

SOCIAL NORMS AND ENVIRONMENTAL QUALITY^a

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p. 5, 12, 16 ← AC 7 - anti-littering norm

14 - injury conservation norm

21 - lead-free norm

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Abstract

A social norm is a mechanism necessary for collective action to improve environmental quality. The circumstances under which people behave consistently with an established norm are examined and found to account for the emergence of new norms which influence environmental action, as well. People were found to conform to the anti-littering norm when they were aware of the negative consequences (AC) for littering, and felt personally responsible (AR) for these consequences as predicted by a theory of norm activation. AC and AR were also important factors in the development of a personal norm to buy a product reported to have fewer negative environmental impacts (lead-free gasoline) and a personal norm to conserve energy. A perceived social norm also influenced these two emergent norms. When the social norm is weak the strength of the personal norm shows more covariation with behavior than when the norm is nearly universally endorsed. Also, when the social norm is weak, activation variables and perceived social norms are not entirely mediated by the personal norm.

Viewed from a social psychological perspective, environmental quality is a traditional collective action problem. To achieve a clean environment it is necessary for the great mass of people to subjugate their own personal desires to achieve a collective goal. The collective nature of environmental quality has been popularized as "the Tragedy of the Commons" by environmentalist Garrett Hardin (1968). In his essay he uses the metaphor of the commons ground and its inevitable degradation by overgrazing when each of the users tries to maximize his own return by increasing the size of his own individual herd (since feed on the commons is "free"). It is doubtful, however, that any actual commons washed away to the sea due to overgrazing, as Hardin would have us believe, since a number of social factors, including the institution of private property, prevented the collective drama from being played to its logical conclusion.

One such mechanism which helps individuals act to achieve collective goals and thereby avert the tragedy of the commons is a social norm, or "... any standard or rule that states what human beings should or should not think, say, or do under given circumstances (Blake and Davis, 1964, p. 456). A norm is usually shared by a substantial proportion of the members of a social system and is backed up by formal and informal sanctions for both compliance and noncompliance. The opportunity to violate a norm may be limited as well. A norm is also likely to be internalized by individuals until it becomes "... part of the individual's motivational system in the sense that he is committed to [it] as being 'right', 'legitimate' and hence 'obligatory' (Blake and Davis, 1964, p. 478). Another environmentalist, Aldo Leopold, (1966) noted the importance of a social norm when he proposed a substantial value change and normative change called the "Land Ethic" as the way to improved

environmental quality. Leopold argued that man's relationship with the environment should be viewed under the same kind of normative standards that govern interpersonal conduct. Under such conditions, he believed, individuals would be able to achieve the goal of a high quality environment.

While Leopold's solution is simple and his rhetoric compelling, there are two basic research questions involved in such a solution. How does such an ethic or more specifically, a particular norm, emerge and become part of an individual's cognitive-motivational system? Leopold argued that the extension of ethics to man-land relationships was an "... evolutionary possibility and an ecological necessity" (p. 239), however, he does not identify the conditions for this evolution to come about. The second question involves the influence of a norm or ethic on behavior: When and how does a norm influence action? Leopold, like social psychologists (Wicker, 1969; Deutscher, 1973) notes that there is considerable slippage between words and deeds, as he points out "... progress [toward a land ethic] still consists largely of letterhead pieties and convention oratory. On the back forty we still slip two steps backward for each forward stride."

The goal of this paper is to reflect on these two questions, considering first the question of how norms influence behavior and then moving to the norm emergence problem. Data will be presented from empirical studies examining three separate behaviors which affect environmental quality: littering, the use of a lead-free gasoline, a product which reduces pollution, and energy conservation. My major intellectual debt is to Shalom Schwartz and his theory of norm activation (cf Schwartz, 1970a, 1974) for approaching these questions. Our focus will be on the psychological process of the individual actor rather than on the social structural influences on behavior.

Activation Theory

It is clear that a person is less likely to violate a norm if he has no opportunity and that sanctions, if applied, exert considerable influence on behavior. That the sanctions which accompany norms are most often threats and are seldom applied, complicates the issue but is not the subject of our discussion here. From a psychological perspective it is most interesting to explore the circumstances under which a person acts or fails to act on a norm which he holds in the absence of such structural constraints. It has been widely noted (see Wicker, 1969, or Deutscher, 1973 for a review of over 30 years of such research) that people do not behave consistently with their verbal statements of how they should behave. Recent efforts to explore the relationship between attitudes and behaviors has focussed on those intervening variables which mediate the effect of attitudes on behaviors (Ehrlich, 1969).

Schwartz (1970a, 1974a) has argued that a person who holds and verbally endorses a norm need not behave consistently with its specifications unless it has become activated. A set of both personality factors and characteristics of the situation may serve to activate the norm or make it psychologically relevant and influential on a particular act. While this process is complex (see Schwartz, 1974a for a description of the process), two factors are important. Before a person is likely to act on a norm which he holds, he must be aware of the consequences of his action or failure to act, and he must have a sense of personal responsibility for these consequences. There are at least two components of the consequences variable, one involving a sense of efficacy (i.e., that one's actions do something) and a second that these outcomes have an effect on other persons, outside the self. In empirical studies Schwartz has shown that taking consequences and responsibility into account substantially

increases the effect of attitudes or a norm held by the individual, on his own action (Schwartz, 1968a, 1968b, 1970b, 1973 and 1974b).

Littering Behavior

In contemporary U. S. society there is a strong norm against littering. This norm is widely endorsed, accompanied by legal proscriptions and receives considerable publicity, yet given the amount of litter that accumulates in public places, it is clear that this norm does not always influence behavior and that this leads to a reduction in environmental quality. To assess the role of the norm activation process on littering behavior, the following field experiment was conducted.

Methodology. The subjects in this experiment were seven thousand, four-hundred and nine people who accepted handbills and, thus, had a structured opportunity to litter as they passed along a 60-foot section on the main street of Wisconsin Dells, Wisconsin, on fourteen days in August and September, 1970. Fifty-eight people were observed littering and fifty-eight non-litterers were randomly selected as controls after each litterer was observed.¹ Each subject was asked to participate in a brief sidewalk interview.

The first question in the interview, an open-ended inquiry about the subject's camping behavior, was specifically to gain rapport. To assess the respondent's awareness of littering behavior, the interviewer handed the subject a list containing five minor deviant acts including littering and asked the subject to recall whether he had engaged in any of these during the day. Only those who had littered were asked this question. The subjects' awareness of consequences was first measured by asking whether the subject thought about how to dispose of the paper he was handed. Then they were

asked if they thought "at all about how tossing it on the ground might have bad effects on other people." Then they were asked if any of five particular consequences had crossed their minds during this time. A final question determined the degree to which people were willing to deny responsibility for littering by giving respondents a chance to endorse rationales which denied responsibility for littering.

Subjects were then requested to fill out a longer, mailed questionnaire. If they agreed, their name and address was taken and the questionnaire was sent one to three weeks later.²

Cooperation was very good--96 (82.7%) out of 116 observed were interviewed. Of those interviewed who gave their names and addresses, 82.1 percent returned the questionnaire. Of the 96 interviewed, 12 (12.5%) did not give their addresses. Because of the inclusion of placebo interviews (see note 2), we have situation perception information on 77 (66.4%) of the observed subjects, personality and background information on 68 (58.6%) and complete data on 55 (47.4%). For analyses, the largest appropriate sample size possible will be used.

Findings. Forty percent of those interviewed indicated a general awareness of consequences. Sixty-four percent indicated that a specific consequence of littering crossed their mind as they tried to decide what to do with the paper. The two measures were combined into a four-point scale (Sit. AC).³ Situational ascription of responsibility was operationalized by asking subjects if they had actually thought of any of five rationales commonly given for littering. The more rationales selected, the greater the tendency to have ascribed responsibility away from self (Sit. AR). Ascription of responsibility

and awareness of consequences can be thought of as stable personality characteristics as well as a perception and response to a particular situation. The individual's personal tendency to ascribe responsibility to himself (Dis. AR) was measured with a 28-item ascription of responsibility scale developed by Schwartz (1967, 1968a, 1970b). Previous studies have provided substantial construct validity for this measure, and in our sample it has a reliability coefficient of .80.

Since previous measures of personal tendencies to be aware of negative consequences were projective, they were inappropriate for mailed questionnaires.

It was necessary to devise some items for use in a questionnaire. Subjects were asked how likely aluminum cans and uneaten food left in a picnic area would be to make the area undesirable for other picnickers. The items were highly intercorrelated ($r = .83$) and combined as a measure of the awareness of the negative consequences of littering behavior (Dis. AC).

If the process of norm activation is accounting for conformity to the anti-littering norm, those who litter should be less likely to ascribe responsibility to themselves and should be less aware of the consequences for littering. Figures 1 and 2 show that this is the case for both dispositional and situational AR and AC.⁴ Both variables predict a substantial amount of variance in littering ($R = .49$, $R^2 = .24$, $p < .001$) for the situational variables and ($R = .46$, $R^2 = .21$, $p < .01$) for dispositional variables. Combining all four variables, the multiple R increases to .57 ($R^2 = .32$). This increase is significant at the .05 level. Although this increase is significant ($p < .05$), dispositional AR and AC drop just below the traditional significance levels and have probabilities of .08 and .09, respectively. Since none of the regression coefficients show a substantial reduction when all are included in the equation, it appears that the effect of the situational variables is not explained by

dispositional variables, nor do the situational perceptions interpret the effect of the dispositions. Both situational AR and AC and dispositional AR and AC play a direct role in littering behavior.

Discussion. It appears from these data that the activation model can account for a norm guided behavior which leads to improvements in environmental quality. People who ascribe responsibility to themselves and are aware of the consequences are less likely to litter, even when the opportunity is controlled. In this study it was assumed that the anti-littering norm was widely held; hence, no direct attempt was made to measure how much personal obligation the respondent felt to not litter. A number of attitudes about littering and the severity of punishment the individual felt to be appropriate for various sorts of littering were assessed in place of the anti-littering norm. Although these should be associated with the norm, they did not predict behavior. (For a fuller discussion, see Heberlein, 1971 and 1974).

A social norm technically is a social structural variable. It can be said to exist across but not within individuals. For example, the strength of a norm would be the percent of people in a society endorsing a particular normative statement. The sanctions, likewise, which accompany a norm are either part of the formal structure of a social system or a property of a small group or dyad if they are informal. Hence, a social norm cannot be measured at the level of the individual. What can be measured in studies of individuals is the degree a person perceives a social norm. We can ask him if he expects formal or informal sanctions for performance of a specific norm-guided act, whether he feels that others expect him to perform a particular behavior, whether he believes that others engage in the act and feel obligated to engage in the act. If a respondent were to believe all of these

things we could be reasonably confident that he perceives a social norm.

In most theoretical statements of normative influence (e.g. Blake and Davis, 1964) a social norm takes on a real psychological dimension when it is internalized. But theorists seem to have assumed that people internalize the full blown social norm as it might be described in social structural terms.

Fishbein (1967) and more recently Schwartz (1973) have introduced the notion of a personal norm which may be viewed as a refinement of the sociological view of internalization. A personal norm is likely to be derived from a social norm, but also reflect the unique experiences of each individual and will, consequently, differ from the social norm. According to Schwartz (1973, p. 353) "What distinguishes a norm as personal is that the sanctions attached to it are tied to the self concept: anticipation or actual violation of the norm result in guilt, self-depreciation, loss of self esteem; conformity or its anticipation result in pride, enhanced self-esteem, security." A personal norm can be best assessed by the overall sense of moral obligation that the individual feels to perform the act.

As we move ahead with our discussion of the activation model and emergent norms, our focus is primarily on the individual's personal norm. The perceived social norm is likely to have some effect on the individual's personal norm, and the magnitude of this impact will be examined. When we speak of the strength of the social norm, we will be expressing this as a percent of our sample which endorses a normative statement. This, of course, is a constant across all individuals in the sample.

The Purchase of Nonpolluting Products: Lead-free Gasoline

If the norm activation model accounts for conformity to an established norm, it seems possible that substantial increases in the awareness of consequences and feelings of personal responsibility caused by changes outside the

individual could lead to a new personal norm guiding action. Increases in these feelings would lead the individual to search for some standard to guide behavior. When there is an established norm that applies and AR and AC are high, he acts on this norm. However, when there is no specific norm, it is reasonable to suppose that he may crystallize a new norm to guide his actions (Schwartz, 1974a). Such a new norm would tend to be consistent with his general cognitive structure and based on his prior experience and history. If this process occurs and accounts for the emergence of a new norm, then the norm activation model would identify those particular elements of social change which lead individuals to actions which improve environmental quality. That is, those factors which increase both AR and AC would seem crucial for the emergence of such norms.

To explore this possibility, a situation where an emergent norm might be examined was needed. A behavior which, like littering, could be unobtrusively observed was preferred. After considering a number of alternatives, the purchase of lead-free gasoline was selected. Buying lead-free is more costly for the individual than the regular gasoline for which it substituted; it also reduces one of the pollutants from automobile emissions. The following questions were of interest. Was there any personal norm to buy lead-free gasoline? If so, how strong was it? Did this norm have any influence on behavior? Did AR and AC influence the strength of this norm? Did people perceive any social norm to purchase lead-free gasoline, and what role did a perceived social norm have both on an emergent personal norm and behavior?

In an unusual research design, 266 dealers in a random sample of Wisconsin gas stations which sold lead-free gasoline were enlisted to help record behavior.⁵ A day and hour were randomly selected and the dealer was asked to record the license number and driver characteristics of the first person who

purchased lead-free gasoline after this time. The same information was obtained for the very next person who purchased regular gasoline. Dealers were paid a dollar for their help and were telephoned prior to data collection to further instruct them in the sampling procedure and act as a reminder. The dealers cooperated very well, and complete information was provided on 83 percent of the possible purchasers, or a total of 443 observations. Names and addresses of the car owners were obtained from the open records of the state license bureau, and mailed questionnaires were sent to the owners, requesting that they be filled out by the person who met the description of the driver supplied by the gasoline dealers. Although this procedure was complicated and occasionally questionnaires were filled out by an individual who did not match the demographic description (approximate age and sex) of the driver, complete data was obtained for 68 percent of the sample $N = 303$. For a more detailed description of the procedure see Black (1974).

Measures. One instance of actual purchase behavior was assessed by the gasoline dealer. Since gasoline purchase behavior varies in time and space, we had also to rely on respondents' reports of the frequency they purchase lead-free. These measures were combined, with the observation of actual behavior having a substantially greater weighting.

The personal norm to purchase lead-free gasoline was measured, for comparative purposes, with a single item on which the respondent indicated the degree of personal obligation to purchase lead-free gasoline. There were five response categories, from "feel some obligation not to buy lead-free" to "feel strong obligation to buy lead-free". Because the notion of a personal norm includes internal sanctioning, a number of items where the subject was asked the degree of guilt or pride he would feel if he purchased lead-free

is ref. other people

gasoline were included. These items loaded on a single factor and were included in a five-item personal norm scale. This scale had a reliability (coefficient alpha) of .87.

The degree to which a respondent perceived a social norm to buy lead-free gasoline was measured with five items. These included an assessment of what their best friends would think of them and say if they bought lead-free, the degree of personal obligation they felt others held, the number of persons they knew who purchased lead-free gasoline, and whether they felt anyone expected them to use lead-free gasoline. This scale was less reliable than the personal norm scale, although still within the range of acceptability with an alpha of .65 .

A number of items were included on the questionnaire which measured the degree of personal responsibility the respondent felt for air pollution. A factor analysis suggested that these formed two clusters. Six items indicated the degree of responsibility the individual felt for causing air pollution, e.g., "I feel my own actions do not cause air pollution", "How much do you feel that driving your car causes air pollution". These were combined into a single scale which had a reliability of .90. Three other items suggested that a second dimension of responsibility, a personal responsibility for reducing air pollution, also was important (e.g., "Even though I am not responsible for causing air pollution, I am responsible for reducing it."). Three items measuring this dimension were combined into a scale with a reliability of .69. The personality measure of AR used in the littering study was also included.

Findings. The single item indicator of a personal norm to purchase lead-free gasoline was compared with responses to other normative statements (e.g., "How much personal obligation do you feel to stop at stop signs?")

anti-normative statements (e.g., "How much personal obligation do you feel to drive faster than the speed limit?"). Those who purchased lead-free and those who purchased regular did not differ on their sense of personal obligation to engage in any of the behaviors save buying lead-free gasoline. Hence, the combined data are presented in Table 1. However, there is considerable difference between buyers and nonbuyers. For those who are observed to purchase lead-free gasoline, their personal norm is about as strong as the anti-jaywalking norm in our sample ($\chi^2_{df=2} = 5.55, .05 < p < .10$). The means for both variables are nearly the same (\bar{X} jaywalk = 3.56, \bar{X} lead-free = 3.57). Hence, for lead-free buyers a personal norm does exist, and this norm is about as strong as the anti-jaywalking norm, a weak but discernable norm, with over 78 percent of our sample feeling some obligation to comply. Those who did not buy lead-free gasoline appeared to be indifferent rather than opposed, with nearly 60 percent feeling no obligation either way.

The personal norm to purchase lead-free gasoline showed a substantial correlation with behavior. The single item reported in Table 1 had a zero-order correlation of .594 ($p < .0001$) with behavior, and the more general personal norm scale correlated .499. This is a much higher attitude-behavior correlation than is usually found in such studies (Wicker, 1969; Schwartz, 1974a, p. 22).

Of the three responsibility variables, the two dealing with responsibility for causing and reducing air pollution had significant zero-order correlations with the personal norm: $r = .147, p < .006$, and $r = .214, p < .0001$, respectively. The personality measure of AR was not related to the personal norm ($r = .036$, N.S.). Awareness of the environmental consequences of lead-free gasoline use was more strongly related to the personal norm ($r = .364, p < .0000$). These norm

activation variables, the personal norm and their joint effects on behavior are presented in Figure 3. Ascription of responsibility for causing air pollution is not significantly related to the personal norm once AC and AR for reducing air pollution are entered into the equation, and this variable is not shown in the path diagram in Figure 3. It can be seen that both AR and AC have a strong effect on the personal norm: $R^2 = .271$, $p < .0001$. In the case of lead-free purchase behavior, awareness of consequences and the personal norm both have a direct effect on behavior. These two variables jointly account for 27.6 percent of the variance in behavior. The personal norm has a more substantial effect than the awareness of consequences.

There also appeared to be some perceived social norm to purchase lead-free gasoline. As can be seen on Table 2, a majority of the lead-free buyers feel that their riders think buying lead-free is a good idea, know others who buy lead-free and believe others expect them to buy lead-free. The perceived social norm is stronger for lead-free buyers than for regular buyers.

As can be seen in Figure 4, the perceived social norm exerts a substantial effect on the strength of the personal norm. (We are ignoring here the important feedback between a personal norm and perceived social norm explored elsewhere by Black [1974].) Although the perceived social norm weakens the effect of the activation variables, they continue to have a significant effect on the norm and in the case of AC, on behavior. The perceived social norm also has an effect on behavior, net of personal norms. However, the inclusion of perceived social norm in the equation adds an additional 1.7 percent to the explained variance ($p < .004$). This sharply reduces the direct effect of the personal norm.

Discussion. Referring back to the research questions, the data appear to indicate the following. There is a personal norm to buy lead-free gasoline, particularly among lead-free buyers. This norm is weak but discernible, about as strong as the anti-jaywalking norm. This norm had a strong influence on observed behavior. The strength of the norm did co-vary with AR and AC, suggesting that the activation model is capable of accounting for the emergence of new norms as well as behavior consistent with established norms. AC seemed the more powerful of the two variables: not only did it have a more substantial direct effect on the norm, but it also affected behavior independent of the norm. There also appeared to be at least the rudiments of a perceived social norm for the purchase of lead-free. Again this was more clearly so for lead-free buyers. This norm had a strong influence on both the personal norm and on behavior, although it did not greatly increase the explained variance in behavior above and beyond the earlier models.

Energy Conservation

If the activation process is general, it should apply to a wide variety of both established and emergent norms. With the energy crisis, which began in late 1973, a new set of norms relating to environmental quality emerged. In this section of this paper we will look at the role both activation variables and perceived social norms played in the emergence and behavioral effect of an energy conservation norm.

In March, 1974, the Wisconsin Survey Research Laboratory conducted a small (N = 114) state-wide telephone survey for the Department of Sociology at the University of Wisconsin-Madison. The survey was designed and the data used by advanced graduate students in a research methodology course. The students who designed the questionnaire included several items concerning

personal and social norms. Because the survey was set up to test a number of hypotheses derived from a range of theories, we were not able to include the wide variety of multiple item indicators used in the previous studies. The findings are notable, however, because they replicate the major findings of the first two studies, in a broader population, and in reference to a third norm, energy conservation.

Because of the survey nature of the design, it was necessary to rely on behavioral reports rather than actual behavior observation recorded by the investigator. A number of open and closed ended questions were included in the questionnaire. These included general questions about energy saving and specific questions concerning the thermostat level and appliance use. Eleven behavior report items were correlated and the subsequent matrix was factor analyzed using a rescaling technique using squared multiple correlations (R^2) as communality estimates. A varimax rotation yielded three interpretable factors. Two items concerning gasoline consumption loaded together. One of these items and two others, one indicating the actual amount the individual had reduced his thermostat and a second indicating life style changes such as joining a car pool and walking to work, etc., formed a second factor. The third factor was most general. It included the single item, "Since the recent concern about energy supplies began, have you cut down the amount of energy you use?" (92% said yes); a mention of heat reduction in an open-ended question was the second variable; the third item loading on this factor was a closed-ended item concerning temperature reduction; and the fourth variable concerned household electricity consumption. These three factors accounted for 28 percent of the variance in the correlation matrix. The items on each factor were added together to make three factor based behavioral report scales.

The measure of personal norm was a single item similar to that used by Schwartz (1973) and the best item used in the personal norm scale in the lead-free study. The item asked, "How much personal obligation do you feel to conserve energy?" There were four response categories running from feel no obligation to feel strong obligation. (The negative response category, "feel some obligation to use more energy", was dropped because the interviewers felt some difficulty using it, although this category does not seem to cause difficulty on self-administered questionnaires.) Social norms were measured by two separate items which did not load together in a factor analysis of 21 belief and attitude questions. These were retained separately for analysis. One item assessed the approval or disapproval by significant others for the respondent's own energy consumption, which measures the external sanctioning character of social norms. The second item asks the respondent to indicate the behavioral compliance of these significant others, which measures the shared behavioral expectation component of the social norm.

Two items concerning consequences loaded on the same factor and were combined into an awareness of consequences measure. These items jointly covered the efficacy component and the interpersonal impact components of AC. One item indicated whether respondents felt their own conservation would help fuel supplies last longer, and the second if they felt reducing their own consumption would allow others to have sufficient supplies. Those who answered yes to both questions were considered high on AC.

Responsibility was measured a bit more obliquely. Respondents were asked four questions concerning causes for the energy crisis. Three of these dealt with sources outside the individual: the Arab-Israeli conflict, big oil companies, and the administration. The fourth question asked people to indicate

if the shortage was caused by "the way people like you and me use and consume energy." Respondents were asked to indicate if they felt this had a lot, a little, or nothing at all to do with the energy shortage. People who feel some personal responsibility for the energy crisis should be more likely to believe that their own actions caused the energy crisis.

Findings. The personal norm to conserve energy was substantial. Over 98 percent felt some personal obligation to conserve energy, although the omission of the anti-norm category makes exact comparison impossible. At the time it was measured in the midst of the energy crisis, it appeared to be nearly as strong as established norms such as stopping at stop signs, anti-littering and helping (See Table 1).

As is shown in Figure 5, awareness of consequences of one's own conservation behavior and ascription of personal responsibility for the energy shortage were important determinants of the personal norm to conserve energy. Jointly these variables accounted for 29 percent of the variance in the personal norm ($p < .0001$). As in the lead-free study, perceived social norms also had an impact on the personal norm. The addition of these two variables increased the explained variance by 9.1 percent ($p < .002$), as shown in Figure 6.

Behavior. The personal norm to save energy predicted one of the composite behavioral measures. This measure was the broadest of the three measures, including a general item about energy conservation as well as specific items about home heating and electricity consumption. The zero-order correlation was $r = .297$, $p < .002$. None of the variables which influence the personal norm have a direct influence on this behavior, as is shown in Figure 6. The acts of relevant others did have a significant zero-order correlation with the respondent's behavior ($r = .22$, $p < .01$). However, once personal norms were entered into the equation, the behavioral aspect of perceived social norms did

not significantly add to the prediction of reported action; hence, there is no direct arrow illustrated in Figure 6.

The personal norm predicts about 8.8 percent of the variance in behavior. (Wicker [1969] notes that few attitude behavior studies predict as much as 10 percent of the variance). One reason that a single variable does not predict strongly to behavior is that behavior is commonly assumed to be multiply determined. This is the case for reported energy conservation. Four additional variables increase the multiple correlation to .505 ($R^2 = .255$, $p < .0001$). Those people who hold anti-oil beliefs and those who classify themselves as Republicans are more likely to report conservation, while people who believe the government should run the oil companies and those who are more highly educated report less conservation. It should be noted that the inclusion of these additional variables does not wash out the effect of the personal norm. Personal norm has the strongest effect of all the independent variables. No other variables in the study added to the prediction of behavior.

The second behavioral measure concerning driving less and using less gas was not correlated with personal norms or any of the 40 other attitude or status variables in the study. The third measure indicating some lifestyle change to reduce energy consumption was correlated significantly with three of 40 possible independent variables. Social norms, both the anticipation of sanctions component and the behavioral component, were correlated with this measure ($r = .258$, $p < .005$ and $r = .242$, $p < .005$, respectively). It appears that social support is important before people will reduce their home temperature a large amount and join car pools or walk to work. Those people who did not vote in the last election were also more likely to take such actions ($r = .310$, $p < .001$).

Discussion. These data add additional support for the importance of sense of personal responsibility and an awareness of the consequences of one's action and the effects of these on others for the development of a personal norm. As in the lead-free study, we found here that a perceived social norm was also important for the generation of a personal conservation norm. This personal norm to conserve energy had an effect on behavior, although other factors influenced behavior as well. Because the personal norm was quite general (conserve energy vs. drive less, turn down your thermostat), it is not surprising that it failed to predict well to the more specific behavior reports. One explanation for the well-known failure of attitudes to predict behavior is that attitudes are measured at a very general level and used to predict specific behaviors. Elsewhere we have shown that as attitudes become more specific they become better predictors of specific behavior (see also Heberlein and Black, 1975; Wiegand, et al.; Wicker and Pomazal, etc.). These data may be interpreted in this same perspective; a general norm appears to predict better to a general composite behavior (or in this case behavioral report) than to specific behaviors.

It is interesting to note the differences between the lead-free and energy conservation models shown in Figures 4 and 6. The lead-free norm had only been adopted by a very small proportion of the population when we collected out data. It had no formal legal support in 1973 and had received rather little media coverage compared to the massive space allotted to the energy crisis prior to our 1974 survey. The energy conservation norm was also backed up by legal sanctions (a 55 mph speed limit, for example) and behavioral reinforcement of the crisis (e.g., lines at gasoline stations and increases in price for gasoline, electricity, and other forms of energy). All of these things

catapulted the energy conservation norm to the forefront. For a while it had endorsement rates similar to old established norms. We have for comparison here two emergent norms, one weak and the other strong. The differences in both the norms' influence on behavior and the effects of activation variables are striking.

In the case of a weak norm, lead-free, those very factors which activation theory says are necessary to create the emergence of the personal norm, continue to have an effect on behavior. Awareness of consequences and the perceived social norm have a direct influence. The norm appears not to have crystallized well enough to mediate the behavioral effects of all of its determinants. Some are still buying lead-free because of social pressures or solely because of their belief that it reduces air pollution. These beliefs have not yet been incorporated into that system of obligations and internal sanctions called personal norms.

Turning to the stronger energy conservation norm we see that these variables which account for the variations in the strength of the norm have no direct effect on behavior. In this case their effects appear to be entirely mediated by the personal norm itself. Here the norm has more fully crystallized and has incorporated the direct behavioral impacts of its precursors. In both the lead-free study and the energy conservation data these variables predict a substantial amount of the variance in personal norms, 43 percent of the variance in the case of lead-free and 38 percent in the case of the energy crisis. This suggests that it is not differing predictability of these mediators which eliminates the direct behavioral effects of AC and perceived social norms, but rather something else in the character of the personal norm.

Since the energy conservation norm is more widely and strongly endorsed, it might appear that it should be a better predictor to the individual's behavior than the lead-free norm. This is not the case in our data, and there is a very good reason for this. It is well known that a constant cannot predict (in a regression sense) a variable. As a norm becomes more widely endorsed across individuals in a social system, it acts more and more like a constant. What variation shows up on paper and pencil tests is likely to be random variation or measurement error. Thus, in a paradoxical sense as a norm grows stronger and becomes more uniformly endorsed, it predicts individual behavior less well. (This argument should not be confused for norm strength across social systems. This may vary considerably across these units and predict aggregate social behavior quite well.) Because of the random error associated with measuring an established social norm, we did not include a direct measure of the anti-littering norm in the initial study. Those measures of anti-littering attitudes, including the severity of punishment for littering and an evaluation of littering compared to other minor deviant acts, were not related to behavior. This is consistent with our discussion. It is in the case of a strong norm that other factors, as shown in Figure 7, predict the behavior either in place of or along with the norm.

In the lead-free data where the social norm is less well established and there is considerable variation in the degree to which people hold the personal norm we find a substantial correlation with behavior (over three times as much variance predicted). Here holding the norm is not uniform across individuals. Endorsement of the norm on a survey instrument is not a statement of cultural values, but rather a thoughtful representation of the individual's cognitive-motivational system. The behavioral implications of such a self-conscious

process are clear, and they may even influence the development and crystallization of the norm itself. In this case the variation measured has demonstrable behavioral implications, both theoretically and empirically.

This paper has been concerned with personal norms, their social psychological origins and their influence on behavior. The norms examined have been related to actions which may lead to improvements in environmental quality. Our interest has been focussed on the social psychological processes. Although I have used the term, I do not believe there is any unique environmental sociology, or social psychology. There is merely the science of sociology or social psychology applied to environmental problems. In such applications we can obtain more information to build and extend our theories; and by application of basic theory we can generalize from littering and lead-free gasoline to the broader and more basic issue of norms.

Finally, there may be some who feel I have not been true to activation theory, for in these three data sets I have represented AR and AC with a variety of operational definitions. I plead guilty to the fact; however, I think it rather strengthens the theory. A good theory should be robust to changes in operational definitions. Moreover, it should apply to a variety of populations and situations. This paper, I believe, shows the robustness of the theory, its applicability in both conformity to existing norms and the emergence of new norms. The theory was developed to account for pro-social behavior, specifically, interpersonal helping. It has now been extended to broader social issues of environmental quality.

*The relative & personal norms
be interpreted as having
mainly interpersonal
consequences*

Footnotes

¹This sampling procedure yields a disproportionate stratified sample where the sampling fraction for observed litterers is 1.0 and for nonlitterers is .008, should one wish to describe the population who accepted handbills. Since we are interested only in comparing litterers and nonlitterers, rather than describing the population, our analysis does not reflect these weights.

²To assess the reactivity of the interview content itself on subsequent questionnaire responses, ten litterers and ten nonlitterers were given a placebo interview which concerned only recreation behavior and included no items about littering. Every fifth litterer and nonlitterer was given a placebo interview.

³Those who were aware of consequences on both measures received a four and those who were not received a one. Those who were aware of general, but not specific, consequences were coded three and those who were aware of specific, but not general, consequences were coded two.

⁴The path coefficients presented in the figures are standardized regression coefficients. Because AR and AC are operationalized differently in the three data sets, the standardized coefficients are presented to facilitate comparisons across studies.

⁵We would like to thank these dealers, and the Standard Oil Company of Indiana, the only company which marketed lead-free gasoline in Wisconsin in the Spring of 1973, for their cooperation.

Table 1

Behaviors	Personal Obligation To Engage in Behavior			
	Feel Some Obligation Not To	Feel No Obligation Either Way	Feel Weak, Some or Strong Obligation To	Mean ^a Obligation
Stop at stop signs	1.6 (5)	.7 (2)	97.7 (296)	4.80
Not litter	1.0 ^b (3)	1.6 (5)	97.4 (295)	4.65
Help other people in trouble	.7 (2)	3.6 (11)	95.7 (290)	4.05
Turn off electric lights when not in use	1.0 (3)	6.6 (20)	92.4 (280)	4.17
Not jaywalk	2.0 ^b (6)	19.5 (59)	78.5 (238)	3.56
Purchase lead-free gasoline--				
Lead-free buyers (N = 149)	.7 (1)	25.2 (37)	74.1 (109)	3.57
Regular Buyers (N = 156)	8.3 (13)	59.6 (93)	32.1 (50)	2.34
Drive faster than the speed limit	44.6 (135)	34.6 (105)	20.8 (63)	1.84
Talk to a stranger in a movie theater	38.6 (117)	51.8 (157)	9.6 (29)	1.75

^aWhere feel some obligation not to = 1, feel no obligation either way = 2. Feel weak obligation to = 3, feel some obligation to = 4, feel strong obligation to = 5.

^bThese were not asked in the double negative format as implied by the row and column titles. Rather people were asked if they felt some obligation to jaywalk.

Table 2
Perceived Social Norm to Buy Lead-Free Gasoline

Item on Social Norm Scale	Percent Responding Affirmatively	
	Lead-Free N=147	Regular N=156
Reaction of person who most often rides with you		
1. Thinks buying lead-free is a good idea	93.1% (137)	64.1% (100)
2. Would express approval if you bought lead-free	23.8% (35)	9.6% (15)
Belief that friends and neighbors feel an obligation to purchase lead-free	27.8% (41)	13.4% (21)
Personal knowledge of at least one other person who buys lead-free	51.7% (76)	34.6% (54)
Belief that there is some expectation by others to purchase lead-free	55.7% (82)	42.9% (67)

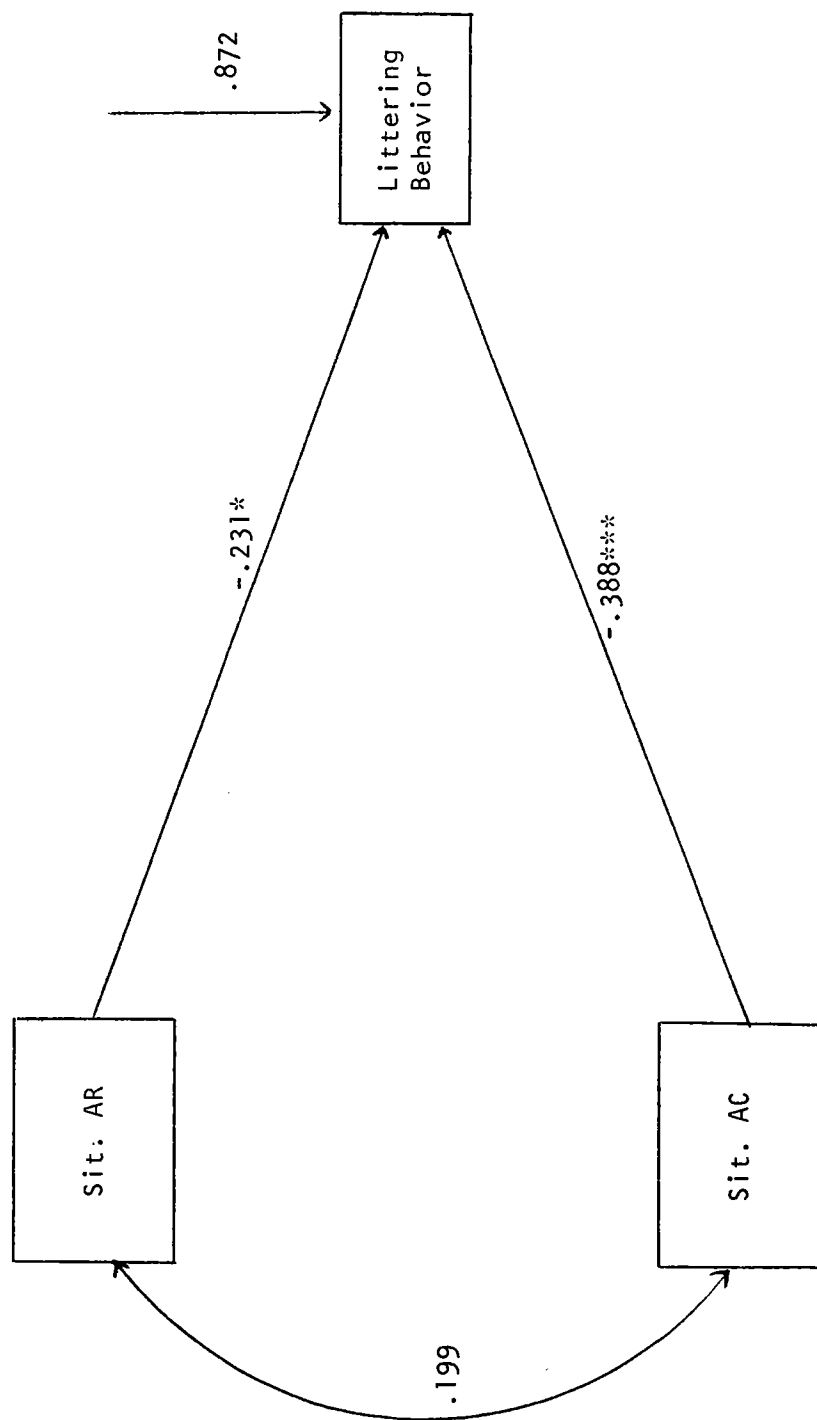


Figure 1. The Effect of Situational Ascription of Responsibility and Situational Awareness of Consequences on Littering Behavior

* $p < .05$

*** $p < .001$

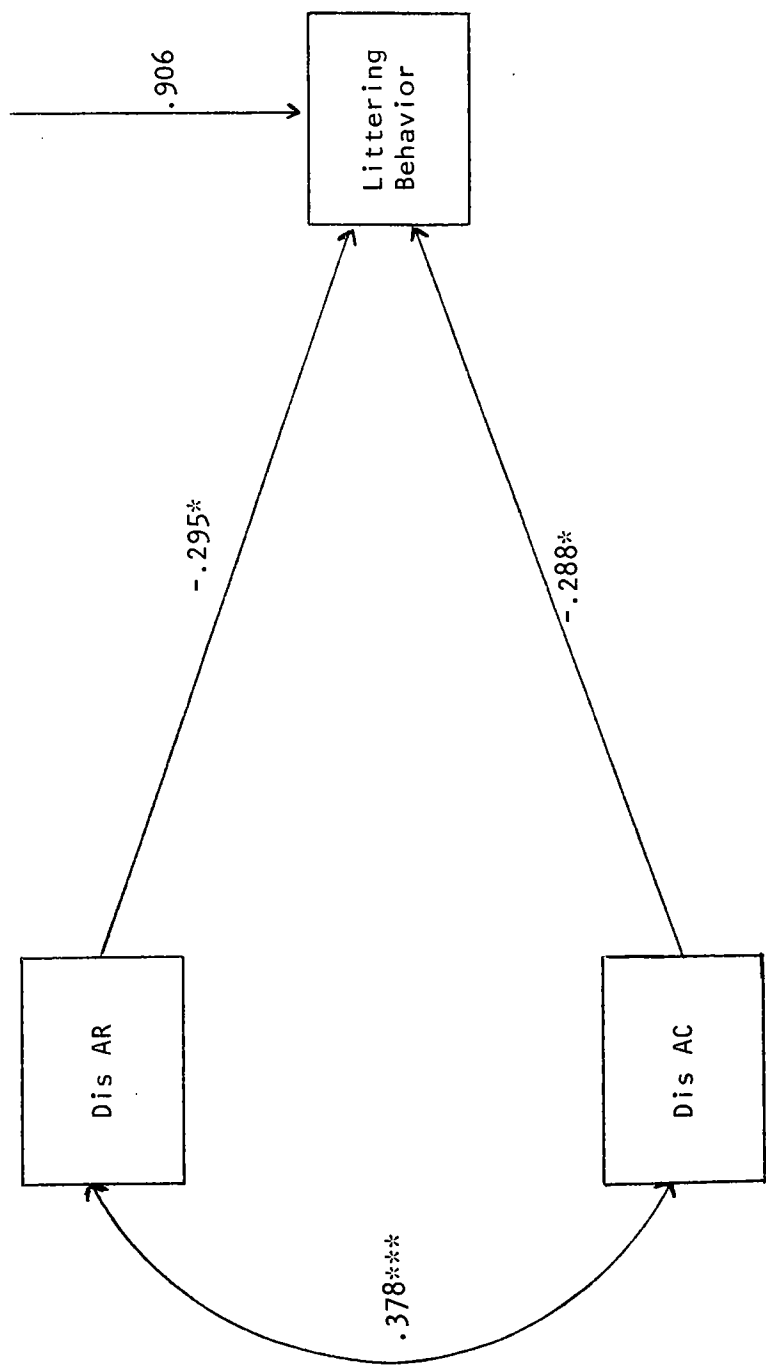


Figure 2. The Effect of Dispositional Ascription of Responsibility and Awareness of Consequences on Littering Behavior.

*p < .05

***p < .001

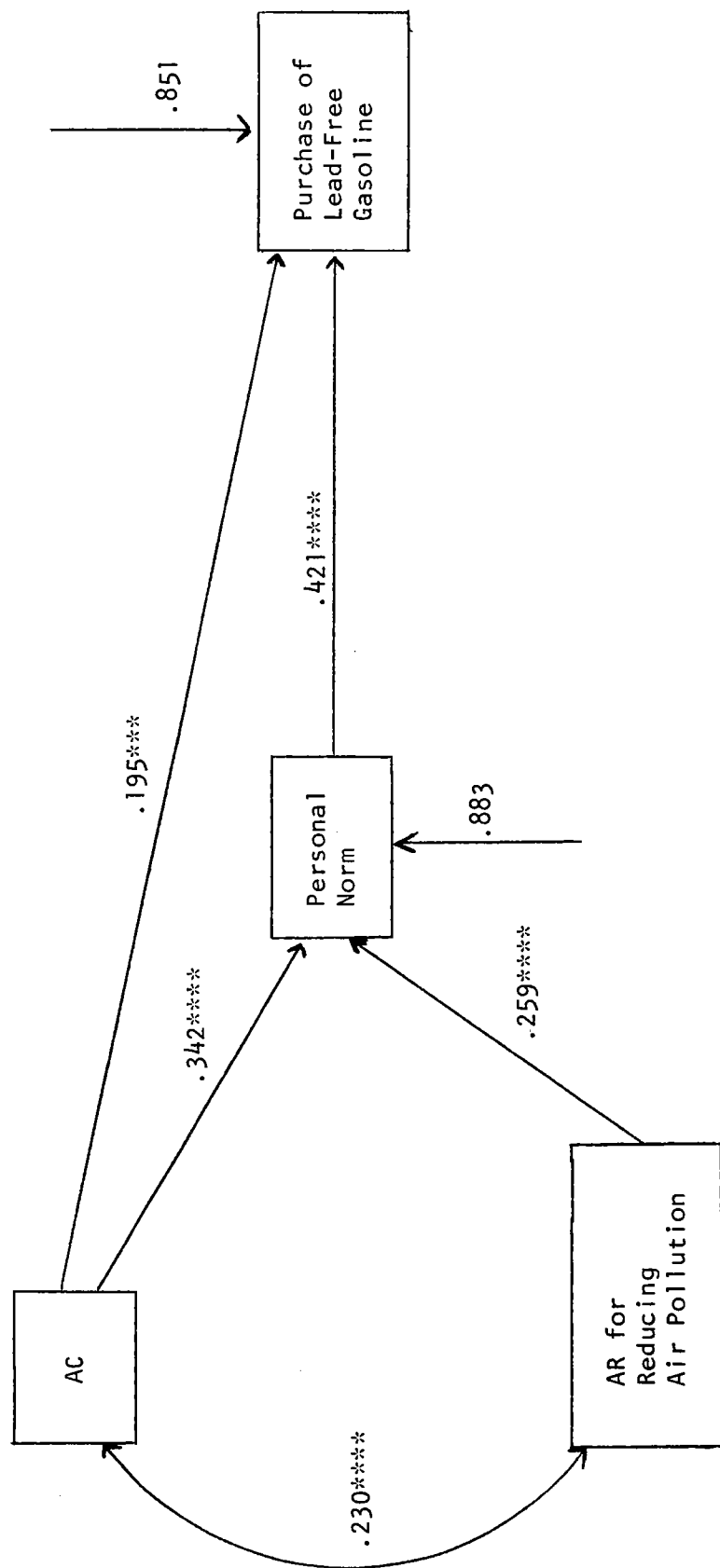


Figure 3. Personal Norm, Ascription of Responsibility, Awareness of Consequences and the Purchase of Lead-free Gasoline.

** $p < .01$
 *** $p < .001$
 **** $p < .0001$

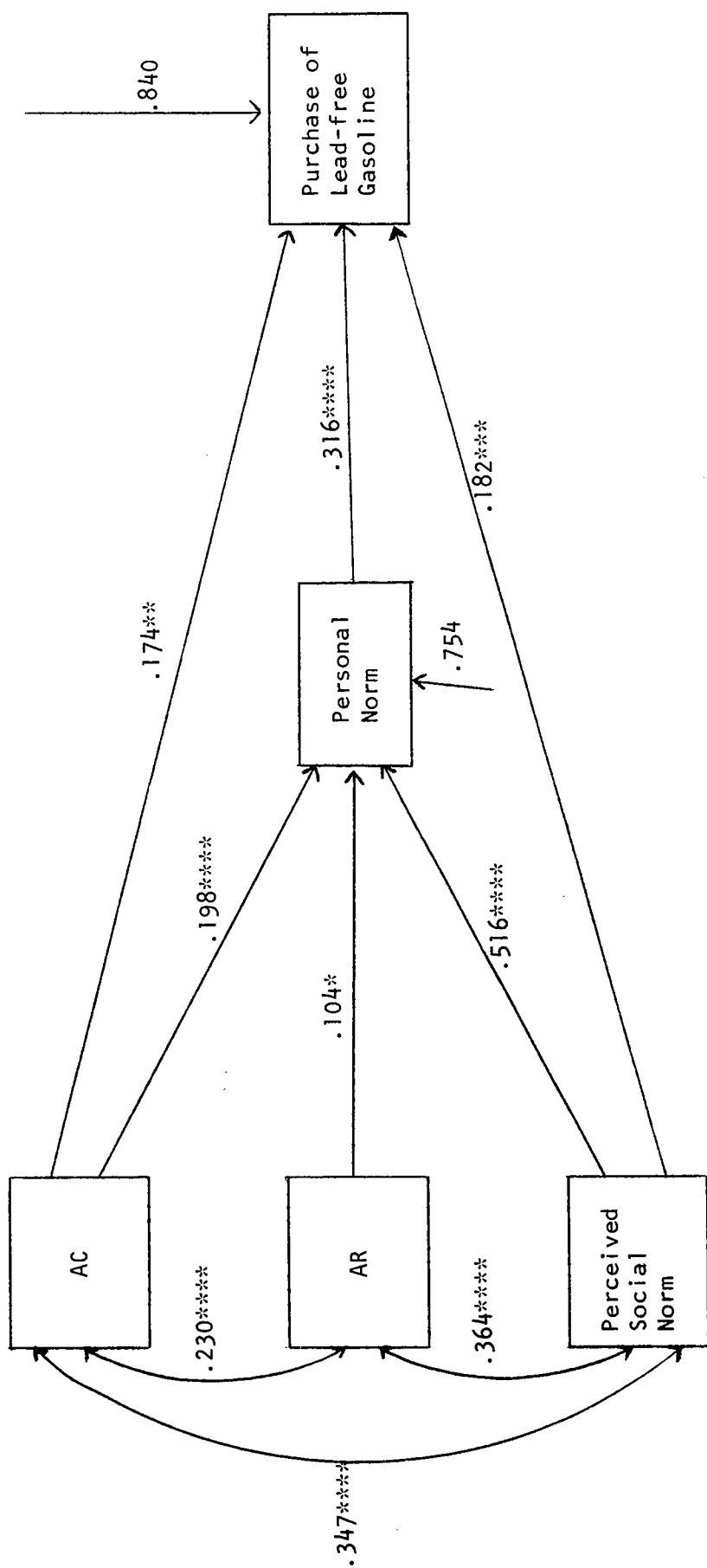


Figure 4. The Role of A Perceived Social Norm and Activation Variables On A Personal Norm to Purchase Lead-free Gasoline.

*p < .05
 **p < .01
 ***p < .001
 ****p < .0001

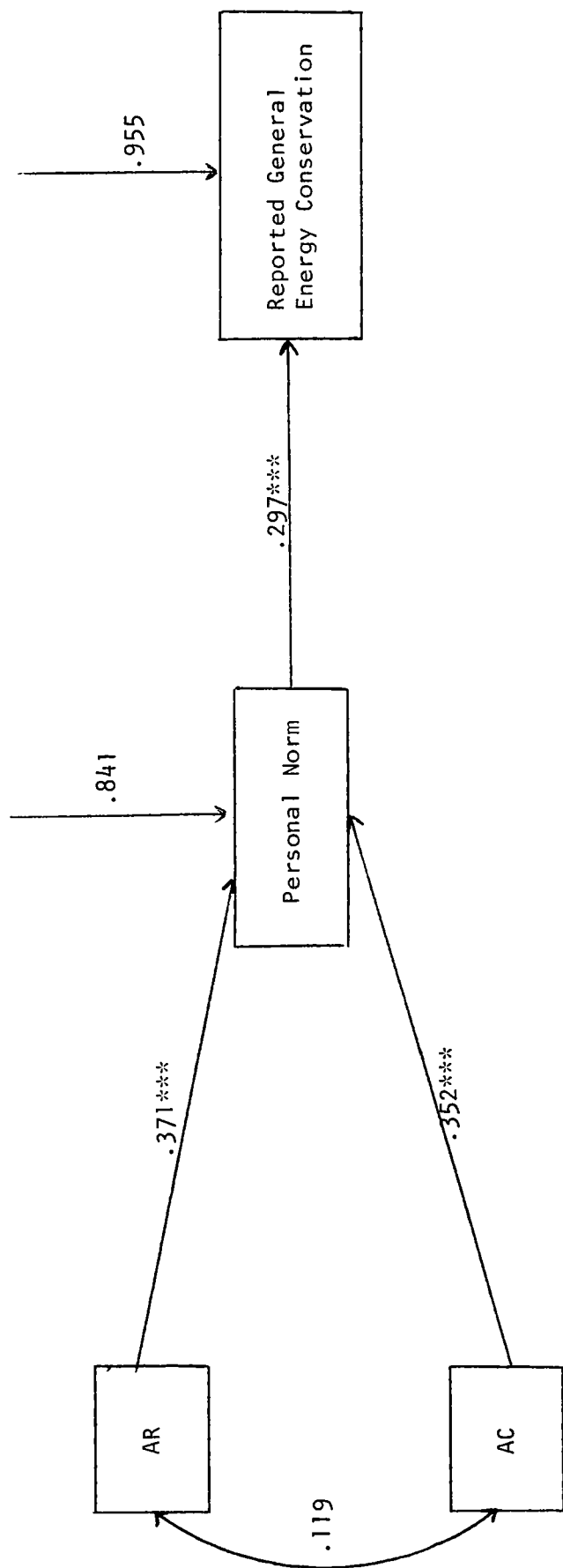


Figure 5. Personal Norm, Ascription of Responsibility, Awareness of Consequences and Conservation Behavior.

***p < .001

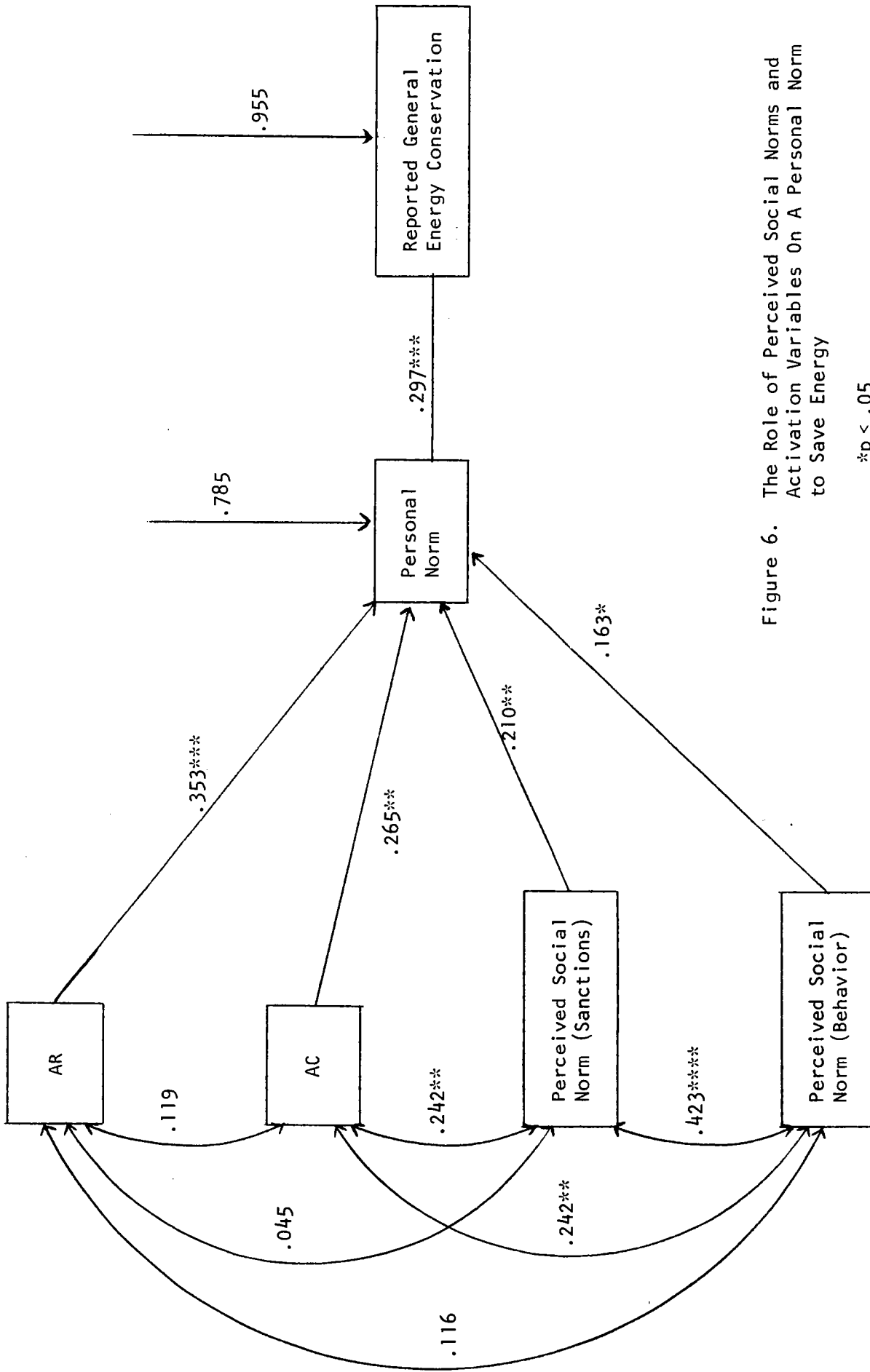
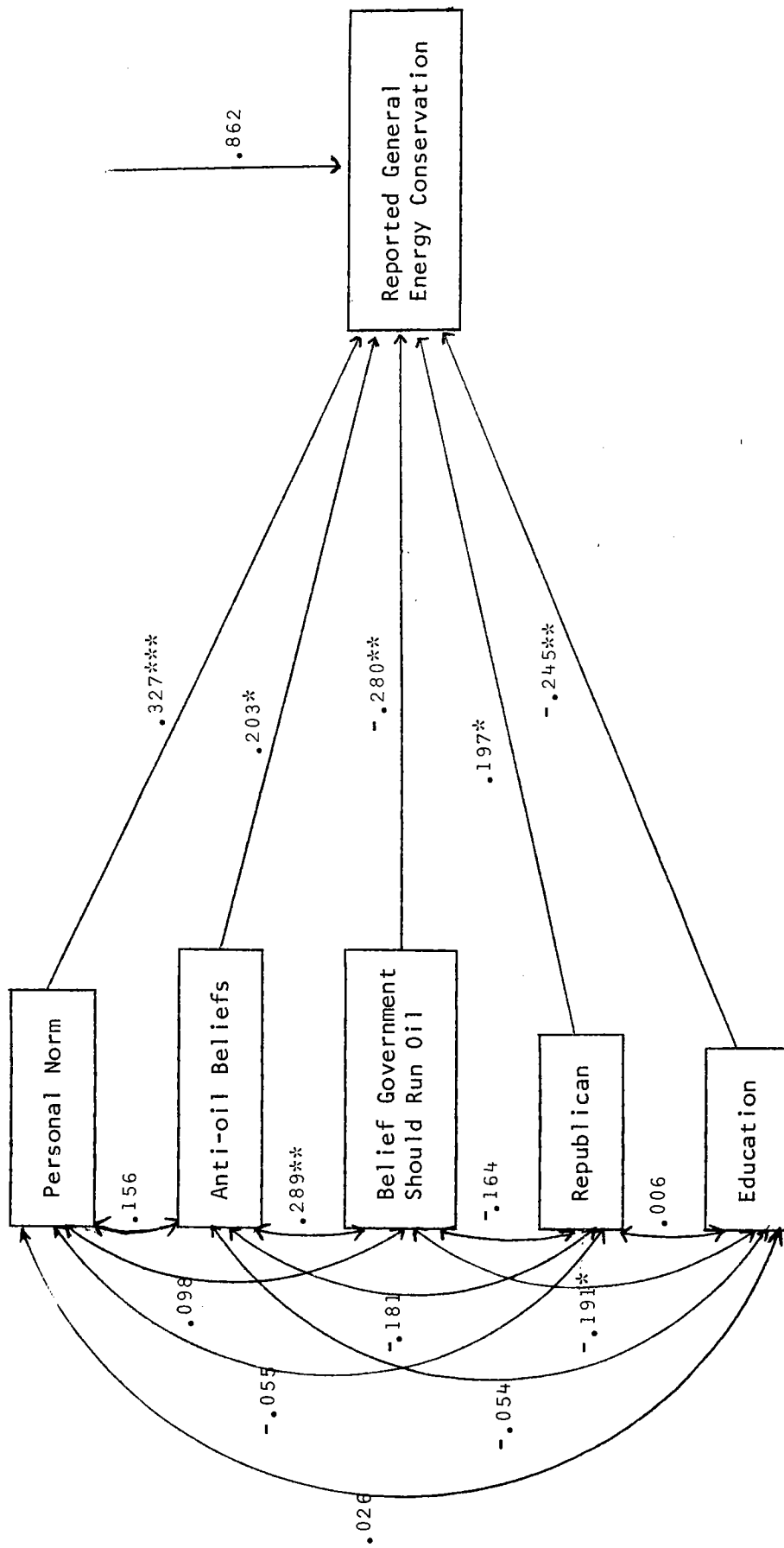


Figure 6. The Role of Perceived Social Norms and Activation Variables On A Personal Norm to Save Energy

*p < .05
 **p < .01
 ***p < .001
 ****p < .0001



*p < .05
 **p < .01
 ***p < .001

Figure 7. Variables Predicting General Conservation Behavior.

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