This research used a revised theory of planned behavior (TPB) model, which incorporated self-identity and past behavior—and the interaction between these constructs—in order to improve the model's predictive power in relation to consumer behavior (purchasing one’s preferred beer). At Time 1, respondents (\(N=108\)) completed measures of attitudes, perceived behavioral control, subjective norm, self-identity, past behavior, and intentions. Behavior was assessed 1 week later. All predictors were positively related to intentions. Self-identity and past behavior interacted to influence intentions: Self-identity had a stronger influence on intentions at low, rather than high, levels of past behavior. Intentions and past behavior were predictive of Time 2 behavior. These findings emphasize the need to consider identity issues in the TPB.

The theory of planned behavior (TPB; Ajzen, 1985) is one of the most influential and well-supported social psychological theories for predicting human behavior. The central premise of the model is that behavioral decisions are not made spontaneously, but are the result of a reasoned process in which behavior is influenced, albeit indirectly, by attitudes, norms, and perceptions of control over the behavior. Specifically, the model proposes that attitude (i.e., evaluation of the target behavior), subjective norms (i.e., perceived social pressure regarding performance of the behavior), and perceived
behavioral control (i.e., perceived control over performance of the behavior) influence behavior primarily through their impact on behavioral intention. Hence, intention is seen as the proximal determinant of behavior. Finally, it should be noted that perceived behavioral control (PBC) is thought to have both indirect (via intention) and direct effects on behavior, with direct effects occurring when the individual’s perceptions of control match the actual amount of control they are able to exercise.

More than two decades of research using the theories of reasoned action and planned behavior has provided extensive support for the ability of the models to predict a wide range of behavior (for recent reviews, see Armitage & Conner, 2001; Conner, Norman, & Bell, 2002). The TPB has been used extensively in the prediction of health-related behaviors, such as safer-sex behavior (e.g., Terry, Galligan, & Conway, 1993), healthy eating (e.g., Astrom & Rise, 2001), licit drug use (e.g., Conner, Warren, Close, & Sparks, 1999), illicit drug use (e.g., Conner & McMillan, 1999), and exercise behavior (e.g., Kimiecik, 1992). However, the model has good support in other behavioral domains, such as recycling behavior (e.g., Terry, Hogg, & White, 1999), driving behavior (e.g., Gastil, 2000), and prosocial behavior (e.g., Harrison, 1995).

Of more relevance to the present research, the predictive ability of the model also has been demonstrated across a range of consumer domains, including intention to consume organic produce (Sparks & Shepherd, 1992) and genetically modified food (Cook, Kerr, & Moore, 2002), intention to purchase environmentally friendly products (Kalafatis, Pollard, East, & Tsogas, 1999) and luxury items such as watches and mobile phones (Mannetti, Pierro, & Livi, 2002), and even intention to shoplift (Tonglet, 2002). The present research examines the utility of the TPB in the prediction of intention to purchase and self-reported purchase behavior of individuals’ preferred brands of beer. Main and interactive effects of past behavior and self-identity are also examined.

The Roles of Self-Identity and Past Behavior

In its original formulation, the TPB was a parsimonious model of the attitude–behavior relationship, and decades of research have demonstrated that the original model is able to predict behavioral performance accurately (e.g., Armitage & Conner, 2001). Nevertheless, in presenting the TPB, Ajzen (1991) suggested that if further predictors can be identified, the TPB is open to expansion. This has led to the consideration of a number of additional predictors within the context of the TPB. In the present study, the roles of self-identity and past behavior are examined.
**Self-Identity**

Within both the sociological and psychological literatures, a person’s self-identity has been viewed as an important determinant of behavior. *Self-identity* is the salient part of an actor’s self that relates to a particular behavior and can be thought of as the extent to which performing the behavior is an important component of the person’s self-concept. Several authors have addressed the extent to which self-identity might be a useful addition to the TPB, and self-identity has been found to contribute significantly to the prediction of blood donation (Charng, Piliavin, & Callero, 1988), voting (Granberg & Holmberg, 1990), recycling (Terry et al., 1999), and food choice (Cook et al., 2002).

On the basis of past research, Conner and Armitage (1998) argued that it is reasonable to assume that there are certain behaviors for which self-identity is an important determinant of intention. Consumer behavior is one such domain in which the role of self-identity has been demonstrated consistently. For example, Sparks and Shepherd (1992) found that self-identity as a green consumer predicted intention to consume organically grown vegetables, independent of other TPB variables and even after controlling for the effects of past behavior.

**Past Behavior**

Of the proposed additions to the TPB, the strongest evidence is associated with the role of past behavior. It has been argued that, with repeated performance, behaviors might become determined by one’s past behavior, rather than by cognitions such as those described in the TPB (Sutton, 1994). Several studies have supported the argument that past behavior accounts for unique variance in intention and behavior (e.g., Conner et al., 1999; Norman & Smith, 1995). In many areas, measurement of past behavior is routinely incorporated into the model (e.g., travel behavior; Aarts, Verplanken, & van Knippenberg, 1998). In particular, past behavior should be considered when the behavior in question is performed repeatedly (e.g., Bamberg, Ajzen, & Schmidt, 2003). Given that consumer behaviors such as food purchase decisions are repeated frequently, the effect of the constructs outlined in the TPB should be observed when the effects of past behavior are controlled. The effects of past behavior on both purchase intentions and behavior are examined in the present study.

**Interplay Between Self-Identity and Past Behavior**

In sum, independent effects of both self-identity and past behavior in the prediction of behavioral intention have been found, supporting their
inclusion in the TPB framework. However, a number of issues and questions regarding the role of these constructs remain unanswered. First, most tests of the TPB, particularly in the consumer domain, have focused predominantly on the role of self-identity without also examining the role of past behavior (cf. Sparks & Shepherd, 1992). It is important to consider these constructs simultaneously because of debate in the field as to whether past behavior and self-identity are measures of the same underlying construct (e.g., Fekadu & Kraft, 2001). A second consideration is whether the effects of self-identity and past behavior are additive—an argument consistent with the TPB—or whether, in line with identity theory, the effects of self-identity vary as a function of repeated behavioral performance.

Identity theory (e.g., Stryker, 1987) assumes that self-identity and past behavior interact to influence intentions. That is, with repeated performance of a behavior, that behavior is more likely to be seen as an important part of the self-concept, increasing the predictive power of self-identity. However, although initial tests of moderation effects found that self-identity was more predictive of intention at higher levels of past behavior (Charng et al., 1988), the results of recent empirical research have been equivocal. A number of tests have found no evidence that the effects of self-identity vary as a function of past performance of the behavior (Astrom & Rise, 2001; Terry et al., 1999), and in tests where interaction effects have been found, the direction of these effects has been opposite to the predictions of identity theory. That is, the effects of self-identity have been found to be stronger at lower, not higher, levels of past behavior (Conner & McMillan, 1999; Fekadu & Kraft, 2001). Conner and McMillan argued that the stronger impact of self-identity on intention at lower levels of past behavior may reflect the role that initial experiences play in strengthening the relevance of identity to intention. However, as behavior is repeated, intentions become less under the control of cognitive factors such as self-identity and more under the control of habitual forces.

In sum, more research on the interplay of self-identity and past behavior, using a greater range of populations and behaviors, is needed in order to understand more fully the role of self-identity in the attitude–behavior context. In particular, it is important to test such interaction effects with behaviors that vary in the frequency with which they are performed and that vary in the extent to which they are related to self-identity. Indeed, past tests of interaction effects in the TPB have tended to use behaviors that are performed relatively infrequently, such as blood donation (Charng et al., 1988) or safer-sex behavior in Africa (Fekadu & Kraft, 2001). As a result, such tests may have failed to provide a full account of the relationship between self-identity and past behavior along the entire continuum of habit strength. Given that consumer behavior is often identity-related, routinized,
and habitual, an examination of the interplay between self-identity and past behavior in a consumer domain represents a novel domain in which to test the boundary conditions of such effects, thereby contributing to a greater understanding of the relationship between self-identity and past behavior in the prediction of behavior.

The Present Research

The present study examines the application of the TPB to understanding intention and actual purchasing behavior in relation to brands of beer. We also examine the additional predictive power afforded by the consideration of both main and interaction effects of self-identity and past purchase behavior. One contribution of the present research is the use of a longitudinal—rather than a cross-sectional—design. Most applications of the TPB in the consumer domain have tested the model in relation to consumer intentions (e.g., Mannetti et al., 2002; Sparks & Shepherd, 1992), but have not assessed behavior. In addition, past tests of Self-Identity × Past Behavior interactions have tended to focus on the prediction of behavioral intentions, rather than on behavior (cf. Terry et al., 1999). In the present research, however, we examined self-reported purchase behavior 1 week later, enabling the predictive ability of the full TPB model and both the direct and indirect effects of self-identity and past behavior (and the interplay between these constructs) to be tested.

The following hypotheses are proposed:

Hypothesis 1. The constructs outlined in the standard TPB model (i.e., attitudes, subjective norm, PBC) will all be related positively to purchase intentions.

Hypothesis 2. Past behavior and self-identity will emerge as independent predictors of intention and will explain additional variance.

Hypothesis 3. Past behavior and self-identity will interact to influence purchase intentions. In line with recent research (Conner & McMillan, 1999; Fekadu & Kraft, 2001), self-identity will have a stronger influence on intention at lower levels of past behavior.

Hypothesis 4. Past behavior will predict behavior at Time 2.

Hypothesis 5. In line with the TPB, intention and PBC will predict behavior at Time 2.
Method

Respondents and Design

Respondents were 108 university students (63 male, 45 female) who participated in the study in exchange for course credit. Respondents’ age range was 18 to 30 years ($M = 19.25$ years).

The present research was longitudinal in design. Respondents completed two questionnaires on consumer behavior (i.e., buying one’s preferred beer). At Time 1, respondents completed a survey assessing the components of the revised TPB model (attitude, subjective norm, PBC, self-identity, past behavior, and intention). A follow-up survey (1 week later) assessed self-reported behavior.

Measures

The components of the revised TPB, with the exception of past behavior, were measured with multi-item scales in relation to buying one’s preferred brand of beer (see Appendix). To reduce the effects of response bias, each of the measures comprised a number of negatively worded items, which were reverse-scored prior to scale construction. Items were ordered in a nonsystematic manner throughout the questionnaire. Prior to completing the questionnaire, respondents were asked to think about the major beer brands available and to list their preferred brand. Throughout the remainder of the questionnaire, respondents were asked to answer the questions with this brand in mind.

Attitude. The direct measure of attitude was assessed with seven semantic-differential scales. Respondents were asked to respond to the question “For me, buying my preferred brand of beer during the next week would be...,” which was followed by unpleasant–pleasant, bad–good, negative–positive, favorable–unfavorable, wise–foolish, unenjoyable–enjoyable, and satisfying–unsatisfying. Responses were rated on a 7-point scale, and items were scored such that higher scores indicate a more positive attitude toward buying one’s preferred beer ($\alpha = .89$).

The indirect (belief-based) measure of attitude was computed as the sum of the products of scores on the behavioral beliefs and outcome evaluations. Behavioral beliefs were assessed with seven items selected on the basis of an elicitation study (i.e., tastes good, unhealthy, always available, having a hangover the next morning, high quality, expensive, knowing what to expect).2

2Prior to the main study, an elicitation study was conducted on a small sample of respondents in order to develop the belief-based measures. The pilot survey was administered to a sample of 24 introductory psychology students (9 male, 15 female; $M$ age = 19.3 years). Respon-
Respondents were asked to rate the likelihood that each of the seven costs and benefits would be an outcome of purchasing their preferred beer on a 7-point scale ranging from 1 (extremely unlikely) to 7 (extremely likely). Outcome evaluations were assessed by asking respondents to rate the pleasantness of each of the seven consequences on a 7-point scale ranging from 1 (extremely unpleasant) to 7 (extremely pleasant).

**Norms.** Normative influence was assessed with six items, which tapped into both descriptive (what other people do) and injunctive (what others would like you to do) aspects (see Cialdini, Reno, & Kallgren, 1990). Respondents were asked to indicate the extent to which significant others actually buy their preferred beer (e.g., “How many of the people who are important to you would buy the beer you prefer during the next week?”) and the extent to which significant others think they should buy their preferred beer (e.g., “Do the people who are important to you approve or disapprove of buying the beer you prefer?”).

There are three items that were reverse-scored. All items were measured on a 7-point scale (e.g., 1 = none to 7 = all). Responses were averaged to create an index of subjective norm (α = .81), with high scores indicating greater perceived normative support for purchase behavior.\(^3\)

An indirect measure of norms was also computed by summing the product of scores on the normative beliefs and motivation to comply. On the basis of the pilot study, six referents were selected (i.e., parents, siblings, other relatives, partner, friends and peers, and students). To assess normative beliefs, respondents were asked to rate how likely it was that each of the referents would think that they should buy their preferred beer on a 7-point scale ranging from 1 (extremely unlikely) to 7 (extremely likely). Motivation to comply was assessed by asking respondents to report how willing they were to do what each of the referents wanted them to do. This was rated on a 7-point scale ranging from 1 (not at all) to 7 (very much).

**Perceived behavioral control.** Perceptions of control over purchase behavior were assessed with five items (e.g., “If I wanted to, it would be easy for me to buy my preferred beer during the next week?”). Items were scored on a 7-point scale (e.g., 1 = strongly disagree to 7 = strongly agree), with higher scores indicating greater perceived control over purchase behavior (α = .71).

\(^3\)A principal components analysis was performed on the norm items to ensure that all items (i.e., descriptive and injunctive items) loaded on a single factor. This analysis revealed the presence of a single factor only, justifying the creation of a single-norm construct.
The indirect measure of PBC was computed as the sum of the products of control beliefs and perceived power.

Control beliefs were assessed with five items selected from the elicitation study (i.e., health, cost, accessibility, cold weather, not from Queensland). Respondents were asked to rate the extent to which each of the barriers would prevent them from buying their preferred beer on a 7-point scale ranging from 1 (not at all) to 7 (very much). Perceived power was assessed by asking respondents to rate how often each of the control factors occurred on a 7-point scale ranging from 1 (never) to 7 (frequently).

Self-identity. We adapted two items from Sparks and Shepherd (1992) to measure self-identity as a typical purchaser (“I consider myself as a typical buyer of my preferred beer” and “I see myself as a typical buyer of my preferred beer”). Responses to the items were rated on a 7-point scale (e.g., 1 = definitely to 7 = definitely not) and were averaged to form a reliable scale (r = .69, p < .001). Higher scores reflect a stronger sense of self-identity as a typical buyer of the respondent’s preferred brand of beer.

Past behavior. A single item measured past purchase behavior. Respondents were asked to report the number of preferred beers purchased in the past week.

Intention. Strength of respondents’ intention to purchase their preferred beer was assessed with three items (e.g., “I intend to buy my preferred beer during the next week”). All items were rated on a 7-point scale (e.g., 1 = No, definitely not to 7 = Yes, definitely). Responses were averaged to create an index of behavioral intention (α = .92).

Behavior. Respondents completed a follow-up questionnaire 1 week later in which self-reported behavior was assessed with two items. They were asked to indicate how often they had purchased their preferred beer during the past week on a 7-point scale ranging from 1 (not at all) to 7 (frequently), and how many units of their preferred beer they had purchased during the past week. Means, standard deviations, and correlations among the variables are presented in Table 1.4

Results

Preliminary Analyses

In order to validate the belief-based structure of the TPB model, correlations between belief-based measures and the corresponding direct measures

---

4Principal components factor analysis with oblique rotation indicates that the items assessing self-identity, past behavior, and each of the predictors of intention outlined by the TPB (i.e., attitude, subjective norm, and PBC) loaded on separate factors.
Table 1

Means and Intercorrelations Among Measured Constructs

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attitude</td>
<td>4.79</td>
<td>1.31</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.89)</td>
</tr>
<tr>
<td>2. PBC</td>
<td>5.84</td>
<td>0.95</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.71)</td>
</tr>
<tr>
<td>3. Subjective norm</td>
<td>4.25</td>
<td>1.15</td>
<td>.46***</td>
<td>.16†</td>
<td></td>
<td>(.81)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Past behavior</td>
<td>4.90</td>
<td>6.67</td>
<td>.34***</td>
<td>.15</td>
<td>.31***</td>
<td>a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Self-identity</td>
<td>3.75</td>
<td>1.63</td>
<td>.61***</td>
<td>.31***</td>
<td>.43***</td>
<td>.49***</td>
<td>(.69)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Intention</td>
<td>4.10</td>
<td>2.02</td>
<td>.63***</td>
<td>.35***</td>
<td>.46***</td>
<td>.54***</td>
<td>.78***</td>
<td>(.92)</td>
<td></td>
</tr>
<tr>
<td>7. Frequency of purchasing behavior</td>
<td>2.54</td>
<td>1.95</td>
<td>.34***</td>
<td>.25**</td>
<td>.34***</td>
<td>.67***</td>
<td>.52***</td>
<td>.58***</td>
<td>a</td>
</tr>
<tr>
<td>8. Number of drinks purchased</td>
<td>6.21</td>
<td>10.02</td>
<td>.28**</td>
<td>.24*</td>
<td>.35***</td>
<td>.78***</td>
<td>.45***</td>
<td>.52***</td>
<td>.75***</td>
</tr>
</tbody>
</table>

Note. Reliabilities appear in boldface on the diagonal. PBC = perceived behavioral control.
+Cronbach’s alpha not computed: single-item measure. \(p < .001\).
†p < .10. *p < .05. **p < .01. ***p < .001 (two-tailed).
were examined. Beliefs were computed in line with the expectancy-value formulation (Ajzen & Fishbein, 1980), with the indirect measure of attitude constituting the summed product of behavioral beliefs and outcome evaluations. The indirect measure of norms was computed from the summed product of normative beliefs and motivation to comply. Finally, the indirect measure of PBC was the summed product of control beliefs and perceived power. As predicted by the TPB, attitudes and behavioral beliefs (weighted by outcome evaluations) were correlated \( r = .59, p < .001 \). Normative beliefs (weighted by motivation to comply) were correlated with subjective norm \( r = .38, p < .001 \), as were control beliefs (weighted by perceived power) and PBC \( r = -.40, p < .001 \).\(^5\)

### Test of the Revised Theory of Planned Behavior Model in Predicting Intention

A hierarchical multiple regression was performed in which intention to purchase one’s preferred beer was regressed onto the revised TPB model (see Table 2). At Step 1, the constructs representing the standard TPB model (i.e.,

\(^5\)The negative correlation indicates that, consistent with the TPB, the more barriers respondents perceived to their preferred beer purchasing, the less control they felt they had over this behavior.
attitude, PBC, subjective norm) were entered. Past behavior and self-identity were entered at Steps 2 and 3, respectively. The interaction between past behavior and self-identity was entered last. All variables were mean-centered before computing interaction terms in order to minimize problems of multicollinearity.

Inclusion of attitude, PBC, and subjective norm at Step 1 accounted for 49% of the variance in intention, $F(3, 104) = 33.40, p < .001$. Inspection of the beta weights reveals significant independent effects for attitude, PBC, and subjective norm. In line with the TPB, and in support of Hypothesis 1, respondents with more positive attitudes had stronger purchase intentions ($\beta = .51), t(104) = 6.39, p < .001; respondents who perceived greater control over the behavior had stronger purchase intentions ($\beta = .24), t(104) = 3.41, p = .001; and increasing levels of approval for purchase behavior (i.e., subjective norm) were associated with increasing purchase intentions ($\beta = .19), t(104) = 2.41, p = .018$.

The addition of past behavior at Step 2 was associated with a significant increase in the variance explained ($R^2 \Delta = .09), F(1, 103) = 21.63, p < .001$. As expected, higher levels of past purchase behavior were associated with stronger purchase intentions for the upcoming week ($\beta = .32), t(103) = 4.65, p < .001$.

At Step 3, the inclusion of self-identity accounted for a further 12% of the variance in intention, $F(1, 102) = 38.31, p < .001$. Individuals who thought of themselves as typical buyers of their preferred soft drink had stronger intentions to purchase their preferred brand of beer ($\beta = .48), t(102) = 6.19, p < .001$.

Inclusion of the interaction term between past behavior and self-identity at the final step produced a significant increment in the variance explained ($R^2 \Delta = .01), F(1, 101) = 4.23, p = .042$. At the final step, subjective norm was no longer a significant independent predictor of intention ($\beta = .07, p = .24$). The final model accounted for 56% of the variance in intention, $F(6, 101) = 40.48, p < .001$.

The significant interaction between past behavior and self-identity was examined using simple-slope analysis (Aiken & West, 1991), which assessed the significance of the regression coefficients for self-identity at both low ($-1 SD$) and high ($+1 SD$) levels of past behavior. This analysis reveals that the

---

6Past behavior was entered prior to self-identity in the regression equation in order to test whether self-identity accounted for a unique proportion of the variance over and above the variance accounted for by past behavior. A regression analysis in which past behavior and self-identity were entered at the same step reveals an identical pattern of results.
effect for self-identity was significant at low levels of past behavior only ($\beta = .58$), $t(101) = 6.46, p < .001$ (see Figure 1). At low levels of past behavior, increasing self-identity as a typical buyer was associated with stronger purchase intentions. At high levels of past behavior, self-identity was not related significantly to intention ($\beta = .22$), $t(101) = 1.49, p = .14$.

In addition to tests of the simple slopes, past behavior was dichotomized using a median-split technique ($Mdn = 2.00$ beers/week), and two separate regression analyses were run in which intention was regressed on attitude, subjective norm, PBC (Step 1), and self-identity (Step 2). This analysis allowed us to determine the relative predictive power of the TPB constructs at both low and high levels of past behavior (see Fekadu & Kraft, 2001).

At low levels of past behavior, the first model (i.e., TPB) accounted for 48% of the variance in intention, $F(3, 53) = 15.96, p < .001$, with both attitude ($\beta = .54$), $t(53) = 4.89, p < .001$; and PBC ($\beta = .25$), $t(53) = 2.45, p = .018$, as significant predictors. The inclusion of self-identity at Step 2 accounted for a further 15% of the variance in intention, $F(1, 52) = 21.62, p < .001$. Moreover, when self-identity was included in the model, only attitude ($\beta = .29$), $t(52) = 2.74, p = .008$; and self-identity ($\beta = .52$), $t(52) = 4.65, p < .001$, were significant predictors of behavioral intention.

At high levels of past behavior, TPB variables accounted for 46% of the variance in intention, $F(3, 47) = 13.14, p < .001$. Both attitude ($\beta = .28$), $t(47) = 2.36, p = .022$; and PBC ($\beta = .53$), $t(47) = 4.49, p < .001$, emerged as significant predictors. The inclusion of self-identity at Step 2 accounted for a further 9% of the variance in intention, $F(1, 46) = 9.26, p = .004$. However, at high levels of past behavior, only PBC ($\beta = .44$), $t(46) = 3.89, p < .001$; and

![Figure 1. Interaction between self-identity and past behavior (PB) on behavioral intention.](image-url)
self-identity (β = .36), t(46) = 3.04, p = .004, were significant independent predictors of purchase intentions (see Table 3).\(^7\)

Test of the Revised Theory of Planned Behavior Model in Predicting Behavior

To test the utility of the TPB model in the prediction of behavior at Time 2, two additional regression analyses were performed. In these analyses, reported frequency of purchase behavior and number of preferred beers purchased were regressed on intention and PBC (Step 1). In order to test for residual effects of the other TPB constructs (i.e., attitude and subjective norm) and effects involving past behavior and self-identity, the main effects for these predictors were entered in at Step 2. The Past Behavior × Self-Identity interaction was entered at Step 3 (see Table 4).

On the measure of frequency of purchase behavior, inclusion of intention and PBC at Step 1 accounted for 34% of the variance in behavior, \(F(2, 105) = 26.55, p < .001\). Inspection of the beta weights reveals a significant effect for intention only (β = .56), \(t(105) = 6.59, p < .001\). Consistent with the TPB, purchase intentions were a strong predictor of self-reported frequency of behavior. PBC did not emerge as a significant direct predictor of behavior.

At Step 2, the independent effects of attitude, subjective norm, past behavior, and self-identity were entered, accounting for a further 19% of the variance in behavior, \(F(4, 101) = 10.37, p < .001\). However, inspection of the beta weights reveals a significant independent effect for past behavior only (β = .50), \(t(101) = 6.09, p < .001\), such that higher levels of purchase behavior in the past are associated with higher levels of self-reported behavior. Inclusion of the Past Behavior × Self-Identity interaction at the final step did not produce an increase in the variance explained (\(R^2\Delta = .00\), \(F(1, 100) = .56, p = .46\). The final model accounted for 53% of the variance in self-reported frequency of purchase behavior, \(F(7, 100) = 16.23, p < .001\).

On the measure of number of units purchased, inclusion of intention and PBC at Step 1 accounted for 28% of the variance in behavior, \(F(2,
### Hierarchical Multiple Regression Analysis Predicting Behavioral Intention at Higher and Lower Levels of Past Behavior

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Higher levels of past behavior</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$R^2_{\Delta}$</td>
<td>$F_{\text{change}}$</td>
<td>$\beta$</td>
<td></td>
<td>$R^2$</td>
<td>$R^2_{\Delta}$</td>
<td>$F_{\text{change}}$</td>
<td>$\beta$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.46</td>
<td>.46</td>
<td>13.14***</td>
<td>.13</td>
<td></td>
<td>.48</td>
<td>.49</td>
<td>15.96***</td>
<td>.29**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.44***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective norm</td>
<td></td>
<td></td>
<td></td>
<td>.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-identity</td>
<td>.55</td>
<td>.09</td>
<td>9.26**</td>
<td>.36**</td>
<td></td>
<td>.63</td>
<td>.15</td>
<td>21.62***</td>
<td>.52***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Reported beta weights are values at the final step. PBC = perceived behavioral control.

**$p < .01.$ ***$p < .001.$
### Table 4

**Hierarchical Multiple Regression Analysis Predicting Behavior**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Frequency of purchasing behavior</th>
<th>Number of units purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$R^2$Δ</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>.34</td>
<td>.34</td>
</tr>
<tr>
<td>PBC</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>.53</td>
<td>.19</td>
</tr>
<tr>
<td>Subjective norm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB</td>
<td>.43***</td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PB × SI</td>
<td>.53</td>
<td>.00</td>
</tr>
</tbody>
</table>

*Note.* Reported beta weights are values at the final step. PBC = perceived behavioral control; PB = past behavior; SI = self-identity. *p < .05. ***p < .001.
105) = 20.01, \( p < .001 \). Inspection of the beta weights reveals a significant main effect for intention only (\( \beta = .50 \)), \( t(105) = 5.65, p < .001 \), such that higher intentions at Time 1 are associated with higher levels of purchase behavior at Time 2. PBC did not emerge as a significant predictor of behavior.

Inclusion of the main effects at Step 2 accounted for a further 37% of the variance in reported number of units purchased, \( F(4, 101) = 26.25, p < .001 \). Only the effect for past behavior was significant: Respondents who reported purchasing higher numbers of beer units in the past reported a higher number of beer units purchased in the present (\( \beta = .70 \)), \( t(101) = 9.85, p < .001 \). Moreover, once past behavior was included in the model, the main effect of intention on behavior became nonsignificant (\( \beta = .15 \)), \( t(101) = 1.40, p = .16 \). Inclusion of the interaction term at the final step did not produce a significant increase in variance explained (\( R^2 \Delta = .00 \)), \( F(1, 100) = .67, p = .42 \). The final model accounted for 62% of the variance in number of units purchased, \( F(7, 100) = 26.22, p < .001 \).

Discussion

The present research tested the utility of a revised TPB model in which the roles of past behavior, self-identity, and the interaction between past behavior and self-identity were investigated. As expected, the standard TPB model accounted for a significant proportion of variance in the relationship among attitudes, intentions, and behavior. Attitudes, PBC, subjective norm, past behavior, and self-identity all predicted intention to purchase one’s preferred brand of beer. Both intention and past behavior predicted purchase behavior 1 week later. In addition, past behavior moderated the effects of self-identity on behavioral intention, such that self-identity had a stronger impact on intention at lower levels of past behavior. On the whole, the revised TPB model was effective in explaining intention and behavior.

Turning first to the findings for the original TPB model, all constructs outlined in the model (i.e., attitude, subjective norm, and PBC) were significant predictors of purchase intention. Respondents who reported a more positive attitude toward purchasing their preferred brand of beer, who perceived support for purchasing their preferred brand of beer from those around them, and who perceived that they had control over their purchasing behavior reported significantly stronger purchase intentions. In relation to the prediction of behavior, intentions, but not perceptions of control, emerged as a significant (albeit relatively weak) predictor of purchase behavior. Thus, one contribution of the present research was to emphasize the ability of the TPB to predict the relationship between purchase attitudes, intentions, and behavior.
Our results also demonstrate the impact of past behavior on both intention and future behavior (see Conner & Armitage, 1998). Past purchase behavior was a strong predictor of intention to purchase in the next week and the strongest predictor of self-reported behavior at Time 2. Moreover, the effects of past behavior on both behavioral intention and behavior cannot be attributed solely to the effects of common method variance. Some researchers (e.g., Ajzen, 1991) have argued that common method variance effects associated with identical response formats may lead to strong past-behavior/future-behavior relationships. However, the response formats that were used in our research were not related: Past behavior referred to the number of units purchased in the past week, but behavior was assessed in terms of both self-reported frequency of purchase behavior and the number of units purchased. Nevertheless, in both cases, past behavior was a significant predictor of future behavior, even after controlling for the effects of the constructs identified in the TPB.

Self-identity was a strong predictor of intention, such that individuals who perceived themselves as typical buyers of their preferred beer were more likely to intend to buy that brand of beer. Despite debate as to whether self-identity effects simply reflect overlap with other constructs (e.g., attitude, past behavior; Fekadu & Kraft, 2001; Fishbein, 1997; Sparks, 2000), self-identity made an independent contribution to intention after controlling for the effects of attitudes, norms, PBC, and past behavior. It should be noted that self-identity and attitude were correlated quite highly in the current sample ($r = .61$), suggesting that attitude and self-identity have similar effects on behavioral intention. However, in many domains, there may be a conflict between the values represented in self-identity and the values represented in attitudes. In such cases, it has been argued that self-identity may be more predictive of intention, given that self-identity may capture more enduring interests and values than those captured by attitudes toward a specific object (Sparks, 2000). Future research should attempt to determine the relative predictive value of self-identity and attitude when the values embodied in the constructs are discrepant.

Unlike most research on the effects of self-identity (e.g., Mannetti et al., 2002; Sparks & Shepherd, 1992; cf. Terry et al., 1999), our research tested both indirect (through intention) and direct effects of self-identity on behavior and found that the effects of self-identity on behavior may be primarily indirect (cf. Granberg & Holmberg, 1990). It should be noted, however, that a number of factors may have contributed to our failure to find evidence for direct effects on behavior. First, our limited sample size ($N = 108$) was less than optimal for the testing of complex multivariate models. As a result, we may not have had sufficient power to test effects on behavior. Second, the period of time between Time 1 and Time 2 (i.e., 1 week) may not have been
sufficient to allow direct effects to emerge. It might be the case that the direct effects emerge only over a longer period of time (e.g., 1 or 2 months). Given that the majority of the research examining the role of self-identity in the consumer domain has not tested the prediction of behavior, the inclusion of follow-ups of longer duration than that used in the current research is a priority for future research.

The effects for self-identity observed here add to a growing body of literature (for a review, see Conner & Armitage, 1998) showing that self-identity is a useful addition to the TPB. Indeed, one important contribution of the present research is the examination of the relative effects of past behavior and self-identity. Most research in the consumer domain has investigated the role of self-identity, but has not determined whether the effects of self-identity emerge when the role of past behavior is also considered (cf. Sparks & Shepherd, 1992). However, it is clear that both self-identity and past behavior are important determinants of purchase intentions and, consequently, purchase behavior.

In addition to examining the independent contributions of self-identity and past behavior, we also tested for an interaction between these two constructs. To date, evidence for the moderating role of past behavior on self-identity/intention relations has been equivocal. In the present research, however, there was evidence that the effect of self-identity varied as function of repeated experience of performing the relevant behavior, such that self-identity was a stronger predictor of intentions at lower, rather than higher, levels of past behavior. Such an effect is inconsistent with predictions derived from identity theory (see Charng et al., 1988), but is consistent with past research and recent theorizing (Conner & McMillan, 1999; Fekadu & Kraft, 2001). As argued by Conner and McMillan, the stronger impact of self-identity on intention at lower levels of past behavior may reflect the role that initial experiences play in strengthening the relevance of identity to intentions. Likewise, the relative weakness of self-identity at higher levels of past behavior implies that intentions become less under the control of cognitive factors (e.g., attitude, self-identity) and more under the control of habitual processes.

In order to understand further the processes that might operate at low and high levels of past behavior, separate regression analyses were conducted. These analyses suggest that the relative importance of the TPB constructs varies as a function of whether the individual has performed the behavior infrequently or frequently (for similar findings with respect to social identification, see Terry & Hogg, 1996). At low levels of past behavior, the only TPB construct to emerge as a significant predictor of intention was attitude. Thus, when a behavior is not a regular part of a person’s behavioral repertoire, behavioral intentions appear to reflect the person’s cognitions and
evaluations of the behavior, most probably through the rational decision-making processes outlined in the TPB. In contrast, at high levels of past behavior, intention might be predicted best by the person’s perception of control over the behavior. Thus, repeated engagement in a behavior may demonstrate to an individual that the behavior is under his or her control and can be performed easily and often.

It is important to note, however, that our findings contrast with the results of similar analyses performed by Fekadu and Kraft (2001). In the present research, attitude (as well as subjective norm, PBC, and self-identity) was a significant predictor of intention at high, but not at low levels of past behavior. This effect was explained in terms of the increased accessibility of an attitude following repeated behavioral expression (see Fazio, 1990). One way to reconcile these findings is to consider the nature of the behavior under consideration. In our study, the behavior of interest (i.e., beer purchase behavior) was performed frequently by our Australian university student respondents ($M_{PB} = 4.90$ beers/week). Fekadu and Kraft, in contrast, investigated safer-sex behavior in African women, and descriptive statistics suggested that this behavior was not performed frequently by respondents ($M_{PB} = 0.7$ on a scale ranging from 0 to 6). That is, even among their “high-behavior” group, the behavior may not have been performed often, with the result that attitudes continued to exert control over intentions. Clearly, further replication is needed to understand fully the dynamic relationship among past behavior, self-identity, and the constructs outlined in the TPB in order to elucidate the way in which behavior is translated into self-identity.

The present research has a number of strengths: It was longitudinal in design and—unlike most applications of the TPB to consumer behavior—it included measures of both intention and behavior. Nevertheless, the study is not without its limitations. First, the study was conducted with a sample of introductory psychology students, and it is reasonable to question how applicable the results are to the general population. However, given that young people are a major consumer group for the product selected (i.e., beer), the results should be broadly generalizable to other samples. Second, the study relied on self-report measures. The use of such measures may inflate the relationships between predictors and behavior as a result of common method variance and response bias (Morwitz, Johnson, & Schmittlein, 1993). However, it should be noted that attempts were made to limit response consistency effects. Multi-item measures were used; negatively

---

8It should be noted that in Australia and in the United Kingdom, the legal drinking age is 18. However, in the United States and in many other countries, the legal drinking age is 21. As a result, most college students in the United States cannot purchase alcohol legally.
worded items were employed; and items assessing each construct were not presented together, but were distributed randomly throughout the survey. Nevertheless, future research would benefit from cross-validation of the results from experimental research, where overt measures of behavior are easier to obtain and where methods that minimize the influence of self-presentation and response biases can be adopted. For example, recent research by Verkooijen and Smith (2005) suggested that it might be possible to use implicit techniques, which test the strengths of automatic associations between the self, the group, and particular behaviors, to assess constructs such as norms and self-identity.

Finally, in an attempt to minimize the influence of common method variance, which has been highlighted as an issue in research using past behavior to predict future behavior (e.g., Ajzen, 1991), the measure of past behavior referred to the number of beers purchased in the past week. However, past behavior is usually measured with reference to the frequency of past behavior. Indeed, asking respondents about the number of beers purchased is subtly different from asking them about the number of times a particular brand of beer is purchased. In addition, the period covered by the measure of past behavior was very short (i.e., 1 week). Given that some respondents may not purchase beer every week, this may have reduced the level of past behavior for these individuals. The measurement of past behavior could be strengthened in future research by including questions regarding frequency of purchase behavior, as well as amount of purchase behavior, and by examining past behavior over a longer time period.

The current results also have applied implications in the consumer domain. Creative agencies (e.g., advertisers, marketers) often attempt to create an image of a typical consumer when trying to sell a product to an aspirational audience. Materials goods are associated not only with their functional benefits (e.g., satisfaction of physical needs), but are adopted as signifiers of taste, lifestyle, and identity (e.g., Dittmar, 1992). The finding that identity processes play a critical role in purchase intentions and behavior—that is, that people behave in ways that are congruent with their self-images and self-identity—indicates that this may be a very powerful marketing strategy. However, the present results are indicative of a dynamic relationship between perceiving oneself as a typical consumer, past behavior, and future behavior. Self-image and self-identity, in conjunction with positive attitudes, may play an important role in initiating purchase decisions. However, once behavior has become more habitual, self-identity may play a less critical role in determining behavior.

An equally plausible account, however, is that regular engagement in a behavior leads to development of a self-identity as a typical buyer. The
assessment of past behavior and self-identity at the same point in time means that it is not possible to disentangle the relative contribution of self-identity to the development of habit or vice-versa. An important question for future research is to determine the developmental trajectory of self-identity through the use of prospective designs that assess past behavior and self-identity at different points across time, enabling detection of mediating effects, or by mapping self-identity and habit in relation to new consumer domains (e.g., uptake of new technologies).

In conclusion, the TPB can provide useful insight into the processes that translate positive attitudes or evaluations into purchase intentions and purchase behavior. However, it is critical that researchers continue to examine ways in which the model can be extended in order to understand the complex interplay among attitudes, norms, habit, and identity processes in the relationship between attitudes and action.

References


Dittmar, H. (1992). *The social psychology of material possessions: To have is to be*. Hemel Hempstead, UK: Harvester-Wheatsheaf.


Appendix

Attitude (7 items)

Me buying my preferred beer during the next week would be:

unpleasant–pleasant, bad–good, negative–positive, favorable–unfavorable, wise–foolish, unenjoyable–enjoyable, satisfying–unsatisfying (rated on a 7-point scale ranging from 1 to 7)

Norms (6 items)

1. How many of the people who are important to you would buy the beer you prefer during the next week? (1 = none to 7 = all)
2. How likely is it that the people who are important to you buy your preferred beer? (1 = very likely to 7 = very unlikely)
3. Think of the people who are important to you. What percentage of them do you think buy your preferred beer? (1 = 0% to 7 = 100%)
4. Do people who are important to you approve or disapprove of buying the beer you prefer? (1 = approve to 7 = disapprove)
5. How many of the people who are important to you would support you buying your preferred beer? (1 = none to 7 = all)
6. Among the people who are important to you, how much agreement would there be that buying the beer you prefer is a good thing to do? (1 = a great deal to 7 = none at all)

Perceived behavioral control (5 items)

1. If I wanted to, it would be easy for me to buy my preferred beer during the next week. (1 = strongly disagree to 7 = strongly agree)
2. How much control do you have over whether you buy your preferred beer during the next week? (1 = absolutely no control to 7 = complete control)
3. The number of events outside my control that could prevent me from buying my preferred beer during the next week is . . . (1 = very few to 7 = numerous).
4. I feel in complete control of whether I buy my preferred beer during the next week. (1 = completely false to 7 = completely true)
5. For me, to buy my preferred beer during the next week would be . . . (1 = very easy to 7 = very difficult).
Self-identity (2 items)

1. I (1 = definitely do to 7 = definitely do not) consider myself as a typical buyer of my preferred beer.
2. I see myself as a typical buyer of my preferred beer. (1 = definitely not to 7 = definitely)

Past behavior (1 item)

During the past week, how many drinks of your preferred beer did you buy? (Write down the amount in numbers.)

Purchase intentions (3 items)

1. I (1 = do not intend to 7 = do intend) to buy my preferred beer during the next week.
2. I intend to buy my preferred beer during the next week. (1 = No, definitely not to 7 = Yes, definitely)
3. Do you intend to buy your preferred beer during the next week? (1 = definitely intend to to 7 = definitely intend not to)

Self-reported behavior (2 items)

1. During the past week, how often have you bought your preferred beer? (1 = not at all to 7 = frequently)
2. During the past week, how many drinks of your preferred beer have you bought? (Write down the amount in numbers.)