

Ajzen and Fishbein's Theory of Reasoned Action as Applied to Moral Behavior: A Confirmatory Analysis

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A confirmatory test of Ajzen and Fishbein's (1980) theory of reasoned action as applied to the realm of moral behavior using structural equation modeling was conducted. Ss were 1,056 male and female athletes ranging in age from 10 to 18 years ($M = 14.5$). Ss completed a questionnaire that contained 2 hypothetical situations related to moral behavior in sports. For each situation, Ss completed scales assessing all components of the model. A modified version of the theory provided a significant improvement over the Ajzen and Fishbein model. This model retained the basic relationships postulated by the theory and added correlations between the attitudinal and normative structures and a causal path from normative beliefs to attitudes. This model was very robust, holding for the 2 situations. Implications for the construct validity of the theory of reasoned action and its application for moral behavior are drawn.

Over the past decade, much research has been conducted on Ajzen and Fishbein's (1980; Fishbein & Ajzen, 1975) theory of reasoned action. According to the theory (see Figure 1), behavior is determined by the behavioral intention to emit the behavior. There are two major factors that determine behavioral intentions: a personal or "attitudinal" factor and a social or "normative" factor. In accordance with an expectancy-value formulation, the first component (the person's attitude toward a specific behavior) is proposed to be a function of the salient (behavioral) beliefs about the perceived consequences of performing the behavior and the person's (outcome) evaluation of these consequences. The second component, subjective norms, consists of an actor's perceptions of what important specific

referent individuals or groups think he or she should do. Subjective norms are a function of the person's (normative) beliefs regarding what each referent thinks he or she should do and the motivation to comply with these referents. The relative importance of the attitudinal and normative components in determining intention is expected to vary according to the behavior, the situation, and individual differences of the actor (Ajzen & Fishbein, 1980).¹

The theory of reasoned action has been tested in several laboratory studies (see Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975, for reviews) and in field studies dealing with diverse topics such as dental hygiene (Hoogstraten, De Haan, & Ter Horst, 1985; McCaul, O'Neill, & Glasgow, 1988; Toneatto & Binik, 1987); education (Fredricks & Dossett, 1983); contraceptive behavior (Miller & Grush, 1986; Pagel & Davidson, 1984); smok-

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¹ It should be underscored here that we focus only on the original theory of reasoned action and not its reformulation, the theory of planned behavior (e.g., Ajzen, 1985; Ajzen & Madden, 1986). This is because we feel that the behavior of interest in this study, namely moral behavior, is more under the volition of the individual than are other types of behavior (e.g., school performance). To adequately predict the latter types of behaviors, other predictors such as perceived behavioral control might be necessary (see Ajzen & Madden, 1986). However, it is felt that this is not the case with moral behavior. We thus restrict ourselves to the theory of reasoned action.

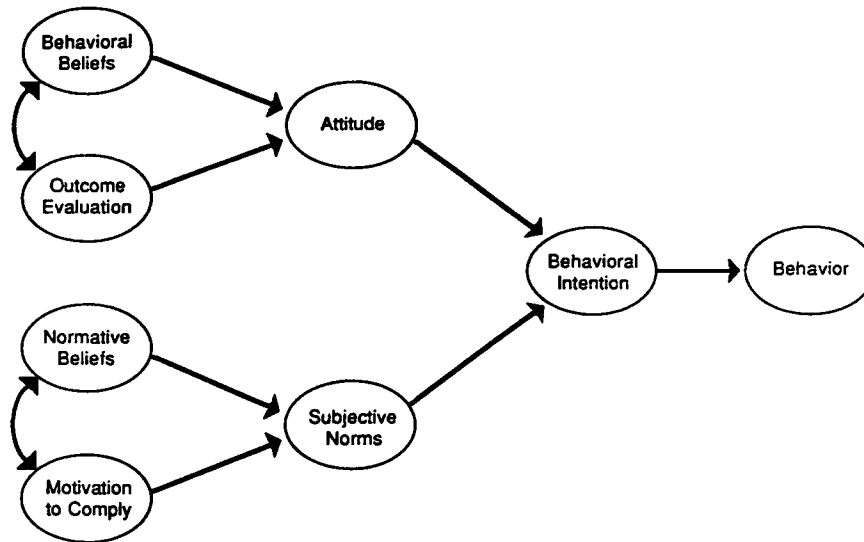


Figure 1. The basic theory of reasoned action.

ing (Budd, 1986; Marin et al., 1990); breast (Timko, 1987), cervical (Hennig & Knowles, 1990), and testicular (Brubaker & Fowler, 1990) cancer examination; blood donation (Burnkrant & Page, 1988); seat-belt use (Budd, North, & Spencer, 1984); voting behavior (Netmeyer & Burton, 1990); and several others (see Ajzen & Fishbein, 1980). It is felt that the theory of reasoned action can also be applied to moral behavior. This issue is discussed below. However, before exploring this issue, we first discuss the construct validity of the theory.

On the Construct Validity of the Theory of Reasoned Action

A first major purpose of the present study was to test the construct validity of the theory of reasoned action. Such assessment has been performed in laboratory and field studies. Typically, laboratory studies have assessed the influence of various independent variables on some of the components of the model. Although these studies have generally been supportive of the theory of reasoned action, in the sense that they have yielded results that are consistent with it, one can argue that they did not provide a valid test of the model because the mediators hypothesized to mediate the changes were not generally measured. It is possible that the experimental manipulations affected other mediating variables and that the experimental effects on the dependent measures were actually mediated by these additional unmeasured variables (Bentler, 1980).

On the other hand, field studies have involved regression or correlational analyses to test elements of the theory. Whereas techniques such as path analysis that rely upon regression analysis may be helpful in theory testing, they still remain incomplete because they do not provide a simultaneous assessment of the various paths and because the analysis is limited to testing relationships among manifest rather than latent variables (Bentler, 1980).

To provide a more valid test of Ajzen and Fishbein's model

(1980), linear structural modeling with latent variables (LISREL; Jöreskog & Sörbom, 1984) should be used. LISREL seems to be ideally suited to the experimental testing of mediational models, such as that of Ajzen and Fishbein, for several reasons. First, it can allow an explicit test of the consistency of any postulated links between mediating and dependent variables with the data. Second, because causal paths are estimated among latent rather than manifest variables, the path estimates are free from the unreliabilities of the manifest variables. This allows for a much more precise test of the relationship among the various components of a given model (Kenny, 1979). Third, latent-variable causal modeling permits the testing of all the links in a mediational model simultaneously, rather than in the typical piecemeal fashion. Finally, LISREL affords the possibility of clarifying controversial or ambiguous aspects of a model, as well as elaborating and refining the model by contrasting it with competing alternative conceptualizations.

A number of studies (e.g., Bentler & Speckhart, 1979, 1981; Fredricks & Dossett, 1983; Granrose, 1984; Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984) have provided a confirmatory test of the theory by using structural equation modeling. Findings from these studies have generally been supportive, although some modifications to the theory have been proposed (Bentler & Speckhart, 1979, 1981; McCaul et al., 1988). However, three points should be made here. First, most studies have restricted themselves to the interplay among the attitudinal, normative, and intentional components of the model. The role of the determinants of the attitudinal and normative constructs have typically not been assessed through confirmatory analysis. A confirmatory analysis involving all components of the theory of reasoned action would therefore appear important.

Second, most studies have limited themselves to assessing the various links as postulated by the theory. Very few studies have ascertained whether the relationships among the model variables are different from those proposed by the theory. Re-

cent studies (Miniard & Cohen, 1981; Oliver & Bearden, 1985), however, have revealed some departures from the basic model. For instance, using structural equation modeling, Oliver and Bearden have demonstrated that crossover effects do take place between the attitudinal and normative aspects of the model. More specifically, it has been shown that the normative beliefs-motivation to comply multiplicative structure has a causal influence on attitudes. This basic finding has also been obtained by other researchers (Brubaker & Fowler, 1990; Ryan, 1982; Shimp & Kavas, 1984). In the same vein, an increasing number of studies have demonstrated the lack of independence between the attitudinal and the normative structures, contrary to claims from the theory (Miniard & Cohen, 1981; Ryan, 1982; Shepherd & O'Keefe, 1984; Shimp & Kavas, 1984).

Third, and finally, very little attention has been given to the antecedents of attitudes and subjective norms. As indicated above, very few studies have tested their hypothesized role in the model. Furthermore, studies have consistently used the proposed multiplicative terms of Behavioral Beliefs \times Outcome Evaluation and Normative Beliefs \times Motivation to Comply as the respective determinants of attitudes and subjective norms. When using these multiplicative terms, it becomes impossible to test the independent contribution of each of these four concepts in the theory. Preliminary evidence (Miniard & Cohen, 1981) suggests that motivation to comply may not be a necessary determinant of subjective norms. However, this last study did not use structural equation modeling in testing the role of motivation to comply as a determinant of subjective norms, and it is therefore not clear whether these findings would hold under more stringent statistical procedures such as structural equation modeling. Finally, it appears that no study has tested the independent role of behavioral beliefs and outcome evaluation as determinants of attitudes. Thus, future research on the status of the determinants of attitudes and subjective norms in the theory using more powerful statistical analyses such as structural equation modeling seem important.

In light of the above, one major purpose of this study was to test the basic theory of reasoned action with structural equation modeling and compare its adequacy with that of modified versions of the theory as proposed in past research. This is a more stringent test of the theory than any performed to date.

The Theory of Reasoned Action as Applied to Moral Behavior

The second major purpose of this study was to test the applicability of the theory of reasoned action to the realm of moral behavior. Research on moral issues has shown that both personal and social determinants need to be taken into consideration to make full account of behavior. On one hand, theories such as the cognitive-developmental approach (e.g., Kohlberg, 1969), the trait-dispositional approach, and the behavioral-learning positions (Mischel & Mischel, 1976) have emphasized the role of personal variables. On the other hand, other theories have focused on social and contextual influences. Thus, research has shown that the presence, behavior, and opinions of others (e.g., Bandura, 1986; Froming, Walker, & Lopyan, 1982; Latané & Darley, 1970; Milgram, 1963; Schwartz & Gottlieb, 1980), as well as the immediate context within which behavior

is to be emitted (e.g., Backman, 1985; Barnett & Bryan, 1974; Kurtines, 1986; Orlick, 1981) have an important impact on moral behavior. Yet, very little theorizing has been posited to account for both the personal and social determinants of moral behavior.

The theory of reasoned action would appear to possess the necessary conceptual elements to explain and predict moral behavior. Indeed, the attitudinal (behavioral beliefs, outcome evaluation, and attitudes toward the behavior) and normative (normative beliefs, motivation to comply, and subjective norms) components of the theory represent, respectively, personal and social variables implicated in moral behavior. Thus, according to the theory, when confronted with a moral situation, such as cheating during an exam, individuals decide whether to cheat on the basis of their attitudes toward the behavior (which are determined in turn by their beliefs and outcome evaluations—e.g., the probabilities of making it or getting caught and the consequences of each outcome) and their perceptions of what it is that important referents (e.g., parents, professors, and friends) feel that they should be doing. Thus, an individual may decide to cheat because his attitude is very positive and he feels that important referents would encourage such a behavior.

To the best of our knowledge, the theory of reasoned action has been used to predict moral behavior in only one empirical study. In this study, Enker (1987) assessed how attitudes and normative beliefs related to cheating behavior. In general, results revealed that both attitudes and normative beliefs were relatively good predictors of reported cheating. The findings from this study suggest that the theory could be useful in predicting and understanding moral behavior. However, there would be a need to test the contribution of all components of the theory in the prediction of moral behavior.

In light of the above, this study had four objectives. Our first objective was to provide a test of the theory of reasoned action as applied to the understanding of moral behavior. As indicated previously, the theory contains both personal and social components incorporated in an expectancy-value formulation. This should allow for an adequate prediction of moral behavior. The second objective was to perform a confirmatory test of the construct validity of the theory with structural equation modeling, including all components of the theory. As underscored previously, only a few studies have used structural equation modeling to test the construct validity of the theory, and some of these studies failed to support the theory fully (Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984). However, no study to date has assessed through confirmatory analysis the construct validity of the Ajzen and Fishbein theory as applied to moral behavior. Thus, there is a need to provide such a test. A third objective of this study was to compare Ajzen and Fishbein's position concerning the independence of the attitudinal and normative components with that of other researchers who suggest that the two structures are correlated (Miniard & Cohen, 1981; Shepherd & O'Keefe, 1984) and that the normative structure may have a causal effect on attitudes (Brubaker & Fowler, 1990; Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984). Finally, the fourth and last objective of this study was to assess the independent contribution of the determinants of attitudes (behavioral beliefs and outcome evaluation) and subjective norms (normative beliefs and motivation to comply)

with structural equation modeling. The majority of studies have assessed only the effects of the Behavioral Beliefs \times Outcome Evaluation and Normative Beliefs \times Motivation to Comply multiplicative terms as predictors of attitudes and subjective norms. There is a definite need to assess the independent (nonmultiplicative) role of each of these variables to determine their usefulness in the theory.

To reach these objectives, we decided to conduct a study on moral behavior in an applied field setting (sports). This allowed us to test the applicability of the theory to the moral domain as well as to assess its ecological validity. Thus, 1,056 athletes completed a questionnaire asking them to imagine themselves in two hypothetical situations in which they had to decide to display either moral or nonmoral behavior. For each of the situations, subjects completed scales assessing all components of the theory of reasoned action. We performed structural equation modeling on the first situation. This analysis involved assessing the fit obtained by the basic theory and then investigating whether this model could be improved by incorporating significant additions to the basic model. The best model derived from this analysis with the first situation was then used with the second situation to test the generalizability of the obtained model. In agreement with Fishbein and Ajzen (1975), it was predicted that some support would be obtained for the basic model representing the theory of reasoned action. However, in line with more recent work (Brubaker & Fowler, 1990; Miniard & Cohen, 1981; Oliver & Bearden, 1985; Ryan, 1982; Shepherd & O'Keefe, 1984; Shimp & Kavas, 1984), it was predicted that a causal path from normative beliefs to attitudes as well as correlations between the attitudinal and normative structures would represent significant additions to the model. In agreement with the findings of Miniard and Cohen (1981) it was also hypothesized that the impact from motivation to comply to subjective norms would not be significant. Finally, in the absence of previous findings on the effects of outcome evaluation and behavioral beliefs on attitudes, no hypotheses were formulated with respect to these relationships.

Method

Subjects

A total of 1,056 male and female athletes from 10 to 18 years of age ($M = 14.5$ years) participated in this study. Participants were from four different areas of the province of Quebec and can be seen as representative of sport participants of the province for this age group.

Questionnaire

Participants were administered a questionnaire containing descriptions of two hypothetical situations portraying moral situations in sport. They were asked to read these descriptions carefully, to attempt to imagine themselves as clearly as possible in each of the situations described, and to indicate how they would behave in these situations. Participants were presented with two hypothetical dilemmas. In each case, the dilemma required that the athlete make a decision about engaging or not engaging in a behavior that pertained to moral issues (see Kurtines, 1986). The behavioral choices for the two situations included (a) whether to criticize the official for having made a bad call that cost the athlete the event and (b) whether to inform the official of one's undeserved outcome, which if told would cost the athlete the

event. The two hypothetical situations were selected because they reflected important moral behaviors found in sport (Vallerand, Deshaies, Cuerrier, Brière, & Pelletier, 1991). The hypothetical situation used in Situation 2 for track and field is presented below.

Imagine that you are in the following situation. You are running in the finals of an important meet. You are struggling for third place and it is very close. Two runners have already finished. As you cross the finish line, you can see that the other runner you were competing with for third place has beaten you very slightly. You end up fourth. Later on, as results are posted, you realize that the officials have made an important error in giving you third place and the bronze medal. You are the only one to have noticed the officials' mistake as the other runner was in no position to see that he (she) finished in front of you. You have the choice of telling the officials that they have made a mistake in giving you third place or shut up and say nothing at all.

After each of the two situations, the psychological constructs of behavioral beliefs, outcome evaluation, specific referents, attitude, subjective norms, and behavioral intention were measured. Questions were presented in the order suggested by Ajzen and Fishbein (1980, Appendix 1). Questions used in track and field for Situation 2 are presented below.

Behavioral intention. This measure was assessed by asking subjects whether they would respond, "If I were in this situation, I would shut up and say nothing at all." The scale for this question ranged from *very certainly yes* (1) to *very certainly no* (4).

Attitudes. This measure was assessed by three questions. "To shut up and say nothing would be for me" was rated on three four-point scales for *very good* (1) to *very bad* (4), *intelligent* (1) to *stupid* (4), and *beneficial* (1) to *harmful* (4).

Behavioral beliefs. These were assessed by one question. "To shut up and say nothing would mean that I would win the bronze medal" was rated on a 4-point Likert-type scale ranging from *very true* (1) to *very false* (4).

Outcome evaluation. This was also assessed by one question. "Winning the bronze medal would be for me:" *very good* (1) to *very bad* (4), rated on a 4-point scale.

Subjective norms. This scale was assessed by one question. "Most people who are important to me think that I should shut up and say nothing," rated on a 4-point scale ranging from *very true* (1) to *very false* (4).

Normative beliefs. This scale was assessed by six questions. "My father thinks that I should shut up and say nothing" was rated on a 4-point scale ranging from *very true* (1) to *very false* (4). The same question was asked in regard to mother, teammates, friends, coach, and physical education teacher.

Motivation to comply. This scale was completed only once after the completion of the two situations. It assessed five general questions: "In general, I want to do what my father [mother, friends, coach, and physical education teacher] thinks I should do?" Responses to the motivation to comply questions were made on a 4-point scale ranging from *agree completely* (1) to *disagree completely* (4).

Procedures

Subjects completed the questionnaire either in a classroom near the gymnasium or in the locker room. Subjects were told that "this study is not a test but rather some kind of survey on sport competition." They were told that their answers would not serve for selection purposes and that their coach would not see their individual answers. Subjects were told, however, that their answers were important, as they could contribute to a better understanding of their sport. Subjects were finally told that they should not put their names down and were thus assured confidentiality. After the subjects were given these instructions, the

questionnaire was quickly verbally described. Subjects were encouraged to ask any questions. After they completed the questionnaire, subjects were thanked for their cooperation and dismissed.

Data Analysis

As mentioned in the Introduction, the method of data analysis used in this study was linear structural equation modeling using the LISREL VI program (Jöreskog & Sörbom, 1984). This method can be conceived as a combination of the logic of path analysis with that of confirmatory factor analysis (CFA). As in path analysis, causal links between variables of a specified causal model are estimated from the sample covariance matrix. In contrast to path analysis, however, the causal models to be tested are specified at the level of latent variables. This is accomplished by means of constructing an appropriate set of linear equations relating the latent variables to their indicators. Together, these equations constitute the measurement model. A second set of linear equations relating the latent variables to one another must also be specified to constitute the structural model. Parameters of both models are estimated simultaneously using a maximum likelihood method of estimation. Finally, several goodness of fit indices can be used to evaluate the fit of the model with the data. Of these, the p value associated with the chi-square statistic, the adjusted goodness-of-fit index (AGFI), the normed fit index (NFI), and the Bentler-Bonett (1980) incremental fit index were used in this study. For more information on the use of simultaneous structural equation analysis with latent variables, see Bentler (1980), Connell and Tanaka (1987), and Jöreskog and Sörbom (1984).

The data from the two situations were analyzed in three separate phases. In the first phase, the adequacy of the measurement model was assessed. This was done through a CFA of the data. In the second phase, the data from the first situation were used to test the validity of Fishbein and Ajzen's theory of reasoned action as applied to the realm of moral behavior and then to investigate whether this model could be improved by incorporating significant additions to the basic model. Finally, in the third phase, the same procedures used in the second phase with Situation 1 were used for Situation 2 to determine whether we could replicate the findings obtained with Situation 1.

Phase 1. The first set of analyses was to determine whether the observed variables that were hypothesized to be indicators of certain latent constructs in fact reflected them reliably. This was done using CFA. An initial CFA model was run that (a) fixed all factor variances at unity in order to identify the model (Jöreskog & Sörbom, 1984) and (b) allowed all constructs (latent factors and single-indicator factors representing constructs) to correlate freely. There were cases in which only one variable was available to represent a construct. In such cases, the variable itself was used as the construct, even though it was not latent and may have been influenced by measurement error.

Phase 2. In the second set of analyses, we (a) first tested the initial test of Fishbein and Ajzen's model, then (b) on the basis of the results of previous studies (e.g., Oliver & Bearden, 1985), we tested whether the direct path from normative beliefs to attitude significantly improved the fit of the model. Finally, in line with research that suggests that the attitudinal and normative structures might be correlated, we (c) assessed whether noncausal covariance links between elements of the two structures would significantly improve the fit of the model. This sequence of model testing is depicted in Figure 2.

Model 1, represented by the full arrows, can be considered to be the most adequate representation of Fishbein and Ajzen's (1975) theoretical formulation with the added distinction that the determinants of attitudes (behavioral beliefs and outcome evaluation) and subjective norms (normative beliefs and motivation to comply) are not considered as multiplicative terms but rather as independent entities. Model 2 is an extension of Model 1 resulting from the addition of one causal path

linking normative beliefs to attitude, as suggested by the results of recent studies (Brubaker & Fowler, 1990; Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984). Finally, in line with recent findings on the lack of independence of the attitudinal and normative structures (Miniard & Cohen, 1981; Shepherd & O'Keefe, 1984), Model 3 further incorporates two additional noncausal covariances linking normative beliefs to the exogenous constructs of the attitudinal component of Fishbein and Ajzen's model.

In accord with conventional practice in the causal modeling literature (see Bentler, 1980), we used circles to represent latent variables (or multiple-indicator constructs) and squares to designate single-indicator constructs. Unidirectional arrows between the theoretical constructs represent the two types of causal paths involved in the models. Gammas (γ) are causal paths linking the endogenous and exogenous parts of the model, and betas (β) are causal paths connecting the endogenous constructs among themselves. Lastly, bidirectional arrows represent noncausal covariances (ϕ) between exogenous constructs, and arrows without origin denote residual or unspecified causal influences.

The analytical sequence proceeded as follows. First, a null model assuming independence among the variables was estimated. Second, Fishbein and Ajzen's model (Model 1) was evaluated. Finally, the models proposing modifications to Fishbein and Ajzen's model (Models 2 and 3) were tested. By comparing Model 1 with the null model, we could evaluate the overall fit of Fishbein and Ajzen's model. Furthermore, comparing the three models among themselves permitted us to evaluate the substantive and statistical importance of the additional parameters involved in these models.

Phase 3. In the third phase, to explore the generalizability and robustness of the findings, the analytical sequence performed on the data from the first situation was replicated using the data from the second situation.

Results

Measurement Model

As indicated previously, the first step in the data analysis was to assess the adequacy of the hypothesized measurement model using CFA. An initial CFA model was run that (a) fixed all factor variances at unity and (b) allowed all constructs (latent factors and single-indicator factors representing constructs) to correlate freely. This initial model did not adequately reflect the data, $\chi^2(114, N = 903) = 769.24, p < .001, AGFI = .84$, although the NFI was sufficiently large (.90) to suggest that minor modifications to the model may provide an acceptable fit. By examining the LISREL modification indices (Jöreskog & Sörbom, 1984), we added correlations among four pairs of residuals to the model. No additional factor loadings were necessary. These modifications resulted in a model that adequately reflected the data according to the AGFI and the NFI, $\chi^2(110, N = 903) = 323.63, p < .001, AGFI = .94, NFI = .96$. To test whether adding the correlated residuals disturbed the fundamental associations among the latent constructs in the present study, the factor intercorrelations between the initial and final confirmatory factor models were computed (Newcomb & Bentler, 1988). This correlation was .99. In addition, the correlation between the initial and final factor loadings was computed. This correlation was also .99. These findings reveal that the model modifications did not alter the basic pattern of factor intercorrelations and factor loadings.

Table 1 presents the standardized measurement model coeffi-

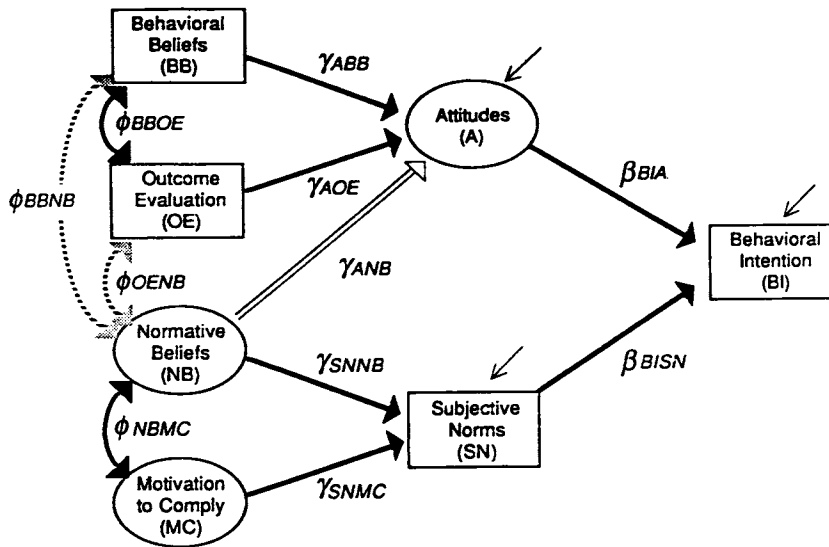


Figure 2. Model specification for Model 1, the theory of reasoned action (full arrows), Model 2 (full arrows and arrow from normative beliefs to attitude), and Model 3 (all arrows). (ϕ indicates noncausal covariance between exogenous constructs, γ indicates a causal path linking endogenous and exogenous constructs, and β indicates a causal path linking endogenous constructs.)

cients as estimated from the CFA for each of the two situations. As shown, all coefficients, except the first indicator of motivation to comply (MC1), were fairly high and stable over the two situations. In addition, internal consistency as assessed through Cronbach's alphas was satisfactory for the five indicators of the motivation to comply construct ($\alpha = .78$). Cronbach's alphas for the three indicators of the attitude construct were .88 and .84 in Situations 1 and 2, respectively. Similarly, Cronbach's alphas for the six indicators of the normative beliefs were fairly high, with values of .88 and .90 in the two situations. Overall, results of the various analyses indicate that the hypothesized measurement model is adequate.

Structural Model

The second phase in data analysis is the creation of a structural or path model, which includes regression effects representing unidirectional influences of one variable on another. Model comparisons involving Models 1-3 for Situation 1 are presented in Table 2. The table presents results of statistics that provide an assessment of the fit of the Fishbein and Ajzen model (Model 1) and variants of this model (Models 2 and 3) that are different by virtue of the presence of selected parameters as noted earlier. The top half of the table provides information on the chi-square, degrees of freedom, AGFI, and NFI associated with the fit of the models shown. The bottom half provides information about the chi-square difference tests associated with specific model comparisons.

Overall, it can be seen that Model 1 provides a somewhat adequate account of the data for Situation 1. The chi-square value, $\chi^2(127, N = 903) = 894.44, p < .0001$, while significant, was drastically lower than that of the null model (9,555.54). In addition, the AGFI (.89) and the NFI (.91) were somewhat low but marginally acceptable. In sum, these results tended to pro-

vide only mixed support for the validity of the Fishbein and Ajzen model. Indeed, certain important qualifications were raised by closer analysis of the results. Specifically, inspection of the first-order derivatives as well as modification indices (Jöreskog & Sörbom, 1984) of those parameters that were fixed at 0 in Model 1 suggested that the causal path linking normative

Table 1
Standardized Confirmatory Factor Analysis
Coefficients for Situations 1 and 2

Category	Situation 1	Situation 2
Behavioral intention 1	.920	.918
Attitude (Att)		
Att1	.785	.738
Att2	.789	.738
Att3	.541	.585
Subjective norms (SN)		
SN1	.762	.748
Behavioral beliefs (BB)		
BB1	.801	.820
Outcome evaluation (OE)		
OE1	.666	.660
Normative beliefs (NB)		
NB1	.720	.730
NB2	.685	.791
NB3	.680	.665
NB4	.695	.635
NB5	.613	.589
NB6	.582	.630
Motivation to comply (MC)		
MC1	.093	.092
MC2	.761	.761
MC3	.821	.810
MC4	.515	.488
MC5	.428	.458

Table 2
Chi-Square, Adjusted Goodness-of-Fit Index (AGFI), Normed Fit Index (NFI), Bentler-Bonett Incremental Fit Index (BB), and Model Comparisons for Situation 1

Model	χ^2 ($n = 903$)	<i>df</i>	AGFI	NFI	BB
Null model	9,555.54	153	—	—	
Model 1 (Ajzen and Fishbein theory)	944.5	127	.89	.91	
Model 2 (Model 1 + γ A-NB)	555.1	126	.91	.94	
Model 3 (Model 2 + ϕ NB-BB, ϕ NB-OE)	463.95	124	.92	.95	
Model comparison					
1 vs. 2	389.40	1			.040
2 vs. 3	91.15	2			.010
1 vs. 3	480.55	3			.050

Note. γ A-NB = path linking normative beliefs to attitudes; ϕ NB-BB = noncausal covariance between normative beliefs and behavioral beliefs; ϕ NB-OE = noncausal covariance between normative beliefs and outcome evaluation.

beliefs to attitude (γ A-NB) would provide an important improvement in fit. A highly significant chi-square difference test for the comparison of Model 1 and Model 2 as well as a high incremental fit index were found. Such a drastic decrease in the value of the chi-square statistic, $\chi^2(1, N = 903) = 389.4, p < .0001$, could not be ignored. Furthermore, results of the AGFI (.91) and the NFI (.94) clearly indicated an acceptable fit of the model. Additional improvement in fit was achieved by freeing the noncausal covariances (ϕ NB-BB, ϕ NB-OE) linking normative beliefs with the exogenous constructs of the attitudinal component of the model (behavioral beliefs and outcome evaluation). A highly significant chi-square difference test, $\chi^2(2, N = 903) = 91.15, p < .0001$, for the comparison of Model 2 versus Model 3 was found. Inspection of the AGFI (.92) and the NFI (.95) also revealed an acceptable fit for the model.

No further significant improvement could be achieved by freeing substantive parameters of Model 3. Therefore, Model 3 was deemed to be the most adequate model for the data of Situation 1. This conclusion was substantiated by the high incremental fit index shown in Table 2. In sum, the pattern of overall fit statistics associated with the series of model comparisons suggested the addition of three parameters not posited by the theory of reasoned action.

Analysis of the consistency of the various models tested revealed a pattern of causal relationships that was theoretically consistent. Results showed that the betas linking attitude and subjective norms to behavioral intention showed significant coefficients in all three models, with rather high positive values for the causal path linking behavioral intentions and attitudes and somewhat lower values for the causal path linking behavioral intentions and subjective norms. However, it must be noted that not all estimated gammas of the proposed theoretical model were significantly different from 0, as revealed by the nonsignificant ($p > .05$) *t* values computed by the LISREL VI program. The latter case was observed for the path linking

motivation to comply and subjective norms in the three models estimated and for the path linking behavioral beliefs and attitudes in Models 2 and 3. Motivation to comply and behavioral beliefs could add support to the model only through noncausal links with other constructs.

The proportion of explained variance (1 - standardized residual) for the three structural equations of the model was also estimated. It was found that the estimation of Models 2 and 3 resulted in important increments for this statistic. This was especially the case for the attitude construct, which seemed to be poorly determined in Model 1. Indeed, the addition (in Model 2) of the causal path linking attitudes and normative beliefs alone, provided an increment of 33% in the explained variance of attitude (from 16 to 49%). Finally, in Model 3, the proportions of explained variance for subjective norms, attitude, and behavioral intention were slightly enhanced relative to Model 2. Taken together, these results indicated that the constructs of attitudes, subjective norms, and behavioral intention were adequately determined by the causal structure specified in Model 3. Table 3 presents the structural equation coefficients as well as the explained variance for Model 3 in Situation 1.

Replication With Situation 2

To assess the robustness and the generalizability of Model 3 obtained in Situation 1, the analytical sequence used for Situation 1 was replicated using the data from Situation 2. Results are presented in Table 4. As can be seen, the overall fit statistics closely paralleled the results obtained in Situation 1. Specifically, the chi-square, as well as the AGFI and NFI values, were

Table 3
Standardized Structural Model Coefficients for Model 3 in Situation 1

Category	Coefficient
Factor correlations	
ϕ OE-BB	.45*
ϕ NB-MC	.02
ϕ NB-BB	.18*
ϕ NB-OE	.23*
Path coefficients	
γ A-BB	-.01
γ A-OE	.23*
γ SN-NB	.88*
γ SN-MC	.05
γ A-NB	.59*
β BI-A	.87*
β BI-SN	.07*
Explained variance	
Subjective norms	.61*
Attitude	.58*
Behavioral intention	.53*

Note. ϕ indicates noncausal covariance between exogenous constructs, γ indicates a causal path linking endogenous and exogenous constructs, and β indicates a causal path linking endogenous constructs. OE = outcome evaluation; BB = behavioral beliefs; NB = normative beliefs; MC = motivation to comply; A = attitudes; SN = subjective norms; BI = behavioral intentions.

* $p < .05$.

almost identical to those obtained in Situation 1. Again, Model 1, which was representative of the Ajzen and Fishbein theory, was not found wholly adequate, whereas Model 3 provided a most acceptable fit of the data. Similarly, the standardized structural model coefficients (see Table 5) revealed theoretically consistent patterns of causal relationships very similar to those obtained in Situation 1. Again, in line with Model 3 obtained in Situation 1, all causal paths were significant except for the causal paths linking subjective norms and motivation to comply and linking attitudes and behavioral beliefs. Similar to the findings of Situation 1, attitudes proved to be the most important predictor of behavioral intention, whereas the impact of subjective norms was rather modest. Overall, these findings reveal that Model 3 obtained in Situation 1 was replicated in Situation 2.

Discussion

The results of this study lead to several important consequences for the theory of reasoned action. Most notably, the present results have implications for the construct validity of the overall model and more specifically for the independence of the attitudinal and normative structures and the determinants of attitudes and subjective norms. The present findings also have implications for the application of the theory of reasoned action to moral behavior. These various topics are discussed in turn.

Assessment of the Construct Validity of the Theory of Reasoned Action

A first purpose of this study was to test Ajzen and Fishbein's (1980) theory of reasoned action through structural equation modeling. Whereas other studies, most dealing with consumer behavior, have performed such analyses recently (e.g., Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984), no study to date, to the best of our knowledge, has used such analyses to test the independent contribution of all components of the theory.

Results from this study revealed only limited support for the basic model, and modifications were needed to obtain an adequate representation of the data. This modified model (Model 3) dealt very well with the data, with 53% and 55% of the variance of behavioral intention being accounted for in Situations 1 and 2, respectively. While retaining the basic structure of the theory of reasoned action, this modified model involved two major additions. First, a strong causal path from normative beliefs to attitudes was added to the model. Second, two non-causal links, each involving normative beliefs with outcome evaluation and behavioral beliefs, were also added to the basic model. Thus, while the general structure of the theory of reasoned action was supported, several modifications had to be incorporated in the model to provide an adequate prediction of moral behavior. In addition, it should be mentioned that the causal paths from behavioral belief to attitudes, and from motivation to comply to subjective norms were either not significant or significant but negligible, depending on the situation. These various considerations will be discussed more fully below.

However, before moving to these more precise issues, two points should be underscored regarding the construct validity of the theory. First, an important postulate of the theory, namely that attitudes and subjective norms are the direct determinants of behavioral intention, was strongly supported. This finding is in line with those from research using structural equation modeling to test the theory (Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984). Thus, while other components of the theory such as outcome evaluation and normative beliefs may play an important role in the model, such a role is limited to being an antecedent of either attitudes or subjective norms.

A second finding of interest deals with the fact that attitudes proved to be a more important predictor of behavioral intention than subjective norms. This result is consistent with past findings on the relative impact of attitudes and subjective norms on behavioral intention. In fact, in a meta-analysis of 26 studies conducted by Farley, Lehmann, and Ryan (1981), it was

Table 4
Chi-Square, Adjusted Goodness-of-Fit Index (AGFI), Normed Fit Index (NFI), Bentler-Bonett Incremental Fit Index (BB), and Model Comparisons for Situation 2

Model	χ^2 ($n = 903$)	df	AGFI	NFI	BB
Null model	9,523.85	153	—	—	
Model 1 (Ajzen and Fishbein theory)	974.75	127	.87	.90	
Model 2 (Model 1 + γ A-NB)	692.33	126	.90	.93	
Model 3 (Model 2 + ϕ NB-BB, ϕ NB-OE)	435.87	124	.93	.95	
Model comparison					
1 vs. 2	282.42	1			.030
2 vs. 3	256.46	2			.027
1 vs. 3	538.88	3			.057

Note. γ A-NB = path linking normative beliefs to attitudes; ϕ NB-BB = noncausal covariance between normative beliefs and behavioral beliefs; ϕ NB-OE = noncausal covariance between normative beliefs and outcome evaluation.

Table 5
Standardized Structural Model Coefficients
for Model 3 in Situation 2

Category	Coefficient
Factor correlations	
ϕ OE-BB	.38*
ϕ NB-MC	-.02
ϕ NB-BB	.31*
ϕ NB-OE	.34*
Path coefficients	
γ A-BB	.12*
γ A-OE	.10*
γ SN-NB	.90*
γ SN-MC	.02
γ A-NB	.56*
β BI-A	.88*
β BI-SN	.19*
Explained variance	
Subjective norms	.59*
Attitude	.59*
Behavioral intention	.55*

Note. ϕ indicates noncausal covariance between exogenous constructs, γ indicates a causal path linking endogenous and exogenous constructs, and β indicates a causal path linking endogenous constructs. OE = outcome evaluation; BB = behavioral beliefs; NB = normative beliefs; MC = motivation to comply; A = attitudes; SN = subjective norms; BI = behavioral intentions.

* $p < .05$.

found that the attitude value dominated that of subjective norms by a factor of 1.5.

It is not clear why attitudes generally play a more important role than subjective norms in the prediction of behavioral intention. One potential explanation deals with the fact that attitudes focus directly on the consequences of action (attitudes toward the act) whereas the subjective norms deal with a more remote element, namely perceptions of what significant others think one should do. Should the subjective norms measure assess the perceived consequences associated with behaving against (or in line with) important others' advice, then attitudes and subjective norms may have comparable effects on behavioral intention. As it stands now, however, the attitude measure focuses more directly on behavioral consequences than subjective norms and thus is more likely to be related to behavioral intention. Another potential explanation might lie in the fact that if the attitude measure carries the indirect effect of normative beliefs as well as the direct effect of the cognitive structure, its influence on intention will be increased relative to that of subjective norms alone. Clearly further research is needed to better understand why attitudes play a more important role than subjective norms in the prediction of behavioral intention.

In sum, the present findings provide only mixed support for the construct validity of the theory of reasoned action. Whereas the importance of attitudes and subjective norms as predictors of behavioral intention was reaffirmed, questions were raised on the independence of the attitude and normative structures, as well as on the determinants of attitudes and subjective norms. These two points are elaborated further below.

Independence of Attitude and Normative Structures

An important postulate of the theory of reasoned action posits the independence of the attitudinal and normative structures. However, recently, results from several studies (e.g., Miniard & Cohen, 1981; Oliver & Bearden, 1985; Ryan, 1982; Shepherd & O'Keefe, 1984; Shimp & Kavas, 1984) have challenged this postulate on two accounts. First, significant correlations have been obtained between the attitudinal and normative structures (Miniard & Cohen, 1981; Shepherd & O'Keefe, 1984). And second, a significant causal path from the Normative Beliefs \times Motivation to Comply multiplicative term on attitudes was reliably and repeatedly obtained (the so-called cross-over effect; Brubaker & Fowler, 1990; Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984). Results from this study replicated these past findings. In addition, because in this study the independent elements of the theory were used instead of the multiplicative terms, it was possible to determine that normative beliefs represent the key variable in the relationship involving the attitudinal and normative structures. This was shown in two ways. First, with respect to the noncausal links between the two structures, it appears that normative beliefs is the key variable, being related to both behavioral beliefs and outcome evaluation. Relationships involving motivation to comply, however, proved to be nonsignificant.

The relationship between behavioral and normative beliefs is particularly interesting because it hints at the possibility that a common antecedent concept might exist. Certain authors (e.g., Budd & Spencer, 1985) have discussed the existence of a type of beliefs that could potentially underlie both behavioral and normative beliefs. This type of beliefs, namely personal normative beliefs, refers to one's beliefs about what should be or ought to be done. It is thus possible to see the potential relation to both behavioral and normative beliefs. In addition, one can sense in such beliefs some kind of moral flavor that might be pertinent to the understanding of moral behavior. Thus, future research on the role of personal normative beliefs as the common antecedent of both behavioral and normative beliefs would appear promising, especially as pertains to moral behavior.

A second result that supports the importance of normative beliefs in the relationship involving the attitudinal and normative structures is the finding of the significant causal path from normative beliefs to attitudes. This addition to the basic model improved explained variance in attitudes by some 35%. This causal effect proved very robust, holding for the two situations of this study. As indicated previously, similar findings have been obtained in four studies using either LISREL (Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984) or path analysis (Brubaker & Fowler, 1990). Specifically, these studies demonstrated that a causal link from the Normative Belief \times Motivation to Comply multiplicative term to attitudes represented an essential addition to the Ajzen and Fishbein model. Because the present study used the independent elements of the model rather than the multiplicative terms, it was possible to identify normative beliefs as the sole determinant of attitudes. These findings underscore the importance of significant others in the formation of attitudes, a finding supported by years of research in the area of social influence (e.g., Chaiken, 1987; Eagly, 1987)

and communication (e.g., Hovland, Janis, & Kelley, 1953). As this causal path from the normative component to attitudes has now been obtained in five studies (Brubaker & Fowler, 1990; Oliver & Bearden, 1985; Ryan, 1982; Shimp & Kavas, 1984), including the present one, we suggest that future research on this issue routinely test for the presence of this causal path from normative beliefs to attitudes.

In sum, the theory's postulate on the independence of the attitudinal and normative structures has been shown to be inaccurate. Future research would do well to study the interplay between the two structures as well as to assess the role of potential common antecedents to determine how the attitudinal and normative structures can best be integrated.

On the Determinants of Attitudes and Subjective Norms

Another purpose of this study was to test the independent effects of behavioral beliefs and outcome evaluation, on one hand, and normative beliefs and motivation to comply, on the other hand, as predictors of attitudes and subjective norms, respectively. The theory posits that each set of predictors should be multiplied to lead to attitudes and subjective norms. In line with such a position, studies in the area have used almost exclusively multiplicative terms, thus preventing an assessment of the relative contribution of each construct to attitudes and subjective norms. Results of this study revealed that only two of the four constructs, namely outcome evaluation and normative beliefs, were significant predictors of attitudes and subjective norms, respectively, across models and situations. Whereas the impact of normative beliefs on subjective norms was important (.88 and .90 in Situations 1 and 2, respectively), the contribution of outcome evaluation to attitudes was much less important (.23 and .10 in Situations 1 and 2, respectively).

Therefore, it would appear that these findings support the role of outcome evaluation and normative beliefs in the theory of reasoned action. Tentatively, the present findings might also indicate that motivation to comply and behavioral beliefs are not necessary elements of the model. With respect to motivation to comply, such claims have been voiced before. For instance, Miniard and Cohen (1981) have shown that normative beliefs alone were a better predictor of subjective norms than the multiplicative term of normative beliefs and motivation to comply. However, Miniard and Cohen did not use structural equation modeling to test their hypothesis. Using structural equation modeling, we found that results from the present study revealed that motivation to comply was not an important predictor of subjective norms. It should be noted that such lack of effect from motivation to comply cannot be imputed to faulty measurement, as results from the measurement model showed that it was properly assessed. It is possible that the low relationship between motivation to comply and subjective norms is due to the motivation to comply measure not pertaining specifically to the behavior to be emitted, whereas the subjective norms measure does (O'Keefe, 1990). Modifying the motivation to comply measure so that it pertains directly to the behavior at hand ("In general, when it comes to cheating during exams, I want to do what my parents want me to do") might improve the motivation to comply-subjective norms relation-

ship. In any event, future research is needed on the role of motivation to comply in the theory.

The findings with behavioral beliefs are less straightforward. The present study represents the first attempt to test the independent contribution of behavioral beliefs as a determinant of attitudes. In light of the theory, the lack of influence from behavioral belief to attitudes was therefore not anticipated. It might be that behavioral beliefs do not represent a necessary antecedent to attitudes. However, in all fairness to Ajzen and Fishbein, it should be reiterated that behavioral beliefs were measured by one item only. It is thus possible that important salient beliefs were not assessed in this study, thus accounting for the lack of effect of behavioral beliefs on attitudes. Although it may be premature to suggest a revision of the theory of reasoned action with respect to the determinants of attitudes and subjective norms on the basis of the present findings, future research on the determinants of attitudes and subjective norms is clearly warranted.

The Theory of Reasoned Action as Applied to Moral Behavior

A final purpose of this study was to assess the validity of the theory of reasoned action as applied to moral behavior. Results from this study revealed that the theory provided only a somewhat adequate fit for the data. However, it was found that a modified version of the theory allowed an adequate prediction of moral behavior. This modified model retained the basic relationships postulated by the theory while adding correlations between the attitudinal and normative structures and a causal path from normative beliefs to attitudes. Thus, these findings reveal that an expectancy-value approach akin to that postulated by Ajzen and Fishbein represents an adequate and useful theoretical position for the explanation and prediction of moral behavior. This is in line with much research that has shown that expectancies of obtaining valued consequences and avoiding unwanted consequences play an important role in the emission of moral behavior (Backman, 1985; Graziano, 1987; Hogan, 1973; Kurtines, 1986; Lynch & Cohen, 1978).

Results from this study also showed that both the personal (attitudinal) and social (or normative) components play an important role in determining moral behavior. In line with individualistic models (e.g., Kohlberg, 1969), attitudes had the most important direct effects on intention of moral behavior. However, in line with proponents of the situational approach (e.g., Widaman & Little, 1985), the normative component also had some effects. Such effects took place in two fashions. First, subjective norms had modest, yet significant, direct effects on moral behavior. Second, normative beliefs proved to have indirect effects on moral behavior through their effects on attitudes and subjective norms. Thus, an expected value formulation incorporating personal and social components seems to provide an adequate prediction of moral behavior.

The discussion so far has emphasized the viability of the modified model in terms of prediction of moral behavior. However, it should be underscored that this modified model also helps to shed light on moral development. Indeed, the theory allows the understanding of the formation and the develop-

ment of attitudes and subjective norms that play an important role in behavior. These two elements are learned by the individual and are a function of specific determinants. Thus, to the extent that one can understand the nature of these determinants and how they come to be learned by the individual, a better understanding of moral development within various contexts becomes possible. More specifically, on the basis of the theory, it is hypothesized that positive attitudes toward moral behaviors are formed through the learning of beliefs that moral behaviors may lead to valued consequences. Similarly, it is posited that subjective norms with respect to moral behaviors develop through the learning that important others believe that moral behaviors represent appropriate behavioral conduct and the individual's desire to act in line with these beliefs. Such beliefs, evaluations, and desire to comply develop over time through interactions in one's social surroundings. Eventually, these beliefs and evaluations become what may be perceived as a relatively stable moral style that serves as a key determinant of the more specific concepts of attitudes and subjective norms. Attitudes and subjective norms, in turn, should lead to moral intention and behavior.

It appears important to reiterate that the present modified model posits the presence of a common determinant of attitudes and subjective norms, namely normative beliefs. Normative beliefs, or the beliefs regarding what is perceived as appropriate behavior in the eyes of important others, appear to loom large in the learning of moral beliefs, evaluations, attitudes, and subjective norms, and probably for good reasons. How do we learn that moral behaviors are to be valued (or devalued) if not through the influence of important others, such as parents, teachers, and peers? Therefore, it should come as no surprise that normative beliefs play such an important role in determining attitudes and subjective norms.

The acceptance of normative beliefs as the major determinant of both attitudes and subjective norms leads to a reevaluation of the key element in the development of the moral orientation of the individual. Contrary to much theorizing (e.g., Kohlberg, 1969) that focuses on the person's cognitive development as a prime determinant of moral development, the present approach posits that the main determinant of one's attitude or moral inclination may reside in the social environment. It should be made clear, however, that the present stance does not expurgate the person from the moral development process. As much research has revealed, individuals play an active part in the influence that others may have on them (e.g., Swann, 1985). Indeed, it should be made clear that it is not significant others per se who determine one's attitudes and subjective norms toward moral behaviors, but rather one's perceptions of these sources of influence.

Conclusion

In sum, results from the present study reveal that a modified version of the theory of reasoned action allows an adequate understanding and prediction of moral behavior. Modifications in the theory involved a causal path from normative beliefs to attitudes as well as noncausal relations among elements of the attitudinal and normative structures. Similar findings have also been obtained in past research using confirmatory

statistical analyses. In addition, the contribution of some of the elements of the theory, namely behavioral beliefs and motivation to comply, was found to be negligible in the two situations of this study. Overall, these findings highlight the fact that the basic structure underlying the theory of reasoned action is undoubtedly more complex than generally presumed, especially with respect to the role and functions of normative beliefs. In addition, they point to the need for future research using structural equation modeling in assessing the independent role of all elements of the theory instead of relying on the proposed multiplicative terms for the attitudinal and normative structures. Finally, the present findings underscore the fact that a modified version of the theory represents a viable theoretical framework to study moral behavior. Future research in this area using this model should therefore lead to important advances in our understanding of moral behavior and development.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.
- 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.
- Backman, C. W. (1985). Identity, self-presentation, and the resolution of moral dilemmas: Towards a social psychological theory of moral behavior. In B. R. Schlenker (Ed.), *The self and social life* (pp. 261-289). New York: McGraw-Hill.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Barnett, M. A., & Bryan, J. H. (1974). Effects of competition with outcome feedback on children's helping behavior. *Developmental Psychology*, 10, 838-842.
- Bentler, P. M. (1980). Multivariate analysis with latent variables: Causal modeling. *Annual Review of Psychology*, 31, 419-456.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.
- Bentler, P. M., & Speckhart, G. (1979). Models of attitude-behavior relations. *Psychological Review*, 86, 452-464.
- Bentler, P. M., & Speckhart, G. (1981). Attitudes "cause" behaviors: A structural equation analysis. *Journal of Personality and Social Psychology*, 40, 226-238.
- Brubaker, R. G., & Fowler, C. (1990). Encouraging college males to perform testicular self-examination: Evaluation of a persuasive message based on the revised theory of reasoned action. *Journal of Applied Social Psychology*, 20, 1411-1422.
- Budd, R. J. (1986). Predicting cigarette use: The need to incorporate measures of salience in the theory of reasoned action. *Journal of Applied Social Psychology*, 16, 663-685.
- Budd, R. J., North, D., & Spencer, C. P. (1984). Understanding seat-belt use: A test of Bentler and Speckhart's extension of the "theory of reasoned action." *European Journal of Social Psychology*, 14, 69-78.
- Budd, R. J., & Spencer, C. P. (1985). Exploring the role of personal normative beliefs in the theory of reasoned action: The problem of discriminating between alternative path models. *European Journal of Social Psychology*, 15, 219-313.
- Burnkrant, R. E., & Page, T. J. (1988). The structure and antecedents of the normative and attitudinal components of Fishbein's theory of

- reasoned action. *Journal of Experimental Social Psychology*, 24, 66–87.
- Chaiken, S. (1987). The heuristic model of persuasion. In M. P. Zanna, J. M. Olson, & C. P. Herman (Eds.), *Social influence: The Ontario Symposium* (Vol. 5, pp. 3–39). Hillsdale, NJ: Erlbaum.
- Connell, J. P., & Tanaka, J. S. (Eds.). (1987). Special section on structural equation modeling. *Child Development*, 58, 1–175.
- Eagly, A. H. (1987). Social influence research: New approaches to enduring issues. In M. P. Zanna, J. M. Olson, & C. P. Herman (Eds.), *Social influence: The Ontario Symposium* (Vol. 5, pp. 271–285). Hillsdale, NJ: Erlbaum.
- Enker, M. S. (1987). Attitudinal and normative variables as predictors of cheating behavior. *Journal of Cross-Cultural Psychology*, 18, 315–330.
- Farley, J. U., Lehmann, D. R., & Ryan, M. J. (1981). Generalizing from “imperfect” replication. *Journal of Business*, 54, 597–610.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior*. Reading, MA: Addison-Wesley.
- Fredricks, A. J., & Dossett, D. L. (1983). Attitude-behavior relations: A comparison of the Fishbein-Ajzen and the Bentler-Speckart models. *Journal of Personality and Social Psychology*, 45, 501–512.
- Froming, W. J., Walker, G. R., & Lopyan, K. J. (1982). Public and private self-awareness: When personal attitudes conflict with societal expectations. *Journal of Experimental Social Psychology*, 18, 476–487.
- Granrose, C. S. (1984). A Fishbein-Ajzen model of intention to work following childbirth. *Journal of Vocational Behavior*, 25, 359–372.
- Graziano, W. G. (1987). Lost in thought at the choice point: Cognition, context, and equity. In J. C. Masters & P. Smith (Eds.), *Social comparison, social justice, and relative deprivation* (pp. 265–294). Hillsdale, NJ: Erlbaum.
- Hennig, P., & Knowles, A. (1990). Factors influencing women over 40 years to take precautions against cervical cancer. *Journal of Applied Social Psychology*, 20, 1612–1621.
- Hogan, R. (1973). Moral conduct and moral character: A psychological perspective. *Psychological Bulletin*, 79, 217–232.
- Hoogstraten, J., De Haan, W., & Ter Horst, G. (1985). Stimulating the demand for dental care: An application of Ajzen and Fishbein's theory of reasoned action. *European Journal of Social Psychology*, 15, 401–415.
- Hovland, C. I., Janis, I., & Kelley, H. H. (1953). *Communication and persuasion*. New Haven, CT: Yale University Press.
- Jöreskog, K. G., & Sörbom, D. (1984). *LISREL VI user's guide*. Chicago: National Educational Resources, Inc.
- Kenny, D. A. (1979). *Correlation and causality*. New York: Wiley.
- Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347–480). Chicago: Rand McNally.
- Kurtines, W. M. (1986). Moral behavior as rule governed behavior: Person and situation effects on moral decision making. *Journal of Personality and Social Psychology*, 50, 784–791.
- Latané, B., & Darley, J. M. (1970). *The unresponsive bystander: Why doesn't he help?* New York: Appleton-Century-Crofts.
- Lynch, J. G., & Cohen, J. L. (1978). The use of subjective expected utility theory as an aid to understanding the variables that influence helping behavior. *Journal of Personality and Social Psychology*, 36, 1138–1151.
- Marin, B. V., Marin, G., Perez-Stable, E. J., Otero-Saabogal, R., & Sabogal, F. (1990). Cultural differences in attitudes toward smoking: Developing messages using the theory of reasoned action. *Journal of Applied Social Psychology*, 20, 478–493.
- McCaul, K. D., O'Neill, K., & Glasgow, R. E. (1988). Predicting the performance of dental hygiene behaviors: An examination of the Fishbein and Ajzen model and self-efficacy expectations. *Journal of Applied Social Psychology*, 18, 114–128.
- Milgram, S. (1963). Behavioral study of obedience. *Journal of Abnormal and Social Psychology*, 67, 371–378.
- Miller, L. E., & Grush, J. E. (1986). Individual differences in attitudinal versus normative determination of behavior. *Journal of Experimental Social Psychology*, 22, 190–202.
- Miniard, P. W., & Cohen, J. B. (1981). An examination of the Fishbein-Ajzen behavioral-intention model's concepts and measures. *Journal of Experimental Social Psychology*, 17, 303–309.
- Mischel, W., & Mischel, H. N. (1976). A cognitive-social learning approach to socialization and self-regulation. In T. Lickona (Ed.), *Moral development and behavior: Theory, research, and social issues*. New York: Holt.
- Netmeyer, R. G., & Burton, S. (1990). Examining the relationships between voting behavior, intention, perceived control, and expectation. *Journal of Applied Social Psychology*, 20, 661–680.
- Newcomb, M. D., & Bentler, P. M. (1988). *Consequences of adolescent drug use*. Newbury Park, CA: Sage.
- O'Keefe, D. J. (1990). *Persuasion: Theory and research*. Newbury Park, CA: Sage.
- Oliver, R. L., & Bearden, W. O. (1985). Crossover effects in the theory of reasoned action: A moderating influence attempt. *Journal of Consumer Research*, 12, 324–340.
- Orlick, T. D. (1981). Positive socialization via cooperative games. *Developmental Psychology*, 17, 426–429.
- Page, M. D., & Davidson, A. R. (1984). A comparison of three social-psychological models of attitude and behavioral plan: Prediction of contraceptive behavior. *Journal of Personality and Social Psychology*, 47, 517–533.
- Ryan, M. J. (1982). Behavioral intention formation: The interdependency of attitudinal and social influence variables. *Journal of Consumer Research*, 9, 263–278.
- Schwartz, S. H., & Gottlieb, A. (1980). Bystander anonymity and reactions to emergencies. *Journal of Personality and Social Psychology*, 39, 418–430.
- Shepherd, G. J., & O'Keefe, D. J. (1984). Separability of attitudinal and normative influences on behavioral intentions in the Fishbein-Ajzen model. *The Journal of Social Psychology*, 122, 287–288.
- Shimp, T. A., & Kavas, A. (1984). The theory of reasoned action applied to coupon usage. *Journal of Consumer Research*, 11, 795–809.
- Swann, W. B. (1985). The self as architect of reality. In B. R. Schlenker (Ed.), *The self and social life* (pp. 100–125). New York: McGraw-Hill.
- Timko, C. (1987). Seeking medical care for a breast cancer symptom: Determinants of intentions to engage in prompt or delay behavior. *Health Psychology*, 6, 305–328.
- Toneatto, T., & Binik, Y. (1987). The role of intentions, social norms, and attitudes in the performance of dental flossing: A test of the theory of reasoned action. *Journal of Applied Social Psychology*, 17, 593–603.
- Vallerand, R. J., Deshaies, P., Cuerrier, J.-P., Brière, N. M., & Pelletier, L. G. (1991). *A social psychological analysis of sportsmanship: II. Toward a multidimensional definition*. Manuscript submitted for publication.
- Widaman, K. F., & Little, T. D. (1985). Contextual influences on socio-moral judgment and action. In H. Pryor & J. Day (Eds.), *The development of social cognition* (pp. 115–152). New York: Springer-Verlag.

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