# A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action

**Thomas J. Madden**
*University of South Carolina*

**Pamela Scholder Ellen**
*Georgia State University*

**Icek Ajzen**
*University of Massachusetts*

*Research in social psychology has extensively referenced and used Fishbein and Ajzen's theory of reasoned action to predict and understand motivational influences on behavior. Recently Ajzen has proposed an extension of the theory by including perceptions of behavioral control as an additional predictor of intentions and behavior. The present research compared Ajzen's theory of planned behavior with the theory of reasoned action for 10 behaviors chosen to represent a range with respect to control over performing the behavior. The results indicate that inclusion of perceived behavioral control enhances the prediction of behavioral intention and behavior. Consistent with the theory of planned behavior, the effects of perceived behavioral control on a target behavior are most vivid when the behavior presents some problem with respect to control.*

The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) has been widely used as a model for the prediction of behavioral intentions and/or behavior. In a recent meta-analysis, Sheppard, Hartwick, and Warshaw (1988) noted that the model predicts behavioral intentions and behavior quite well and is useful for identifying where and how to target strategies for changing behavior. The development and testing of the theory of reasoned action were predicated on the assumption that the behaviors being studied were under full volitional control. A recent extension of the model proposed by Ajzen (1985), the theory of planned behavior, explicitly incorporates perceived behavioral control as an antecedent to behavioral intentions.

The purpose of the present study is to compare the theory of planned behavior and the theory of reasoned action with respect to the prediction of behavioral intention and target behavior. The predictions resulting from the two theories are assessed across a set of 10 behaviors that were selected to represent a range of volitional control over the intended performance of the behaviors.

## THE THEORY OF REASONED ACTION

The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) posits that behavioral intentions, which are the immediate antecedents to behavior, are a function of salient information or beliefs about the likelihood that performing a particular behavior will lead to a specific outcome (Figure 1A). Fishbein and Ajzen (1975) divide the beliefs antecedent to behavioral intentions into two conceptually distinct sets: behavioral and normative. The behavioral beliefs are postulated to be the underlying influence on an individual's attitude toward performing the behavior, whereas the normative beliefs influence the individual's subjective norm about performing the behavior. Hence, information or salient beliefs affect intentions and subsequent behavior either through attitudes and/or through subjective norms. As noted by Fishbein and Ajzen (1975), variables external to the model are assumed to influence inten-

**Authors' Note:** We would like to thank Paul Miniard, Terence Shimp, and three anonymous reviewers for their helpful suggestions. Correspondence concerning this article should be sent to Thomas J. Madden, College of Business Administration, University of South Carolina, Columbia, SC 29208.

*PSPB*, Vol. 18 No. 1, February 1992 3-9
© 1992 by the Society for Personality and Social Psychology, Inc.

from the SAGE Social Science Collections. All Rights Reserved.

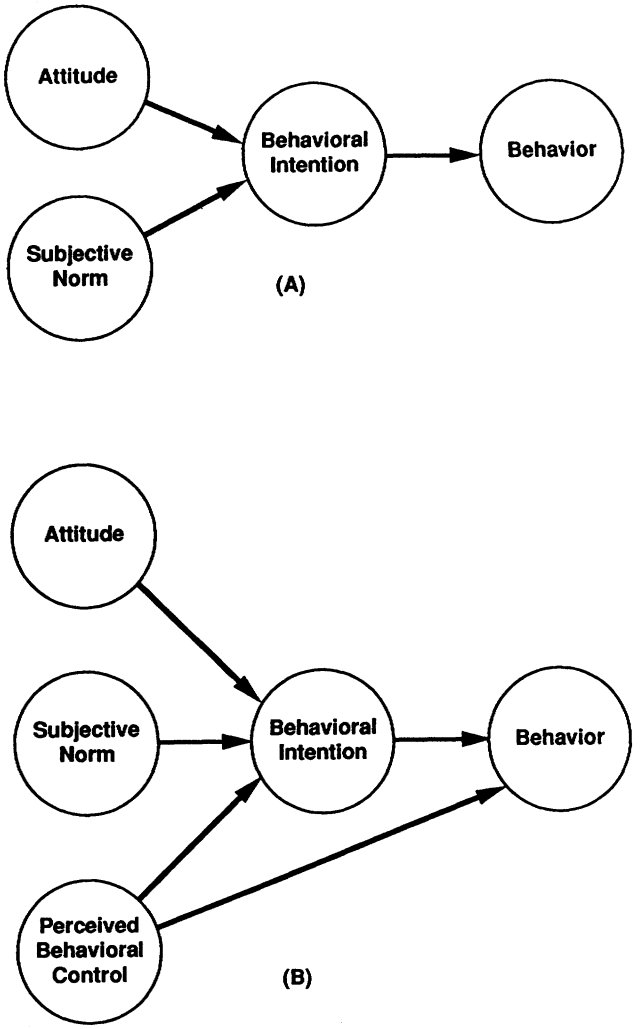


**Figure 1 Path models for the theory of reasoned action (A) and the theory of planned behavior (B) Exogenous correlations were estimated; paths left out of figure for simplicity.**

tions only to the extent that they affect either attitudes or subjective norms.

Fishbein and Ajzen (1975) specify three boundary conditions that can affect the magnitude of the relationship between intentions and behavior: (a) the degree to which the measure of intention and the behavioral criterion correspond with respect to their levels of specificity, (b) the stability of intentions between time of measurement and performance of the behavior, and (c) the degree to which carrying out the intention is under the volitional control of the individual.

Additional variables have been proposed and tested for inclusion in, or expansion of, the theory of reasoned action (e.g., inclusion of personal norms by Fishbein, 1967; moral obligations by Gorsuch & Ortberg, 1983, and Zuckerman & Reis, 1978; competing attitudes by Davidson & Morrison, 1983). Recently, Ajzen (1985; see also Ajzen, in press) has proposed an extension of the theory of reasoned action by incorporating the notion of perceived control over behavioral achievement as a determinant of behavioral intentions and behavior.

## THE THEORY OF PLANNED BEHAVIOR

The theory of planned behavior (Ajzen, 1985) extends the boundary condition of pure volitional control specified by the theory of reasoned action. This is accomplished by including beliefs regarding the possession of requisite resources and opportunities for performing a given behavior. The more resources and opportunities individuals think they possess, the greater should be their perceived behavioral control over the behavior. As in the case of behavioral and normative beliefs, it is also possible to separate these beliefs and treat them as partly independent determinants of behavior.

Figure 1B presents the theory of planned behavior. Perceived behavioral control is included as an exogenous variable that has both a direct effect on behavior and an indirect effect on behavior through intentions. The indirect effect is based on the assumption that perceived behavioral control has motivational implications for behavioral intentions. When people believe that they have little control over performing the behavior because of a lack of requisite resources, then their intentions to perform the behavior may be low even if they have favorable attitudes and/or subjective norms concerning performance of the behavior. Bandura, Adams, Hardy, and Howells (1980) have provided empirical evidence that people's behavior is strongly influenced by the confidence they have in their ability to perform the behavior. The structural link from perceived behavioral control to intentions reflects the motivational influence of control on behavior through intentions.

The direct path from perceived behavioral control to behavior is assumed to reflect the actual control an individual has over performing the behavior. The direct effect of perceived behavioral control on actual behavior should be significant when (a) the behavior in question is likely to have some aspect not under volitional control and (b) perceptions of control over the behavior are accurate (see Ajzen, in press).

Ajzen and Madden's (1986) research was the first complete test of the theory of planned behavior as shown in Figure 1. Their first experiment investigated students' class attendance. The results indicated that perceived behavioral control was a significant predictor of intentions after controlling for attitudes and subjective norms. However, perceived behavioral control did not contrib-

ute to the prediction of target behavior after controlling for intentions. Ajzen and Madden argued that the degree of actual control over attending class was relatively high and, therefore, the addition of perceived control would be expected to have little predictive validity with respect to target behavior.

Their second experiment assessed students' attitudes, subjective norms, perceived control, and intention toward getting an A in a particular course. The students' actual grade in the course was used as a measure of the target behavior, or goal. The data were collected in two waves: one at the beginning of the semester and one at the end of the semester. The responses from wave one yielded results similar to those of the first experiment. That is, perceived control enhanced the prediction of intentions over the theory of reasoned action but did not contribute to the prediction of behavior. However, when the responses from the second wave were used, perceived control did contribute to the prediction of behavior even after controlling for intentions. Comparison of the responses in the two waves indicated that there were large and significant changes in the subjects' perception of control and intentions. As the subjects became more familiar with the circumstances surrounding the behavior, their perceptions of control became more accurate with respect to the actual level of control they had over being able to perform the behavior or, in this case, attaining the desired goal. Hence, only when the perceptions of control were accurate was perceived behavioral control a significant predictor of target behavior.

In sum, the theory of planned behavior predicts two possible effects of perceived behavioral control on behavior. In the first case, perceived behavioral control reflects motivational factors that have an indirect effect on behavior through intentions, whereas in the second case, perceived behavioral control reflects actual control and has a direct link to behavior not mediated by intentions. The purpose of this study is to test the theory of planned behavior empirically and to extend the empirical work of Ajzen and Madden (1986) by assessing behaviors that vary in degree of perceived behavioral control.

Two hypotheses are tested. The first hypothesis posits that the theory of planned behavior statistically accounts for more variance in behavioral intentions and target behavior than the theory of reasoned action. The second hypothesis follows from the argument that the direct link from perceived behavioral control to behavior is likely to be significant only when the behavior is not under complete volitional control. Specifically, it is hypothesized that the improvement in prediction of target behavior is inversely related to the degree of control over the behavior. When people have complete control over the behavior, intentions alone should be sufficient to predict the behavior, and perceived behavioral control will make no significant contribution. In contrast, when a behavior is not under complete volitional control, perceived behavioral control (to the extent that it is accurate) provides important information that should add to the ability of the model to predict the behavior. This hypothesis contrasts with expectations concerning the prediction of intentions. Unlike performance of a behavior, formation of intentions is not confined by actual control over the behavior. Hence, we expect the effect of perceived behavioral control to have a significant effect on intentions; however, this effect is not necessarily related to the degree to which people have control over the behavior in question.

## METHOD

### *Pretest*

Two pretests were conducted to elicit behaviors and to assess the degree of perceived control in performing these behaviors. First, a group of 27 students was asked to list at least 10 activities or behaviors that they planned to do daily or regularly during the subsequent 2-week period. These behaviors were to include behaviors both high and low in control. Before listing the behaviors, the students were provided with examples of how internal and/or external control factors might possibly prevent the intended behavior from happening. For example, their car broke down (external factor) on the way to a movie, or they overslept (internal factor) and missed an appointment. On the basis of the frequency of responses, 23 behaviors were selected for further analysis.

In the second pretest, the 23 behaviors were rated, by a different group of 57 subjects, regarding perceptions of control over being able to perform the behavior. Two items were used. The first item was a 7-point scale anchored by *easy* and *difficult*. The other item asked subjects to indicate the probability that internal and/or external events might keep them from performing the behavior. The scale ranged from 0 to 100%. Finally, subjects were also asked to list any other behavior that they planned to do but often did not do because internal and/or external factors prohibited it.

Using the ratings on the two scales, 9 of the 23 behaviors were selected to represent a range with respect to subjects' perception of control. The behaviors selected were "exercising regularly" (*exercise*), "getting a good night's sleep" (*sleep*), "talking to a close friend" (*friend*), "doing laundry" (*laundry*), "avoiding caffeine" (*caffeine*), "going shopping with a friend" (*shop*), "renting a videocassette" (*videocassette*), "taking vitamin supplements" (*vita-*

*mins*), and "listening to an album" (*album*). An additional behavior, "washing your car" (*wash car*), was selected from the open-ended responses because it was mentioned frequently.

*Subjects and Procedure*

Subjects for the study were 94 undergraduate business students. The data were collected in two waves. In the first wave, subjects responded to questions about their attitudes, subjective norms, perceived behavioral control, and intentions for performing each of the 10 behaviors during the specified 2-week period. In the second wave, 2 weeks later, the same subjects were asked to report the number of times they had performed each of the 10 behaviors during the preceding 2 weeks. Only subjects giving complete responses for all 10 behaviors for both waves were used for analysis; the resulting sample size was 82.

*Measurement*

Attitudes toward performing the behaviors during the next 2 weeks were measured using a five-item semantic differential scale. The items were *good-bad, pleasant-unpleasant, harmful-beneficial, useful-useless,* and *enjoyable-unenjoyable.* Across the 10 behaviors, the average reliability for the attitude items, as measured by Cronbach's alpha, was .83, with a range of .70 to .89.

Subjective norms were measured by asking subjects to respond to a 7-point item: "Most people who are important to me think I should ——— during the next two weeks." This item was anchored by *strongly agree* and *strongly disagree.* Motivation to comply was also measured with a 7-point item, anchored by *strongly agree* and *strongly disagree.* The item stated: "When it comes to ———, I want to do what most people who are important to me want me to do."

Perceived behavioral control was measured using four items taken from scales used by Ajzen and his colleagues (Ajzen & Madden, 1986; Ajzen, Timko, & White, 1982; Schifter & Ajzen, 1985). The measures of control were "For me to ——— in the next two weeks would be *very easy—very difficult*"; "If I wanted to, I could easily ——— in the next two weeks," *strongly agree—strongly disagree*; "How much control do you have over ——— in the next two weeks?" *complete control—absolutely no control*; and "The number of events outside my control which could prevent me from ——— in the next two weeks are *numerous—very few.*" All four control measures were 7-point items. Across the 10 behaviors, the average reliability for the perceived control items, as measured by Cronbach's alpha, was .82; the range was .76 to .88.

Behavioral intentions were measured using three 7-point items commonly used in studies assessing the theory of reasoned action: "I intend to ——— in the next two weeks," *definitely do—definitely do not*; "I will try to ——— in the next two weeks," *definitely will—definitely will not*; and "I will make an effort to ——— in the next two weeks," *definitely true—definitely false.* Cronbach's alpha for the 10 behaviors ranged from .81 to .98, with an average of .94.

## ANALYSIS AND RESULTS

*Analytical Methods*

To assess the efficacy of including beliefs regarding perceived behavioral control as an exogenous variable, the explained variance for the prediction of intentions and target behavior was compared for the two models (i.e., the theory of planned behavior and the theory of reasoned action). To estimate the explained variance, three approaches were used: between-subjects regression analysis, path analysis, and within-subjects regression analysis. For each approach, the first step was to predict behavioral intentions and target behavior using the theory of reasoned action. The second step was to fit the theory of planned behavior—that is, the inclusion of perceived behavioral control as an exogenous variable for the prediction of behavioral intentions and target behavior. The relative performance of the models was assessed by comparing the explained variation for the two criterion variables.

*Between-subjects regression.* A regression model was fit for each of the 10 behaviors. This approach affords the opportunity to assess the effects of the independent variables on the dependent variables for the behaviors varying in perceived behavioral control.

*Path analytic models.* Individual behaviors are likely to be less stable than behavioral categories. To assay any differences between the two theories on behavioral categories, the 10 behaviors were categorized into three groups (low, medium, and high) on the basis of the mean levels of the perceived behavioral control scores. The three behaviors having the lowest perceived behavioral control scores (*sleep, shop,* and *exercise*; average score, 3.77) constituted the low group; the three behaviors with the highest scores (*video, album,* and *vitamins*; average score, 5.36) constituted the high group; and the remaining four behaviors (*wash car, laundry, caffeine,* and *friend*; average score, 4.45) made up the moderate group.

The correlations among the constructs were transformed using Fisher's $r$ to $z$ transformation. These transformed correlations were then averaged over the behaviors within a category and subsequently transformed back to a correlation. Using the average correlation matrices, the parameters of the alternative theoretical

**TABLE 1: Between-Subjects Regression: Coefficients of Determination ($R^2$)**

| Behavior | *Intentions* | | *Behavior* | | |
|---|---|---|---|---|---|
| | *Theory of Reasoned Action* | *Theory of Planned Behavior* | *Theory of Reasoned Action* | *Theory of Planned Behavior* | *Mean for Perceived Control Items*[a] |
| Sleep | .08 | .17 | .13 | .41 | 3.44 |
| Shop[b] | .18 | .37 | .12 | .15 | 3.72 |
| Exercise | .46 | .50 | .31 | .44 | 4.16 |
| Wash car[b] | .29 | .37 | .19 | .22 | 4.27 |
| Laundry | .25 | .44 | .10 | .11 | 4.33 |
| Caffeine | .60 | .66 | .47 | .49 | 4.42 |
| Friend | .14 | .34 | .22 | .30 | 4.77 |
| Videocassette | .21 | .35 | .07 | .08 | 4.99 |
| Album | .48 | .58 | .23 | .23 | 5.15 |
| Vitamins | .43 | .44 | .58 | .59 | 5.93 |

a. Scores on perceived control items could range from 1 to 7, higher numbers indicating greater perceived control.
b. The distribution for these behaviors is troublesome for a regression analysis because of a restriction in range. For going shopping with a friend only 5% of the respondents performed the behavior more than once during the 2-week period. For washing your car only 10% performed the behavior more than once during the 2-week period.

models were estimated by means of Jöreskog and Sörbom's (1985) LISREL VI, a full-information maximum likelihood method.

*Within-subjects regression.* Because there were responses to 10 different behaviors, a within-subjects regression was also used to estimate the explained variation in intentions and target behavior. Using the responses to the constructs for the 10 behaviors as input, regression analyses were conducted for each subject. Hence, for each subject an estimate of the explained variation in intentions and behavior was obtained for the two theories. Following a Fisher's $r$ to $z$ transformation, the mean and standard deviation of the explained variation in intentions and target behavior were calculated. These statistics were used to construct confidence intervals to test for the statistical significance in explained variation between the two theories.

### *Results*

*Behavioral intentions.* Table 1 contains the coefficients of determination ($R^2$) for the between-subjects regression analysis for each of the 10 behaviors. The behaviors are rank-ordered by the mean response for the perceived behavioral control items. Hence, getting a good night's sleep was perceived as the behavior lowest in control, and taking vitamin supplements was perceived as the behavior highest in control.

Inclusion of perceived behavioral control did contribute to the prediction of behavioral intentions. The increase in $R^2$ ranged from .01 for *vitamins* to .20 for *friend.*

Using the within-subjects regressions, including perceived behavioral control increased the prediction of behavioral intentions, on average, from $R^2$ = .48 to $R^2$ = .59. The average difference in the multiple correlation between the two models for behavioral intentions was .21, with a standard deviation of .27. The confidence interval does not contain zero; therefore, the theory of planned behavior significantly enhances the prediction of behavioral intentions.

The upper portion of Table 2 contains the parameter estimates for the alternative theories obtained from the path analytical models for behavioral intentions. The results are consistent with the regression analyses. The path from perceived behavioral control to intentions is significant for all three levels of perceived behavioral control.

The data support our first hypothesis. Including perceived behavioral control as an exogenous variable enhanced the prediction of intentions. In the within-subjects regression analyses, the difference in the multiple correlations between the two models was statistically significant. The next step is to evaluate the usefulness of perceived behavioral control as a predictor of target behavior.

*Target behavior.* Including perceived behavioral control as a predictor of target behavior resulted in a significant increase in the explained variation over the amount explained by the theory of reasoned action. The average prediction of target behavior, from the within-subjects regression analysis, was increased from $R^2$ = .28 to $R^2$ = .38. The average difference in multiple correlations between the two models for target behavior was .16, with a standard deviation of .17. Because the 95% confidence interval does not contain zero, the prediction of target behavior is significantly greater for the theory of planned behavior. Hence, consistent with the findings for the prediction of intentions, the data support our first hy-

**TABLE 2: Path Analytic Parameter Estimates for the Two Theories by Level of Perceived Control**

| | | *Theory of Reasoned Action* *Level of Control* | | | *Theory of Planned Behavior* *Level of Control* | | |
|---|---|---|---|---|---|---|---|
| | *Parameter Estimate*[a] | *High* | *Medium* | *Low* | *High* | *Medium* | *Low* |
| Behavioral Intentions | γ11 | .46 | .45 | .41 | .41 | .34 | .38 |
| | γ12 | .29 | .23 | .22 | .25 | .18 | .18 |
| | γ13 | — | — | — | .25 | .38 | .33 |
| | $R^2I$ | .37 | .31 | .23 | .42 | .44 | .33 |
| Target Behavior | γ11 | .46 | .45 | .45 | .41 | .34 | .38 |
| | γ12 | .29 | .23 | .22 | .25 | .18 | .18* |
| | γ13 | — | — | — | .25 | .38 | .33 |
| | γ23 | — | — | — | .07* | .19* | .40 |
| | β21 | .54 | .49 | .43 | .51 | .39 | .28 |
| | $R^2I$ | .37 | .31 | .23 | .42 | .44 | .33 |
| | $R^2TB$ | .29 | .24 | .18 | .29 | .26 | .32 |

a. γ11 = path from attitude to behavioral intentions.
γ12 = path from subjective norm to behavioral intentions.
γ13 = path from perceived behavioral control to behavioral intentions.
γ23 = path from perceived behavioral control to target behavior.
β21 = path from behavioral intentions to target behavior.
$R^2I$ = explained variation for behavioral intentions.
$R^2TB$ = explained variation for target behavior.
* p > .05.

pothesis for the prediction of behavior: Explained variation increased significantly when perceived behavioral control was included as a predictor of target behavior.

However, in contrast to the prediction of behavioral intentions, perceived behavioral control contributed to the prediction of target behavior predominantly when the behavior was perceived to be low in control. The association between the change in $R^2$ for target behavior and the mean level of perceived behavioral control over all 10 behaviors was –.63 and was statistically significant ($p < .05$). This significant correlation provides support for our second hypothesis. When a behavior was perceived to be high in control, there was virtually no change in the explained variation between the two models. However, when a behavior was perceived to be low in control, there was a substantial increase in the explained variation when perceived behavioral control was included as a predictor of behavior. The increase in $R^2$ for the behavior perceived lowest in control, getting a good night's sleep, was from $R^2 = .13$ for the theory of reasoned action to $R^2 = .41$ for the theory of planned behavior. In contrast, there was virtually no change in $R^2$ (.58 vs. .59) for the behavior taking vitamin supplements, which was perceived as being highest in volitional control.

The path analytic models corroborated the regression analyses. The lower portion of Table 2 contains, in addition to behavioral intentions, the parameter estimates for the prediction of behavior for the theory of reasoned action and the theory of planned behavior. The only consequential increase in explained variation in target behavior was for the low perceived behavioral control group. In addition, the path from perceived behavioral control to target behavior was statistically significant ($p < .05$) only for the low group. Consistent with the second hypothesis, the magnitude of the path coefficient and the level of statistical significance of the path varied inversely with the level of control. That is, as the level of perceived behavioral control increased, the magnitude and statistical significance of the path coefficient decreased.

Hence, including perceived behavioral control as a predictor of target behavior significantly increased the explained variation in behavior in comparison with the theory of reasoned action. Further, the contribution of perceived behavioral control to the prediction of behavior, after controlling for intentions, was greatest when the behavior was perceived to be low with respect to control; when the behavior was perceived to be more under volitional control, perceived behavioral control made no significant contribution to the prediction of behavior.

## CONCLUSIONS

This research assessed Ajzen's (1985) theory of planned behavior as an extension of the theory of reasoned action. Two hypotheses were tested. The first posited that the inclusion of perceived behavioral control would significantly enhance the prediction of intentions and tar-

get behavior. The second proposed that the enhancement in the prediction of target behavior would be related to the magnitude of perceived behavioral control.

The first hypothesis was clearly supported by the data. For both dependent variables, behavioral intentions and target behavior, the theory of planned behavior explained significantly more variation than the theory of reasoned action. These results indicate that increased precision in the prediction of intentions and target behavior could be achieved by assessing perceived behavioral control over the behavior. Furthermore, given the significant relationship between behavioral control and intentions, strategies could be formulated for changing intentions, and subsequently behavior, by changing perceptions of control.

The second hypothesis was also supported by the data. The contribution of perceived behavioral control to the prediction of target behavior varied inversely with the amount of control over the behavior. When behaviors were perceived to be low in control, the path from perceived behavioral control to target behavior was significant and not mediated by intentions. Conversely, when behaviors were perceived to be high in control, there was no significant relationship between perceived behavioral control and target behavior. Hence, when perceptions of control are accurate and the behavior is not under complete volitional control, perceived behavioral control can provide valuable information for the prediction of target behavior. Therefore, in addition to changing behavior indirectly through behavioral intentions, behavior may be changed by providing a mechanism for enacting plans to change actual control over the behavior.

By assumption, the theory of reasoned action is applicable when the behavior in question is under volitional control. The results reported here support this assumption. However, when the behaviors violate the assumption of volitional control, the theory of planned behavior was shown to be superior to the theory of reasoned action for the prediction of target behavior. In addition, the theory of planned behavior explained, on the average, more variation in behavioral intentions than the theory of reasoned action regardless of the level of control. Consequently, these findings provide support for (a) the separate measurement of beliefs regarding the requisite resources and opportunities that people have, or perceive they have, for performing the behavior and (b) the inclusion of these beliefs (i.e., perceived behavioral control) as an extension of the theory of reasoned action.

## REFERENCES


Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhland & J. Beckman (Eds.), *Action-control: From cognitions to behavior* (pp. 11-39). Heidelberg: Springer.

Ajzen, I. (in press). The theory of planned behavior. *Organizational Behavior and Human Decision Processes.*

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22,* 453-474.

Ajzen, I., Timko, C., & White, J. B. (1982). Self-monitoring and the attitude-behavior relation. *Journal of Personality and Social Psychology, 42,* 426-435.

Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive Therapy and Research, 4,* 39-66.

Davidson, A. R., & Morrison, D. M. (1983). Predicting contraceptive behavior from attitudes: A comparison of within- versus across-subjects procedures. *Journal of Personality and Social Psychology, 45,* 997-1009.

Fishbein, M. (1967). Attitudes and the prediction of behavior. In M. Fishbein (Ed.), *Readings in attitude theory and measurement* (pp. 477-492). New York: Wiley.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley.

Gorsuch, R. L., & Ortberg, J. (1983). Moral obligation and attitudes: Their relation to behavioral intentions. *Journal of Personality and Social Psychology, 44,* 1025-1028.

Jöreskog, K. G., & Sörbom, D. (1985). *LISREL VI: Analysis of linear structural relationships by the method of maximum likelihood.* Mooresville, IN: Scientific Software.

Schifter, D. B., & Ajzen, I. (1985). Intention, perceived control, and weight loss: An application of the theory of planned behavior. *Journal of Personality and Social Psychology, 49,* 843-851.

Sheppard, B. M., Hartwick, J., & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modification and future research. *Journal of Consumer Research, 15,* 325-343.

Zuckerman, M., & Reis, H. T. (1978). Comparison of three models for predicting altruistic behavior. *Journal of Personality and Social Psychology, 36,* 498-510.