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ATTITUDES AND NORMATIVE BELIEFS AS FACTORS INFLUENCING BEHAVIORAL INTENTIONS[1]

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Descriptions of four hypothetical situations involving risk included information that the subject's own estimate of the probability of success (P) was high or low and that the probability of success as estimated by his close family and friends (P_o) was high or low. The former manipulation was found to influence the subject's attitude toward the risky act (Aact), while the latter manipulation affected his normative belief (NB), that is, his belief that his close family and friends expected him to perform the risky act. Consistent with a theoretical model, Aact and NB were found to predict behavioral intentions. Aact carried more weight than NB in determining intentions, and, consistent with expectations, a second study demonstrated that a change in P influenced intentions, while a change in P_o did not.

In recent years a series of investigations has provided substantial support for Dulany's (1968) theory of propositional control (Dulany, 1961, 1964, 1968) and for Fishbein's (1967) extension of this theory to social behavior (e.g., Ajzen, 1971; Ajzen & Fishbein, 1969, 1970b; Carlson, 1968; Fishbein, Ajzen, Landy, & Anderson, 1970). The present paper was an attempt to provide answers to some of the problems that have emerged in these investigations. Our concern was mainly with Fishbein's formulation of the theory (for a discussion of the relationships between Dulany's theory and Fishbein's extension, cf. Fishbein, 1967).

The immediate concern of the theory is the prediction of behavioral intentions (BI) which are assumed to mediate overt behavior. According to the extended model, an individual's intention to perform a given act is a joint function of his attitude toward performing that behavior (Aact) and of his beliefs about what others expect him to do in that situation. These normative beliefs (NB) are in turn multiplied by the individual's motivation to comply with the norms (Mc). Symbolically, the central equation of the theory can be expressed as follows:

$$B \sim BI = [Aact]\, w_0 + [NB(Mc)]\, w_1. \quad [1]$$

In Equation 1, B = overt behavior, BI = behavioral intention, Aact = attitude toward the act; NB = normative belief; Mc = motivation to comply with the normative belief; and w_0 and w_1 are empirically determined weights.

It can be seen that behavioral intentions (and corresponding overt behaviors) are a function of the weighted sum of two components, Aact and NB(Mc). The relative importance of these two components, that is, their weights, is expected to vary with the kind of behavior that is being predicted, with the conditions under which the behavior is to be performed, and with the person who is to perform the behavior.[3] Unlike traditional approaches to attitude, Aact is the person's attitude toward performing a particular act in a given situation with respect to a given object, and *not* his attitude toward the object or class of objects per se.

A person's attitude toward a specific act is proposed to be a function of the act's perceived consequences and of their values to the person. Consistent with Fishbein's earlier theorizing (Fishbein, 1963), and similar to formulations proposed by other theorists (e.g., Atkinson, 1957; Peak, 1955; Rosenberg, 1956; Rotter, 1954), Aact is conceptualized in terms of an expectancy-value model[4]:

$$Aact = \sum_{i=1}^{n} B_i a_i, \quad [2]$$

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[3] For a discussion of these and related issues, see Fishbein (1967) or Ajzen and Fishbein (1970a).

[4] For a comparison of various expectancy-value models, see Feather (1966).

where B_i refers to the individual's belief about the likelihood that the behavior in question will result in Outcome i; a_i is the person's evaluation of (or attitude toward) Outcome i; and n is the number of beliefs.

Equation 2 is clearly very similar to the subjective expected utility (SEU) model of behavioral decision theory (cf. Edwards, 1961). The SEU of a given alternative is a function of the subjective probability that certain outcomes will follow the act (SP_i) multiplied by the respective subjective values (or utilities) attached to these outcomes (U_i). The products are summed over all possible outcomes of the act, as in Equation 3:

$$\text{SEU} = \sum_{i=1}^{n} SP_iU_i. \qquad [3]$$

While there are certain differences between the models represented in Equations 2 and 3 which need not concern us here, ΣB_ia_i is essentially equivalent to ΣSP_iU_i. Both models specify that for any individual, the attractiveness of a given act is a function of the summed products of the subjective probabilities and utilities he assigns to the act's outcomes.

In most empirical investigations, ΣSP_iU_i is based on a limited number of potential outcomes of an act. A general measure of Aact, on the other hand, should also be influenced by other consequences not considered in the measurement of ΣSP_iU_i. A direct measure of Aact will therefore tend to be more general than most measures of ΣSP_iU_i, and the correlation between Aact and ΣSP_iU_i will not be perfect.

A good deal of information, then, is available concerning Aact, the theory's attitudinal component. Much less, however, is known about NB(Mc), the normative component. It would be desirable to have more information about the origins of normative beliefs and about their relations to variables other than those of the present theory. It is worth noting that the concept of NB, normative beliefs, is much more restricted than what is usually meant by social norms. It refers to a specific behavioral expectation attributed to a given social agent. While a social norm is usually meant to refer to a rather broad range of permissible, but not necessarily required, behaviors, NB refers to a specific behavioral act the performance of which is expected or desired under the given circumstances.

A belief about a specific expectation of this nature may have its origin in innumerable inference processes. It is here proposed that a person's normative beliefs are at least in part a function of the perceived attitude of relevant others toward the act in question. This perceived attitude will be denoted Aact_o. Like a person's own attitude, Aact_o should also be determined by subjective probabilities and utilities of the act's perceived consequences. But, of course, for Aact_o we have to consider the person's perception of the relevant other's subjective probabilities (SP_o) and utilities (U_o). A sum of the products of these quantities ($\Sigma SP_{oi}U_{oi}$) should correlate positively with a more general, direct measure of Aact_o.

On the basis of these considerations it is proposed that Aact and NB can be manipulated in the following manner: (*a*) Variations in SP directly influence ΣSP_iU_i and thus produce related changes in Aact. (*b*) Manipulations of SP_o directly influence $\Sigma SP_{oi}U_{oi}$ and thus produce related changes in Aact_o and NB. However, such manipulations of the attitudinal or the normative component will not necessarily produce differences in behavioral intentions. Whether or not a change in Aact or NB will significantly affect intentions will depend on the relative weights of these two components in the prediction of intentions. The higher the weight of a given component, the more should change in that component be reflected in behavioral intentions.

METHOD

Four different hypothetical situations, somewhat similar to the situations in the choice-dilemmas task (Kogan & Wallach, 1964), were formulated for use in the present experiment. In each of the situations, an element of risk was involved in making a behavioral choice.

An attempt was made to create situations such that in two of them Aact would be more important than NB in predicting behavioral intentions, while in the other two, NB would be the more important determinant. The description of each situation included two levels of probability indicating (*a*) the subject's own estimate of the likelihood that the proposed action would lead to success and (*b*) the likelihood of success as estimated by his close family and friends. For a given subject in a given hypothetical situation these probability levels were either both 70%, both 30%, or one 70% and the other 30%—a total of four possible conditions.

The four hypothetical situations in their four different conditions of risk were given to 56 undergraduate students, both males and females. The subjects were randomly divided into the experimental conditions on the basis of a Latin square design such that a given subject responded only once to each hypothetical situation and only once to each of the four conditions. Thus, there were 14 subjects in each situation-condition combination. The four hypothetical situations were presented to the subjects as follows:

Situation 1: Investment

Over the last few years you have done some part-time work and you have saved the amount of $1,000. You would now like to invest this money profitably. It has come to your attention that a plot of real estate in a developing residential area is available for the amount of money in your possession. If a planned building project proves successful, the plot of land might double its present value. However, if the project fails, you would lose your entire investment.

Situation 2: Operation

You have been informed by your physician that you have developed a severe liver ailment. The disease is sufficiently serious to force you to change many of your life habits—reducing your work load, drastically changing your diet, giving up your favorite leisure-time pursuits. Your physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the liver condition. But its success cannot be assured, and, in fact, the operation might prove fatal.

Situation 3: Renting

As part of your job with a national company, you have to leave town for 2 years. You are therefore looking for someone to rent your house for the period of your absence. In response to your advertisement in a local newspaper a Negro family applies for the lease. Since your house is located in a white suburban neighborhood you find yourself in a difficult situation. Your neighbors may readily accept the Negro occupants, and there will be no problems. However, they might react negatively, and could even go so far as to attack the Negro family or damage your home. In this case you would find it extremely difficult to return to your home and live with your neighbors.

Situation 4: Transplant

Your brother whom you deeply admire is in precarious health. Within the next few days a kidney transplant has to be performed. As a member of the family you are a suitable donor, and you are approached by the physician to donate one of your kidneys. Although there is no immediate danger to your own life, the transplant would of course have some effect on your health, and would restrict your way of life. If successful, the transplant would save your brother's life. However, its success cannot be assured and, in fact, your brother might die anyway.

Each situation was followed by a paragraph ascribing a probability of success to the subject as well as to his close family and friends. The following is an example for the first situation; the brackets were, of course, omitted from the description when presented to the subjects.

> Personally you have [high/low] confidence in the planned building project, and you believe that it has a —% chance of success. However, before committing yourself, you talk about the situation with a number of people, including your close family and friends. It turns out that most of the people you consult have [much more/the same/much less] confidence in the project's chances of success; most of them believe that the project has a —% chance to succeed.
>
> As a result of these discussions you [increase/retain/reduce] your estimate of the project's likelihood of success to be —%.

To form the four conditions of risk, values in the blank spaces were varied such as to produce final chance levels (own-other) of 70%–70%, 70%–30%, 30%–70%, or 30%–30%. In the conditions where the subject and his close family and friends agreed, initial chance levels were set at 70% or 30%, and they remained at that level. In the conditions where original probability estimates of the subject and his close family and friends were in conflict, the subject's initial estimate was set at 80% or 20%, and as a result of his discussions he reduced his estimate to 70% or increased it to 30%.

The four hypothetical situations were arranged in random order. Each situation was immediately followed by a questionnaire designed to assess the variables of interest.

Questionnaires

The following is an example of the questionnaire for Situation 1. The same items were modified for use in all four situations.

1. BI—behavioral intentions. The concept "I would buy the plot of land" was rated on a 7-point scale ranging from "extremely probable" to "extremely improbable."

2. Aact—attitude toward the act. The concept "buying the plot of land" was rated on the following four evaluative semantic differential scales: foolish–wise, good–bad, harmful–beneficial, rewarding–punishing. The sum across these four scales served as an index of Aact.

3. NB · normative beliefs. The concept "Most of the people consulted would expect me to buy the plot of land" was rated on a 7-point scale ranging from "extremely probable" to "extremely improbable."

4. $Aact_o$—perceived attitude of relevant others. The concept "Most of the people consulted would think that buying the plot of land is" was rated on the same four evaluative semantic differential scales used to assess Aact. The sum across the four scales again served as an index of $Aact_o$.

5. Subjective probabilities of success and failure. Toward the end of the questionnaire appeared the following measure of subjective probabilities:

When you answered the various questions above, what did you think was the probability that the planned building project would succeed?

We know that some people will have actually used the probability given in the description of the situation, while others will have actually used a different probability. It makes no difference to us what the actual probability was that you used, but it is essential that we know this probability.

(*a*) SP the subject's own subjective probability. "I thought that the building project's chances of success were . . %." (*b*) SP_o the perceived probabilities of others. "I thought that the people I consulted believed the building project's chances of success to be . . %."[5]

6. Utilities of success and failure. (*a*) U the subject's own utilities were measured on the following two scales:

You buy the plot of land, and the planned building project is a success.

This course of events is:

Extremely Good : : : : : : Extremely Bad

You buy the plot of land, and the building project is a failure.

This course of events is:

Extremely Good : : : : : : Extremely Bad

(*b*) U_o the perceived utilities of others. These were measured in a manner comparable to the subject's own utilities. The statements to be rated were: "If I bought the plot of land, and the planned building project was a success (or failure), most people consulted would consider this course of events to be . . ."

On the basis of Items 5 and 6, ΣSP_iU_i and $\Sigma SP_{oi}U_{oi}$ were computed for each subject.[6]

The reader will note that no measure of Mc, the motivation to comply with social norms, was obtained. The reason for this omission is that in previous investigations (e.g., Ajzen & Fishbein, 1969, 1970b) the measures of Mc were unsatisfactory. Since the present hypotheses could be tested without reference to Mc, no such measure was included in the questionnaire.[7]

RESULTS

Prediction of Aact

Column 1 of Table 1 presents the correlations between Aact and ΣSP_iU_i for each of the four situations. As expected, all four correlations were significant. It is of interest to note that the lowest correlation was obtained in Situation 4, the kidney transplant. This is quite reasonable, since one would expect consequences other than simply the probability of the transplant's success or failure (the factors making up the present measure of ΣSP_iU_i) to influence Aact. In general, however, there is support for the notion that Aact is a function of a person's beliefs about the consequences of performing a given act and his evaluation of these consequences.

TABLE 1

CORRELATIONS BETWEEN AACT AND ΣSP_IU_I AND BETWEEN NB, AACT_O, AND $\Sigma SP_{OI}U_{OI}$

Situation	Aact-ΣSP_iU_i	NB-Aact_o	Aact_o-$\Sigma SP_{oi}U_{oi}$	NB-$\Sigma SP_{oi}U_{oi}$
Investment	.814**	.773**	.757**	.713**
Operation	.613**	.697**	.617**	.626**
Renting	.587**	.626**	.454**	.425**
Transplant	.299*	.354**	−.023	.107

Note. $N = 56$.
* $p < .05$.
** $p < .01$.

Prediction of NB

Columns 2, 3, and 4 of Table 1 present intercorrelations of NB, Aact_o, and $\Sigma SP_{oi}U_{oi}$. Consistent with expectations, NB was significantly related to Aact_o in all four situations. Further, with the exception of Situation 4, the kidney transplant, $\Sigma SP_{oi}U_{oi}$ was significantly related to Aact_o and to NB.

Manipulations of Aact and NB

An attempt was made to influence Aact and NB by manipulating the subject's probability of success (SP) and his perception of the probability of success held by his close family and friends (SP_o). Table 2 shows the effects produced by variations in the "objective" probabilities of success (P and P_o) provided in the descriptions of the hypothetical situations. The means and analyses of variance presented in Table 2 are based on data from all four situa-

[5] Subjective probabilities of failure were assumed to be equal to $1 - SP$ and $1 - SP_o$.

[6] It should be noted that the measurement procedures used in the present experiment do not meet the usual requirements of a formal mathematical model made by decision theorists. Thus, our measures can at best be taken only as approximations of subjective expected utilities.

[7] In a recent study, Ajzen (1971) showed that more adequate measures of Mc could be secured.

TABLE 2

MEAN SP, SP_o, $\Sigma SP_I U_I$, AACT, $\Sigma SP_{oI} U_{oI}$, AACT$_o$, AND NB SUMMED OVER SITUATIONS AND ANALYSES OF VARIANCE RESULTS

Criterion	Group M				ANOVA: F levels		
	Condition				Manipulation		
	70-70[a]	70-30	30-70	30-30	P	P_o	$P \times P_o$
SP	.692	.644	.424	.331	204.662**	13.622**	.393
SP_o	.652	.325	.628	.321	.559	276.975**	.308
$\Sigma SP_i U_i$	5.180	4.757	3.843	3.355	108.246**	10.356**	.062
Aact	21.785	20.268	17.500	16.125	31.715**	4.419*	.014
$\Sigma SP_{oi} U_{oi}$	4.834	3.421	4.863	3.470	2.612	101.294**	.156
Aact$_o$	20.750	12.964	21.232	14.571	1.219	72.920**	.391
NB	5.429	3.625	5.161	3.214	2.904	106.071**	.166

[a] The first number is the subject's objective probability of success (P); the second number is the probability attributed to the subject's close family and friends (P_o).
* $p < .05$, $df = 1/54$.
** $p < .01$, $df = 1/54$.

tions.[8] Looking at the first two rows in Table 2 it can be seen that as expected, variations in P and P_o significantly affected SP and SP_o, respectively. Further, while variations in P did not influence SP_o, manipulating P_o had a significant effect on SP. Thus, while there is evidence that the subject tended to bring his own beliefs into line with those of his close family and friends, there is no evidence that he "distorted" his perception of the beliefs of others in order to make them more consistent with his own views.[9]

These findings, in conjunction with the correlations presented in Table 1, account for the effects of manipulating P and P_o on the remaining variables in Table 2. As predicted, variations in P had significant effects on $\Sigma SP_i U_i$ and on Aact. Similarly, variations in P_o had significant effects on $\Sigma SP_{oi} U_{oi}$, Aact$_o$, and NB. Further, just as manipulating P_o significantly affected SP, the manipulation of P_o also had significant effects on $\Sigma SP_i U_i$ and Aact. In contrast, manipulations of P did not influence SP_o, and they also had no significant effects on $\Sigma SP_{oi} U_{oi}$, Aact$_o$, or NB.

[8] Separate analyses of variance for each situation yielded results comparable to the overall analyses and are not presented due to space limitations. However, as might be expected on the basis of the low correlations in Situation 4, the kidney transplant (see Table 1), variations in P and P_o did not significantly affect Aact or Aact$_o$ in this situation.

[9] It should be noted that these adjustments in SP were over and above those provided for in the description of the situations. As will be recalled, the subjects were told that they had already adjusted their estimates of the chances for success after discussing the situation with their close family and friends.

Prediction of BI

According to Equation 1, BI should be predictable from Aact and NB. Table 3 presents product-moment correlation coefficients, standardized regression weights, and multiple correlations of Aact and NB on BI for each of the four situations. It can be seen that the multiple correlations were high and significant in all four situations. However, it can also be seen that our a priori attempt to manipulate the relative weights of the two components was not very successful. Although, as expected, the NB–BI correlations were

TABLE 3

CORRELATIONS, REGRESSION COEFFICIENTS, AND MULTIPLE CORRELATIONS OF AACT AND NB ON BI

Situation	Correlation coefficient		Regression coefficient		R
	Aact-BI	NB-BI	Aact-BI	NB-BI	
Investment	.841**	.349*	.833**	.019	.841**
Operation	.794**	.243	.775**	.142	.806**
Renting	.849**	.590**	.801**	.074	.851**
Transplant	.538**	.434**	.446**	.296*	.607**

Note.—$N = 56$ in each situation.
* $p < .05$.
** $p < .01$.

TABLE 4

GROUP MEANS OF BI AND ANALYSES OF VARIANCE RESULTS

Situation	Group M				ANOVA: F levels		
	Condition				Manipulation		
	70-70[a]	70-30	30-70	30-30	P	P_o	$P \times P_o$
Investment	4.929	5.214	3.788	2.071	28.676**	3.186	6.245*
Operation	5.928	5.257	4.500	4.214	9.864**	1.096	.122
Renting	5.643	5.071	4.143	3.500	11.495**	1.797	.006
Transplant	6.643	5.429	5.500	5.357	2.648	3.307	2.061

Note.—$N = 14$.

[a] The first number is the subject's "objective" probability of success (P); the second number is the probability attributed to the subject's close family and friends (P_o).

* $p < .05$, $df = 1/52$.

** $p < .01$, $df = 1/52$.

higher in Situations 3 and 4 than they were in Situations 1 and 2, it was only in Situation 4 that the weight of the normative component reached statistical significance ($p < .05$), and even here more weight was carried by the attitudinal component. Indeed, in all four situations, the subject's intentions were primarily determined by the attitudinal component. Thus, while we would expect variations in Aact to produce significant differences in BI in all four situations, variations in NB should have little or no effect on BI in Situations 1, 2, and 3, although such variations may produce a small effect in Situation 4.

Manipulation of Behavioral Intentions

It will be recalled that the manipulation of P significantly influenced Aact but not BN, while manipulation of P_o influenced both components. However, results in Table 2 indicated that varying P_o had a much weaker effect on Aact than on NB. Thus, variations in P are expected to produce strong effects on intentions in all four situations. Variations in P_o, however, should have relatively little effect on intentions in Situations 1, 2, and 3, although such variations may have some effect in Situation 4.

Table 4 presents group means of intentions for each of the four hypothetical situations, as well as the results of two-way analyses of variance. There it can be seen that variations in P were reflected in behavioral intentions in all situations except Situation 4. It will be recalled that the manipulation of P did not produce significant differences in Aact in Situation 4 (see Footnote 9), and thus no effects on intentions could be expected. Further, variations in P_o did not significantly affect intentions although the results approached significance in Situation 4 ($F = 3.31$, $p < .10$), the only situation in which the normative component was found to carry a significant weight in the prediction of intentions.

Although the above study demonstrated that variations in behavioral intentions and in the model's components could be produced by manipulating a subject's own beliefs (SP) or his perceptions of the beliefs of relevent others (SP_o), we felt that the demonstration of actual changes in behavioral intentions as a result of changes in the predictor variables (i.e., Aact and NB) was important enough to warrant a small study.

CHANGE STUDY

Method

A total of 70 subjects participated in the study. They were given Situation 1 in the 70-70 condition. After they had read the description of the hypothetical situation, they completed the questionnaire described above. The subjects then engaged in an unrelated activity for approximately 15 minutes. Following this interval they were told that they were to consider Situation 1 again, but that they would be given some additional information about it. This information appeared immediately after the description of the hypothetical situation.

Thirty-five subjects, selected at random, received a "normative" communication, while the remaining 35 subjects were given an "attitudinal" communication. These communications were designed to reduce either the subject's subjective probability of success (atti-

TABLE 5

GROUP MEANS OF *SP*, SP_o, AACT, NB, AND BI AND ANALYSES OF VARIANCE RESULTS—CHANGE STUDY

Dependent variable	Normative message		Attitudinal message		ANOVA *F* levels		
	Time		Time				
	Before (70-70)[a]	After (70-30)	Before (70-70)	After (30-70)	Message type	Time	Interaction
SP	70.903	65.112	70.351	48.837	38.147**	132.552**	43.952**
SP_o	69.678	46.728	69.246	68.736	66.579**	138.521**	126.739**
Aact	21.671	17.135	22.136	14.158	4.508*	308.510**	23.333**
NB	5.671	3.371	5.506	4.964	19.806**	154.662**	59.231**
BI	5.679	4.320	5.580	2.945	14.847**	303.479**	30.954**

Note.—$N = 35$.

[a] The first number is the subject's "objective" probability of success (*P*); the second number is the probability attributed to the subject's close family and friends (P_o).

* $p < .05$.

** $p < .01$.

tudinal message) or the probability attributed to his close family and friends (normative message). The two communications were worded as follows:

> [*Attitudinal message*]. At this stage you make a much more extensive investigation of the proposed project, and you come across some information that considerably lowers your estimate of the project's chances to succeed. You again decide to consult with your family and friends, and you find that they do not share your concern. Indeed, they retain their confidence in the project and still believe it has a 70% chance to succeed. You, however, now believe that the project's likelihood of success is only 30%.

> [*Normative message*]. At this stage, however, some of your friends make a much more extensive investigation of the project and come across some information that considerably lowers their estimates of the project's chances to succeed. They now believe that the project's likelihood of success is only 30%. You, however, do not share their concern, and you retain your confidence in the project. That is, you still believe that it has a 70% chance to succeed.

Thus, in the attitudinal condition, the subject's objective probability of success (*P*) was now reduced to 30% and that of his close family and friends (P_o) remained at 70%. In the normative condition, these probabilities were 70% and 30%, respectively. After reading the persuasive communication, each subject completed the same questionnaire he had previously responded to.

Results

Based on the hypotheses previously outlined, it can be predicted that (*a*) the change in *P* (from 70% to 30%) will be reflected in Aact and (*b*) the change in P_o (from 70% to 30%) will be reflected in NB. The impact of this change in one of the components on intentions, however, will depend on that component's weight in the prediction of behavioral intentions. Since in Situation 1, used in this change study, behavioral intentions were shown to be largely controlled by attitudinal considerations (see Table 3), it is to be expected that the attitudinal message (reducing *SP* and thus Aact) will produce greater changes in BI than will the normative message (reducing SP_o and thus NB).

Two-way analyses of variance were performed, using *SP*, SP_o, Aact, NB, and BI as dependent variables. The two main effects were message type (attitudinal or normative) and time (before or after the persuasive communication). Time was treated as a repeated-measures factor, since the same subjects were used before and after the communications. The results of these analyses as well as the cell means are presented in Table 5 where it can be seen that changes in the probabilities supplied to the subjects affected their subjective probabilities in the expected manner. The normative message, directed at SP_o, did indeed reduce SP_o to a greater extent than did the attitudinal message, as indicated by the highly significant Message Type × Time interaction. Similarly, the attitudinal message reduced *SP* (at which it was directed) significantly more than did the normative message.

The reduction of *SP* or SP_o had, as expected, marked impacts on Aact or on NB, respectively. That is, the attitudinal message (which reduced *SP*) produced a considerable reduction

in Aact; the normative message (directed at SP_o) had a much smaller effect on Aact. This conclusion is supported by the highly significant Message Type × Time interaction for Aact. Similarly, changes in NB were produced primarily by the normative message rather than by the attitudinal message, as was again witnessed by the significant interaction effect.

Finally, there was also a significant Message Type × Time interaction for BI, indicating that as expected, the attitudinal message had a much stronger impact on behavioral intentions than had the normative message.

The two main effects, message type and time, were of less importance in the present analyses. The results indicate that both message type and time had significant main effects on the dependent variables.

To summarize, the change study confirmed the results presented earlier. Using a sample of subjects in a pre-post design it was again shown that variations in subjective probabilities tended to be reflected in the appropriate variables of the present theory. Thus, a change in the subject's probability of success (SP) led to a similar change in Aact, while the reduction of SP_o (the subjective probability attributed to relevant others) resulted in a reduction of NB. Finally, it was shown that the effects of these changes on behavioral intentions depended on the regression weights of Aact and NB in the prediction of BI.

DISCUSSION AND CONCLUSIONS

One purpose of the present study was to obtain information about possible origins of normative beliefs (NB). It was hypothesized that one of the factors influencing a person's beliefs about what others expect him to do is his perception of the other's attitude toward the act in question ($Aact_o$). Evidence supporting this hypothesis was obtained, and it was further shown that manipulations which produced differences or changes in this perceived attitude were also found to be reflected in the measure of NB. This finding suggests that some of the knowledge that has accumulated in the attitude area can perhaps be applied to the study of normative beliefs. For example, just as a person's attitude toward a given behavior was related to his beliefs about the consequences of performing that behavior and his evaluation of those consequences, his perception of attitudes of relevant others was related to his perception of their beliefs about the consequences of performing the act and his perception of their evaluation of those consequences. Thus, it was possible to influence a person's NB by manipulating his perception of the beliefs of others about the consequences of performing a given behavior. It may also be expected that NB would change if a person's perception of others' evaluations of these consequences was manipulated.

The present study also demonstrated that a person's behavioral intentions in the hypothetical situations were related to his attitudes toward the behaviors in question and his normative beliefs about them. However, it was found that in all of the hypothetical situations, Aact carried most of the weight in the prediction of BI; the normative component had a significant regression weight only in the fourth situation.

Induced changes in Aact had significant effects on BI, while manipulations of NB did not affect BI significantly. This finding was anticipated because of the importance of Aact in determining BI in these situations. The theory would also predict that in situations where NB is of primary importance, changes in this component would affect BI, while manipulations of Aact would not. This part of the hypothesis could not be tested in the present study because in none of the situations employed were intentions clearly under the control of normative beliefs. Although previous research has shown that intentions and overt behavior can be changed by manipulating normative beliefs (cf. Ajzen, 1971), it still has to be demonstrated that manipulation of Aact will *not* change intentions in those situations where intentions are primarily under normative influence.

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