may rely to a greater extent on their emotional reactions to an attitude object than on their beliefs about an object's attributes in determining their overall intentions. For example, when an individual considers eating fast food, previously learned information about his or her control over unhealthy consumption could hinder or enable performance of health conscious behaviors based on a feeling of how good the fast food tasted when previously consumed (i.e., evoked affect).

In contrast, when people feel they have higher internal control, they may rely on past experience as a heuristic or a facilitator for engaging in the hedonic behavior. Specifically, high ability can facilitate the influence of past behavior onto intent by acting as a heuristic for future intentions (Albarracin & Wyer, 2000). That is, people who consider a decision when relevant frequent past experi-

ence is salient to them might simply assume that the reasons they performed the behavior at an earlier point in time are likely to apply in the present context as well. Thus, they might use past behavior as a heuristic basis for a decision to repeat it without considering their cognitions toward it (Albarracin, & Wyer, 2000). For example, when an individual considers eating fast food, previously learned information about his or her control over unhealthy consumption could hinder performance of health consciousness behaviors based on past experience eating fast food everyday at lunch for the past month (i.e., past behavior).

Main effects of theoretical variables. Although subjective norm did significantly predict two behaviors (blood donation and drunk driving), it did not predict the other two (sunscreen use and fast food consumption). Interestingly, when subjective norm was not predictive of intent, internal control was significant (see Table 1). Research has indicated that when past behavior is included in the TPB model, the effects of variables such as internal control/subjective norm can become nonsignificant (Bagozzi & Kimmel, 1995). Bagozzi and Kimmel (1995) argued that measures of past behavior are positively associated with factors making up one's definition of a behavior. The more frequent one has performed a behavior (e.g., donating blood) in the past, the stronger the definition of the focal behavior. Because the definition of the behavior can influence the effect on other TPB variables (e.g., perceived control/subjective norm), a regression of intention on other variables including past behavior is likely to yield a significant coefficient for frequency of behavior and possibly a nonsignificant coefficient for other variables. This relation was tested ad hoc and we found that by removing past behavior measures, we increased internal control (for blood donation and drunk driving) and subjective norm (for sunscreen use and fast food consumption) estimates to significant levels ($p < .05$). However, it should be noted that by removing past behavior, R^2 values for each behavior were significantly reduced.

In sum, these findings suggest that intentions to perform behaviors may be influenced by both cognitive variables (attitude and subjective norm), as proposed in the TRA (Ajzen & Fishbein, 1980), and noncognitive variables (affect and past behavior), as proposed in the theory of social behavior (Triandis, 1977), depending on the category of behavior. If replicated with other respondents and other contexts and behaviors, these findings imply that the conceptualization of decision-making models may be incomplete when (a) a moderating influence of internal control is not incorporated, (b) high and low levels of internal control are not addressed, and (c) interactions of cognitive and noncognitive variables are not based on behavioral categories.

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